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# INTERNATIONAL BUILDING CODE – MEANS OF EGRESS

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## E1-07/08, Part II

1001.1; (IFC [B] 1001.1)

THIS CODE CHANGE WILL BE HEARD ON THE IFC PORTION OF THE HEARING ORDER.

**NOTE: PART I DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART I IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART II.**

*Proposed Change as Submitted:*

**Proponent:** Bill Conner, Bill Conner Associates

### PART II – IFC

**Revise as follows:**

**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. The provisions of this chapter shall control the design, construction and arrangement of all means of egress components. Sections 1003 through 1026 shall apply to new construction. Section 1027 and 1028 shall apply to existing buildings.

**Exception:** Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height with a separate means of egress and their accessory structures shall comply with the *International Residential Code*.

**Reason:** There are two proposals – one for each side of the coin. The purpose is to clarify if non-required building components are required to comply with the requirements in this chapter. Based on my experiences, there is broad disagreement among building officials on this. The Code currently is moot on the issue and interpretations vary significantly. The reason to include it is to give clear guidance to officials and designers on whether or not a non-required component has to meet the same design requirements and have the same features as if the component were required. E1-07/08 last cycle proposed one option. Either a change as proposed above or amending this proposal to the opposite (see other proposal to this section), solves the problem.

**Cost Impact:** The code change proposal will not increase the cost of construction.

### PART II – IFC

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** The committee agreed that all exits, including non-required exits, should comply with the minimum requirements of Chapter 10.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part II.**

*Public Comment:*

**Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Disapproval.**

**Commenter's Reason:** This proposal had two parts, one to the IBC and one to the IFC. The IBC portion was disapproved by the IBC MOE committee, and the IFC portion was approved by the IFC Committee. The resulting difference between the two codes could be read that the Fire Code more broadly regulates egress components than does the Building Code. This is unacceptable.

E1 and E2 were two attempts by the same proponent to clarify a concern of theirs: whether the I-codes regulate ANY means of egress component, or only REQUIRED means of egress components. The result does not appear to answer the proponents question; it raises a separate question.

It would not be appropriate for the Building Code to be silent on whether non-required egress components are regulated, and have the Fire Code state specifically that such components are regulated.

Final Action: AS AM AMPC\_\_\_\_ D

**NOTE: PART I REPRODUCED FOR INFORMATIONAL PURPOSES ONLY – SEE ABOVE**

**PART I – IBC MEANS OF EGRESS**

Revise as follows:

**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. The provisions of this chapter shall control the design, construction and arrangement of all means of egress components.

**Reason:** Same as Part II – See above.

**PART I – IBC MEANS OF EGRESS**

**Committee Action:**

**Disapproved**

**Committee Reason:** The proposed language is too general. In addition, it would allow stairways and other building elements to not meet the life safety requirements that they should meet (e.g., Sections 1003.6 and 1008.1).

**Assembly Action:**

**None**

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**E3-07/08**  
**1001.4 (New)**

*Proposed Change as Submitted:*

**Proponent:** David Fable, US General Services Administration

**Add new text as follows:**

**1001.4 Fire safety and evacuation plans:** Fire safety and evacuation plans shall be provided for all occupancies and buildings where required by the *International Fire Code*. Such fire safety and evacuation plans shall comply with the applicable provisions of Section 404 of the *International Fire Code*.

**Reason:** The purpose of this code change proposal is to provide consistent requirements for jurisdictions regarding requirements for fire safety and evacuation plans. We feel fire safety and evacuation plans are important issues that impact occupant egress during an emergency and therefore meets the intent of the IBC and needs to be addressed. In addition, many jurisdictions across the country currently have adopted the IBC, however many of these same jurisdictions have not adopted the IFC. This reference will ensure that at least the fire safety and evacuation plans of the IFC are adopted by reference. Enforcement of the provisions is not an issue. The provisions are clearly within the scope of the IFC.

**Cost Impact:** The code change proposal will not increase the cost of construction.

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** The reference to Section 404 in the *International Fire Code* would result in consistency between jurisdictions in the application of Fire and Safety Evacuation Plans. This is an important part of the means of egress system.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**Jonathon D. Hamrick, Florida Department of Education, requests Disapproval.**

**Commenter's Reason:** The *International Fire Code* has not been adopted by all states. This change imposes on a state a code which the state has purposely not adopted. Some states have adopted the *International Fire Code* while others have adopted the National Fire Prevention Association family of fire codes. This change conflicts directly with Florida laws.

*Public Comment 2:*

**Michael Vieira, Wildan, representing Sacramento Valley Association of Building Officials (SVABO), requests Disapproval.**

**Commenter's Reason:** Fire Safety and Evacuation plans are documents that require annual maintenance and are required to include a number of provisions not a part of the building codes. Minor changes in building use or changes in business procedures can trigger a modification to the Fire Safety and Evacuation Plan that would not trigger a building permit. Additionally, building department personnel typically are only trained to apply Chapter 10 means of egress requirements and do not have the training or expertise to evaluate all of the other important aspects of an adequate Fire Safety and Evacuation Plan—putting the review of the plan in the building code would in fact create the false impression that building department approval of plans would indicate that the required Fire Safety and Evacuation Plan is completely adequate and correct. This is clearly within the purview of the Fire official. While there needs to be communication between Building and Fire officials for new construction activity, there is no need for revised fire and evacuation plans required by the Fire Code to be reviewed by the Building official.

Final Action: AS AM AMPC\_\_\_\_ D

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## E14-07/08, Part I

1003.7 (IFC [B] 1003.7), 3008 (New); IFC 903.3.1.1.1 (IBC [F] 903.3.1.1.1)

*Proposed Change as Submitted:*

**Proponent:** David W Frable, US General Services Administration, Gerald H Jones, representing himself

### PART I – IBC MEANS OF EGRESS

#### 1. Revise as follows:

**1003.7 (IFC [B] 1003.7) Elevators, escalators and moving walks.** Elevators, escalators and moving walks shall not be used as a component of a required means of egress from any other part of the building.

#### Exceptions:

1. Elevators used as an accessible means of egress in accordance with Section 1007.4.
2. Elevators when designed in accordance with Section 3008 for use as general egress as approved by the building official.

#### 2. Add new text as follows:

### **SECTION 3008** **OCCUPANT EVACUATION ELEVATORS.**

**3008.1 General.** Elevators arranged in accordance with this section shall be permitted to be used for occupant egress in fires and other emergencies.

**3008.2 Operation.** The occupant evacuation elevators shall be used for occupant-controlled evacuation only in the normal elevator operating mode prior to Phase I Emergency Recall Operation in accordance with the requirements in ASME A17.1.

**3008.3 New egress capacity.** The total required capacity of the exit stairs on each floor can be reduced by not more than 50% where occupant evacuation elevators are provided. The amount of reduction of the required capacity of the exit stairs shall be determined by an approved egress analysis that demonstrates that the total egress time for occupants using the combination of evacuation elevators and exit stairs is not more than the total egress time for occupants only using the required exit stairs.

**3008.4 Number of Occupant Evacuation Elevators.** Each accessible floor that is one or more stories above or below the level of exit discharge shall be provided with a minimum of one bank or group of occupant evacuation elevators. All elevators within that bank or group of elevators, other than the fire service access elevators installed in accordance with Section 3007, shall be occupant evacuation elevators.

**3008.5 Fire safety and evacuation plan.** The building shall have an approved fire safety and evacuation plan in accordance with the applicable requirements of Section 404 of the International Fire Code. The subject fire safety and evacuation plan shall incorporate specific procedures for the occupants using evacuation elevators and exit stairs.

**3008.6 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 907.2.12.2.

**3008.6.1 Notification appliances.** A minimum of one audible and one visible notification appliance shall be installed within each occupant evacuation elevator lobby.

**3008.7 Automatic sprinkler system.** The building shall be protected throughout by an approved, electrically-supervised automatic sprinkler system in accordance with Section 903.3.1.1, except as otherwise permitted by Section 903.3.1.1.1.

**3008.7.1 Sprinkler system monitoring.** The sprinkler system shall have a sprinkler control valve and water flow device provided for each floor that is monitored by the building's emergency voice/alarm communication system.

**3008.8 High hazard content areas.** No building areas shall contain high hazard contents exceeding the maximum allowable quantities per control area as addressed in Section 414.2.

**3008.9 Shunt breakers.** Shunt breakers shall not be installed on elevator systems used for occupant evacuation elevators.

**3008.10 Hoistway enclosure protection.** The occupant evacuation elevators shall be located in a shaft enclosure complying with Section 707.

**3008.11 Water protection.** The occupant evacuation elevator hoistway and associated elevator landings shall be designed by an approved method to prevent water from infiltrating into the shaft enclosure from the operation of the automatic sprinkler system or firefighting activities.

**3008.12 Occupant evacuation elevator lobby.** The occupant evacuation elevators shall open into an elevator lobby in accordance with Sections 3008.12.1 through 3008.12.5.

**3008.12.1 Access.** The occupant evacuation elevator lobby shall have direct access to an exit enclosure.

**3008.12.2 Lobby enclosure.** The occupant evacuation elevator lobby shall be enclosed with a smoke barrier having a minimum 1-hour fire-resistance rating, except that lobby doorways shall comply with Section 3008.12.3.

**Exception:** Enclosed occupant evacuation elevator lobbies are not required at the street floor.

**3008.12.2.1 Lobby construction materials.** The construction materials of the lobby enclosure shall have a minimum classification level 2 rating in accordance with the requirements of ASTM C1629/C1629M.

**3008.12.3 Lobby doorways.** Each occupant evacuation elevator lobby shall be provided with a doorway that is protected with a 3/4-hour fire door assembly complying with Section 715.4.

**3008.12.3.1 Vision panel.** A vision panel shall be installed in each fire door assembly protecting the lobby doorway. The vision panel shall consist of fire protection-rated glazing and located to furnish clear vision of the occupant evacuation elevator lobby.

**3008.12.3.2 Door closing.** Each fire door assembly protecting the lobby doorway shall be automatic closing upon receipt of any fire alarm signal from the emergency voice/alarm communication system serving the building.

**3008.12.4 Lobby size.** Each occupant evacuation elevator lobby shall have minimum floor area as follows:

1. The occupant evacuation elevator lobby floor area shall accommodate, at 3 ft<sup>2</sup> (0.28 m<sup>2</sup>) per person, a minimum of 25 percent of the occupant load of the floor area served by the lobby.
2. The occupant evacuation elevator lobby floor area also shall accommodate one wheelchair space of 30 in. by 48 in. (760 mm by 1220 mm) for each 50 persons, or portion thereof, of the occupant load of the floor area served by the lobby.

**3008.12.5 Lobby status indicator.** Each occupant evacuation elevator lobby shall be equipped with a status indicator arranged to display the following information:

1. A green light and the message, "Elevators available for occupant evacuation".
2. A yellow light and the message, "Elevators operating under fire department control to assist occupants with disabilities".

3. A red light and the message, "Elevators out of service, use exit stairs".

**3008.13 Two-way communication system.** Each occupant evacuation elevator car and elevator lobby shall be provided with a two-way communication system for communication between each elevator car and landing and the fire command center or a central control point location approved by the fire department. The two-way communication system shall include both audible and visible signals.

**3008.13.1 Directions.** Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system, and written identification of the location, shall be posted adjacent to the two-way communication system.

**3008.14 Standpipe hose connection.** A Class I standpipe hose connection in accordance with Section 905 shall be provided in the exit enclosure having direct access from the occupant evacuation elevators lobby.

**3008.15 Elevator system monitoring.** The occupant evacuation elevators shall be continuously monitored at the fire command center or a central control point approved by the fire department by a standard emergency service interface system meeting the requirements of NFPA 72 and arranged to display the following information:

1. Floor location of each elevator car.
2. Direction of travel of each elevator car.
3. Status of each elevator car with respect to whether it is occupied.
4. Status of normal power to the elevator equipment, elevator controller cooling equipment, and elevator machine room ventilation and cooling equipment.
5. Status of standby power to the elevator equipment, elevator controller cooling equipment, and elevator machine room ventilation and cooling equipment.
6. Activation of any fire alarm initiating device in any elevator hoistway (if provided), elevator lobby, or elevator machine room.
7. Occurrence of an impending over temperature condition (IOT) condition within the elevator controllers.

**3008.15.1 Elevator system over-ride.** The fire command center or a central control point approved by the fire department shall be provided with the means to override normal elevator operation and to initiate manually a Phase I Emergency Recall of the occupant evacuation elevators in accordance with ASME A17.1.

**3008.16 Electrical power.** The following features serving each occupant evacuation elevators shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator machine room ventilation and cooling equipment.
3. Elevator controller cooling equipment.

**3008.16.1 Protection of wiring or cables.** Wires or cables that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to fire service access elevators shall be protected by construction having a minimum 1-hour fire-resistance rating or shall be circuit integrity cable having a minimum 1-hour fire-resistance rating.

**Reason:** The use of elevators for occupant egress is a significant change that will have many impacts in regulation and in building design. This proposal is intended to introduce requirements for the arrangement and design of protected elevators for occupant egress into the code without mandating them anywhere. The result would be that they can be used where approved and justified through an engineering analysis. This is no different than acceptance through a variance or performance approach as currently permitted under the code. The difference is that the requirements included in this section provide guidance on safe implementation. The inclusion of this information in the code will permit code officials and designers to develop a comfort level with the technology and to facilitate improvements to the requirements in the Code and referenced technical standards.

The current concept is being addressed by the ASME A17 Task Group on Use of Elevator for Occupant Egress the Occupant evacuation elevators that will incorporate a special evacuation protocol that will be specified in ASME A17.1. While not currently finalized, it is likely to involve the immediate evacuation of the fire floor and two floors above and below the fire floor, then awaiting a decision by the Incident Commander of whether to initiate a full building evacuation. The protocol would be terminated by the activation of Phase I recall as currently required. This protocol requires that the system recognize the floor of origin to begin the process. This would probably be initiated by the (required) sprinkler system if it is arranged to indicate sprinkler flow by floor.

For the record, GSA is committed to this endeavor and been funding research at the National Institute of Standards & Technology (NIST) for the past several years for the development of performance requirements for the use of elevators for occupant egress during a fire emergency prior to Phase I Emergency Recall. GSA has also been participating in the ASME A17 Task Groups on Use of Elevators by Firefighters and Use of Elevator for Occupant Egress regarding this subject matter.

### **Item # 1**

1. RE: 1003.7 - This paragraph provides new code requirement that permits the use of elevators for general egress if approved by the building official.

### **Item # 2**

(Major Issues)

1. RE: 3008 – This paragraph provides new Section of requirements that permits the use of elevators for general egress if approved by the building official.
2. RE: 3008.2 – This paragraph permits occupants to use elevators during a fire emergency prior to Phase I Emergency Recall Operation.
3. RE: 3008.3 – This paragraph permits the building official to reduce capacity of exit stairs. Experience in Asia (Taipei 101 and Petronas Towers) with egress systems that combine elevators and exit stairs has demonstrated in drills that occupant evacuation elevators can provide a safe means of egress in emergencies including fires for all occupants (including those with disabilities) and represent the only means of timely egress for occupants of very tall buildings. Where elevators are the primary means of egress in emergencies it is reasonable that the exit stair capacity can be reduced, while maintaining at least two exit stairs of adequate width and remoteness. It should be permitted to reduce stair capacity as long as the total egress time is shown by a proper egress analysis not to increase over that provided by the exit stairs alone.
4. RE: 3008.12.2 - This paragraph addresses the enclosure requirements for the lobby. A smoke barrier is the appropriate reference since it is designed to resist fire and smoke spread and is intended to create an area of refuge. The new exception addresses the need for not requiring an enclosed lobby on the street floor.
5. RE: 3008.12.2.1 – This paragraph addresses a minimum impact resistance rating for the construction materials of the lobby enclosure.
6. RE: 3008.12.4 - This paragraph addresses a minimum floor area for a lobby based on occupant load factors. Information based on current elevator lobby capacity requirements for towers in the National Fire Protection Association, Life Safety Code.
7. RE: 3008.12.5 – This paragraph addresses information that will be displayed within the occupant evacuation elevator lobby
8. RE: 3008.13 – This paragraph addresses the two-way communication system to be provided between each elevator car and landing and the fire command center or a central control point location.
9. RE: 3008.14 – This paragraph addresses requirements for a standpipe hose connection in non-required or additional exit stairways.
10. RE: 3008.15 – This paragraph addresses the minimum information to be displayed within the fire command center or a central control point location for monitoring the occupant evacuation elevators.
11. RE: 3008.15.1 - This paragraph addresses requirements for the fire command center or a central control point approved by the fire department be provided with the means to override normal elevator operation and to initiate manually a Phase I Emergency Recall of the occupant evacuation elevators in accordance with ASME A17.1.

### **Item # 3**

1. RE 903.3.1.1.1 - This new exception permits automatic sprinkler protection to be exempt in occupant evacuation machine rooms and machinery spaces.

**Cost Impact:** The code change proposal will increase the cost of construction.

## **PART I – IBC MEANS OF EGRESS**

### **Committee Action:**

**Disapproved**

**Committee Reason:** Occupant evacuation elevators are a good idea that needs to be moved forward very soon; however, further development is needed for this proposal. The reduction in exit capacity is a grave concern if the elevators have lost power or have gone into Phase I recall. The committee sponsored by ASME A17.1 has not completed their hazard analysis – this information needs to be incorporated. The method to keep water out of the elevator system must be detailed. The number of elevators and travel distance must be included in the requirements. Exit enclosures may need further investigation. Section 3008.12.2 for lobby enclosure requires a smoke barrier which is in conflict with Section 707.14.1 which requires a fire partition. Having this as a voluntary system is a good idea.

### **Assembly Action:**

**None**

### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted for Part I.**

#### *Public Comment 1:*

**Brian Black, BDBlack Codes, Inc., representing National Elevator Industry, requests Approval as Modified by this public comment.**

**Jack J. Murphy, representing Fire Safety Directors Association of Greater New York, requests Approval as Modified by this public comment.**

**John J. O'Donoghue, representing International Association of Fire Fighters, requests Approval as Modified by this public comment.**

#### **Modify proposal as follows:**

**1003.7 (IFC [B] 1003.7) Elevators, escalators and moving walks.** Elevators, escalators and moving walks shall not be used as a component of a required means of egress from any other part of the building.

**Exceptions:**

1. Elevators used as an accessible means of egress in accordance with Section 1007.4.
2. ~~Elevators when designed in accordance with Section 3008 for use as general egress as approved by the building official.~~

403.19 Occupant evacuation elevators. Where installed in accordance with Section 3008, passenger elevators for general public use shall be permitted to be used for occupant self evacuation.

**SECTION 3008  
OCCUPANT EVACUATION ELEVATORS**

~~3008.1 General.~~ Elevators arranged in accordance with this section shall be permitted to be used for occupant egress in fires and other emergencies. Where elevators are to be used for occupant self evacuation during fires, all passenger elevators for general public use shall comply with this section. Where other elevators are used for occupant self evacuation, they shall also comply with this section.

~~3008.5~~ **3008.2 Fire safety and evacuation plan.** The building shall have an approved fire safety and evacuation plan in accordance with the applicable requirements of Section 404 of the *International Fire Code*. The ~~subject~~ fire safety and evacuation plan shall incorporate specific procedures for the occupants using evacuation elevators ~~and exit stairs~~.

~~3008.3~~ **3008.3 New egress capacity.** The total required capacity of the exit stairs on each floor can be reduced by not more than 50% where occupant evacuation elevators are provided. The amount of reduction of the required capacity of the exit stairs shall be determined by an approved egress analysis that demonstrates that the total egress time for occupants using the combination of evacuation elevators and exit stairs is not more than the total egress time for occupants only using the required exit stairs.

~~3008.2~~ **3008.3 Operation.** The occupant evacuation elevators shall be used for occupant-controlled self evacuation only in the normal elevator operating mode prior to Phase I Emergency Recall Operation in accordance with the requirements in ASME A17.1/CSA B44 and the building's fire safety and evacuation plan.

~~3008.4~~ **3008.4 Number of Occupant Evacuation Elevators.** Each accessible floor that is one or more stories above or below the level of exit discharge shall be provided with a minimum of one bank or group of occupant evacuation elevators. All elevators within that bank or group of elevators, other than the fire service access elevators installed in accordance with Section 3007, shall be occupant evacuation elevators.

~~3008.6~~ **3008.4 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 907.2.12.2.

~~3008.6.1~~ **3008.4.1 Notification appliances.** A minimum of one audible and one visible notification appliance shall be installed within each occupant evacuation elevator lobby.

~~3008.7~~ **3008.5 Automatic sprinkler system.** The building shall be protected throughout by an approved, electrically supervised automatic sprinkler system in accordance with Section 903.3.1.1, except as otherwise permitted by Section 903.3.1.1.1 and as prohibited by 3008.5.1.

**3008.5.1 Prohibited locations.** Automatic sprinklers shall not be installed in elevator machine rooms and elevator machine spaces for occupant evacuation elevators.

~~3008.7.1~~ **3008.5.2 Sprinkler system monitoring.** The sprinkler system shall have a sprinkler control valve supervisory switch and water flow initiating device provided for each floor that is monitored by the building's ~~emergency voice/alarm communication~~ fire alarm system.

~~3008.8~~ **3008.6 High hazard content areas.** No building areas shall contain high hazard contents exceeding the maximum allowable quantities per control area as addressed in Section 414.2.

~~3008.9~~ **3008.7 Shunt trip breakers.** ~~Shunt breakers~~ Means for elevator shut down in accordance with Section 3006.5 shall not be installed on elevator systems used for occupant evacuation elevators.

~~3008.10~~ **3008.8 Hoistway enclosure protection.** The occupant evacuation elevators shall be located in a ~~shaft~~ hoistway enclosure(s) complying with Section 707.

~~3008.11~~ **3008.9 Water protection.** The occupant evacuation elevator hoistway ~~and associated elevator landings~~ shall be designed by utilizing an approved method to prevent water from the operation of the automatic sprinkler system from infiltrating into the ~~shaft~~ hoistway enclosure ~~from the operation of the automatic sprinkler system or firefighting activities~~.

~~3008.12~~ **3008.10 Occupant evacuation elevator lobby.** The occupant evacuation elevators shall open into an elevator lobby in accordance with Sections ~~3008.12.1~~ 3008.10.1 through ~~3008.12.5~~ 3008.10.5.

~~3008.12.1~~ **3008.10.1 Access.** The occupant evacuation elevator lobby shall have direct access to an exit enclosure.

~~3008.12.2~~ **3008.10.2 Lobby enclosure.** The occupant evacuation elevator lobby shall be enclosed with a smoke barrier having a minimum 1-hour fire-resistance rating, except that lobby doorways shall comply with Section ~~3008.12.3~~ 3008.10.3.

**Exception:** Enclosed occupant evacuation elevator lobbies are not required at the ~~street floor~~ level(s) of exit discharge.

~~3008.12.2.1~~ **3008.10.2.1 Lobby construction materials.** The construction materials of the lobby enclosure shall have a minimum classification level 2-rating in accordance with the requirements of ASTM C1629/C1629M.

~~3008.12.3~~ **3008.10.3 Lobby doorways.** Each occupant evacuation elevator lobby shall be provided with a doorway that is protected with a 3/4-hour fire door assembly complying with Section 715.4.

~~3008.12.3.1~~ **3008.10.3.1 Vision panel.** A vision panel shall be installed in each fire door assembly protecting the lobby doorway. The vision panel shall consist of fire protection-rated glazing and located to furnish clear vision of the occupant evacuation elevator lobby.

~~3008.12.3.2~~ **3008.10.3.2 Door closing.** Each fire door assembly protecting the lobby doorway shall be automatic closing upon receipt of any fire alarm signal from the emergency voice/alarm communication system serving the building.

~~3008.12.4~~ **3008.10.4 Lobby size.** Each occupant evacuation elevator lobby shall have minimum floor area as follows:

1. The occupant evacuation elevator lobby floor area shall accommodate, at 3 ft<sup>2</sup> (0.28 m<sup>2</sup>) per person, a minimum of 25 percent of the occupant load of the floor area served by the lobby.
2. The occupant evacuation elevator lobby floor area also shall accommodate one wheelchair space of 30 inch by 48 inch (760 mm by 1220 mm) for each 50 persons, or portion thereof, of the occupant load of the floor area served by the lobby.

**Exception:** The size of lobbies serving multiple banks of elevators shall have the minimum floor area approved on an individual basis and shall be consistent with the building's fire safety and evacuation plan.

~~3008.10.5~~ **Signage.** An approved sign indicating elevators are suitable for occupant self evacuation shall be posted on all floors adjacent to each elevator call station serving occupant evacuation elevators.

~~3008.12.5~~ **Lobby status indicator.** Each occupant evacuation elevator lobby shall be equipped with a status indicator arranged to display the following information:

1. ~~A green light and the message, "Elevators available for occupant evacuation".~~
2. ~~A yellow light and the message, "Elevators operating under fire department control to assist occupants with disabilities".~~
3. ~~A red light and the message, "Elevators out of service, use exit stairs".~~

~~3008.13~~ **3008.11 Two-way communication system.** A two-way communication station shall be provided in each occupant evacuation elevator lobby for the purpose of initiating communication with the fire command center or an alternate location approved by the fire department. Each occupant evacuation elevator car and elevator lobby shall be provided with a two-way communication system for communication between each elevator car and landing and the fire command center or a central control point location approved by the fire department. The two-way communication system shall include both audible and visible signals.

~~3008.11.1~~ **Design and Installation.** The two-way communication system shall include audible and visible signals and shall be designed and installed in accordance with the requirements in Section 1007.6.3 and ICC A117.1.

~~3008.11.2~~ **Instructions.** Instructions for the use of the two-way communication system along with the location of the station shall be permanently located adjacent to each station. Signage shall be in accordance with ICC A117.1.

~~3008.13.1~~ **Directions.** Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system, and written identification of the location, shall be posted adjacent to the two-way communication system.

~~3008.14~~ **Standpipe hose connection.** A Class I standpipe hose connection in accordance with Section 905 shall be provided in the exit enclosure having direct access from the occupant evacuation elevators lobby.

~~3008.15~~ **3008.12 Elevator system monitoring.** The occupant evacuation elevators shall be continuously monitored at the fire command center or a central control point approved by the fire department ~~by a standard emergency service interface system meeting the requirements of NFPA 72 and arranged to display the following information:~~

1. Floor location of each elevator car.
2. Direction of travel of each elevator car.
3. Status of each elevator car with respect to whether it is occupied.
4. Status of normal power to the elevator equipment, elevator controller cooling equipment, and elevator machine room ventilation and cooling equipment.
5. Status of standby or emergency power system that provides backup power to the elevator equipment, elevator controller cooling equipment, and elevator machine room ventilation and cooling equipment.
6. Activation of any fire alarm initiating device in any elevator hoistway (if provided), elevator lobby, or elevator machine room or machine space, or elevator hoistway.
7. ~~Occurrence of an impending over temperature condition (IOT) condition within the elevator controllers.~~

~~3008.15.4~~ **3008.12.1 Elevator recall system over-ride.** The fire command center or a central control point an alternate location approved by the fire department shall be provided with the means to override normal elevator operation and to initiate manually initiate a Phase I Emergency Recall of the occupant evacuation elevators in accordance with ASME A17.1/CSA B44.

~~3008.16~~ **3008.13 Electrical power.** The following features serving each occupant evacuation elevators shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator machine room ventilation and cooling equipment.
3. Elevator controller cooling equipment.

~~3008.16.4~~ **3008.13.1 Protection of wiring or cables.** Wires or cables that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to fire service access elevators shall be protected by construction having a minimum 1-hour fire-resistance rating or shall be circuit integrity cable having a minimum 1-hour fire-resistance rating.



**3002.3 Emergency signs.** An approved pictorial sign of a standardized design shall be posted adjacent to each elevator call station on all floors instructing occupants to use the exit stairways and not to use the elevators in case of fire. The sign shall read: IN FIRE EMERGENCY, DO NOT USE ELEVATOR. USE EXIT STAIRS. ~~The emergency sign shall not be required for elevators that are part of an accessible means of egress complying with Section 1007.4.~~

**Exceptions:**

1. The emergency sign shall not be required for elevators that are part of an accessible means of egress complying with Section 1007.4.
2. The emergency sign shall not be required for elevators that are used for occupant self evacuation in accordance with Section 3008.

**Commenters' Reason:** The National Elevator Industry, Inc. (NEII) and International Association of Fire Fighters (IAFF) opposed the proposed code change E14-07/08 at the ICC Public Hearings in February 2008. As participants in the ASME A17 Task Group on the Use of Elevators for Occupant Evacuation, we shared the concerns of the Means of Egress Committee that including Occupant Evacuation Elevators in a building design should not result in a reduction in exit capacity, that the number of elevators required should be clarified, and that including Occupant Evacuation Elevator systems should be voluntary. Most importantly, we agreed that any proposal should include the most recent work of the ASME A17 Task Group.

This amended version of E14-07/08 reflects the work of the Task Group as of its most recent meeting in May 2008 and includes significant contributions from the US General Services Administration, the original proponent of the code change. We concur with the Means of Egress Committee and those who urged approval of E14-07/08 that "occupant evacuation elevators are a good idea that needs to be moved forward very soon", and urge the voting membership to approve this amended code change. Reasons for the specific amendments shown are as follows:

**1003.7 Elevators, escalators and moving walks.** Occupant evacuation elevators are not presently considered a component of a required means of egress.

**403.19 Occupant evacuation elevators.** This new paragraph was added to clarify which elevators are permitted to be used for occupant-self evacuation. It also addresses the Means of Egress Code Committee's request that occupant evacuation elevators are a voluntary option for architects to consider when designing tall buildings. The new material creates a trigger that can allow voluntary installation of occupant evacuation elevators and points the reader to the appropriate section for the requirements. There is presently no other trigger relating to occupant evacuation elevators in the code.

**3008.1 General** Revisions clarify that all the passenger elevators for general public use complying with section 3008 are to be used for occupant-self evacuation during fires. In order for successful implementation of occupant evacuation elevators, all passenger elevators for general public use must be available for use during this time frame.

**3008.2 Fire safety and evacuation plan.** This paragraph was revised for clarification purposes. Exit stairs are covered elsewhere in the building fire safety and evacuation plan **New egress capacity**. This paragraph was deleted based on concerns raised by the Means of Egress Code Committee. The concept of reduction in egress capacity has not had sufficient technical review at this time.

**3008.3 (new) Operation.** This paragraph was revised for clarification purposes. Number of Occupant Evacuation Elevators. This paragraph was deleted based on the revised text in Section 3008.1 General.

**3008.5 Automatic Sprinkler System.** This paragraph was revised to reference 3008.5.1.

**3008.5.1 Prohibited locations.** This paragraph was revised for clarification purposes only and to be with consistent with proposed requirements in 903.3.1.1.1, Item 6 in IFC. Clarifies that sprinklers shall not be installed in elevator machine rooms and elevator machine spaces for occupant evacuation elevators.

**3008.5.2 Sprinkler system monitoring.** This paragraph was revised for clarification purposes only.

**3008.7 Shunt trip.** Revised to use correct terminology.

**3008.8 Hoistway Enclosure Protection.** Revised to use correct terminology.

**3008.9 Water protection.** This paragraph was revised for clarification purposes. The revisions addresses the concerns of several members of the Committee as well as others that performance based language is preferred over prescriptive language to permit alternative design options. Recommended design options best suited to be provided in commentary. Also, revised to use correct terminology.

**3008.10 Lobby enclosure.** No revisions were made to this section since there is no conflict regarding the lobby enclosure for occupant evacuation elevators and the elevator lobby requirements in Section 707.14.1 for non-occupant evacuation elevators. A smoke barrier is the appropriate reference since it is designed to resist fire and smoke spread and is intended to create an area for occupants to stage prior to using the elevators for evacuation. Lobby construction materials. This paragraph was deleted based on concerns from individuals that the level 2 rating requirements in ASTM C1629/C1629M only applies to gypsum type materials and not concrete.

**3008.10.3.2 Door closing.** This paragraph was revised for clarification purposes only.

**3008.10.5 Signage.** This new paragraph was added to ensure proper signage is posted on all floors informing occupants that the elevators are suitable for occupant-self evacuation.

**3008.10.6 Lobby status indicator.** Item 2 was deleted based on concerns that the fire department may use these elevators for other purposes then only to assist occupants with disabilities.

**3008.11 Two-way communication.** This paragraph was revised for clarification purposes only.

**Standpipe hose connection.** This paragraph was deleted because it was determined that the need for a standpipe hose connection in the exit stair serving the occupant evacuation elevator lobby is not a critical element in the protection scheme for the occupants using the elevators for evacuation. In addition, installation of the standpipe hose connection will not increase the overall safety of occupants using the elevators for evacuation in the subject elevator lobby. Such standpipes serve a greater purpose for fire fighters and are already addressed in the provisions for Fire Service Access Elevators.

**3008.12 Elevator system monitoring.** This paragraph was revised for clarification purposes only.

**3008.12.1 Interface Display.** This paragraph was revised for clarification purposes only.

**3008.12.2 Elevator recall.** This paragraph was revised for clarification purposes only.

**3002.3 Emergency signs.** This paragraph was revised for clarification purposes only. Ensures the standard emergency sign is not installed on elevator landings for elevators that are used for occupant-self evacuation in Section 3008.

**3002.3** Without this exception to the "Do not use elevators" sign, a conflict would exist.

Public Comment 2:

**Dave Frable, U.S. General Services Administration, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1003.7 (IFC [B] 1003.7) Elevators, escalators and moving walks.** Elevators, escalators and moving walks shall not be used as a component of a required means of egress from any other part of the building.

**Exceptions:**

4. Elevators used as an accessible means of egress in accordance with Section 1007.4.
2. ~~Elevators when designed in accordance with Section 3008 for use as general egress as approved by the building official.~~

**403.19 Occupant evacuation elevators.** Where installed in accordance with Section 3008, passenger elevators for general public use shall be permitted to be used for occupant self evacuation.

**SECTION 3008  
OCCUPANT EVACUATION ELEVATORS.**

**3008.1 General.** ~~Elevators arranged in accordance with this section shall be permitted to be used for occupant egress in fires and other emergencies. Where elevators are to be used for occupant self evacuation during fires, all passenger elevators for general public use shall comply with this Section. Where other elevators are used for occupant self evacuation, they shall also comply with this Section.~~

**3008.5 3008.2 Fire safety and evacuation plan.** The building shall have an approved fire safety and evacuation plan in accordance with the applicable requirements of Section 404 of the International Fire Code. The ~~subject~~ fire safety and evacuation plan shall incorporate specific procedures for the occupants using evacuation elevators ~~and exit stairs.~~

**3008.3 New egress capacity.** ~~The total required capacity of the exit stairs on each floor can be reduced by not more than 50% where occupant evacuation elevators are provided. The amount of reduction of the required capacity of the exit stairs shall be determined by an approved egress analysis that demonstrates that the total egress time for occupants using the combination of evacuation elevators and exit stairs is not more than the total egress time for occupants only using the required exit stairs.~~

**3008.2 3008.3 Operation.** The occupant evacuation elevators shall be used for occupant ~~controlled~~ self evacuation only in the normal elevator operating mode prior to Phase I Emergency Recall Operation in accordance with the requirements in ASME A17.1/CSA B44 and the building's fire safety and evacuation plan.

**3008.4 Number of Occupant Evacuation Elevators.** ~~Each accessible floor that is one or more stories above or below the level of exit discharge shall be provided with a minimum of one bank or group of occupant evacuation elevators. All elevators within that bank or group of elevators, other than the fire service access elevators installed in accordance with Section 3007, shall be occupant evacuation elevators.~~

**3008.6 3008.4 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 907.2.12.2.

**3008.6.4 3008.4.1 Notification appliances.** A minimum of one audible and one visible notification appliance shall be installed within each occupant evacuation elevator lobby.

**3008.7 3008.5 Automatic sprinkler system.** The building shall be protected throughout by an approved, electrically-supervised automatic sprinkler system in accordance with Section 903.3.1.1, except as otherwise permitted by Section 903.3.1.1.1 and as prohibited by 3008.5.1.

**3008.5.1 Prohibited locations.** Automatic sprinklers shall not be installed in elevator machine rooms and elevator machine spaces for occupant evacuation elevators.

**3008.7.4 3008.5.2 Sprinkler system monitoring.** The sprinkler system shall have a sprinkler control valve supervisory switch and water flow initiating device provided for each floor that is monitored by the building's ~~emergency voice/alarm communication~~ fire alarm system.

**3008.8 3008.6 High hazard content areas.** No building areas shall contain high hazard contents exceeding the maximum allowable quantities per control area as addressed in Section 414.2.

**3008.9 3008.7 Shunt trip breakers.** ~~Shunt breakers~~ Means for elevator shut down in accordance with Section 3006.5 shall not be installed on elevator systems used for occupant evacuation elevators.

**3008.10 3008.8 Hoistway enclosure protection.** The occupant evacuation elevators shall be located in a ~~shaft~~ hoistway enclosure(s) complying with Section 707.

**3008.14 3008.9 Water protection.** The occupant evacuation elevator hoistway ~~and associated elevator landings~~ shall be designed by utilizing an approved method to prevent water from the operation of the automatic sprinkler system from infiltrating into the ~~shaft hoistway enclosure from the operation of the automatic sprinkler system or firefighting activities.~~

**3008.12 3008.10 Occupant evacuation elevator lobby.** The occupant evacuation elevators shall open into an elevator lobby in accordance with Sections 3008.42 ~~10.1~~ through 3008.42 ~~510.4~~.

**3008.12.4 3008.10.1 Access.** The occupant evacuation elevator lobby shall have direct access to an exit enclosure.

~~3008.12.2~~ **3008.10.2 Lobby enclosure.** The occupant evacuation elevator lobby shall be enclosed with a smoke barrier having a minimum 1-hour fire-resistance rating, except that lobby doorways shall comply with Section 3008.4210.3.

**Exception:** Enclosed occupant evacuation elevator lobbies are not required at the ~~street floor~~ level(s) of exit discharge.

~~3008.12.2.1~~ **Lobby construction materials.** The construction materials of the lobby enclosure shall have a minimum classification level 2-rating in accordance with the requirements of ASTM C4629/C4629M.

~~3008.12.3~~ **3008.10.3 Lobby doorways.** Each occupant evacuation elevator lobby shall be provided with a doorway that is protected with a 3/4-hour fire door assembly complying with Section 715.4.

~~3008.12.3.1~~ **3008.10.3.1 Vision panel.** A vision panel shall be installed in each fire door assembly protecting the lobby doorway. The vision panel shall consist of fire protection-rated glazing and located to furnish clear vision of the occupant evacuation elevator lobby.

~~3008.12.3.2~~ **3008.10.3.2 Door closing.** Each fire door assembly protecting the lobby doorway shall be automatic closing upon receipt of any fire alarm signal from the emergency voice/alarm communication system serving the building.

~~3008.12.4~~ **3008.10.4 Lobby size.** Each occupant evacuation elevator lobby shall have minimum floor area as follows:

1. The occupant evacuation elevator lobby floor area shall accommodate, at 3 ft<sup>2</sup> (0.28 m<sup>2</sup>) per person, a minimum of 25 percent of the occupant load of the floor area served by the lobby.
2. The occupant evacuation elevator lobby floor area also shall accommodate one wheelchair space of 30 inch by 48 inch (760 mm by 1220 mm) for each 50 persons, or portion thereof, of the occupant load of the floor area served by the lobby.

**Exception:** The size of lobbies serving multiple banks of elevators shall have the minimum floor area approved on an individual basis and shall be consistent with the building's fire safety and evacuation plan.

**3008.10.5 Signage.** An approved sign indicating elevators are suitable for occupant self evacuation shall be posted on all floors adjacent to each elevator call station serving occupant evacuation elevators.

~~3008.12.5~~ **3008.11 Lobby status indicator.** Each occupant evacuation elevator lobby shall be equipped with a status indicator arranged to display the following information:

1. An illuminated green light and the message, "Elevators available for occupant evacuation" when the elevators are operating in normal service and the fire alarm system is indicating an alarm in the building.
- ~~2. A yellow light and the message, "Elevators operating under fire department control to assist occupants with disabilities".~~
- ~~2.3. An illuminated red light and the message, "Elevators out of service, use exit stairs" when the elevators are in Phase I emergency recall operation in accordance with the requirements in ASME A17.1/CSA B44.~~
3. No illuminated light or message when the elevators are operating in normal service.

~~3008.13~~ **3008.12 Two-way communication system.** A two-way communication system shall be provided in each occupant evacuation elevator lobby for the purpose of initiating communication with the fire command center or an alternate location approved by the fire department. Each occupant evacuation elevator car and elevator lobby shall be provided with a two-way communication system for communication between each elevator car and landing and the fire command center or a central control point location approved by the fire department. The two-way communication system shall include both audible and visible signals.

**3008.12.1 Design and Installation.** The two-way communication system shall include audible and visible signals and shall be designed and installed in accordance with the requirements in ICC A117.1.

**3008.12.2 Instructions.** Instructions for the use of the two-way communication system along with the location of the station shall be permanently located adjacent to each station. Signage shall comply with the ICC A117.1 requirements for visual characters.

~~3008.13.1~~ **Directions.** Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system, and written identification of the location, shall be posted adjacent to the two-way communication system.

**3008.14 Standpipe hose connection.** A Class I standpipe hose connection in accordance with Section 905 shall be provided in the exit enclosure having direct access from the occupant evacuation elevators lobby.

~~3008.15~~ **3008.13 Elevator system monitoring.** The occupant evacuation elevators shall be continuously monitored at the fire command center or a central control point approved by the fire department ~~by a standard emergency service interface system meeting the requirements of NFPA 72 and arranged to display the following information:~~

1. Floor location of each elevator car.
2. Direction of travel of each elevator car.
3. Status of each elevator car with respect to whether it is occupied.
4. Status of normal power to the elevator equipment, elevator controller cooling equipment, and elevator machine room ventilation and cooling equipment.
5. Status of standby or emergency power system that provides backup power to the elevator equipment, elevator controller cooling equipment, and elevator machine room ventilation and cooling equipment.
6. Activation of any fire alarm initiating device in any elevator ~~hoistway (if provided), elevator lobby, or elevator machine room or machine space, or elevator hoistway.~~
- ~~7. Occurrence of an impending over-temperature condition (IOT) condition within the elevator controllers.~~

~~3008.15.4~~ **3008.13.1 Elevator recall system over-ride.** The fire command center or a central control point an alternate location approved by the fire department shall be provided with the means to ~~override normal elevator operation and to initiate manually initiate~~ a Phase I Emergency Recall of the occupant evacuation elevators in accordance with ASME A17.1/CSA B44.

**3008.16 3008.14 Electrical power.** The following features serving each occupant evacuation elevators shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator machine room ventilation and cooling equipment.
3. Elevator controller cooling equipment.

**3008.16.4 3008.14.1 Protection of wiring or cables.** Wires or cables that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to fire service access elevators shall be protected by construction having a minimum 1-hour fire-resistance rating or shall be circuit integrity cable having a minimum 1-hour fire-resistance rating.

**3002.3 Emergency signs.** An approved pictorial sign of a standardized design shall be posted adjacent to each elevator call station on all floors instructing occupants to use the exit stairways and not to use the elevators in case of fire. The sign shall read: IN FIRE EMERGENCY, DO NOT USE ELEVATOR. USE EXIT STAIRS. ~~The emergency sign shall not be required for elevators that are part of an accessible means of egress complying with Section 1007.4.~~

#### Exceptions.

1. The emergency sign shall not be required for elevators that are part of an accessible means of egress complying with Section 1007.4.
2. The emergency sign shall not be required for elevators that are used for occupant self evacuation in accordance with Section 3008.

Commenter's Reason: As the proponent of the original code change proposal, I submit this comment to request the membership support the subject revised code change. The proposed code change is a by-product of research currently being conducted by the National Institute of Standards and Technology (NIST) and funded by the U.S. General Services Administration. Overall, the Means of Egress Code Committee stated they were in favor of the code change proposal but disapproved the code change proposal based on a number of issues. The purpose of this modified code change is to address the major issues raised by the Means of Egress Code Committee and participants at the hearing in Palm Springs, CA.

1. **1003.7 Elevators, escalators and moving walks.** The existing paragraph was not revised. The use of elevators for general egress from the building is not being considered at this time.
2. **403.19 Occupant evacuation elevators.** This new paragraph was added to clarify which elevators are permitted to be used for occupant-self evacuation. It also addresses the Means of Egress Code Committee's request that occupant evacuation elevators are a voluntary option for architects to consider when designing tall buildings. The new material creates a trigger that can allow voluntary installation of occupant evacuation elevators and points the reader to the appropriate section for the requirements.
3. **3008.1 General.** This paragraph was revised for clarification purposes. Revisions clarify that all the passenger elevators for general public use complying with section 3008 are to be used for occupant-self evacuation during fires. In order for successful implementation of occupant evacuation elevators, all passenger elevators for general public use must be available for use during this time frame.
4. **3008.2 Fire safety and evacuation plan.** This paragraph was revised for clarification purposes.
5. **New egress capacity.** This paragraph was deleted based on concerns raised by the Means of Egress Code Committee. The concept of reduction in egress capacity has not had sufficient technical review at this time.
6. **3008.3 Operation.** This paragraph was revised for clarification purposes.
7. **Number of Occupant Evacuation Elevators.** This paragraph was deleted based on the revised text in Section 3008.1 General.
8. **3008.5 Automatic Sprinkler System.** This paragraph was revised to reference 3008.5.1.
9. **3008.5.1 Prohibited locations.** This paragraph was revised for clarification purposes and to be with consistent with proposed requirements in 903.3.1.1.1, Item 6 in IFC. Revision emphasizes that sprinklers shall not be installed in elevator machine rooms and elevator machine spaces for occupant evacuation elevators.
10. **3008.5.2 Sprinkler system monitoring.** This paragraph was revised for clarification purposes.
11. **3008.7 Shunt trip.** Revised to use correct terminology.
12. **3008.8 Hoistway Enclosure Protection.** Revised to use correct terminology.
13. **3008.9 Water protection.** This paragraph was revised for clarification purposes. The revisions addresses the concerns of several members of the Committee as well as others that performance based language is preferred over prescriptive language to permit alternative design options. Recommended design options best suited to be provided in commentary. Also, this section was revised to use correct terminology.
14. **3008.10 Occupant evacuation elevator lobby.** This paragraph was revised for clarification purposes.
15. **3008.10.2 Lobby enclosure.** No revisions were made to this section since there is no conflict regarding the lobby enclosure for occupant evacuation elevators and the elevator lobby requirements in Section 707.14.1 for non-occupant evacuation elevators. A smoke barrier is the appropriate reference since it is designed to resist fire and smoke spread and is intended to create an area for occupants to stage prior to using the elevators for evacuation.
  - a. **Exception.** The exception was revised for clarification purposes. The term "street floor" is used in the Code is not a defined term in the Code. The term "level of exit discharge" is defined in the Code and seems the more appropriate term to use.
16. **Lobby construction materials.** This paragraph was deleted based on concerns from individuals that the level 2 rating requirements in ASTM C1629/C1629M only applies to gypsum type materials and not concrete.
17. **3008.10.4 Lobby size.** This paragraph was revised for clarification purposes. The new exception provides performance based language for determining the size of occupant evacuation lobbies serving multiple banks of elevators on the same or from multiple floors.
18. **3008.10.5 Signage.** This new paragraph was added to ensure proper signage is posted on all floors informing occupants that the elevators are suitable for occupant-self evacuation.
19. **3008.10.6 Lobby status indicator.** This paragraph was revised for clarification purposes. Item 2 was deleted based on concerns that the fire department may use these elevators for other purposes then only to assist occupants with disabilities.
20. **3008.12 Two-way communication.** This paragraph was revised for clarification purposes.
21. **3008.12.1 Design and installation.** This new paragraph was added for clarification purposes.
22. **3008.12.2 Instruction.** This new paragraph was added for clarification purposes.

23. **Directions.** This paragraph was deleted based on need paragraphs 3008.12.1 and 3008.12.2 being added.
24. **Standpipe hose connection.** This paragraph was deleted because it was determined that the need for a standpipe hose connection in the exit stair serving the occupant evacuation elevator lobby is not a critical element in the protection scheme for the occupants using the elevators for evacuation. In addition, installation of the standpipe hose connection will not increase the overall safety of occupants using the elevators for evacuation in the subject elevator lobby. Such standpipes serve a greater purpose for fire fighters and are already addressed in the provisions for Fire Service Access Elevators.
25. **3008.13 Elevator system monitoring.** This paragraph was revised for clarification purposes.
26. **3008.13.1 Elevator recall.** This paragraph was revised for clarification purposes and has been revised to use the correct terminology.
27. **3002.3 Emergency signs.** This paragraph was revised for clarification purposes. Ensures the standard emergency sign is not installed on elevator landings for elevators that are used for occupant-self evacuation in Section 3008.

*Public Comment 3:*

**Paul K. Heilstedt, PE, FAIA, Chair, representing ICC Code Technology Committee (CTC) requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**3008.4 Additional means of egress.** Where an additional means of egress is required in accordance with Section 403.17, an additional exit stair shall not be required to be installed in buildings having elevators used for occupant controlled evacuation in accordance with this section.

**403.17 (Supp) Additional means of egress.** For buildings other than Group R-2 that are more than 420 feet in height, one additional means of egress meeting the requirements of Sections 1009 and 1020 shall be provided in addition to the minimum number of exits required by Section 1019.1. The total width of any combination of remaining stairways with one stairway removed shall not be less than the total width required by Section 1005.1. Scissor stairs shall not be considered the additional exit stair required by this section.

**Exception.** An additional exit stairway shall not be required to be installed in buildings having elevators used for occupant-controlled evacuation in accordance with Section 3008.

**(Portions of proposal not shown remain unchanged)**

**Commenter's Reason:** The proposed new Section 3008.4 and coordinated text in Section 403.17 is intended to provide a reasonable alternative to the additional stair requirement for high rise buildings. If the Code is to mandate one additional exit stairway in buildings greater than 420 feet in height, we strongly feel that alternate solutions to increasing evacuation capability in tall buildings should be provided. The proposed text recognizes occupant evacuation elevators as a reasonable alternative to providing an additional exit stair and will improve overall building safety by decreasing the overall occupant evacuation times in tall buildings.

Code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: <http://www.iccsafe.org/cs/cc/ctc/index.html>. Since its inception in April/2005, the CTC has held fifteen meetings - all open to the public. This public comment is a result of the CTC's investigation of the area of study entitled "NIST World Trade Center Recommendations". The CTC web page for this area of study is: <http://www.iccsafe.org/cs/cc/ctc/WTC.html>

*Public Comment 4:*

**Richard Schulte, Evanston, IL, representing himself, requests Disapproval.**

**Commenter's Reason:** Several issues need to be addressed before provisions for occupant evacuation elevators are incorporated into the IBC.

One issue is the overall reliability of elevators.

A second issue is how overcrowding of the elevators is controlled. We learned from the Triangle Shirtwaist Factory fire in 1911 that the use of elevators in a fire is dangerous due to overcrowding. How do we prevent people who don't absolutely need to use the elevators from using the elevators anyway, while those who absolutely need to use the elevator wait for elevators to evacuate?

A third issue is the cost/benefit of providing occupant use elevators. Regarding the issue of cost/benefit of occupant evacuation elevators, the fire safety record of U.S. high rise buildings protected throughout by a sprinkler system is magnificent. A major fire has never occurred in a U.S. high rise building protected throughout by a sprinkler system.

(It should be noted that the fire in the First Interstate Bank (FIB) Building occurred approximately 2-4 weeks before the sprinkler installation was completed. The control valves in the FIB Building were all closed at the time of the fire because the wiring of the water flow alarms in the system was not completed. Hence, the FIB Building was not a sprinklered building at the time of the fire.)

Statistics collected by the National Fire Protection Association (NFPA) indicate that the average number of fire fatalities which occurred in all of the office buildings in the US was one based on statistics between the years 2000 and 2004. Yes, on average only 1 American dies each year in fires in office buildings. That includes both high rise and low rise office buildings with and without sprinkler protection. This statistic is truly amazing considering the population of the United States now exceeds 300 million people. The statistics for high rise hotels and apartment buildings protected throughout a sprinkler system are similar to the statistics for office buildings.

Given these statistics, it seems only logical that the need for occupant evacuation elevators in the event of a fire should be questioned. While there are other reasons to fully evacuate a building, fire is not one of the reasons. The present proposal appears to mostly address the issue of occupant evacuation due a fire. The statistics cited above clearly indicate that the issue of fire has already been addressed without the use of occupant evacuation elevators.

The question has to be asked (and should be answered), why do we keep piling on fire safety requirement after fire safety requirement for buildings which have such a magnificent fire safety track record? The obvious answer to this question is the events of 9/11. The next terrorist attack will not utilize airplanes, but will utilize either chemical, biological or radioactive materials and will likely involve an attack on an entire city.

When Hurricane Rita approached the Texas coast in September 2005, it took 2 days to evacuate Houston and the surrounding communities. Rather than being concerned about how to evacuate tall buildings quickly, we should probably be more concerned about how to expedite an evacuation of our cities. After all, a city is nothing more than several tall high rise buildings turned horizontally.

**Analysis:** The difference between Public Comment 1 and 2 is found in Sections 3008.11, 3008.12.1 and 3008.12.2.

Final Action: AS AM AMPC\_\_\_\_\_ D

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## **E14-07/08, Part II**

### **IFC 903.3.1.1.1 (IBC [F] 903.3.1.1.1)**

*Proposed Change as Submitted:*

**Proponent:** David W Frable, US General Services Administration, Gerald H Jones, representing himself

#### **PART II – IFC**

**Revise as follows:**

**903.3.1.1.1 (IBC [F] 903.3.1.1.1) Exempt locations.** Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an approved automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance rated construction or contains electrical equipment.

1. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard.
2. Any room or space where sprinklers are considered undesirable because of the nature of the contents, when approved by the fire code official.
3. Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a fire-resistance rating of not less than 2 hours.
4. Rooms or areas that are of noncombustible construction with wholly noncombustible contents.
5. Fire service access elevators machine rooms and machinery spaces.
6. Machine rooms and machinery spaces for occupant evacuation elevators designed in accordance with Section 3008.

**Reason:** The use of elevators for occupant egress is a significant change that will have many impacts in regulation and in building design. This proposal is intended to introduce requirements for the arrangement and design of protected elevators for occupant egress into the code without mandating them anywhere. The result would be that they can be used where approved and justified through an engineering analysis. This is no different than acceptance through a variance or performance approach as currently permitted under the code. The difference is that the requirements included in this section provide guidance on safe implementation. The inclusion of this information in the code will permit code officials and designers to develop a comfort level with the technology and to facilitate improvements to the requirements in the Code and referenced technical standards.

The current concept is being addressed by the ASME A17 Task Group on Use of Elevator for Occupant Egress the Occupant evacuation elevators that will incorporate a special evacuation protocol that will be specified in ASME A17.1. While not currently finalized, it is likely to involve the immediate evacuation of the fire floor and two floors above and below the fire floor, then awaiting a decision by the Incident Commander of whether to initiate a full building evacuation. The protocol would be terminated by the activation of Phase I recall as currently required. This protocol requires that the system recognize the floor of origin to begin the process. This would probably be initiated by the (required) sprinkler system if it is arranged to indicate sprinkler flow by floor.

For the record, GSA is committed to this endeavor and been funding research at the National Institute of Standards & Technology (NIST) for the past several years for the development of performance requirements for the use of elevators for occupant egress during a fire emergency prior to Phase I Emergency Recall. GSA has also been participating in the ASME A17 Task Groups on Use of Elevators by Firefighters and Use of Elevator for Occupant Egress regarding this subject matter.

**Cost Impact:** The code change proposal will increase the cost of construction.

#### **PART II – IFC**

**Committee Action:**

**Disapproved**

**Committee Reason:** For consistency with the action taken by the IBC-MOE Committee on Part I of this proposal. The proposed IFC reference to IBC Section 3008 is moot without approval of Part I.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted for Part II.**

Public Comment:

Brian Black, BDBlack Codes, Inc., representing National Elevator Industry, Inc., requests Approval as Submitted.

Jack J. Murphy, representing Fire Safety Directors Association of Greater New York, requests Approval as Submitted.

John J. O'Donoghue, representing International Association of Fire Fighters, requests Approval as Submitted.

Dave Frable, U.S. General Services Administration, requests Approval as Submitted.

Commenter's Reason: See the reason provided for Public Comments 1 and 2 for E14-Part I.

Final Action: AS AM AMPC\_\_\_\_\_ D

## E19-07/08, Part I

Table 1005.1 (IFC [B]1005.1), 3403.5(New), 3410.6.11, Table 3410.6.11(1) (New), Table 3410.6.11, [IEBC [B]302.5(New), [B]1306.11.1(New), [B]Table 1306.11.1(1) (New), Table 1306.11.1]

Proposed Change as Submitted:

Proponent: David Frable, US General Services Administration

### PART I – IBC MEANS OF EGRESS

1. Delete and substitute as follows:

**TABLE 1005.1 (IFC [B] 1005.1) (Supp)**  
**EGRESS WIDTH PER OCCUPANT SERVED**

OCCUPANCY	WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM <sup>a</sup>	
	Stairways (inches per occupant)	Other egress components (inches per occupant)	Stairways (inches per occupant)	Other egress components (inches per occupant)
Occupancies other than those listed below	0.3	0.2	0.2	0.15
Hazardous: H-1, H-2, H-3 and H-4	Not permitted	Not permitted	0.3	0.2
Institutional: I-2	Not permitted	Not permitted	0.3	0.2

For SI: 1 inch = 25.4 mm.

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

**TABLE 1005.1 (IFC [B] TABLE 1005.1)**  
**EGRESS WIDTH PER OCCUPANT SERVED**

OCCUPANCY	STAIRWAYS (INCHES PER OCCUPANT)	OTHER EGRESS COMPONENTS (INCHES PER OCCUPANT)
All occupancies	0.3	0.2

For SI: 1 inch = 25.4 mm.

**3403.5 (IEBC 302.5) Means of egress capacity factors.** Alterations to any existing building or structure shall not be affected by the egress width factors in Table 1005.1 for new construction in determining the minimum egress widths or the minimum number of exits in an existing building or structure. The minimum egress widths for

the components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for any alteration if, in the opinion of the building official, they do not constitute a distinct hazard to life.

**2. Revise as follows:**

**3410.6.11 (IEBC [B] 1301.6.11) Means-of-egress capacity and number.** Evaluate the means-of-egress capacity and the number of exits available to the building occupants. In applying this section, the means of egress are required to conform to the following sections of the *International Building Code*: 1003.7, 1004, 1005.1, 1014.2, 1014.3, 1015.2, 1019, 1024.1, 1024.2, 1024.6, 1025.2, 1024.3, 1024.4 and 1026 (except that the minimum width required by this section shall be determined solely by the width for the required capacity in accordance with Table 3410.6.11(1)). The number of exits credited is the number that is available to each occupant of the area being evaluated. Existing fire escapes shall be accepted as a component in the means of egress when conforming to Section 705.3.1.2. Under the categories and occupancies in Table 1301.6.11(2), determine the appropriate value and enter that value into Table 1301.7 under Safety Parameter 1301.6.11, Means-of-Egress Capacity, for means of egress and general safety.

**TABLE 3410.6.11(1) [IEBC TABLE 1306.11.1(1)]  
EGRESS WIDTH PER OCCUPANT SERVED**

<b>OCCUPANCY</b>	<b>WITHOUT SPRINKLER SYSTEM</b>		<b>WITH SPRINKLER SYSTEM<sup>a</sup></b>	
	<b>Stairways (inches per occupant)</b>	<b>Other egress components (inches per occupant)</b>	<b>Stairways (inches per occupant)</b>	<b>Other egress components (inches per occupant)</b>
Occupancies other than those listed below	0.3	0.2	0.2	0.15
Hazardous: H-1, H-2, H-3 and H-4	Not permitted	Not permitted	0.3	0.2
Institutional: I-2	Not permitted	Not permitted	0.3	0.2

For SI: 1 inch – 25.4 mm.

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

**TABLE 3410.6.11(2) [IEBC TABLE 1306.11.1(2)]  
MEANS OF EGRESS VALUES**

(No change to table – change reference to table in Section 3410.6.11(IEBC 1306.11.1(1))

**REASON: PART I – IBC MEANS OF EGRESS**

IBC Table 1005: The intent of this code change is to revise the egress width factors in Table 1005.1 such that the concept of determining egress capacity for the components of the means of egress within a building is not a function of whether or not a building is protected throughout by an automatic fire sprinkler system. Not all building emergencies that necessitate occupant egress either out of a building or within a building to a safe area are dependent on a fire sprinkler system. Please also note that the occupancy factors are still unchanged for I-2 and H occupancies since all I-2 and H occupancies are required to be protected by an automatic fire sprinkler system.

3403.5/IEBC 302.5: The intent of this code change is to ensure coordination of requirements within the IBC. This action will ensure coordination with the proposed new egress width factors in Table 1005.1 such that the impact of such revisions to Table 1005.1 of the IBC will not be detrimental to existing building stock across the country when making alterations in accordance with the requirements within the IBC and IEBC.

3410.6.11/IEBC 1306.11: The intent of this code change is to ensure coordination of requirements within the IBC. This action will ensure coordination with the proposed new egress width factors in Table 1005.1 such that the impact of such revisions to Table 1005.1 of the IBC will not be detrimental to existing building stock across the country when making alterations in accordance with the requirements within the IBC and IEBC.

**Cost Impact:** The code change proposal will increase the cost of construction.

**Analysis:** IBC Section 3410.6.11 was revised to coordinate with IEBC Section 1301.6.11 by the CCC committee at their Sept. 2007 meeting. EB62-04/05 revise the general reference to IBC Chapter 10 in IEBC 1301.6.11 to the specific sections dealing with means of egress capacity and number. This revision, copied into the IBC would provide the same more precise reference rather than the generic language in the 2006 IBC.

**PART I – IBC MEANS OF EGRESS**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** Occupants may need to egress buildings during non-fire events where sprinklers systems do not provide additional protection. Therefore, the increase in corridor and stairway width, and thus egress capacity, is justified.



**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted for Part I.**

*Public Comment 1:*

**Maureen Traxler, Department of Planning and Development, City of Seattle, WA, requests Approval as Modified for Part I.**

**Modify proposal as follows:**

**1005.1 (IFC [B] 1005.1) Minimum required egress width.** The means of egress width shall not be less than required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.3 inches per occupant for stairways, and by 0.2 inches per occupant for other egress components, the factors in Table 1005.1 and The width shall not be less than specified elsewhere in this code. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.

**Exception:** Means of egress complying with Section 1025.

**2. Delete Table 1005.1 without substitution as follows:**

**TABLE 1005.1 (IFC [B] TABLE 1005.1)  
EGRESS WIDTH PER OCCUPANT SERVED**

<b>OCCUPANCY</b>	<b>STAIRWAYS (INCHES PER OCCUPANT)</b>	<b>OTHER EGRESS COMPONENTS (INCHES PER OCCUPANT)</b>
All occupancies	0.3	0.2

For SI: 1 inch = 25.4 mm.

**3403.5 (IEBC 302.5) Means of egress capacity factors.** Alterations to any existing building or structure shall not be affected by the egress width factors in ~~Table Section~~ 1005.1 for new construction in determining the minimum egress widths or the minimum number of exits in an existing building or structure. The minimum egress widths for the components of the means of egress shall be based on the means of egress width factors in the building code under which the building was constructed, and shall be considered as complying means of egress for any alteration if, in the opinion of the building official, they do not constitute a distinct hazard to life.

**(Portions of Part I not shown remain unchanged)**

**Commenter's Reason:** Tables are useful for organizing information that is complex or otherwise unclear when presented as text. When there is only enough information for one row, a table is unnecessary and the information is better presented as simple text.

*Public Comment 2:*

**David S. Collins, FAIA, The Preview Group, Inc., representing The American Institute of Architects, requests Disapproval for Part I.**

**Commenter's Reason:** The elimination of the credit given for sprinkler when establishing the capacity of the means of egress elements in a building, i.e, stair width, door width, etc. was totally unsubstantiated through technical documentation by the proponent and is unwarranted.

Two of the three legacy codes allowed the sprinkler alternative for more than 40 years. There is no documentation to justify that the egress systems designed, and still in place, using the sprinkler alternative are unsafe in any manner. The affect this code change will have on buildings designed under the legacy codes will be cost prohibitive and

*Public Comment 3:*

**Ray Grill, PE, ARUP, representing himself, requests Disapproval for Part I.**

**Commenter's Reason:** Part I of this proposal doubles the egress width requirement for fully sprinklered buildings with no technical justification. The egress width determination for sprinklered buildings has worked and should not be eliminated.

*Public Comment 4:*

**Michael Perrino, Code Consultants, representing himself, requests Disapproval for Part I.**

**Commenter's Reason:** "Not all building emergencies that necessitate occupant egress either out of a building or within a building to a safe area are dependent on a fire sprinkler system."

This was the central (and in fact, only) argument put forward to support this code change. Based on this, it's difficult to understand the logic of this change. If the issue, as the proponents stated during the hearings, is that sprinklers do not gain more egress time for occupants during man-made or natural disasters, it would make sense to analyze those types of disasters and support the reasons that these issues would be ameliorated by the proposal. This was not, however, done either in the monograph or in any effective way during the hearings.

Show that egress during such non-fire incidents has actually been a problem, and the following arguments against this proposal go away. However, without such evidence, the argument in favor of this proposal goes away. Then, this becomes a code change based on emotion and specious 'what if' scenarios - without adequate empirical or statistical evidence to support it.

If the issue is natural disasters and man-made situations that cause building evacuation without fire, then let's analyze these situations to assess the real need for expedited egress when such situations occur:

1. Earthquake – Few people leave a building until after an earthquake. At this point, unless the building is badly damaged, egress is not urgent, and larger egress components would have no effect. Further, if the building is badly damaged, how do the wider egress components provide any benefit?
2. Tornado – These storms are fast moving and unpredictable. Further, the public has always been advised - not only to remain inside a building in the event of a tornado, but to get as deeply within the building as possible. It's difficult to see how disallowing the sprinkler allowances will have any impact whatsoever in this instance. Certainly a number of 'what if' scenarios could be advanced to support larger egress elements (what if a door is jammed half-way open, what if only 2/3<sup>rd</sup> of a corridor collapsed), but these scenarios are not likely.
3. Hurricane – Hurricanes, unlike tornados, are relatively slow moving and eminently predictable. Again, this code change will have no effect whatsoever.
4. Shooting – This was cited as a reason for the change at the hearings, but let's look a little closer. Search the internet for "school shooting lockdown", and news reports from as far as New Zealand pop up. In fact many schools have instituted signals that alert students and staff to "shelter in place", locking students into classrooms. Hallways are kept clear, since these are the most open areas and afford the most convenient "field of fire" in these incidents. Again, the proposal will have no effect on such incidents.
5. Bomb threat – History has shown that most bomb threats are false. In fact, many bomb threats do not result in evacuations. Actual bombings usually occur without warning (Arthur P. Murrah Federal Building, the recent Times Square Recruitment Center bombing). Actual bombings are exceedingly rare in the United States.
6. Flood – Most floods are not surprises. As with hurricanes, precautions in preparation for bad weather will work, increasing egress width will not.

Was an egress analysis for any of these various scenarios presented? No. Was a preponderance of evidence put forward to show that this proposal, which the proponent states will increase the cost of construction, will actually accomplish its intent? No. In the entire reason statement, only a single sentence addressed the actual reason that this was deemed an essential change to the code. This sentence simply stated, "Not all building emergencies that necessitate occupant egress either out of a building or within a building to a safe area are dependent on a fire sprinkler system."

Sounds good on paper. But in the real world, as outlined above, this need has neither been proved to be urgent nor has it been documented to even exist.

This is also a case where the problems that the change was ostensibly written to address are not well addressed by the change. As just one example, even if it could be shown that US has a problem with people escaping from buildings in floods, modifying the building code's egress requirements can't address this as effectively as flood plain construction restrictions and good old common sense (when it's raining, head for higher ground!).

The reason the codes have addressed the threat of fire for as long as they have is simple - fire has shown itself to be the most insidious threat to building occupants.

This is a poor change that is not backed up by any credible evidence that demonstrates the need for the code to be modified. In the absence of such evidence, the committee's recommendation for approval should be overturned.

#### *Public Comment 5:*

### **Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Disapproval for Part I.**

**Commenter's Reason:** This proposal would delete a long-used egress capacity factor for sprinklered buildings. This would have a major impact on the design of facilities with large numbers of occupants, particularly large assembly occupancies. Additionally, office buildings with large floor plates would also be impacted. Combined with other proposals (the 'extra stair' for buildings 420' in height), the impact of this change would be multiplied. Such a change is not warranted without further study of the shortcomings of the current approach, which has a long history of being used in many jurisdictions, and an analysis of any cumulative impact of any other related changes.

#### *Public Comment 6:*

### **Sarah A. Rice, CBO, Schirmer Engineering Corporation, requests Disapproval for Part I.**

**Commenter's Reason:** The elimination of the credit given for sprinkler when establishing the capacity of the means of egress elements in a building, i.e. stair width, door width, etc. was totally unsubstantiated through technical documentation by the proponent and is unwarranted.

Two of the three legacy codes allowed the sprinkler alternative for more than 40 years. There is no documentation to justify that the egress systems designed, and still in place, using the sprinkler alternative are unsafe in any manner. The affect this code change will have on buildings designed under the legacy codes will be cost prohibitive and

Final Action:        AS            AM            AMPC\_\_\_\_        D

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## **E19-07/08, Part II**

### **IFC 1027.2(New), Table 1027.2(New)**

#### *Proposed Change as Submitted:*

**Proponent:** David Frale, US General Services Administration

**PART II – IFC**

**Add new text as follows:**

**1027.2 Minimum required egress width.** The means of egress width shall not be less than required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by the factors in Table 1027.2 and not less than specified elsewhere in this section. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.

**TABLE 1027.2  
EGRESS WIDTH PER OCCUPANT SERVED**

<b>OCCUPANCY</b>	<b>WITHOUT SPRINKLER SYSTEM</b>		<b>WITH SPRINKLER SYSTEM<sup>a</sup></b>	
	<b>Stairways (inches per occupant)</b>	<b>Other egress components (inches per occupant)</b>	<b>Stairways (inches per occupant)</b>	<b>Other egress components (inches per occupant)</b>
Occupancies other than those listed below	0.3	0.2	0.2	0.15
Hazardous: H-1, H-2, H-3 and H-4	Not permitted	Not permitted	0.3	0.2
Institutional: I-2	Not permitted	Not permitted	0.3	0.2

For SI: 1 inch – 25.4 mm.

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

**REASON: PART II - IFC**

IFC 1027.2 - The intent of this code change is to ensure coordination between the requirements in the IBC and the IFC. This action will ensure coordination with the proposed new egress width factors in Table 1005.1 of the IBC (see PART I) such that the impact of such revisions to Table 1005.1 will not be detrimental to existing building stock across the country when enforcing the requirements of the IFC.

**Cost Impact:** The code change proposal will increase the cost of construction.

**PART II – IFC**

**Committee Action:**

**Approved as Modified**

**Modify the proposal as follows:**

**1027.2 Minimum required egress width.** The means of egress width shall not be less than as required by the code under which constructed but not less than as required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by the factors in Table 1027.2 and not less than specified elsewhere in this section. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.

(Portions of Part II of proposal not shown remain unchanged)

**Committee Reason:** For consistency with the action taken by the IBC-MOE Committee on Part I of this proposal and to provide correlation between IBC Chapter 10 and the existing building egress provisions of the IFC. The modification provides a more reasonable approach to existing buildings by allowing compliance with the original code of construction of the building as long as it is comparable to the new section.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**David S. Collins, FAIA, The Preview Group, Inc., representing The American Institute of Architects, requests Disapproval for Part II.**

**Commenter's Reason:** The elimination of the credit given for sprinkler when establishing the capacity of the means of egress elements in a building, i.e, stair width, door width, etc. was totally unsubstantiated through technical documentation by the proponent and is unwarranted.

Two of the three legacy codes allowed the sprinkler alternative for more than 40 years. There is no documentation to justify that the egress systems designed, and still in place, using the sprinkler alternative are unsafe in any manner. The affect this code change will have on buildings designed under the legacy codes will be cost prohibitive and

*Public Comment 2:*

**Michael Perrino, Code Consultants, representing himself, requests Disapproval for Part II.**

**Commenter's Reason:** "Not all building emergencies that necessitate occupant egress either out of a building or within a building to a safe area are dependent on a fire sprinkler system."

This was the central (and in fact, only) argument put forward to support this code change. Based on this, it's difficult to understand the logic of this change. If the issue, as the proponents stated during the hearings, is that sprinklers do not gain more egress time for occupants during man-made or natural disasters, it would make sense to analyze those types of disasters and support the reasons that these issues would be ameliorated by the proposal. This was not, however, done either in the monograph or in any effective way during the hearings.

Show that egress during such non-fire incidents has actually been a problem, and the following arguments against this proposal go away. However, without such evidence, the argument in favor of this proposal goes away. Then, this becomes a code change based on emotion and specious 'what if' scenarios - without adequate empirical or statistical evidence to support it.

If the issue is natural disasters and man-made situations that cause building evacuation without fire, then let's analyze these situations to assess the real need for expedited egress when such situations occur:

1. Earthquake – Few people leave a building until after an earthquake. At this point, unless the building is badly damaged, egress is not urgent, and larger egress components would have no effect. Further, if the building is badly damaged, how do the wider egress components provide any benefit?
2. Tornado – These storms are fast moving and unpredictable. Further, the public has always been advised - not only to remain inside a building in the event of a tornado, but to get as deeply within the building as possible. It's difficult to see how disallowing the sprinkler allowances will have any impact whatsoever in this instance. Certainly a number of 'what if' scenarios could be advanced to support larger egress elements (what if a door is jammed half-way open, what if only 2/3<sup>rd</sup> of a corridor collapsed), but these scenarios are not likely.
3. Hurricane – Hurricanes, unlike tornados, are relatively slow moving and eminently predictable. Again, this code change will have no effect whatsoever.
4. Shooting – This was cited as a reason for the change at the hearings, but let's look a little closer. Search the internet for "school shooting lockdown", and news reports from as far as New Zealand pop up. In fact many schools have instituted signals that alert students and staff to "shelter in place", locking students into classrooms. Hallways are kept clear, since these are the most open areas and afford the most convenient "field of fire" in these incidents. Again, the proposal will have no effect on such incidents.
5. Bomb threat – History has shown that most bomb threats are false. In fact, many bomb threats do not result in evacuations. Actual bombings usually occur without warning (Arthur P. Murrah Federal Building, the recent Times Square Recruitment Center bombing). Actual bombings are exceedingly rare in the United States.
6. Flood – Most floods are not surprises. As with hurricanes, precautions in preparation for bad weather will work, increasing egress width will not.

Was an egress analysis for any of these various scenarios presented? No. Was a preponderance of evidence put forward to show that this proposal, which the proponent states will increase the cost of construction, will actually accomplish its intent? No. In the entire reason statement, only a single sentence addressed the actual reason that this was deemed an essential change to the code. This sentence simply stated, "Not all building emergencies that necessitate occupant egress either out of a building or within a building to a safe area are dependent on a fire sprinkler system."

Sounds good on paper. But in the real world, as outlined above, this need has neither been proved to be urgent nor has it been documented to even exist.

This is also a case where the problems that the change was ostensibly written to address are not well addressed by the change. As just one example, even if it could be shown that US has a problem with people escaping from buildings in floods, modifying the building code's egress requirements can't address this as effectively as flood plain construction restrictions and good old common sense (when it's raining, head for higher ground!).

The reason the codes have addressed the threat of fire for as long as they have is simple - fire has shown itself to be the most insidious threat to building occupants.

This is a poor change that is not backed up by any credible evidence that demonstrates the need for the code to be modified. In the absence of such evidence, the committee's recommendation for approval should be overturned.

*Public Comment 3:*

**Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Disapproval for Part II.**

**Commenter's Reason:** This proposal would delete a long-used egress capacity factor for sprinklered buildings. This would have a major impact on the design of facilities with large numbers of occupants, particularly large assembly occupancies. Additionally, office buildings with large floor plates would also be impacted. Combined with other proposals (the 'extra stair' for buildings 420' in height), the impact of this change would be multiplied. Such a change is not warranted without further study of the shortcomings of the current approach, which has a long history of being used in many jurisdictions, and an analysis of any cumulative impact of any other related changes.

*Public Comment 4:*

**Sarah A. Rice, CBO, Schirmer Engineering Corporation, requests Disapproval for Part II.**

**Commenter's Reason:** The elimination of the credit given for sprinkler when establishing the capacity of the means of egress elements in a building, i.e, stair width, door width, etc. was totally unsubstantiated through technical documentation by the proponent and is unwarranted.

Two of the three legacy codes allowed the sprinkler alternative for more than 40 years. There is no documentation to justify that the egress systems designed, and still in place, using the sprinkler alternative are unsafe in any manner. The affect this code change will have on buildings designed under the legacy codes will be cost prohibitive and

Final Action: AS AM AMPC \_\_\_\_\_ D

# E19-07/08, Part III

## IEBC 604.2(New), Table 604.2(New), 912.4.1, 912.4.2

Proposed Change as Submitted:

Proponent: David Frable, US General Services Administration

### PART III – IEBC

#### 1. Add new text as follows:

**604.2 Minimum required egress width.** The means of egress width shall not be less than required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by the factors in Table 604.2 and not less than specified elsewhere in this section. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.

**TABLE 604.2  
EGRESS WIDTH PER OCCUPANT SERVED**

OCCUPANCY	WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM <sup>a</sup>	
	<u>Stairways (inches per occupant)</u>	<u>Other egress components (inches per occupant)</u>	<u>Stairways (inches per occupant)</u>	<u>Other egress components (inches per occupant)</u>
<u>Occupancies other than those listed below</u>	<u>0.3</u>	<u>0.2</u>	<u>0.2</u>	<u>0.15</u>
<u>Hazardous: H-1, H-2, H-3 and H-4</u>	<u>Not permitted</u>	<u>Not permitted</u>	<u>0.3</u>	<u>0.2</u>
<u>Institutional: I-2</u>	<u>Not permitted</u>	<u>Not permitted</u>	<u>0.3</u>	<u>0.2</u>

For SI: 1 inch – 25.4 mm.

a. Buildings equipped throughout with an automatic sprinkler system in accordance with the *International Building Code* Section 903.3.1.1 or 903.3.1.2.

#### 2. Revise as follows:

**912.4.1 Means of egress for change to higher hazard category.** When a change of occupancy classification is made to a higher hazard category (lower number) as shown in Table 912.4, the means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

#### Exceptions:

1. Stairways shall be enclosed in compliance with the applicable provisions of Section 803.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 8 shall be permitted for continued use subject to approval of the code official.
3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed of wood lath and plaster in good condition or 1/2-inch-thick (12.7 mm) gypsum wallboard shall be permitted.
5. Existing corridor doorways, transoms, and other corridor openings shall comply with the requirements in Sections 705.5.1, 705.5.2, and 705.5.3.
6. Existing dead-end corridors shall comply with the requirements in Section 705.6.
7. An existing operable window with clear opening area no less than 4 square feet (0.38 m<sup>2</sup>) and with minimum opening height and width of 22 inches (559 mm) and 20 inches (508 mm), respectively, shall be accepted as an emergency escape and rescue opening.
8. Existing corridors shall be permitted to comply with the egress width capacity as determined by Table 604.2.

**912.4.2 Means of egress for change of use to equal or lower hazard category.** When a change of occupancy classification is made to an equal or lesser hazard category (higher number) as shown in Table 912.4, existing elements of the means of egress shall comply with the requirements of Section 805 for the new occupancy classification. Newly constructed or configured means of egress shall comply with the requirements of Chapter 10 of the *International Building Code*.

**Exceptions:**

1. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
2. Existing corridors shall be permitted to comply with the egress width capacity as determined by Table 604.2.

**PART III - IEBC**

IEBC 604.2: The intent of this code change is to ensure coordination between the requirements in the IBC and the IEBC. This action will ensure coordination with the proposed new egress width factors in Table 1005.1 of the IBC (see PART I) such that the impact of such revisions to Table 1005.1 will not be detrimental to existing building stock across the country when enforcing the requirements of the IEBC.

IEBC 912.4.1: The intent of this code change is to ensure coordination between the requirements in the IBC and the IEBC. This action will ensure coordination with the proposed new egress width factors in Table 1005.1 of the IBC (see PART I) such that the impact of such revisions to Table 1005.1 will not be detrimental to existing building stock across the country when enforcing the requirements of the IEBC.

IEBC 912.4.2: The intent of this code change is to ensure coordination between the requirements in the IBC and the IEBC. This action will ensure coordination with the proposed new egress width factors in Table 1005.1 of the IBC (see PART I) such that the impact of such revisions to Table 1005.1 will not be detrimental to existing building stock across the country when enforcing the requirements of the IEBC.

**Cost Impact:** The code change proposal will increase the cost of construction.

**PART III – IEBC**

**Committee Action:**

**Disapproved**

**Committee Reason:** The proposal would require changes in egress width when minor alterations are made. This is an unreasonable trigger.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Dave Frable, U.S. General Services Administration, requests Approval as Submitted.**

**Commenter's Reason:** The intent of the revisions proposed to be incorporated into the IEBC is to ensure coordination of the new requirements in the IBC which were approved by the Means of Egress Committee. It is our belief that these actions will ensure coordination with the proposed new egress width factors in Table 1005.1 such that the impact of such revisions to Table 1005.1 of the IBC (see PART I) will not be detrimental to existing building stock across the country when making alterations in accordance with the requirements within Chapter IEBC.

In addition, it is our opinion that the reason statement provided by the Existing Building Committee for disapproving PART III is not accurate. Therefore, based on our reasons, we urge the membership to approve this code change as submitted.

Final Action:            AS                    AM                    AMPC\_\_\_\_            D

**E21-07/08**

**1006.1 (IFC [B] 1006.1**

*Proposed Change as Submitted:*

**Proponent:** Dave Collins, AIA, The Preview Group, Inc., representing the AIA Codes Committee

**Revise as follows:**

**1006.1 (IFC [B] 1006.1) Illumination required.** The means of egress, including the exit discharge, shall be illuminated at all times the building space served by the means of egress is occupied.

**Exceptions:**

- 1. Occupancies in Group U.
- 2. Aisle accessways in Group A.
- 3. Dwelling units and sleeping units in Groups R-1, R-2 and R-3.
- 4. Sleeping units of Group I occupancies.

Means of egress lighting shall be controlled by motion sensors and shall turn on the egress lighting system in the corridor, stair or exit discharge only when the corridor, stair or exit discharge or other such egress element is occupied.

**Reason:** The use of motion sensors or other activating devices to help control the amount of energy used in buildings is gaining in use and popularity. Making it clear that the egress lighting can be activated when persons enter the element of the means of egress is an important clarification of the code. ASHRAE 90.1 has called for the use of this type of energy savings in occupied spaces and to carry that forward to the egress lighting in literally millions of buildings will have a significant impact on energy savings in buildings.

In a related change to the IECC, we are requiring a 50% reduction in the energy use of buildings. To achieve this will require significantly more aggressive design solutions for buildings of all types. Requiring that the corridor, stair or exterior light be illuminated even when it is not being used is counter productive to a policy of energy savings at all levels

**Cost Impact:** The code change proposal will increase the cost of construction.

**Committee Action:**

**Disapproved**

**Committee Reason:** There is a lack of specification and standardization for the motion sensors. This creates a potential conflict with the photo luminescent requirements in the new Section 1027 in the 2007 Supplement. Having the lights off in all locations could be a security concern in areas of high crime.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**David S. Collins, FAIA, The Preview Group, Inc., representing The American Institute of Architects, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1006.1 (IFC [B] 1006.1) Illumination required.** The means of egress, including the exit discharge, shall be illuminated at all times the building space served by the means of egress is occupied.

**Exceptions:**

- 1. Occupancies in Group U.
- 2. Aisle accessways in Group A.
- 3. Dwelling units and sleeping units in Groups R-1, R-2 and R-3.
- 4. Sleeping units of Group I occupancies.

Means of egress lighting shall be permitted to be reduced to a minimum of 0.2 foot-candles. Activation of approved controlled by motion sensors located at the entrance to corridors, stairs and exit discharges and shall turn on the egress lighting system to provide the illumination required by Section 1006.2 in the corridor, stair or exit discharge only when the corridor, stair or exit discharge or other such egress element is occupied.

**Commenter's Reason:** This reduced lighting level is consistent with the lighting levels permitted in places of assembly during a performance. Reducing the constant power demand from the egress lighting is one way in which building energy can be drastically reduced. Today's social and political environment requires creative and improved methods to save energy. Leaving lights on constantly is a tremendous drain on our resources. ASHRAE 90.1 has already recognized this and requires that general lighting be installed using such devices. This will help close the loop on wasted electrical power used for lighting in buildings.

Final Action:        AS                    AM                    AMPC\_\_\_\_        D

## E23-07/08

### 1006.3 (IFC [B] 1006.3)

#### *Proposed Change as Submitted:*

**Proponent:** Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International

#### **Revise as follows:**

**1006.3 (IFC [B] 1006.3) Illumination emergency power.** The power supply for means of egress illumination shall normally be provided by the premises' electrical supply.

In the event of power supply failure, an emergency electrical system shall automatically illuminate the following areas:

1. Aisles and unenclosed egress stairways in rooms and spaces that require two or more means of egress.
2. Corridors, exit enclosures and exit passageways in buildings required to have two or more exits.

**Exception:** An emergency electrical system is not required to automatically illuminate exit enclosures and exit passageways that are provided with exit path markings in accordance with Section 1027.

3. Exterior egress components at other than the level of exit discharge until exit discharge is accomplished for buildings required to have two or more exits.
4. Interior exit discharge elements, as permitted in Section 1024.1, in buildings required to have two or more exits.
5. Exterior landings, as required by Section 1008.1.5, for exit discharge doorways in buildings required to have two or more exits.

The emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Section 2702.

**Reason:** This proposal seeks to eliminate the requirement for emergency illumination in exit enclosures and exit passageways where photoluminescent exit path markings are provided. With the approval of a public comment to Code Change E84-07/08 at the Rochester Final Action Hearings, there is now a requirement for photoluminescent exit path markings in all exit enclosures and exit passageways in new high-rise buildings. If these newly required systems perform as well as the proponents have indicated, it is an unnecessary initial and ongoing expense to also provide emergency lighting in the same enclosures and passageways.

As written, this proposal would also provide the option for non high-rise buildings to provide photoluminescent exit path marking complying with Section 1027 in lieu of emergency lighting.

**Cost Impact:** The code change proposal will not increase the cost of construction.

#### **Committee Action:**

**Disapproved**

**Committee Reason:** The triple redundancy (e.g. means of egress lighting, emergency lighting and photo luminescent strips) may be too much; however, studies or documentation should be presented that demonstrate what system combinations would provide an equivalent level of safety for lighting and egress path identification during emergency situations. The effectiveness and reliability of photo luminescent markings has not been proven, therefore, emergency lighting is required for redundancy. An exception for having the lights off would make the stairways less safe due to possible obstructions that would not be visible with just photo luminescent strips.

#### **Assembly Action:**

**None**

#### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

#### *Public Comment:*

**Lawrence G. Perry, AIA, representing Building Owners and Managers Association (BOMA) International, requests Approval as Modified by this public comment.**

#### **Modify proposal as follows:**

**1006.3 (IFC [B] 1006.3) Illumination emergency power.** The power supply for means of egress illumination shall normally be provided by the premises' electrical supply.



In the event of power supply failure, an emergency electrical system shall automatically illuminate the following areas:

1. Aisles and unenclosed egress stairways in rooms and spaces that require two or more means of egress.
2. Corridors, exit enclosures and exit passageways in buildings required to have two or more exits.

**Exception:** In buildings that are not high-rise buildings, an emergency electrical system is not required to automatically illuminate exit enclosures and exit passageways that are provided with exit path markings in accordance with Section 1027.

3. Exterior egress components at other than the level of exit discharge until exit discharge is accomplished for buildings required to have two or more exits.
4. Interior exit discharge elements, as permitted in Section 1024.1, in buildings required to have two or more exits.
5. Exterior landings, as required by Section 1008.1.5, for exit discharge doorways in buildings required to have two or more exits.

The emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Section 2702.

**Commenter's Reason:** This comment seeks to provide an alternative to the current requirement for emergency lighting in exits in non-high-rise buildings. The new package of photoluminescent exit path markings has been touted as being a superior method of marking exits. The original code change proposal sought to allow the elimination of emergency lighting in any building where exit path markings were provided, including high-rise buildings. Two main objections were raised to the original proposal:

1. That the photoluminescent exit path markings were new, somewhat untested, and maybe not yet ready to substitute for emergency lighting, and
2. That in very tall buildings, there might be a need for emergency lighting, and then, after the emergency lighting runs out, then an additional time period under photoluminescent 'mode'.

By limiting this exception to other than high-rise buildings, this comment responds to the main concerns raised in Palm Springs. Buildings eligible for the proposed exception would not be tall enough to warrant a need for multiple hours of exit illumination/markings in an incident. If the photoluminescent markings aren't ready to be used in smaller buildings as a substitute for battery pack or generator lighting, why would we be adding them as a mandated third level of lighting in taller buildings?

Note: this comment uses the term 'high-rise buildings' consistent with another successful code change this cycle. If that change is not sustained, the intent was for the typical 'occupied floor more than 75' above the lowest level of fire department vehicle access" to be used.

Final Action: AS AM AMPC\_\_\_\_ D

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## E30-07/08

### 1007.3, 1007.4, (IFC [B] 1007.3, [B] 1007.4)

#### *Proposed Change as Submitted:*

**Proponent:** Greg Lake, Sacramento Metropolitan Fire District, representing the California Fire Chiefs Association (Cal Chiefs)

#### **Revise as follows:**

**1007.3 (IFC [B] 1007.3) (Supp) Exit stairways.** In order to be considered part of an accessible means of egress, an exit stairway shall have a clear width of 48 inches (1219 mm) minimum between handrails and shall either incorporate an area of refuge within an enlarged floor-level landing or shall be accessed from either an area of refuge complying with Section 1007.6 or a horizontal exit.

#### **Exceptions:**

1. The area of refuge is not required at unenclosed interior exit stairways as permitted by Section 1020.1 in buildings or facilities that are equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. The clear width of 48 inches (1219 mm) between handrails is not required at exit stairways in buildings or facilities equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Where an automatic sprinkler system is installed in accordance with Section 903.3.1.1 or 903.3.1.2, areas of refuge are not required at exit stairways in buildings or facilities equipped throughout by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 complying with either of the following:
  - 3.1. Buildings or facilities not more than three stories in height with not more than two basements, or
  - 3.2. Buildings or facilities of Type I, IIA, IIIA, IV, or VA construction where any of the following conditions are met:

- 3.2.1. A smoke barrier complying with Section 709 is provided to subdivide each story located four or more stories above or below the level of exit discharge into at least two smoke compartments complying with Section 407.4.2; or
  - 3.2.2. A smoke control system is provided in accordance with Section 909 and is capable of continued operation after detection of the fire event for a period of not less than one hour; or
  - 3.2.3. An elevator complying with Section 1007.4 is provided.
4. The clear width of 48 inches (1219 mm) between handrails is not required for exit stairways accessed from a horizontal exit.
  5. Areas of refuge are not required at exit stairways serving open parking garages.
  6. Areas of refuge are not required for smoke protected seating areas complying with Section 1025.6.2.
  7. The areas of refuge are not required in Group R-2 occupancies.
  8. Areas of refuge are not required at exit stairways in any story where a horizontal exit is provided.

**1007.4 (IFC [B] 1007.4) (Supp) Elevators.** In order to be considered part of an accessible means of egress, an elevator shall comply with the emergency operation and signaling device requirements of Section 2.27 of ASME A17.1. Standby power shall be provided in accordance with Sections 2702 and 3003. The elevator shall be accessed from ~~either~~ an area of refuge complying with Section 1007.6 ~~or a horizontal exit.~~

**Exceptions:**

1. Elevators are not required to be accessed from an area of refuge ~~or horizontal exit~~ in open parking garages.
2. Elevators are not required to be accessed from an area of refuge ~~or horizontal exit~~ in buildings ~~or~~ and facilities of Type I, IIA, IIIA, IV or VA construction equipped throughout by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 where any of the following conditions are met:
  - 2.1. A smoke barrier complying with Section 709 is provided to subdivide each story located four or more stories above or below a level of exit discharge into at least two smoke compartments complying with Section 407.4.2;
  - 2.2. A smoke control system is provided in accordance with Section 909 and is capable of continued operation after detection of the fire event for a period of not less than 1 hour;
  - 2.3. An enclosed elevator lobby is provided at each floor landing to separate the elevator shaft enclosure doors from each floor by smoke barriers complying with Section 709.
  - 2.4. In buildings having occupied floors located not more than 75 feet (22,860 mm) above the lowest level of fire department vehicle access an enclosed elevator lobby is provided at each floor landing to separate the elevator shaft enclosure doors from each floor by smoke partitions complying with Section 710 and having door openings protected by doors meeting the requirements of Sections 710.5.2 and 710.5.3 and duct penetrations protected with smoke dampers complying with Section 716.3.2.
3. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to be accessed from an area of refuge ~~or horizontal exit~~.
4. Elevators are not required to be accessed from an area of refuge ~~or horizontal exit~~ for smoke protected seating areas complying with Section 1025.6.2.
5. Elevators are not required to be accessed from an area of refuge in any story where a horizontal exit is provided.

**Reason:** Cal Chiefs is submitting this code change proposal in response to the approval of Code Change E25-07/08 during the last code development cycle. That code change reinstated the automatic sprinkler system tradeoff that deleted the areas of refuge and the requirement that accessible elevators be accessed from areas of refuge or a horizontal exit when the building is sprinklered with either an NFPA 13 or NFPA 13R sprinkler system. In effect, that code change overturned the membership action taken during the ICC Final Action Hearings held in Detroit during the code development cycle previous to the last cycle where the membership overwhelmingly approved the code change proposal that completely deleted the sprinkler tradeoff.

We are especially concerned that the proposed reasons for reinstating the sprinkler trade-off were based on the fact that an "operational" automatic sprinkler system would be provided. That assumes the sprinkler system will be operational and effectively function 100% of the time. That is entirely unrealistic. Please note that these accessible means of egress and areas of refuge are intended to protect occupants with disabilities until such time as they can be safely evacuated from the building by emergency responders.

The supporting statement for Code Change E25-/0607 which reinstated the sprinkler trade-off indicated that sprinklers operate successfully 93% of the time for those fires in sprinklered buildings where the fire was judged large enough to have activated the sprinkler system. However, a more recent analysis of the sprinkler statistics compiled by the National Fire Protection Association (NFPA) as documented in a report by William E. Koffel, P.E. of Koffel Associates dated January 2006 and subsequently verified by Dr. John Hall of NFPA indicates that the overall operational reliability of automatic sprinkler systems based on the most recent data is 89%. This reflects a difference of the sprinkler system failing in one fire in every nine fires based on an 89% reliability factor versus one fire in every fourteen fires based on a 93% reliability factor. This is a significant difference (>50%) and should seriously be considered when determining whether to allow such a sprinkler exception for the protection of occupants with disabilities.

We believe the best protection for disabled occupants in buildings can be provided by the combination of an automatic sprinkler system and built-in passive fire-resistive protection or smoke control. We don't believe that areas of refuge and accessible elevators with elevator lobbies should be completely traded off for automatic sprinklers. It should also be noted that this sprinkler tradeoff will apply to buildings of any height including high-rise buildings and super high-rise buildings (those greater than 420 feet in height). Is that a reasonable sprinkler tradeoff for the protection of occupants with disabilities? We don't think so.

However, we do realize that automatic sprinkler protection does provide some benefit and should be recognized when addressing the need for areas of refuge and accessible elevators for the disabled community. It is within that spirit that we have developed this code change proposal which in essence allows the complete sprinkler tradeoff for areas of refuge in any building not more than 3 stories in height above grade plane and also having not more than two basements. We feel this is reasonable since the responding fire department or other emergency personnel should be able to reasonably rescue and/or assist in getting any disabled persons to evacuate such buildings when protected with an automatic sprinkler system without subjecting those occupants to a significant risk. However, for buildings that are four or more stories in height or have three or more basements we believe that some additional protection is necessary in addition to the automatic sprinkler system in order to allow for the omission of the area of refuge. Those conditions include the fact that the building is required to be of a fire-resistance rated type of construction so that the building has a minimum one-hour fire-resistive protection built in for the floors and their supports to provide a degree of passive protection for the disabled occupants awaiting rescue or evacuation assistance. In addition to the fire-resistive construction requirements for these buildings, we also propose to require at least one other condition to be satisfied in order to provide a reasonable level of safety for the disabled occupants. These alternate conditions include the following:

1. A smoke barrier meeting the requirements of Section 407.4 for Group I-2 Occupancies, which basically requires every floor to be subdivided by a smoke barrier, is provided.
2. A smoke control system is provided in accordance with Section 909 with the additional requirement that it be capable of continuous operation for not less than one hour rather than the 20 minutes described in Section 909. This is to provide for an additional level of protection for those disabled occupants who may have to wait more than 20 minutes to be evacuated or relocated to a safe area in the building.
3. An elevator is provided in compliance with Section 1007.4. This also ties in well with the revisions we have proposed to Section 1007.4 Elevators to modify the automatic sprinkler system tradeoff for that section.

We believe the additional conditions provided for these buildings more than four stories in height or having three or more basements are reasonable alternatives to the deletion of the areas of refuge under the current code (2007 Supplement) for a sprinklered building.

Regarding the modifications to Section 1007.4, in looking for a compromise between a complete sprinkler tradeoff for the area of refuge for accessible elevators, we have similarly made revisions to the sprinkler tradeoff. However, it should be noted that the accessible elevator is not required until a story in the building is located more than four stories above or below any level of exit discharge. So there is no need to provide a story height trigger similar to that provided for the revisions proposed to Section 1007.3 Exit Stairways. But we have included the same additional condition that these buildings, which will generally be more than four stories in height above grade plane, must be of a fire resistance rated type of construction for the same reasons. In addition, we also prescribe that at least one other condition be satisfied out of a list of four potential options. Two of the options are identical to the first two options proposed to Section 1007.3. The other two options are as follows:

1. The elevator lobby is enclosed at each floor landing using a smoke barrier complying with Section 709.
2. For buildings that are not considered high rise buildings, the elevator lobby is enclosed using a smoke partition that complies with Section 710 with the additional proviso that the door openings are protected with latches and self-closing devices and the ducts penetrating the smoke partition are protected with a smoke damper, in addition to the other requirements in Section 710 for Smoke Partitions.

Again, we believe that the additional conditions are suitable for taller buildings where disabled occupants are likely to be found and who will need some additional degree of protection in conjunction with the automatic sprinkler system that allows the elimination of the area of refuge. It should be noted that the current sprinkler tradeoff in the 2007 Supplement for the area of refuge for accessible elevators eliminates the requirement that where an elevator lobby is used as an area of refuge, the elevator shaft and the elevator lobby are required to comply with Section 1020.1.7 Smokeproof Enclosures.

They are intended to provide an environment which is relatively smoke free in which the physically disabled persons utilizing the area of refuge during a fire emergency can remain until they can be safely evacuated from the building. This function requires a greater level of fire-resistive fire protection, as well as smoke protection, than that required for elevator lobbies.

For example, the smokeproof enclosure requirements specify that the vestibule that forms the elevator lobby for the area of refuge be required to have a minimum 2-hour fire-resistance rating and be constructed as a fire barrier. The doors opening into this area of refuge from any occupied areas would require a 1 ½ - hour fire protection rating. Also, the vestibule/elevator lobby requires significant ventilation that prevents the accumulation of smoke.

The requirements for elevator lobbies in Section 707.14.1, however, specify that the lobby enclosure need only be a fire partition having a fire-resistance rating equal to the corridor. At best, this would be a 1-hour fire-resistance rating. In buildings that are sprinklered, corridors in almost all occupancies would not be required to have a fire-resistance rating. Furthermore, there are six exceptions to the elevator lobby enclosure requirement. Current Exception 4 allows for the elimination of elevator lobbies in sprinklered buildings that are not considered high-rise buildings. Exception 5 will allow the use of a smoke partition in lieu of a fire partition when the building is sprinklered. It should be noted that smoke partitions do not require closers or latches on the doors and duct penetrations are not required to be protected with fire and/or smoke dampers. Also, smoke partitions are not required to have a fire-resistance rating. And, finally, Exception 6 allows for the omission of the elevator lobby enclosure if the elevator shaft is pressurized.

Currently, Section 1007.6 will allow the omission of the special elevator lobby requirements meeting those for smokeproof enclosures where the elevators are located in an area of refuge formed by a horizontal exit or a smoke barrier. A horizontal exit is required to have a minimum 2-hour fire-resistance rating with all openings protected with 1 ½ -hour fire doors and fire dampers. Smoke barriers are required to have a minimum 1-hour fire-resistance rating with door openings protected with 20 minute smoke and draft control door assemblies and any duct openings protected with combination fire and smoke dampers.

We believe the options we've provided for in the sprinkler tradeoff exception will provide comparable protection to this requirement where an automatic sprinkler system is provided throughout.

In conclusion, we have attempted to develop a reasonable compromise for the complete elimination of areas of refuge in buildings protected with automatic sprinkler systems for the disabled occupants of the building. We believe this code change proposal will provide a reasonably equivalent level of fire and life safety without a total reliance on the successful operation of the automatic sprinkler system. This is of special concern to us in California where we have a significant potential for major earthquakes to occur that will likely disrupt the water supplies to buildings and which afterwards fires will occur in buildings where the sprinkler systems will not likely function as designed. Therefore, it is very important that additional protection features be provided to achieve a reasonable balance of fire and life safety for the disabled occupants who may be occupying or using these buildings.

**Cost Impact:** The code change proposal will increase the cost of construction.

**Committee Reason:** The proposed language has many voids and technical problems. The terms used are not enforceable language. The proposal is not coordinated with other elements of the code. There was no technical justification provided or identified hazards showing the area of refuge is needed in sprinklered buildings. There was no justification for the one hour smoke control separation in Section 1007.3, Exception 3.2.2. The ADAAG allows for the exception for an area of refuge in sprinklered buildings. Section 1007.3, Exception 3.1 provides criteria for buildings with 3 stories or less, and Section 1007.3, Exception 3.2.1 provides criteria for a 5 story building or higher – thus there is no criteria for a 4 story building. Section 1007.4, Exception 2 has a typographical error in the types of construction – Type IIIA was not included.

**Assembly Action:**

None

### Individual Consideration Agenda

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Jason Thompson, PE, National Concrete Masonry Association (NCMA), representing Masonry Alliance for Codes and Standards (MACS), requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1007.3 (IFC [B] 1007.3) (Supp) Exit stairways.** In order to be considered part of an accessible means of egress, an exit stairway shall have a clear width of 48 inches (1219 mm) minimum between handrails and shall either incorporate an area of refuge within an enlarged floor-level landing or shall be accessed from an area of refuge complying with Section 1007.6.

**Exceptions:**

1. The area of refuge is not required at unenclosed interior exit stairways as permitted by Section 1020.1 in buildings or facilities that are equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and 903.3.1.2.
2. The clear width of 48 inches (1219 mm) between handrails is not required at exit stairways in buildings or facilities equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Where an automatic sprinkler system is installed in accordance with Section 903.3.1.1 or 903.3.1.2, areas of refuge are not required at exit stairways in buildings or facilities complying with either of the following:
  - 3.1. Buildings or facilities not more than three stories in height with not more than two basements, or
  - 3.2. Buildings or facilities of Type I, IIA, IIIA, IV, or VA construction where any of the following conditions are met:
    - 3.2.1. A smoke barrier complying with Section 709 is provided to subdivide each story located four or more stories above or below grade plane ~~the level of exit discharge~~ into at least two smoke compartments complying with Section 407.4.2; or
    - 3.2.2. An enclosed elevator lobby complying with Section 707.14.1 is provided at each floor landing and Exceptions 2, 3, 4 and 6 to Section 707.14.1 shall not apply. ~~A smoke control system is provided in accordance with Section 909 and is capable of continued operation after detection of the fire event for a period of not less than one hour;~~ or
    - 3.2.3. An elevator complying with Section 1007.4 is provided.
4. The clear width of 48 inches (1219 mm) between handrails is not required for exit stairways accessed from a horizontal exit.
5. Areas of refuge are not required at exit stairways serving open parking garages.
6. Areas of refuge are not required for smoke protected seating areas complying with Section 1025.6.2.
7. The areas of refuge are not required in Group R-2.
8. Areas of refuge are not required at exit stairways in any story where a horizontal exit is provided.

**1007.4 (IFC [B] 1007.4) (Supp) Elevators.** In order to be considered part of an accessible means of egress, an elevator shall comply with the emergency operation and signaling devices requirements of Section 2.27 of ASME A17.1. Standby power shall be provided in accordance with Section 2702 and 3003. The elevator shall be accessed from an area of refuge complying with Section 1007.6.

**Exceptions:**

1. Elevators are not required to be accessed from an area of refuge in open parking garages.
2. Elevators are not required to be accessed from an area of refuge in buildings or facilities of Type I, IIA, IIIA, IV or VA construction equipped throughout by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. where any of the following conditions are met:
  - 2.1. A smoke barrier complying with Section 709 is provided to subdivide each story located four or more stories above or below grade plane ~~a level of exit discharge~~ into at least two smoke compartments complying with Section 407.4.2;
  - 2.2. ~~A smoke control system is provided in accordance with Section 909 and is capable of continued operation after detection of the fire event for a period of not less than 1 hour;~~
  - 2.3-2. An enclosed elevator lobby complying with Section 707.14.1 is provided at each floor landing to separate the elevator shaft enclosure doors from each floor by smoke barriers complying with Section 709. and Exceptions 2 through 6 to Section 707.14.1 shall not apply.
  - 2.4-3. In buildings having occupied floors located not more than 75 feet (22,860mm) above the lowest level of fire department vehicle access an enclosed elevator lobby is provided at each floor landing other than the street floor to

separate the elevator shaft enclosure doors from each floor by smoke partitions complying with Section 710 ~~and having with~~ door openings protected by doors meeting the requirements of Sections 710.5.2, ~~and~~ 710.5.3, and 715.4.7 and duct penetrations protected with smoke dampers complying with Section 716.3.2.

3. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to be accessed from an area of refuge.
4. Elevators are not required to be accessed from an area of refuge for smoke protected seating areas complying with Section 1025.6.2.
5. Elevators are not required to be accessed from an area of refuge in any story where a horizontal exit is provided.

**Commenter's Reason:** Without this Public Comment there will be no ability for the ICC Class A voting members to consider alternatives to the sprinkler exceptions that allow for the omission of the areas of refuge in buildings that are protected throughout by an automatic sprinkler system. We believe there needs to be a compromise in certain buildings that pose a greater risk to occupants who have disabilities that make it difficult for them to evacuate in the event of a fire or other emergency. However, because of a code change proposal approved during the last code development cycle, there are no requirements for areas of refuge for accessible means of egress in buildings protected throughout with an automatic sprinkler system.

This code change proposal does provide for what we believe to be a reasonable compromise between having no areas of refuge in a sprinklered building and having a sprinklered building with the more restrictive requirements for areas of refuge for nonsprinklered buildings. This Public Comment has further revised this compromise approach to address many of the concerns expressed by the Committee, as well as those testifying in opposition to this code change proposal in Palm Springs, CA. For example, we have eliminated the option of the smoke control system provided in accordance with Section 909 which must be capable of a 1-hour operation. This was objected to because the 1-hour operation exceeded the 20 minute minimum operation required by Section 909. An objection was also raised because the main design method for smoke control systems is the pressurization method which does not assure tenability of the means of egress on the floor of fire origin. Since one of the goals of an area of refuge (or a reasonable compromise to an area of refuge) is to protect persons with disabilities on the floor of fire origin until they can be rescued or evacuated to a safe area within the building, it follows that the purpose of smoke control systems in Section 909 would not fulfill that need. In lieu of the smoke control system option in Exception 3.2.2, we have substituted the use of an enclosed elevator lobby complying with Section 707.14.1 while only allowing Exceptions 1 and 5 to apply. Exception 1 addresses the omission of the lobby on the street floor level and Exception 5 allows for the substitution of a smoke partition in lieu of a 1-hour fire partition to provide for the protection of the enclosed elevator lobbies. This would make these provisions more consistent with current code requirements which is another one of the concerns that was expressed by the Committee.

We have also clarified Exception 3.2.1 regarding the smoke barrier requirement for floors located four or more stories above grade plane instead of above the level of exit discharge which, in effect, added another story in height, making this inconsistent with Exception 3.1. Similarly, for the new Exceptions proposed to Section 1007.4 Elevators we have made the same clarifications regarding the reference to building height in Exception 2.1 for the smoke barrier alternative. We also eliminated the smoke control system alternative. We have also revised Exception 2.3 to further relax the requirement for a smoke barrier enclosure for elevator lobbies to an enclosed elevator lobby complying with Section 707.14.1 where only Exception 1 is allowed to apply which eliminates the elevator lobby enclosure at the street floor level. Thus, the enclosed elevator lobby would have to meet the requirements for a 1-hour fire partition enclosing the elevator lobby. We have also clarified Exception 2.3 to eliminate the elevator lobby on the street floor but still require a smoke partition to enclose the elevator lobby in these non-high-rise buildings where the openings in the partitions are properly protected to minimize the movement of smoke from the occupied spaces into the enclosed elevator lobby. It should be noted that Exception 2.2 would require all buildings including high-rise buildings to provide a minimum 1-hour fire-resistance rating for the enclosed elevator lobbies as opposed to non-fire-resistance rated smoke partitions allowed by Exception 2.3 for buildings that are not high-rise buildings.

In conclusion, we agree with the Reason statement by the proponents of the original code change proposal, the California Fire Chiefs Association (Cal Chiefs), that a reasonable compromise is needed for some type of additional protection for occupants with disabilities in sprinklered buildings. We believe that this Public Comment provides a revised code change proposal which should be more acceptable to those who have previously been in opposition to this compromise approach. It also affords the opportunity for the ICC Class A voting members to retain some form of reasonable level of protection for the disabled community.

Final Action:        AS            AM            AMPC\_\_\_\_        D

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## E33-07/08

### 1007.6.3, 1007.7 (New) [IFC [B] 1007.6.3, [B] 1007.7 (New)]

#### *Proposed Change as Submitted:*

**Proponent:** Mathew J. Bardin, Housing Devices, Inc.

#### **1. Revise as follows:**

**1007.6.3 (IFC [B] 1007.6.3) Two-way communication.** Areas of refuge shall be provided with a two-way communication system in accordance with Section 1007.7. ~~between the area of refuge and a central control point. If the central control point is not constantly attended, the area of refuge shall also have controlled access to a public telephone system. Location of the central control point shall be approved by the fire department. The two-way communication system shall include both audible and visible signals.~~

#### **2. Add new text as follows:**

**1007.7 (IFC [B] 1007.7) Two-way communication.** Two-way communication systems shall be provided in all multi-story buildings at stairways and elevators that serve as part of the accessible means of egress. Where areas or refuge are not provided, two-way communication systems shall be located adjacent to stairway

entrances and adjacent to the elevator doors. Where areas of refuge are provided, two way communication systems shall be located within the area of refuge. These systems shall communicate with a central control point. Location of the central control point shall be approved by the fire department. When the central control point is not constantly attended it shall have a timed automatic telephone dial-out capability to a monitoring location or 911. The two-way communication system shall include both audible and visible signals.

**Exception:** Two way communication systems are not required on the story that serves as the level of exit discharge.

**Reason:** The purpose of this proposed code change is to require two-way communication at stairways and elevators where people may be waiting for assisted rescue during emergencies. This proposed change is written in accordance with what we believe was the original intention of the Americans with Disabilities Act which was to provide two-way communications for any disabled person needing assistance regardless of circumstance or presence of any other life safety systems. This two-way communications system should also be for the use of any temporarily disabled person or any person needing assistance. This system should provide assistance in case of fire, chemical, biological, seismic, terrorist, criminal, or medical threat as well as any other reason a person may need assistance. We also feel that all multi-story buildings should be included whether they have a designated area of refuge or not. When exceptions to the area of refuge requirements were adopted for fully sprinklered buildings, we feel the two-way communications provisions were inadvertently included incorrectly. Due to the very low cost of these systems (approximately \$1000 per floor installed), the benefits of having this communications capability far outweigh the costs. One additional benefit to building owners is the added liability protection

**Cost Impact:** The code change proposal will increase the cost of construction for fully sprinklered buildings only by approximately \$1000 per floor installed.

**Committee Action:** **Disapproved**

**Committee Reason:** The proposal was overly restrictive by requiring this for all stairways instead of those stairs that are part of the accessible means of egress. The proposal was disapproved because of the committee action on E34-07/08.

**Assembly Action:** **None**

### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

#### *Public Comment:*

**Mathew J. Bardin, Housing Devices, Inc., requests Approval as Modified by this public comment.**

#### **Modify proposal as follows:**

**1007.7 (IFC [B] 1007.7) Two-way communication.** Two-way communication systems shall be provided in all multi-story buildings at stairways and elevators that serve as part of the accessible means of egress. Where areas of refuge are not provided, two-way communication systems shall be located adjacent to ~~one stairway entrance~~ entrances and adjacent to the elevator doors. Where areas of refuge are provided, two way communication systems shall be located within the area of refuge. These systems shall communicate with a central control point. Location of the central control point shall be approved by the fire department. When the central control point is not constantly attended it shall have a timed automatic telephone dial-out capability to a monitoring location or 911. The two-way communication system shall include both audible and visible signals.

**Exception:** Two way communication systems are not required on the story that serves as the level of exit discharge.

(Portions of proposal not shown remain unchanged)

**Commenter's Reason:** This code change, with its original modification, was disapproved by the code committee because it was too restrictive, they said, by requiring all stairways to be included. By including one stairway along with the elevator area per floor you offer a safer choice for the disability community, especially if a large floor plan exists. This also addresses the committee's question of where to locate two-way communications on floors with no elevators. This proposal is now equal to proposal E34 (1007.9) with an additional station per floor, and all reasons stated for E34 apply to this proposal as well.

Final Action:      AS              AM              AMPC\_\_\_\_              D

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## E34-07/08

1007.6.3, 1007.6.4, 1007.9(New), 1007.9.1(New), 1007.9.2(New), [IFC [B]1007.6.3, [B]1007.6.4, [B]1007.9 (New), [B]1007.9.1(New), [B]1007.9.2(New)]

*Proposed Change as Submitted:*

**Proponent:** David Frable US General Services Administration

### 1. Add new sections as follows:

**1007.9 (IFC [B] 1007.9) Two-way communication.** A two-way communication system shall be provided at the elevator landing on each accessible floor that is one or more stories above or below the story of exit discharge complying with Sections 1007.9.1 and 1007.9.2.

#### **Exceptions:**

1. Two-way communication systems are not required at the elevator landing where the two-way communication system is provided within areas of refuge in accordance with Section 1007.6.3.
2. Two-way communication systems are not required on floors provided with exit ramps conforming to the provisions of Section 1010.

**1007.9.1 (IFC 1007.9.1) System requirements.** Two-way communication systems shall provide communication between each required location and the fire command center or a central control point location approved by the fire department. Where the central control point is not constantly attended, a two way communication system is permitted to be provided by a controlled access to a public telephone system. The two-way communication system shall include both audible and visible signals.

**1007.9.2 (IFC [B] 1007.9.2) Directions.** Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system, and written identification of the location, shall be posted adjacent to the two-way communication system.

### 2. Revise as follows:

**1007.6.3 (IFC [B] 1007.6.3) Two-way communication.** Areas of refuge shall be provided with a two-way communication system ~~between the area of refuge and a central control point. If the central control point is not constantly attended, the area of refuge shall also have controlled access to a public telephone system. Location of the central control point shall be approved by the fire department. The two-way communication system shall include both audible and visible signals.~~ complying with Sections 1007.9.1 and 1007.9.2.

**1007.6.4 (IFC [B] 1007.6.4) Instructions.** In areas of refuge that have a two-way emergency communications system, instructions on the use of the area under emergency conditions shall be posted adjoining the communications system. The instructions shall include all of the following:

1. Directions to find other means of egress.
2. Persons able to use the exit stairway do so as soon as possible, unless they are assisting others.
3. ~~Information on planned availability of assistance in the use of stairs or supervised operation of elevators and how to summon such assistance.~~
4. ~~Directions for use of the emergency communications system.~~

**Reason:** The intent of this code change is to address an issue that has been raised by the disability community regarding the need to provide a two-way communication system on a floor for individuals unable to negotiate exit stairways during an emergency.

Current text only requires two-way communication systems within areas of refuge. Exceptions to Section 1007.3 and 1007.4 allow for the elimination of the area of refuge. This proposal will require two-way communication systems at the elevators on accessible levels other than the level of exit discharge. Exception 1 would avoid requiring a two-way communication system at the elevator when two-way communication was provided in the area of refuge. Exception 2 would avoid requiring a two-way communication system at the elevator when the floor level had ramps that allowed for independent evacuation, such as in a sports stadium.

In high rise building, typically, building occupant emergency plans use the elevator landings on each floor of a building as a staging area for individuals unable to negotiate exit stairways in an emergency. The new text proposed will provide an effective means for those individuals unable to negotiate exit stairways to communicate their location via a two-way communication system to either the fire command center or a central control point during an emergency condition. Signage will be provided with directions for operation of the system when provided at elevators and within areas of refuge.

The changes to Section 1007.6.3 and 1007.6.4 are for correlation only. Putting the two-way communication requirements in one section instead of repeating in two sections will eliminate possible conflicts in the future.

Another change addresses the issue of signage. These two changes will work separately or as a package.

**Cost Impact:** The code change proposal will increase the cost of construction.

**Modify the proposal as follows:**

**1007.9.1 (IFC 1007.9.1) System requirements.** Two-way communication systems shall provide communication between each required location and the fire command center or a central control point location approved by the fire department. Where the central control point is not constantly attended, a two way communication system shall have a timed automatic telephone dial-out capability to a monitoring location or 911 is permitted to be provided by a controlled access to a public telephone system. The two-way communication system shall include both audible and visible signals.

(Portions of proposal not shown remain unchanged)

**Committee Reason:** The modification will provide a clearer direction on how the phone system is expected to perform. The requirement for a two-way communication system at an elevator lobby does allow occupants to reach emergency responders to request assistance. This is important for persons with disabilities as well as others who may not be able to evacuate using the stairways. The lobby is an appropriate location since this is the point where most people will go since that is the area they are familiar with. Requirements should be addressed for multi-story buildings where elevators were not provided.

**Assembly Action:**

None

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**Dave Frable, US General Services Administration, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1007.6.4 (IFC [B] 1007.6.4) Instructions.** ~~In areas of refuge, instructions on the use of the area under emergency conditions shall be posted adjoining the communications system. The instructions shall include all of the following:~~

- ~~1. Directions to find other means of egress.~~
- ~~2. Persons able to use the exit stairway do so as soon as possible, unless they are assisting others.~~

**1007.12 (IFC [B] 1007.12) Instructions.** In areas of refuge and exterior areas for assisted rescue, instructions on the use of the area under emergency conditions shall be posted. The instructions shall include all of the following:

1. Persons able to use the exit stairway do so as soon as possible, unless they are assisting others.
2. Information on planned availability of assistance in the use of stairs or supervised operation of elevators and how to summon such assistance.
3. Directions for use of the two-way communications system where provided.

(Portions of proposal not shown remain unchanged)

**Commenter's Reason:** Code changes E34 and E35 were both approved. The result is a requirement for a two way communication system at elevators, and associated signage at the elevators and stairways that serve as part of an accessible means of egress. The original changes were written as stand alone pieces. Inadvertently, the approval of E34 deleted text that is needed for a complete package. This modification is a coordination of requirements between the two changes. The text for signage as it stands now is indicated below. The proposed modification is intended to add Items 2 and 3 in Section 1007.12.

**1007.10 Signage.** Signage indicating special accessibility provisions shall be provided as shown:

1. Each door providing access to an area of refuge from an adjacent floor area shall be identified by a sign stating: AREA OF REFUGE.
2. Each door providing access to an exterior areas for assisted rescue shall be identified by a sign stating: EXTERIOR AREA FOR ASSISTED RESCUE.

Signage shall comply with the ICC A117.1 requirements for visual characters and including the International Symbol of Accessibility. Where exit sign illumination is required by Section 1011.2, the signs shall be illuminated. Additionally, tactile signage complying with ICC A117.1 shall be located at each door to an area of refuge and exterior area for assisted rescue in accordance with Section 1011.3.

**1007.11 Directional signage.** Direction signage indicating the location of the other means of egress and which are accessible means of egress shall be provided at the following:

1. At exits serving a required accessible space but not providing an approved accessible means of egress.
2. At elevator landings.
3. Within areas of refuge.

**1007.12 Instructions.** In areas of refuge and exterior areas for assisted rescue, instructions on the use of the area under emergency conditions shall be posted. The instructions shall include all of the following:

1. Persons able to use the exit stairway do so as soon as possible, unless they are assisting others.



Public Comment 2:

**Mathew J. Bardin, Housing Devices Inc., requests Approval as Modified by this public comment.**

Further modify proposal as follows:

**1007.9 (IFC [B] 1007.9) Two-way communication.** A two-way communication system shall be provided at the elevator landing and adjacent to one stairway entrance on each accessible floor that is one or more stories above or below the story of exit discharge complying with Sections 1007.9.1 and 1007.9.2.

**Exceptions:**

1. Two-way communication systems are not required at the elevator landing where the two-way communication system is provided within areas of refuge in accordance with Section 1007.6.3.
2. Two-way communication systems are not required on floors provided with exit ramps conforming to the provisions of Section 1010.

(Portions of proposal not shown remain unchanged)

**Commenter's Reason:** By including one stairway along with the elevator area per floor you offer a safer choice for the disability community, especially if a large floor plan exists. This also addresses the committee's question of where to locate two-way communications on floors with no elevators. This proposal is now equal to proposal E33 (1007.7) with the additional station per floor, and all reasons stated for E34 apply to this proposal as well

Final Action: AS AM AMPC\_\_\_\_\_ D

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## **E37-07/08, Part I**

### **1008.1.1, (IFC [B] 1008.1.1)**

**NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.**

*Proposed Change as Submitted:*

**Proponent:** Julie Ruth, JRuth Code Consulting, representing American Architectural Manufacturers Association (AAMA)

### **PART I – IBC MEANS OF EGRESS**

**Revise as follows:**

**1008.1.1 (IFC [B] 1008.1.1) Size of doors.** The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a minimum clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. Means of egress doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41.5 inches (1054 mm). The minimum clear height of ~~doors~~ door openings shall not be less than ~~80~~ 78 inches (~~2032~~ 1981 mm).

**Exceptions:**

1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in Group R-2 and R-3 occupancies.
2. Door openings to resident sleeping units in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet (0.93m<sup>2</sup>) in area shall not be limited by the minimum width.
4. Width of door leaves in revolving doors that comply with Section 1008.1.3.1 shall not be limited.
5. Door openings within a dwelling unit or sleeping unit shall not be less than 78 inches (1981 mm) in height.

6. Exterior door openings in dwelling units and sleeping units, other than the required exit door, shall not be less than 76 inches (1930 mm) in height.
7. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a dwelling unit or sleeping unit that is not required to be an Accessible unit, Type A unit or Type B unit.

**Reason:** This proposal clarifies the requirements of the IBC and IRC in regards to the measurement of door size, and provides consistency between the two codes.

At the present time the IRC requires the egress door to be “not less than 3 feet in width”, but it is not clear how this measurement is to be taken. Traditionally the 3 feet is interpreted as being applicable to the width of the door slab, but there can be confusion in regards to this.

The IBC focuses on the more significant measurement, which is the width of the opening created when the door is open. This proposal replaces the more confusing language of the IRC with regard to door opening width with the more enforceable language of the IBC. Typically a 36 inch wide door slab would be required to achieve a minimum 32 inch width opening. Door slabs are manufactured in width increments of 2 inches (32 inches, 34 inches, 36 inches, etc). Once the thickness of the door slab (usually 1 ¾ inch for exterior doors), thickness of the door stop and allowance for hinges or other hardware are combined the difference between the width of the door slab and the resultant opening size is greater than 2 inches. Therefore a 34 inch wide door slab would not provide a 32 inch wide door opening required, and a 36 inch wide slab would need to be used.

In a similar fashion, the 80 inch door height requirement is replaced with a 78 inch height of opening requirement, with the height of the opening measured from the bottom of the door stop to the top of the threshold. Since door slabs are also manufactured in height increments of 2 inches, it is not anticipated that this proposal would result in a reduction in actual door size.

**Cost Impact:** The code change proposal will not increase the cost of construction.

## **PART I – IBC MEANS OF EGRESS**

### **Committee Action:**

**Approved as Modified**

**Modify the proposal as follows.**

**1008.1.1 (IFC [B] 1008.1.1) Size of doors.** The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a minimum clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. Means of egress doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41.5 inches (1054 mm). The minimum clear height of door openings shall not be less than ~~80 78~~ inches (~~2032 4984~~ mm).

#### **Exceptions:**

1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in Group R-2 and R-3 occupancies.
2. Door openings to resident sleeping units in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet (0.93m<sup>2</sup>) in area shall not be limited by the minimum width.
4. Width of door leafs in revolving doors that comply with Section 1008.1.3.1 shall not be limited.
5. Door openings within a dwelling unit or sleeping unit shall not be less than 78 inches (1981 mm) in height.
6. Exterior door openings in dwelling units and sleeping units, other than the required exit door, shall not be less than 76 inches (1930 mm) in height.
7. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a dwelling unit or sleeping unit that is not required to be an Accessible unit, Type A unit or Type B unit.

**Committee Reason:** The 80” clear height of door openings should be maintained because the standard door heights are 80” and a reduction to 78” would cause confusion. The 78” inches in the ICC A117.1 is for door closers, not the entire door. The remainder of the proposal adds clarity to the code text.

### **Assembly Action:**

**None**

### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part I.**

#### *Public Comment:*

#### **Julie Ruth, JRuth Code Consulting, requests Approval as Submitted for Part I.**

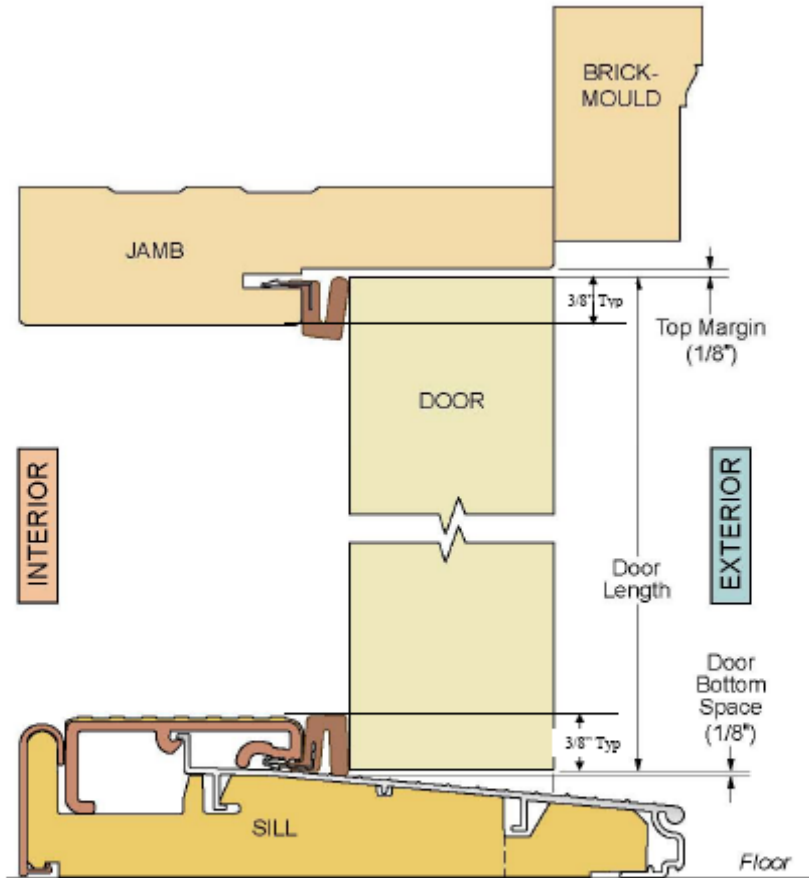
**Commenter's Reason:** The original intent of E37 was to 1) clarify the door size requirements of the IRC and, 2) provide for consistent language between the IRC and IBC in terms of door opening size. To achieve both of these goals, E37 was submitted with two parts. Part II replaced the current requirement of the IRC that the one required egress door be a minimum width of 36 inches with the requirement from the IBC that egress doors provide a minimum clear opening width of 32 inches, when measured from the face of the door to the door stop. In this case the IBC language provided greater clarity than the IRC by focusing on the primary function of the doorway, which is to provide egress from one room or space in a building to another. Since door slabs are typically manufactured in 2 inch increments both in terms of width and height, door slab thicknesses are typically 1 ¾ or 2 inches, and doors stops between 3/8 and ¾ inch, it is commonly necessary to use a nominally 36 inch wide door slab to provide a 32 inch clear opening width. Therefore, replacement of the IRC language with the IBC language was not considered as increasing or decreasing the stringency of the IRC.

In the same manner, both Part I and II of E37 attempted to address the issue of door height. Both the 2006 IRC and 2006 IBC require egress doors to be 80 inches in height. It is not clear if this dimension is to be the nominal dimension of the door slab, the height of the door frame, etc.

Therefore, both Part I and II of E37 attempted to replace the current requirement that egress doors be 80 inches in height with a requirement that egress doors provide a minimum clear opening height of 78 inches. The proposed new language focuses on the actual intended purpose of the doorway – to provide an opening for egress. It is consistent with the use of clear opening width rather than simply referencing a prescribed door width.

Typically, the amount the height of the door opening is reduced by door stops, closers, thresholds and sills will vary depending upon the hardware chosen, but requiring the opening provided to not be less than 78 inches would require a minimum nominal slab height of 80 inches or more. In actuality the height of a nominally 80 inch slab is about 79 inches (just as a 2 x 4 is not actually 2 inches wide x 4 inches long).

The figure below indicates the actual height of clear opening provided by a standard 80 inch high door.



Door Length = 79" typical  
 Door top end overlap on header = 3/8"  
 Door bottom end overlap on sill = 3/8"  
 $79" - 3/8" - 3/8" = 78-1/4"$  vertical clear opening

Therefore, replacement of the current 80 inch requirement with a clear opening requirement of 78 inches was not considered as decreasing the stringency of the IRC or IBC in terms of required height of egress doors. It should also be noted that the ADA requirements for accessible doors requires a clear opening height of 78 inches. So E37 was considered to be consistent with ADA.

Part II of E37 was approved as submitted by the IRC – Building and Energy committee. Part I of E37 was approved with a modification. The modification was to require the clear opening height to be 80 inches instead of 78 inches. This approved modification would be an increase in the stringency of the IBC. No need for this increase in stringency has been demonstrated.

Final Action: AS AM AMPC\_\_\_ D

**NOTE: PART II REPRODUCED FOR INFORMATIONAL PURPOSES ONLY – SEE ABOVE**

**E37-07/08, PART II – IRC BUILDING AND ENERGY  
 IRC R311.2**

**Revise as follows:**

**R311.2 (Supp) Egress door.** At least one egress door shall be provided for each dwelling unit. The egress door shall be side-hinged, ~~not less than 3 feet (914 mm) in width and~~ and shall provide a minimum clear width of 32 inches (813 mm) when measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The minimum

clear height of the door opening shall not be less than 6 feet 8 inches (2032 mm) 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the dwelling without the use of a key or special knowledge or effort.

**Reason:** This proposal clarifies the requirements of the IBC and IRC in regards to the measurement of door size, and provides consistency between the two codes.

At the present time the IRC requires the egress door to be "not less than 3 feet in width", but it is not clear how this measurement is to be taken. Traditionally the 3 feet is interpreted as being applicable to the width of the door slab, but there can be confusion in regards to this.

The IBC focuses on the more significant measurement, which is the width of the opening created when the door is open. This proposal replaces the more confusing language of the IRC with regard to door opening width with the more enforceable language of the IBC. Typically a 36 inch wide door slab would be required to achieve a minimum 32 inch width opening. Door slabs are manufactured in width increments of 2 inches (32 inches, 34 inches, 36 inches, etc). Once the thickness of the door slab (usually 1 ¼ inch for exterior doors), thickness of the door stop and allowance for hinges or other hardware are combined the difference between the width of the door slab and the resultant opening size is greater than 2 inches. Therefore a 34 inch wide door slab would not provide a 32 inch wide door opening required, and a 36 inch wide slab would need to be used.

In a similar fashion, the 80 inch door height requirement is replaced with a 78 inch height of opening requirement, with the height of the opening measured from the bottom of the door stop to the top of the threshold. Since door slabs are also manufactured in height increments of 2 inches, it is not anticipated that this proposal would result in a reduction in actual door size.

**Cost Impact:** The code change proposal will not increase the cost of construction.

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** The proposed language clarifies the requirements of the International Residential Code in regard to the measurement of door size and provides consistency with the International Building Code. The new language provides better guidance to the building official on how the door measurement is to be taken.

**Assembly Action:**

**None**

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## E38-07/08

### 1008.1.1 (IFC [B] 1008.1.1)

#### *Proposed Change as Submitted:*

**Proponent:** Tom Lariviere, Madison Fire Department, representing Joint Fire Service Review Committee

#### **Revise as follows:**

**1008.1.1 (IFC [B] 1008.1.1) Size of doors.** The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of not less than 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. Means of egress doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41.5 inches (1054 mm). In Group I-2 occupancies, where doors are installed across corridors used for the movement of beds, such doors shall provide a clear width not less than 83 inches (2110 mm). The height of doors shall not be less than 80 inches (2032 mm).

#### **Exceptions:**

1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in Group R-2 and R-3 occupancies.
2. Door openings to resident sleeping units in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet (0.93m<sup>2</sup>) in area shall not be limited by the minimum width.
4. Width of door leaves in revolving doors that comply with Section 1008.1.3.1 shall not be limited.
5. Door openings within a dwelling unit or sleeping unit shall not be less than 78 inches (1981 mm) in height.

6. Exterior door openings in dwelling units and sleeping units, other than the required exit door, shall not be less than 76 inches (1930 mm) in height.
7. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a dwelling unit or sleeping unit that is not required to be an Accessible unit, Type A unit or Type B unit.
8. Door openings required to be accessible within Type B units shall have a minimum clear width of 31.75 inches (806 mm).

**Reason:** When doors cross a corridor and essentially provide the width of two doors, they need to provide a minimum clear width of 83" which is equivalent to two doors at 41.5" each. Additionally, sliding doors are more frequently being installed in Group I-2 configurations. Currently there are no specific requirements for horizontal sliding doors in this configuration. This proposal will provide the guidance necessary to ensure proper design and maintain egress requirements

**Cost Impact:** The code change proposal will not increase the cost of construction.

**Committee Action:**

**Disapproved**

**Committee Reason:** There must be further consideration for other situations not intended to be covered with this requirement. The text does not indicate that the proposed language is for a pair of doors. Automatic doors do not need the 83" clear width. When movement of beds in the corridor is only in one direction, such as within a suite, the double width is not needed. In addition, the code already addresses this issue in the previous sentence if the doors are intended for means of egress in two directions.

**Assembly Action:**

**None**

### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1008.1.1 (IFC [B] 1008.1.1) Size of doors.** The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of not less than 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. Means of egress doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41.5 inches (1054 mm) ~~each. In Group I-2 occupancies, where doors are installed across corridors used for the movement of beds, such doors shall provide a clear width not less than 83 inches (2110 mm).~~ The height of doors shall not be less than 80 inches (2032 mm).

**Exceptions:**

1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in Group R-2 and R-3 occupancies.
2. Door openings to resident sleeping units in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet (0.93 m<sup>2</sup>) in area shall not be limited by the minimum width.
4. Width of door leaves in revolving doors that comply with Section 1008.1.3.1 shall not be limited.
5. Door openings within a dwelling unit or sleeping unit shall not be less than 78 inches (1981 mm) in height.
6. Exterior door openings in dwelling units and sleeping units, other than the required exit door, shall not be less than 76 inches (1930 mm) in height.
7. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a dwelling unit or sleeping unit that is not required to be an Accessible unit, Type A unit or Type B unit.
8. Door openings required to be accessible within Type B units shall have a minimum clear width of 31.75 inches (806 mm).

**Commenter's Reason:** Horizontal sliding are more frequently being installed in Group I-2 occupancies. When these doors cross a corridor and essentially provide the width of two doors, they need to provide a minimum width of 83" which is equivalent to two doors at 41.5" each. Currently there are no specific requirements for horizontal sliding doors in this configuration. This proposal will provide the guidance necessary to ensure proper design and maintain egress requirements.

The Code Development Committee disapproved this item since there was not a mandate that all sliding doors must be a "pair" of doors. Therefore, this Public Comment is submitted with revisions to address "each" door. Therefore if the sliding door is a single door, it shall provide 41.5" of clear width; if it a pair of doors and each door provides 41.5" clear width, there is a total of 83" of clear width.

This provision will provide consistency and correlation of the I-Codes with mandated Federal Regulations for Group I-2 occupancies. In other words, the Federal Regulations already require this minimum clear width. Without the inclusion of this information in the I-Codes, a new facility could be constructed and completed only to find out that they need to go back and revise door installations. If the I-Codes contain this requirement, it will eliminate confusion and frustration on the part of the owner/developer and eliminate finger pointing after the code official has "approved" the facility.

Final Action:        AS            AM            AMPC\_\_\_\_        D

# E39-07/08

## 1008.1.2, 1008.1.2.1 (New) [IFC [B] 1008.1.2, [B] 1008.1.2.1 (New)]

### *Proposed Change as Submitted:*

**Proponent:** Gary Miller, City of Irving, TX, representing North Texas Chapter of ICC

#### **1. Revise as follows:**

**1008.1.2 (IFC [B] 1008.1.2) (Supp) Door swing.** Egress doors shall be of the pivoted or side-hinged swinging type.

#### **Exceptions:**

1. Private garages, office areas, factory and storage areas with an occupant load of 10 or less.
2. Group I-3 occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single dwelling unit in Groups R-2 and R-3.
5. In other than Group H occupancies, revolving doors complying with Section 1008.1.3.1.
6. In other than Group H occupancies, horizontal sliding doors complying with Section 1008.1.3.3 are permitted in a means of egress.
7. Power-operated doors in accordance with Section 1008.1.3.2.
8. Doors serving a bathroom within an individual sleeping unit in Group R-1.
9. In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a means of egress from spaces with an occupant load of 10 or less.

Doors shall swing in the direction of egress travel where serving an occupant load of 50 or more persons or a Group H occupancy.

#### **2. Add new text as follows:**

**1008.1.2.1 (IFC [B] 1008.1.2.1) Double-acting doors.** Double-acting doors shall not be used as doors in a means of egress where any of the following conditions exist:

1. The occupant load served by the door is 100 or more.
2. The door is part of a fire door assembly.
3. The door is part of an opening in a smoke barrier.
4. Panic hardware is required or provided on the door.

A double-acting door shall be provided with a view panel of not less than 200 square inches (0.129 m<sup>2</sup>).

**Reason:** This proposal will clarify and add new requirements to the Code. As this section is currently written, egress doors equipped with pivot hardware are prohibited from use, and double-acting doors are allowed without any limiting or clarifying language.

Although pivot doors and side-hinged doors function in a nearly identical manner, they are different devices with pivot hardware typically being installed on the bottom and top edges of doors rather than on the side. The omission of pivot type doors from the door swing section of the IBC has been consistent since the 2000 Edition, but they were included as an allowed door type in at least one of the legacy codes (UBC). The 2006 IBC includes at least two direct references and one indirect reference to pivot hardware: (1) Section 715.4.1 designates test standards for "Side-hinged and pivoted swinging doors"; (2) Section 1002 includes a reference to "double-pivoted hardware" in the definition of the term "balanced door"; (3) Section 1008.1.9 identifies installation criteria "If balanced doors are used and panic hardware is required . . ." – the implied assumption being that pivots serve as the hinge device of the balanced door. Pivot doors are commonly used, especially on glass doors, and should be allowed as long as they meet the other applicable code provisions such as opening force and clear opening width.

Double-acting doors are doors that swing in both directions, are also in common usage, and should continue to be allowed, but with some restrictions. Proposed Section 1008.1.2.1 is wording that is taken from the 1997 UBC with minor terminology updates. Restriction #1 addresses a practical threshold beyond which the use of double-acting doors would create a potentially unsafe emergency exiting condition; restrictions #2 & #3 address practical limitations since double-acting doors are incapable of providing positive latching; restriction #4 adds another practical restriction in that doors equipped with panic hardware should only swing in one direction. The last sentence in this section requires the installation of a view panel in order to lessen the chance of a person being struck by the door which is being blindly pushed open from the opposite side.

**Cost Impact:** The code change proposal will not increase the cost of construction.

**Committee Action:**

**Disapproved**

**Committee Reason:** Section 1008.1.2 is a clarification that pivoted and side hinged are both acceptable. The committee had concerns with new Section 1008.1.2.1. It is unclear if the 100 person occupant load is cumulative from both sides, from each side or from the total floor. The viewing panels may be privacy issue in double acting doors used in patient rooms or bathrooms. The location of the viewing panel needs to be stated so that they will achieve their purpose.

**Assembly Action:**

**None**

### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Steve Thomas, Colorado Code Consulting LLC, representing Colorado Chapter of ICC, requests Approval as Modified by this public comment.**

**Maureen Traxler, City of Seattle, WA, representing Washington Association of Building Officials Technical Code Development Committee, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1008.1.2 (IFC [B] 1008.1.2) (Supp) Door swing.** Egress doors shall be of the pivoted or side-hinged swinging type.

**Exceptions:**

1. Private garages, office areas, factory and storage areas with an occupant load of 10 or less.
2. Group I-3 occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single dwelling unit in Groups R-2 and R-3.
5. In other than Group H occupancies, revolving doors complying with Section 1008.1.3.1.
6. In other than Group H occupancies, horizontal sliding doors complying with Section 1008.1.3.3 are permitted in a means of egress.
7. Power-operated doors in accordance with Section 1008.1.3.2.
8. Doors serving a bathroom within an individual sleeping unit in Group R-1.
9. In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a means of egress from spaces with an occupant load of 10 or less.

Doors shall swing in the direction of egress travel where serving an occupant load of 50 or more persons or a Group H occupancy.

~~**1008.1.2.1 (IFC [B] 1008.1.2.1) Double acting doors.** Double acting doors shall not be used as doors in a means of egress where any of the following conditions exist:~~

- ~~1. The occupant load served by the door is 100 or more.~~
- ~~2. The door is part of a fire door assembly.~~
- ~~3. The door is part of an opening in a smoke barrier.~~
- ~~4. Panic hardware is required or provided on the door.~~

~~A double acting door shall be provided with a view panel of not less than 200 square inches (0.129 m<sup>2</sup>).~~

**Commenter's Reason: (Thomas)** The committee felt that Item 1 of the proposed change was reasonable, but they did not like Item 2. This public comment keeps the language of Item 1 and deletes the language from Item 2. The original proposal added the words "of the pivoted or" to Section 1008.1.2. This would clarify that the use of pivot hinged doors provides the same action of the door swing requirements in the code.

**Commenter's Reason: (Traxler)** Pivoted doors are a safe and reasonable alternative to side-hinged swinging doors. The Code Development Committee's reason for disapproving this code change proposal included the statement "pivoted and side hinged doors are both acceptable." Section 1008.1.2 of the code change proposal should be approved.

Final Action:      AS              AM              AMPC\_\_\_\_              D

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## E40-07/08

### 1008.1.2, 1008.1.3.3 (IFC [B] 1008.1.2, [B] 1008.1.3.3)

#### *Proposed Change as Submitted:*

**Proponent:** Gregory J. Cahanin, Cahanin Fire & Code Consulting, representing Skyfold

#### **Revise as follows:**

**1008.1.2 (IFC [B] 1008.1.2) (Supp) Door swing.** Egress doors shall be side-hinged swinging.

#### **Exceptions:**

1. Private garages, office areas, factory and storage areas with an occupant load of 10 or less.
2. Group I-3 occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single dwelling unit in Groups R-2 and R-3.
5. In other than Group H occupancies, revolving doors complying with Section 1008.1.3.1.
6. In other than Group H occupancies, horizontal or vertical sliding doors complying with Section 1008.1.3.3 are permitted in a means of egress.
7. Power-operated doors in accordance with Section 1008.1.3.2.
8. Doors serving a bathroom within an individual sleeping unit in Group R-1.
9. In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a means of egress from spaces with an occupant load of 10 or less.

Doors shall swing in the direction of egress travel where serving an occupant load of 50 or more persons or a Group H occupancy.

**1008.1.3.3 (IFC [B] 1008.1.3.3) Horizontal or vertical sliding doors.** In other than Group H occupancies, horizontal or vertical sliding doors permitted to be a component of a means of egress in accordance with Exception 6 to Section 1008.1.2 shall comply with all of the following criteria:

1. The doors shall be power operated in accordance with Section 1008.1.3.2 and shall be capable of being operated manually in the event of power failure.
2. The doors shall be openable by a simple method from both sides without special knowledge or effort.
3. The force required to operate the door shall not exceed 30 pounds (133 N) to set the door in motion and 15 pounds (67 N) to close the door or open it to the minimum required width.
4. The door shall be openable with a force not to exceed 15 pounds (67 N) when a force of 250 pounds (1100 N) is applied perpendicular to the door adjacent to the operating device.
5. The door assembly shall comply with the applicable fire protection rating and, where rated, shall be self-closing or automatic closing by smoke detection in accordance with Section 715.4.7.3, shall be installed in accordance with NFPA 80 and shall comply with Section 715.
6. The door assembly shall have an integrated standby power supply.
7. The door assembly power supply shall be electrically supervised.
8. The door shall open to the minimum required width within 10 seconds after activation of the operating device.
9. The door, where not installed in a fire-resistance rated assembly or smoke partition, but within the egress path, shall open upon activation of the building fire alarm system, automatic sprinkler systems, or fire detection system, where provided. The door shall remain in the open position until the fire alarm system has been reset.

**Exception:** Manual exit devices used to open horizontal or vertical sliding doors shall be permitted in lieu of manual operation.

1. Manual exit devices shall be located 40 inches to 48 inches vertically above the floor and a maximum of 5 feet horizontally of the egress door. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "Push to Exit". When operated, the manual exit device shall result in the opening of the door.
2. Standby power supplies for manual exit devices shall be capable of providing power for 10 opening and closing cycles.



**Reason:** This change recognizes doors other than side-swinging for exit egress may be not just horizontal in operation, but also vertical in operation. The 8 established requirements for horizontal sliding doors apply equally to doors in the vertical orientation as well.

A direct reference to 1008.3.2 for power-operated door requirements is inserted in provision 1 in recognition that both horizontal and vertical doors have motorized systems for operating the doors upon smoke or fire detection.

A new # 9 provision is for doors in the egress path which are not fire or smoke rated that may be horizontal or vertical sliding doors.

Under this new provision no opening protective closure is mandated, so the horizontal or vertical sliding door can retract upon the activation of automatic sprinklers in the building, upon smoke detection in the area of the sliding door, or upon the activation of the fire alarm system. Under this provision the sliding door will be in the fully open position without any occupant action required.

A new exception seeks to allow the use of manual unlocking devices also described as manual exit devices in the commentary for Access-controlled egress doors in Section 1008.1.3.4. The automatic operation of the sliding door in lieu of a manual-only operation of the door requires a power supply with the ability to cycle the sliding door a minimum of 10 times is provided for in this change

**Cost Impact:** The code change will not increase the cost of construction.

**Committee Action:**

**Disapproved**

**Committee Reason:** Vertical sliding doors are not easily recognizable as egress doors as required by Section 1008.1. Egress doors that have a fire resistance rating are there to resist the movement of fire and smoke. This door would remain open and could not be used in fire rated construction. There are concerns that the break away option for vertical sliding doors provide the same level of safety as a break away for a horizontal door.

**Assembly Action:**

**None**

### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Gregory J. Cahanin, Cahanin Fire & Code Consulting, representing Skyfold, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1008.1.3.3 (IFC [B] 1008.1.3.3) Horizontal or vertical sliding doors.** In other than Group H occupancies, horizontal or vertical sliding doors permitted to be a component of a means of egress in accordance with Exception 5 6 to Section 1008.1.2 shall comply with all of the following criteria:

1. The doors shall be power operated and shall be capable of being operated manually in the event of power failure and comply with Section 1008.1.3.2
2. The doors shall be openable by a simple method from both sides without special knowledge or effort.
3. The force required to operate the door shall not exceed 30 pounds to set the door in motion and 15 pounds to close the door or open it to the minimum required width.
4. The door shall be openable with a force not to exceed 15 pounds when a force of 250 pounds is applied perpendicular to the door adjacent to the operating device.
5. The door assembly shall comply the applicable fire protection rating and, where rated, shall be self-closing or automatic closing by smoke detection in accordance with Section 715.4.7.3, shall be installed in accordance with NFPA 80 and shall comply with Section 715.
6. The door assembly shall have an integrated standby power supply.
7. The door assembly power supply shall be electrically supervised.
8. The door shall open to the minimum required width within 10 seconds after activation of the operating device.
9. The door, where not installed in a fire-resistance rated assembly or smoke partition, but within the egress path, shall open upon activation of the building fire alarm system, building automatic sprinkler systems, or fire detection system, where provided. The door shall remain in the open position until the fire alarm system has been reset.

**Exception:** Manual exit devices used to open horizontal or vertical sliding doors shall be permitted in lieu of manual operation.

1. Manual exit devices shall be located 40 inches to 48 inches vertically above the floor and within 5 feet of the egress door. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "Push to Exit". When operated, the manual exit device shall result in the opening of the door.
  2. Standby power supplies for manual exit devices shall be capable of providing power for 10 opening and closing cycles.
10. Horizontal and vertical sliding doors shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors.

(Portions of proposal not shown remain unchanged)

**Commenter's Reason:** This change recognizes doors other than side-swinging for exit egress may be not just horizontal in operation, but also vertical in operation. The 8 established requirements for horizontal sliding doors apply equally to doors in the vertical orientation as well.

Two additional criteria have been added. Number 10 is a response to a committee comment in the proposal stage that vertical sliding doors are not easily recognizable as egress doors. All Means of egress doors including horizontal sliding doors have always had to meet 1008.1 that states, "Means of egress doors shall be readily distinguishable from the adjacent construction and finishes such that the doors

are easily recognizable as doors." To satisfy the committee's concern's this new number 10 criterion repeats the base requirement for doors contained in Chapter 10. This requirement has been established for several decades will little change in the language to the point that a more specific requirement is not needed. An example of applying this criterion is the exit doors contained in convention and meeting hall movable partition walls where doors are outlined in a contrasting framework.

The exception with an allowance for the use of manual exit device is taken directly from 1008.1.3.4- Access-controlled egress doors that allows for a "manual exit device" is brought forward here as properly applicable for able-bodied as well as mobility impaired individuals as substantiated by its use in access controlled egress doors.

The committee comment about a break-away option applies to revolving doors and is not applicable to existing horizontal doors and is inserted in error.

The new number 9 provides for a horizontal or vertical door that is NOT in a fire or smoke rated barrier, but is a means of egress door. The meeting hall movable partition wall with a side swinging egress door that does not have a closer is now allowed in this type of application. This new section is meant to allow for the use of a horizontal or vertical sliding door in applications that would include meeting hall movable partitions. The sponsor of this change manufactures movable partition walls. The exception does not present a greater risk for fire or smoke spread since these partitions are not required to be maintained in a closed position.

Final Action: AS AM AMPC \_\_\_\_\_ D

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## E42-07/08

### 1008.1.4, 1008.1.6 (IFC [B] 1008.1.4, [B] 1008.1.6)

#### *Proposed Change as Submitted:*

**Proponent:** Julie Ruth, JRuth Code Consulting, representing herself

#### **Revise as follows:**

**1008.1.4 (IFC [B] 1008.1.4) 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. Doors serving individual dwelling units in Groups R-2 and R-3 where the following apply:
  - 1.1. A door is permitted to open at the top step of an interior flight of stairs, provided the door does not swing over the top step.
  - 1.2. Screen doors and storm doors are permitted to swing over stairs or landings.
2. Exterior doors as provided for in Section 1003.5, Exception 1, and Section 1018.2, which are not on an accessible route.
3. In Group ~~R-2~~ and R-3 occupancies not required to be Accessible units, Type A units or Type B units, the landing at an exterior doorway shall not be more than 7.75 inches (197 mm) below the top of the threshold, provided the door, other than an exterior storm or screen door, does not swing over the landing.
4. Variations in elevation due to differences in finish materials, but not more than 0.5 inch (12.7 mm).
5. In Type B dwelling units, the floor of exterior decks, patios or balconies that are part of the Type B dwelling units, unit and have impervious surfaces and that are not more than 4-1/2 inches (114 mm) below the top of the threshold of the door between the exterior deck, patio or balcony and the finished floor level of the adjacent interior space of the dwelling unit.

**1008.1.6 (IFC [B] 1008.1.6) Thresholds.** Thresholds at doorways shall not exceed 0.75 inch (19.1 mm) in height for sliding doors serving dwelling units or 0.5 inch (12.7 mm) for other doors. Raised thresholds and floor level changes greater than 0.25 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).

**Exception:** ~~The threshold height shall be limited to 7.75 inches (197 mm) where the occupancy is Group R-2 or R-3; the door is an exterior door that is not a component of the required means of egress; the door, other than an exterior storm or screen door does not swing over the landing or step; and the doorway is not on an accessible route as required by Chapter 11 and is not part of an Accessible unit, Type A unit or Type B unit.~~ Thresholds of exterior doors in Group R-2 and R-3 occupancies that meet the criteria of Section 1008.1.4, exception 3 or 5 shall not be subject to the height restrictions of this section.

**Reason:** The purpose of this proposal is to remove confusion that currently exists in regards to the application of exceptions 3 and 5 to Section 1008.1.4 and the exception to Section 1008.1.6. All three of these exceptions have primarily the same purpose – to permit a height difference greater than ½ or ¾ inch at the threshold of exterior doors to reduce the likelihood of water penetration underneath the door into the interior space. Section 1008.1.4 deals with the elevation difference between interior and exterior floors, and Section 1008.1.6 deals with door thresholds.

Water penetration through exterior fenestration can be a problem in any climate zone. Currently AAMA/WDMA/CSA 101/I.S.2/A440, which is referenced in Section 1714.5.1 of the 2006 IBC for exterior windows and sliding doors, ties the pressure at which water resistant testing is to be performed to the design pressure (DP) for the opening. The design pressure, in turn, is a function of a number of variables, including design wind speed, exposure category, size of opening and location of the opening on the exterior face of the building (height above grade, proximity of opening to corners and other abrupt changes in the profile of the building), etc. This water resistance pressure is directly related to inches of water pressure that occur over the face of the fenestration during a weather event that combines high winds and rain. A barrier the height of the water pressure or higher is needed to resist water penetration through the opening. Once the design wind speed for an area exceeds 85 mph, this water pressure will exceed ½ inch, which in turn requires a water barrier at door thresholds that exceeds the ½ inch threshold permitted by Section 1008.1.6.

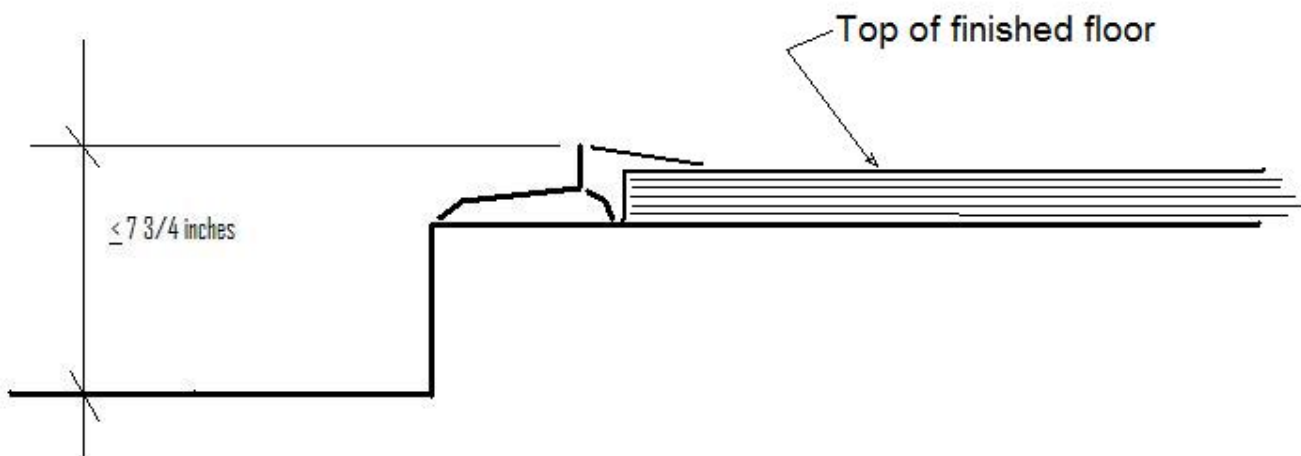
Indications from extreme weather events indicate that the water resistant pressures given in AAMA/WDMA/CSA 101/I.S.2/A440 may be unconservative for some locations. For example, studies conducted after the 2004 hurricanes in Florida indicated that buildings built under the 2001 *Florida Building Code* for the most part survived the hurricanes with fenestration remaining in place, but that in some instances water penetration of the fenestration did occur. In some cases this water penetration caused a great deal of damage to the interior spaces of buildings. AAMA has recently begun participating in a research project to learn more about water penetration of exterior fenestration during extreme wind and rain events. What we know at the present time is that ½ inch high barriers are inadequate throughout most of the U.S., and barriers greater than 2 ½ inches in height may be needed in some areas.

To address this need the IBC currently contains Exceptions 3 and 5 to Section 1008.1.4 and the exception to Section 1008.1.6. The exceptions to Section 1008.1.4 permit the exterior landing, balcony, deck or porch to be a certain distance below the top of the threshold of an exterior door, or the interior finished floor, in certain types of dwelling units. The exception to Section 1008.1.6 permits the threshold of exterior doors to be the same height as the step down permitted in Exception 3 to Section 1008.1.4.

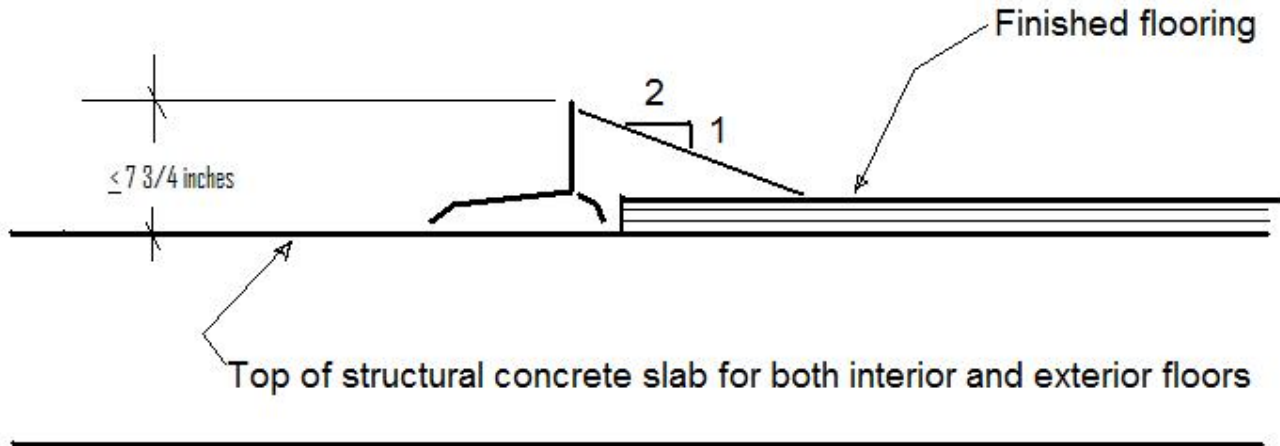
Some confusion has occurred between the application of Exception 3 of Section 1008.1.4 and the exception to Section 1008.1.6, with some parties interpreting the two sections as permitting a total height difference of 15 ½ inches. Other parties have viewed the two exceptions as being redundant.

The intent of the two exceptions, however, is to permit a total height difference from the exterior floor surface to the top of the threshold of 7 ¾ inches, as stated in Exception 3 of Section 1008.1.4. In some cases that difference is provided by a difference in floor elevation between the interior and exterior spaces and therefore is addressed by the exception to Section 1008.1.4. In other cases, such as when the top of the interior and exterior floor are at similar heights, the barrier needs to be provided by the door threshold itself, and therefore the exception to Section 1008.1.6 is needed. Common instances when the top of the interior and exterior floor are at similar heights include when the exterior door is at grade, or when both the interior and exterior floor is provided by a concrete slab that is cantilevered through the exterior wall.

**Case 1: Exterior step down occurs. Exception to Section 1008.1.6 permits the threshold to be greater than 1/2 inch or 3/4 inch in height, but exception 3 to Section 1008.1.4 limits the total distance in height (change in floor elevation + threshold height) to 7 3/4 inches.**



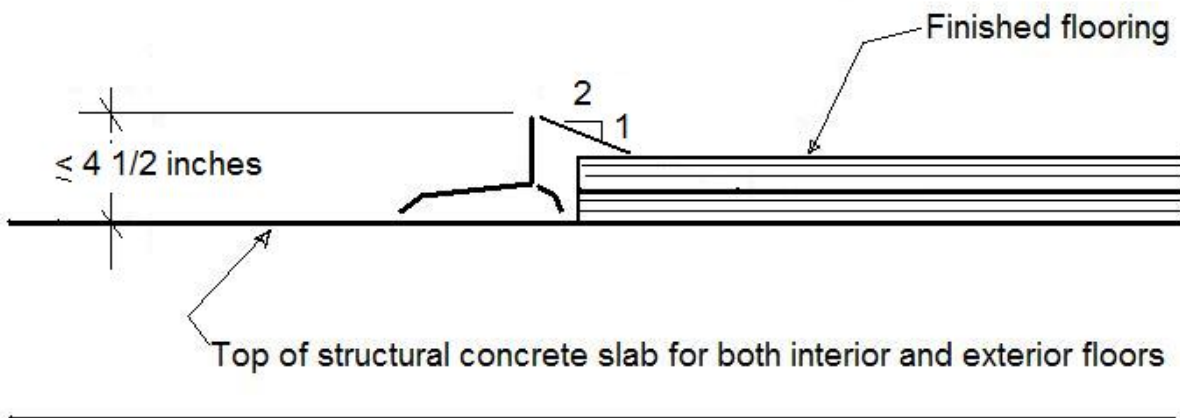
**Case #2: Top of structural slab for both interior and exterior floor is at the same elevation. Only difference in floor height is from the interior finished flooring. Entire water barrier must be provided by the door threshold, which is permitted to be up to 7 3/4 inch in height by the exception to 1008.1.6.**



Similarly, a lower height difference of 4 inches by floor elevation difference is currently provided in Exception 5 to Section 1008.1.4, but in some cases the barrier height required must be provided by the threshold. Therefore an exception similar to the current one for Section 1008.1.6 is needed for Type B dwelling units.

This proposal seeks to tie the exceptions to the two sections together, to clarify that the real concern is the total height difference between the top of the threshold and the exterior floor, landing, balcony, deck or patio. The combination of Exception 3 to Section 1008.1.4 and the exception to 1008.1.6 will continue to permit that height difference to be a total of 7 3/4 inches and clarifies that it is not to be greater than that, in Use Group R-2 and R-3 occupancies when the door does not swing over an exterior landing. The combination of Exception 5 to Section 1008.1.4 and the exception to 1008.1.6 will permit the height difference to be a total of 4 1/2 inches (the currently permitted 4 inches + the 1/2 inch threshold height permitted in Section 1008.1.6) for doorways to exterior balconies, decks and patios in Type B dwelling units.

**Case 3: Type B dwelling unit with same height structural floor both interior and exterior. Water barrier height is provided by a combination of threshold height and height of finished flooring, with total height limited to 4 1/2 inches.**



**Cost Impact:** The code change proposal will not increase the cost of construction.

**Committee Action:**

**Disapproved**

**Committee Reason:** While the concern for high wind areas is understandable, the proposed language has some problems. The current language would allow for a 4-1/2" threshold rather than a 1/2" threshold with a 4" step down. This would conflict with the Fair Housing Act. The revisions to Exception 3 would allow this in an entire Group R-2 rather than just within the units. A definition for threshold as part of the door hardware may be appropriate.

**Assembly Action:**

**None**

### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**Sarah A. Rice, CBO, Schirmer Engineering Corporation, requests Approval as Modified by this public comment.**

Replace proposal with the following:

**1008.1.4 (IFC [B] 1008.1.4) Door Landings.** There shall be a floor or landing on each side of a door.

~~1008.1.4 (IFC [B] 1008.1.4) 1008.1.4.1 (IFC [B] 1008.1.4.1) 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. Doors serving individual dwelling units in Groups R-2 and R-3 where the following apply:
  - 1.1. A door is permitted to open at the top step of an interior flight of stairs, provided the door does not swing over the top step.
  - 1.2. Screen doors and storm doors are permitted to swing over stairs or landings.
2. Exterior doors as provided for in Section 1003.5, Exception 1, and Section 1018.2, which are not on an accessible route.
3. ~~Exterior doors serving individual dwelling units in Groups R-2 and R-3 where the following apply: In Group R-3 occupancies~~
  - 3.1 ~~The unit is not required to be Accessible units, Type A units or Type B units,~~
  - 3.2 ~~The exterior landing at an exterior doorway shall not be more than 7 7/8 inches (178 497 mm) below the interior floor elevation the top of the threshold,~~
  - 3.3 ~~provided The door, other than an exterior storm or screen door, does not swing over the landing.~~
4. Variations in elevation due to differences in finish materials, but not more than 0.5 inch (12.7 mm).
5. ~~In Type B dwelling units, the exterior floor elevation of exterior decks, patios or balconies that are part of Type B dwelling units, and have impervious surfaces, and that are shall not be more than 4 inches (102 mm) below the interior finished floor level of the adjacent interior space of the dwelling unit.~~

~~1008.1.5 (IFC [B] 1008.1.5) 1008.1.4.2 (IFC [B] 1008.1.4.2) Landings at doors Landing size.~~ Landings shall have a width not less than the width of the stairway or the door, whichever is greater. Doors in the fully open position shall not reduce a required dimension by more than 7 inches (178 mm). When a landing serves an occupant load of 50 or more, doors in any position shall not reduce the landing to less than one-half its required width. Landings shall have a length measured in the direction of travel of not less than 44 inches (1118 mm).

**Exception:** Landing length in the direction of travel in Groups R-3 and U and within individual units of Group R-2 need not exceed 36 inches (914 mm).

~~1008.1.6 (IFC [B] 1008.1.6) 1008.1.4.3 (IFC [B] 1008.1.4.3) Raised thresholds.~~ Portions of thresholds raised above the interior floor elevation at doorways shall not exceed 0.75 inch (19.1 mm) in height for sliding doors serving dwelling units or 0.5 inch (12.7 mm) in height for other doors. Raised thresholds and floor level changes greater than 0.25 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).

~~**Exception:** The threshold height shall be limited to 7.75 inches (197 mm) where the occupancy is Group R-2 or R-3; the door is an exterior door that is not a component of the required means of egress; the door, other than an exterior storm or screen door does not swing over the landing or step; and the doorway is not on an accessible route as required by Chapter 11 and is not part of an Accessible unit, Type A unit or Type B unit.~~

(Re-number subsequent sections)

**Commenter's Reason:** The modification is intended to clarify the original intent. This will also resolve a conflict with Section 1003.5.

*Public Comment 2:*

**Julie Ruth, JRuth Code Consulting, representing AAMA, requests Approval as Modified by this public comment.**

Replace proposal with the following:

**1008.1.4 (IFC [B] 1008.1.4) 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. Doors serving individual dwelling units in Groups R-2 and R-3 where the following apply:
  - 1.1. A door is permitted to open at the top step of an interior flight of stairs, provided the door does not swing over the top step.
  - 1.2. Screen doors and storm doors are permitted to swing over stairs or landings.
2. Exterior doors as provided for in Section 1003.5, Exception 1, and Section 1018.2, which are not on an accessible route.
3. At exterior doors serving individual dwelling units in Groups R-2 and in Group R-3 occupancies not required to be Accessible units, Type A units or Type B units, the exterior floor or landing at an exterior doorway shall not be more than 7.75 inches below the top of the threshold, provided the following criteria are met.
  - 3.1. The door, other than an exterior storm or screen door, does not swing over the landing.
  - 3.2. The dwelling units are not required to be Accessible units, Type A units or Type B units.
  - 3.3. The exterior door is not a required means of egress door.
4. Variations in elevation due to differences in finish materials, but not more than 0.5 inch (12.7 mm).
5. At exterior doors serving Type B dwelling units, the floor of exterior decks, patios or balconies that are part of the Type B dwelling units, have impervious surfaces and that are shall not be more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the dwelling unit or the top of the threshold, provided the following criteria are met.
  - 5.1. The floor of the deck, patio or balcony is an impervious surface.
  - 5.2. The top of the threshold shall not be more than 0.75 inch (19.1 mm) higher than the interior floor level for sliding doors or more than 0.50 inch (12.7 mm) for other doors.
  - 5.3. Floor level changes greater than 0.25 inch (6.4 mm) at doorways and thresholds greater than 0.25 inch above the interior finished floor shall be beveled with a slope not greater than one unit vertical in two units horizontal.

**1008.1.6 (IFC [B] 1008.1.6) Thresholds.** Thresholds at doorways shall not exceed 0.75 inch (19.1 mm) in height for sliding doors serving dwelling units or 0.5 inch (12.7 mm) for other doors. Raised thresholds and floor level changes greater than 0.25 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).

**Exception:** ~~The threshold height shall be limited to 7.75 inches (197 mm) where the occupancy is Group R-2 or R-3; the door is an exterior door that is not a component of the required means of egress; the door, other than an exterior storm or screen door does not swing over the landing or step; and the doorway is not on an accessible route as required by Chapter 11 and is not part of an Accessible unit, Type A unit or Type B unit. Thresholds of exterior doors in individual dwelling units in Group R-2 and R-3 occupancies that meet the criteria of Section 1008.1.4, exception 3 or 5 shall not be subject to the height restrictions of this section.~~

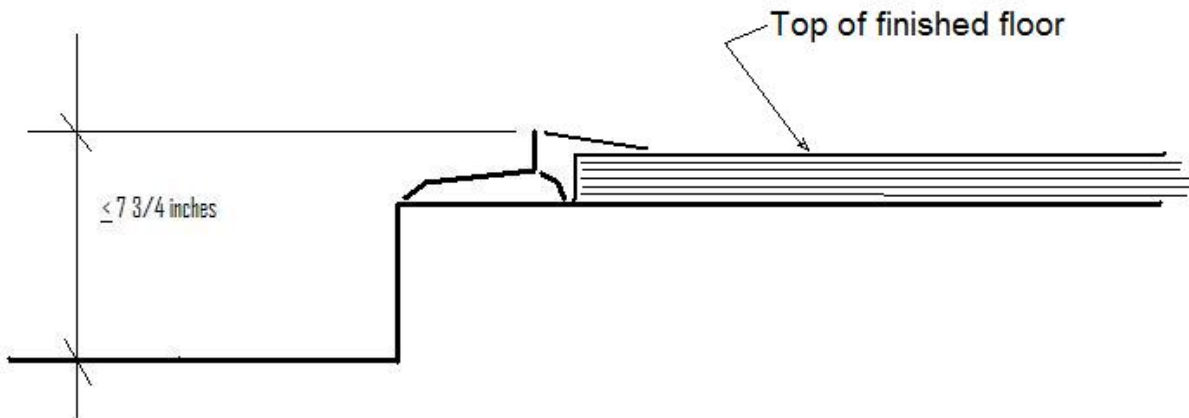
**Commenter's Reason:** The original intent of E42 was 1) to clarify that the 7 ¼ inch step down permitted by Section 1008.1.4 Exception 3 and the exception to 1008.1.6 that permits thresholds of up to 7 ¼ inches are not cumulative and 2) to permit a threshold greater than ½ inch to be used at exterior doors between Type B dwelling units and exterior balconies, decks or patios, where a 4 inch step down is already permitted.

The proposal sought to address the first concern by combining the pertinent parts of the exception to 1008.1.6 into exception 3 of 1008.1.4 and placing a pointer to that exception in 1008.1.6. The resultant exception addresses the height permitted from the exterior floor or landing to the top of the threshold, which is not to exceed 7 ¼ inches, regardless of how high the threshold is above the floor its rests upon. The current exception to 1008.1.4 applies to Group R-3 occupancies, while the exception to 1008.1.6 applies to Group R-2 and R-3 occupancies. The resultant exception limits its application to dwelling units in Group R-2 occupancies and R-3 occupancies. The current provision for a 2:1 slope of the threshold if its height is greater than 0.25 inches is retained.

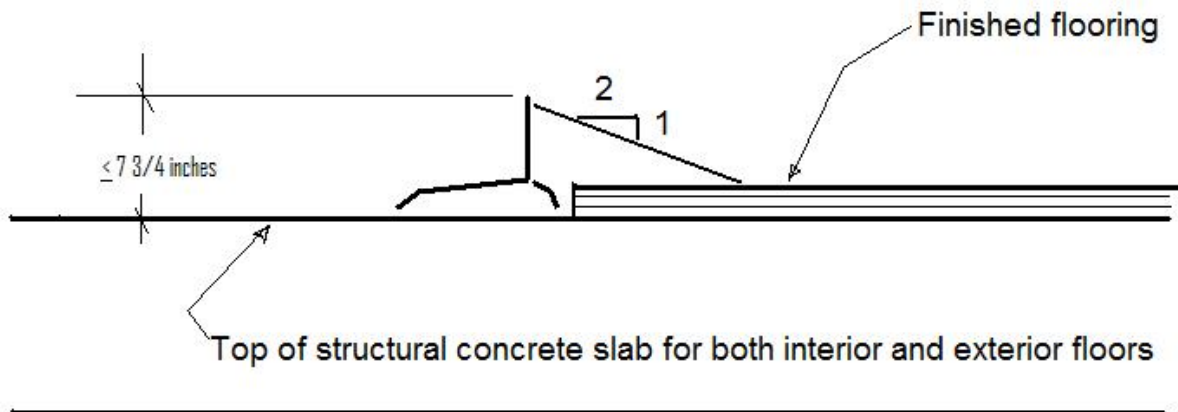
The second concern was also originally sought to be addressed with a modification to existing exception 5 to Section 1008.1.4 and a pointer to that exception in the exception to Section 1008.1.6. As originally submitted, the new exception would have permitted the threshold to be 4 ½ inches higher than the interior or exterior floor. This was not the intent of the original proposal. This PC clarifies that while the top of the threshold may be up to 4 1/5 inches higher than the top of the exterior floor surface, it may not be more than ¾ or ½ inch (depending upon type of door) above the interior floor surface.

The figures below illustrate the intent of the proposed changes.

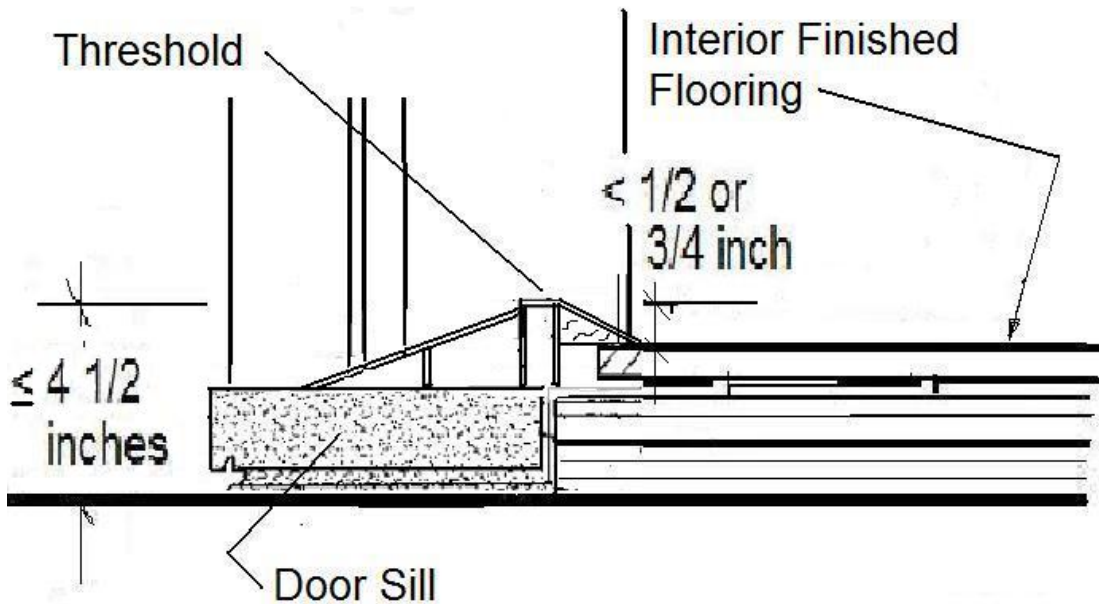
Case 1: Exterior step down occurs. Exception to Section 1008.1.6 permits the threshold to be greater than 1/2 inch or 3/4 inch in height, but exception 3 to Section 1008.1.4 limits the total distance in height (change in floor elevation + threshold height) to 7 3/4 inches.



Case #2: Top of structural slab for both interior and exterior floor is at the same elevation. Only difference in floor height is from the interior finished flooring. Entire water barrier must be provided by the door threshold, which is permitted to be up to 7 3/4 inch in height by the exception to 1008.1.6.



Case 3 (as proposed): The threshold exceeds 1/2 or 3/4 inch in height, but the top of the threshold is not more than 1/2 or 3/4 inch above the interior floor surface. The remainder of the height difference occurs in the difference in height between the interior and exterior floors. A trim piece is provided between the interior floor and the top of the threshold, with a slope that does not exceed 1 unit vertical to 2 units horizontal.



Final Action: AS AM AMPC\_\_\_ D

## E44-07/08

### 1008.1.8.3 (IFC [B] 1008.1.8.3)

*Proposed Change as Submitted:*

**Proponent:** Gene Boecker, Code Consultants, Inc

**Revise as follows:**

**1008.1.8.3 (IFC [B] 1008.1.8.3) (Supp) Locks and latches.** Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint.
2. 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 exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
  - 2.1. The locking device is readily distinguishable as locked,
  - 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background,
  - 2.3. The use of the key-operated locking device is revokable by the building official for due cause.
3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface-mounted hardware.
4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are operable from the inside without the use of a key or tool.
5. Door locking arrangements without delayed egress shall be permitted in Group I-2 mental hospitals or portions of Group I-2 mental hospitals where the clinical needs of the patients require specialized security provisions for their safety provided all clinical staff can readily unlock such doors at all times.

**Reason:** This is a follow-up of a code change presented during the prior cycle. It was considered by did not have the votes necessary for passage. It was also considered to be too broad for what was being requested. Therefore, the proposal has been tailored to the specific needs of mental hospitals (as the code refers to them). The following explanation was presented but was not in written form for the membership to review:



The occupancy classification is I-2 for mental healthcare institutions, and all in-patient residential facilities comply with the applicable codes for healthcare occupancies. The major difference between a mental hospital and a general care hospital is that patients must be secured at all times. The exit access doors and exit doors must be locked.

With few exceptions, the in-patient population in a mental health facility is ambulatory with the ability to egress and are capable of self-preservation. However, all of the patient areas must be locked in order to maintain custody of the occupants. In an emergency, all members of the staff are trained and drilled to unlock the exit doors for egress from the occupied spaces. As is consistent with the established healthcare strategy of defend-in-place, the patients are moved horizontally to adjacent smoke compartments as areas of refuge.

The life safety needs of general care and mental hospitals have a significant similarity, in that the staff provide for the means of egress. In a general care hospital, staff must relocate patients on beds or gurneys to the adjacent smoke compartment. Bed-ridden patients cannot move themselves. Similarly, in mental hospitals staff is required to unlock doors so that patients can be moved to the adjacent smoke compartment. In both cases, life safety must be provided to by staff.

In mental hospitals, staff must be on duty 24/7 to supervise patient activities and movement. To prepare for emergencies, drills are conducted quarterly on each shift. All staff has keys to facilitate egress from the occupied spaces.

This proposed code change will specifically address those occupancies that must maintain control of the occupants. Automatic unlocking systems do not provide a viable solution because they ultimately result in loss of control of the occupants. Such a system will unacceptably compromise the security required for psychiatric center occupants, who have been restrained in accordance with legal proceedings. Any solution wherein a loss of power means uncontrolled egress also means a loss of security.

Although developed in a different forum, the NFPA Life Safety Code provides specific provisions for facilities where the clinical needs of inpatients require specialized security provisions for their safety. These facilities are not I-3 Occupancies and are not intended to meet the I-3 provisions. Mental Hospitals are clearly I-2. Therefore, this code change is necessary to address this consideration which currently requires negotiation and "code modifications for each installation."

**Cost Impact:** The code change proposal will not increase the cost of construction.

### **Committee Action:**

**Disapproved**

**Committee Reason:** While this area does need to be addressed, the term "without delayed egress" is confusing for enforcement. This allowance may be appropriate for areas other than 'mental' hospitals within Group I-2. This should be addressed in conjunction with requirements for areas for dementia patients. The term "clinical staff with keys" may be an enforcement issue.

### **Assembly Action:**

**None**

## *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

### *Public Comment:*

**John McCormick, Code Consultants Professional Engineers, PC, representing New York State Office of Mental Health, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1008.1.8.3 (IFC [B] 1008.1.8.3) (Supp) Locks and latches.** Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint.
2. 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 exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
  - 2.1. The locking device is readily distinguishable as locked,
  - 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background,
  - 2.3. The use of the key-operated locking device is revokable by the building official for due cause.
3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface-mounted hardware.
4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.
5. Door Locking arrangements ~~without delayed egress~~ shall be permitted in Group I-2 mental health hospital or portions of Group I-2 mental hospitals where the clinical needs of the patients require specialized security provisions for their safety provided all clinical staff ~~can readily have the keys, codes or other means necessary to~~ unlock such doors at all times and the unlocking system is approved as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.

**Commenter's Reason:** The proposed modifications are intended to respond to Committee comments and reason. The reason was stated as follows—"Committee Reason: While this area does need to be addressed, the term "without delayed egress" is confusing for enforcement. This allowance may be appropriate for areas other than 'mental' hospitals within Group I-2. This should be addressed in conjunction with requirements for areas for dementia patients. The term "clinical staff with keys" may be an enforcement issue."

Therefore, the proposal has been tailored to address committee comments. The reference to 'delayed egress' has been deleted. The reference to keys has been expanded to include a range of locking methods. Finally, regarding enforcement, a requirement to comply with the emergency planning and preparedness provisions of Chapter 4 of the *International Fire Code* has been added.

The occupancy classification is Group I-2 for mental healthcare institutions, and all in-patient residential facilities comply with the applicable codes for healthcare occupancies. The major difference between a mental hospital and a general care hospital is that patients must be secured at all times. The exit access doors and exit doors must be locked.

With few exceptions, the in-patient population in a mental health facility is ambulatory with the ability to egress and are capable of self-preservation. However, all of the patient areas must be locked in order to maintain custody of the occupants. In an emergency, all members of the staff are trained and drilled to unlock the exit doors for egress from the occupied spaces. As is consistent with the established healthcare strategy of defend-in-place, the patients are moved horizontally to adjacent smoke compartments as areas of refuge.

The life safety needs of general care and mental hospitals have a significant similarity, in that the staff provide for the means of egress. In a general care hospital, staff must relocate patients on beds or gurneys to the adjacent smoke compartment. Bed-ridden patients cannot move themselves. Similarly, in mental hospitals staff is required to unlock doors so that patients can be moved to the adjacent smoke compartment. In both cases, life safety must be provided to by staff.

In mental hospitals, staff must be on duty 24/7 to supervise patient activities and movement. To prepare for emergencies, drills are conducted quarterly on each shift. All staff has keys to facilitate egress from the occupied spaces.

This proposed code change will specifically address those occupancies that must maintain control of the occupants. Automatic unlocking systems do not provide a viable solution because they ultimately result in loss of control of the occupants. Such a system will unacceptably compromise the security required for psychiatric center occupants, who have been restrained in accordance with legal proceedings. Any solution wherein a loss of power means uncontrolled egress also means a loss of security.

Although developed in a different forum, the NFPA Life Safety Code provides specific provisions for facilities where the clinical needs of inpatients require specialized security provisions for their safety. These facilities are not Group I-3 Occupancies and are not intended to meet the Group I-3 provisions. Mental Hospitals are clearly Group I-2. Therefore, this code change is necessary to address this consideration which currently requires negotiation and "code modifications for each installation."

Final Action: AS AM AMPC\_\_\_\_ D

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## E47-07/08

### 1008.1.8.4 (IFC [B] 1008.1.8.4)

#### *Proposed Change as Submitted:*

**Proponent:** Bruce Ugelstad, NCARB, MeritCare Health System

#### **Revise as follows:**

**1008.1.8.4 (IFC [B] 1008.1.8.4) Bolt locks.** Manually operated flush bolts or surface bolts are not permitted.

#### **Exceptions:**

1. On doors not required for egress in individual dwelling units or sleeping units.
2. Where a pair of doors serves a storage or equipment room, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf.
3. Where a pair of doors serve patient care rooms in a Group I-2 occupancy, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf.

**Reason:** The American society has increasingly become overweight creating the need to care for increasingly more bariatric hospital patients. The movement of morbidly obese patients on bariatric beds through 4' wide doors is a difficult process at best. Providing a pair of doors with a typically fixed inactive leaf except during the movement of the patient would greatly improve the situation. With the active leaf of the door typically open for the monitoring of the patient by the nursing staff, automatic flush bolts would not keep the inactive leaf latched in the closed position as preferred.

Allowing hospital patient care room inactive leaf doors to be equip with standard flush bolts will:

- A) Improve the quality of care to hospital patients allowing smooth and easy transport of patients to and from rooms without moving the patient to a transport cart and providing adequate opening size allowing minimal incidence of jarring when the bed bumps the door or wall.
- B) Reduce the risk of injury to medical staff by reducing the need to move (lift) the patient on and off of transport carts.

Section 407.3.1 Corridor doors – Code currently indicates that patient room doors "...shall not have a required fire protection rating and shall not be required to be equipped with self closing or automatic-closing devices, but shall provide an effective barrier to limit the transfer of smoke and shall be equipped with positive latching." Hospital patient room doors are recognized as unique with staff trained to close doors during an alarm situation.

**Cost Impact:** The code change proposal will not increase the cost of construction

#### **Committee Action:**

**Disapproved**

**Committee Reason:** While the need for this allowance is understood, there are some problems with the proposed language. The language needs to be expanded to say that no hardware is permitted on the door so that it is not perceived as a door. A needed clarification is that the remaining door leaf must meet the egress width of 41-1/2" inches. Language similar to what was approved for E45 and E46 may provide guidance.

#### **Assembly Action:**

**None**

#### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

Public Comment:

**Bruce Ugelstad, NCARB, MeritCare Health System, requests Approval as Modified by this Public Comment.**

**Douglas S. Erickson, FASHE, CHFM, HFDP, American Society for Healthcare Engineering, requests As Modified by this public comment.**

Modify proposal as follows:

**1008.1.8.4 (IFC [B] 1008.1.8.4) Bolt locks.** Manually operated flush bolts or surface bolts are not permitted.

**Exceptions:**

1. On doors not required for egress in individual dwelling units or sleeping units.
2. Where a pair of doors serves a storage or equipment room, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf.
3. Where a pair of doors serves patient care rooms in a Group I-2 occupancy, ~~manually operated~~ self-latching edge- or surface-mounted bolts are permitted on the inactive leaf provided that the inactive leaf is not needed to meet egress width requirements and the inactive leaf contains no doorknobs, panic bars or similar operating hardware.

**Commenter's Reason: (Ugelstad)** The modified code change proposal will satisfy a real need of medical staff and will not compromise safety to patients and building occupants. The modification changed manual latching device to a self latching hardware device. This hardware type is manufactured by Ives FB61T "Constant latch", Hager 294D "Self latching", DCI 905 "Self Latching". The function of self latching hardware is to provide a latch and strike at the top of the door and frame, so that when the door is pushed against the stop, the door will latch.

In Palm Springs, the following concerns were raised:

- 1) Manual latching would require excessive time to secure the inactive leaf during an emergency.  
Response: The self latching bolt will secure when closed reducing the time required securing the door leaf.
- 2) The inactive leaf should not be considered as required egress width and should not be equip with door knobs, panic bars or similar operating hardware.  
Response: The added wording "provided that the inactive leaf is not needed to meet egress width requirements and the inactive leaf contains no doorknobs, panic bars or similar operating hardware." will address this concern.

**Commenter's Reason: (Erickson)** I am writing in support of the proposed code change being presented by Mr. Bruce Ugelstad, MeritCare Health System. The issue he is representing, needing to increase the typical door opening to a patient room, is a global problem facing the health care industry, as more of our patients are morbidly obese.

For over a century, the 44" or 48" patient room door has been adequate to permit the efficient transfer of patients to and from their rooms. Over this past decade however, we are struggling with the size of the patient door opening, as the equipment has gotten larger in order to support the increase size and weight of the patient. The purpose for increasing the size of this opening is not for life safety in an emergency, as the typical methods of transporting these patients from their room in an emergency have not changed. The purpose of this proposed change is to assist staff in easily moving equipment and patients to and from their rooms on a daily basis without damaging the doors or injuring themselves by trying to tilt or lift equipment to fit through the opening.

Mr. Ugelstad explains this situation very well in his proposed change. One thing that needs to be added to his substantiation, is that these are not Bariatric patient rooms where the patient is large enough to mandate larger patient room door openings for life safety and evacuation purposes.

Our membership is very interested in the work of the ICC and we stand ready to assist in any manner you and the organization see as appropriate.

Final Action:                      AS                      AM                      AMPC\_\_\_\_                      D

## E48-07/08

### 1008.1.8.5.1 (New) [IFC [B] 1008.1.8.5.1 (New)]

*Proposed Change as Submitted:*

**Proponent:** Tom Lariviere, Madison Fire Department, representing Joint Fire Service Review Committee

**Add new text as follows:**

**1008.1.8.5.1. (IFC [B] 1008.1.8.5.1) Closet and bathroom doors in Group R-4 Occupancies. In Group R-4 occupancies, closet doors that latch in the closed position shall be operable from inside the closet, and bathroom doors that latch in the closed position shall be capable of being unlocked from the ingress side.**

**Reason:** This proposal will require that doors to closets must be operable from the inside. This will provide the ability for someone to exit the closet if they were to get closed into the closet.

Additionally, the bathroom doors must be able to be unlocked from the outside of the bathroom when the door is locked from the inside. This will allow for the door to still be locked when the bathroom is in use, but staff can open the bathroom door when someone is inside and needs assistance.

**Cost Impact:** This code change proposal will increase the cost of construction

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** The committee approved the special locking arrangements for closets and bathrooms in Group R-4 because it was needed for safety of the individuals. The MOE committee disapproved a similar proposal for Group I-1 patient rooms and bathrooms in G81-06/07. The committee would like to see these requirements coordinated to address the concerns for the occupants in these similar types of facilities.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1008.1.8.5.1. (IFC [B] 1008.1.8.5.1) ~~Closet and bathroom~~ Latching doors in Group I-1 and R-4 Occupancies.** In Group I-1 and R-4 occupancies, closet doors that latch in the closed position shall be openable from inside the closet, and patient room doors and bathroom doors that latch in the closed position shall be capable of being unlocked from the ingress side.

**Commenter's Reason:** This Public Comment actually combines two code change items. Item E48 was approved as submitted by the Code Development Committee and added requirements for Group R-4 occupancies in Section 1008.1.8.5.1 to the IBC/IFC. Item G81 was disapproved by the Code Development Committee, even though it dealt with a similar issue as E48 in Group I-1 occupancies. The Code Development Committee disapproved G81 because the provisions were located in IBC Section 407 and the committee felt the requirements should be located in Chapter 10 as had been done for the Group R-4 occupancies.

Therefore, this Public Comment is submitted at the request of the Code Development Committee and includes the following changes:

1. The requirements for Group I-1 have been relocated to Chapter 10 and included with the Group R-4 requirements.
2. Since Group R-4 is basically a small Group I-1, the Code Development Committee felt the requirements should be consistent between the two occupancies. Therefore, patient room doors have been added to Group R-4 in Section 1008.1.8.5.1.

This Public Comment requires that doors on closets will be designed so that if someone were to get closed into the closet, they would be able to exit the closet. This Public Comment will also provide a method for staff in the Groups R-4 and I-1 to access areas where patients may be located. Additionally, the bathroom doors must be able to be unlocked from the outside of the room when the door is locked from the inside. This will allow for staff outside of the bathroom to open a bathroom door when someone is inside and needs assistance. Staff needs to be able to enter the patient room and assist the patient for either a medical emergency, or for evacuation from the building. It does not make any sense to require staffing if the staff has no access to the patients they are assigned to assist.

This provision will provide consistency and correlation of the IBC with mandated Federal Regulations for these facilities. In other words, the Federal Regulations already require these latching devices. Without the inclusion of this information in the IBC, a new facility could be constructed and completed only to find out that they need to go back and replace the latching devices on the doors. If the IBC contains this requirement, it will eliminate confusion and frustration on the part of the owner/developer and eliminate finger pointing after the code official has "approved" the facility.

*Public Comment 2:*

**Steve Thomas, Colorado Code Consulting, LLC, representing Colorado Chapter ICC, requests Disapproval.**

**Commenter's Reason:** A similar proposal for Group I-1 Occupancies in Item G81-07/08 was disapproved by the General committee. It was disapproved because there was no supporting documentation that a problem exists and that this requirement is necessary. No justification was shown that people were being locked in bathrooms or closets. A Group R-4 facility provides the same care as a Group I-1 facility with less than 16 patients. The intent of the code is to allow the smaller facilities with equal requirements. Since G81-07/08 was disapproved, the approval of E48-07/08 would create a situation where the requirements for Group R-4 occupancies would be more restrictive than Group I-1 occupancy.

There is no reason for this requirement in the code. If the owner of one of these facilities has a concern about people being locked in a closet or bathroom, then there are specific latch systems that can be used without making it a requirement in the code. It is not clear if the concern is one of locking themselves in on purpose or by accident? If it is the purpose of this proposal – should the same requirements not also be for the patient rooms? If it is by accident, then there should also be emergency calls. This is a supervised living facility – not a 24 hour open door facility like a hospital. Emergency calls are provided in nursing homes and hospitals on a voluntary basis to address patient needs, even though it is not a code requirement. This is an operational decision based on the type of resident and is not needed for all group homes.

Final Action:      AS              AM              AMPC\_\_\_\_\_              D

## E51-07/08

### 1008.1.8.6 (New) [IFC [B] 1008.1.8.6 (New)]

#### *Proposed Change as Submitted:*

**Proponent:** John Williams, Construction Review Services, Washington State Department of Health, Emory Rogers, Virginia Department of Housing and Community Development, John Neff City of Lacey, WA, representing Washington State Building Code Council

#### **Add new text as follows:**

**1008.1.8.6 (IFC [B] 1008.1.8.6) Special locking arrangements in Group I-2. Where the clinical needs of patients require the restraint of movement, locks shall be permitted on doors within the means of egress, provided that:**

1. The building is equipped with an approved automatic sprinkler system in accordance with Section 903.3.1.1, and an approved automatic fire alarm system in accordance with Section 907.
2. The doors unlock upon actuation of the automatic fire alarm system, or, upon the loss of power to the lock or lock mechanism.
3. The doors are capable of being unlocked by a signal from a switch at a nurse station or other approved location.
4. An electronic device, such as a keypad and code, is provided adjacent to each door equipped with a lock. Such device shall deactivate the door locking mechanism and permit operation of the door. Instructions for exiting shall be posted within six feet of the door.
5. All clinical staff shall have the codes or other means necessary to operate the device in Item #4.

**Reason:** This change provides a much needed option for facilities that house dementia and Alzheimer's patients. There is a reoccurring issue with elopement of dementia patients. Facilities that house these patients face significant challenges in maintaining a safe and secure environment for these patient types within the framework of the building code. The States of Washington and Virginia have amended the building code with similar special provisions for dementia control. The conditions that allow this special locking arrangement provide a measured approach to life safety, similar to delayed egress. We use this as a practical solution to a real world problem.

There were three proposals last cycle that dealt with this concept, all were defeated by the committee. Two changes were turned down in favor of a third amendment (G83-06/07) that was almost identical to this one. The committee turned down G83-06/07 due to concerns that patients would learn to pull the fire alarm to get out of the building. An existing exception to IBC 907.2.6 allows the fire alarm pulls to be located at nurse stations and other constantly staff attended locations, which mitigates this concern.

To address other committee concerns: We believe that while there may be occupancies that may house these types of patients, it is clear that Group I-2 definitely houses these patients. The purpose of this change is targeted towards a verifiable condition. The committee preferred the language "clinical staff" as opposed to "all staff". This change has been made

**Cost Impact:** The code change proposal will increase the cost of construction.

#### **Committee Action:**

**Disapproved**

**Committee Reason:** The proponent requested disapproval based on the committee actions to E44-07/08 and E49-07/08. They intend to work with the Code Technologies Committee Care Facility task group to address this issue.

#### **Assembly Action:**

**None**

#### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

#### *Public Comment 1:*

**Paul K. Heilstedt, PE, FAIA, Chair, representing ICC Code Technology Committee (CTC) requests Approval as Modified by this public comment.**

#### **Replace proposal as follows:**

**1008.1.8.6 (IFC [B] 1008.1.8.6) Special locking arrangements in Group I-2. Approved delayed egress locks shall be permitted in a Group I-2 occupancy where the clinical needs of persons receiving care require such locking. Delayed egress locks shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an exit.**

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center, a nursing station or other approved location.
4. The procedures for the operation(s) of the unlocking system shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.
5. All clinical staff shall have the keys, codes or other means necessary to operate the locking devices.
6. Emergency lighting shall be provided at the door.

**Exception:** Items 1 through 3 shall not apply to doors to areas where persons which because of clinical needs require restraint or containment as part of the function of a mental hospital.

[Renumber subsequent sections]

**Commenter's Reason:** As noted in the reason for disapproval, the proponent recognized that this issue falls within the scope of the CTC area of study entitled "Care Facilities". The CTC care facility study group invited the interested stakeholders to discuss how best to address locking arrangements necessary to both balance the needs of the facility as well as the life safety of the occupants. The proposed revisions are fundamentally based on the current provisions of Section 1008.1.8.6, with the exception of items 4 and 5 which have been replaced by items 4, 5 and 6.

Items 4 and 5 in current Section 1008.1.8.6 require an audible signal to be initiated in the event of the delayed egress lock being activated. This is reasonable for occupancy Groups A, E and H, however, there are special considerations necessary where the occupants are in different environments in Group I-2 hospitals. Such audible signals are considered as nuisance alarms in areas where the patients are under a form of restraint and as such they have been replaced by items 4, 5, and 6 which provides a reasonable mechanism to monitor and allow the unlocking system to be activated.

Hospitals which contain patients with mental disabilities present even more of a challenge in that they need to be restrained and/or contained for their own safety. For these occupancies, it is imperative that the level of restraint be maintained even if the fire protection systems are activated. However, in order to provide the necessary life safety features which would allow for such patients to be evacuated, the emergency planning and preparedness plan must be developed to allow for such evacuation (Item 5) and the clinical staff have the ability to monitor and enable the evacuation (Item 6).

Code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: <http://www.iccsafe.org/cs/cc/ctc/index.html>. Since its inception in April/2005, the CTC has held fifteen meetings - all open to the public. This public comment is a result of the CTC's investigation of the area of study entitled "Care Facilities". The CTC web page for this area of study is: <http://www.iccsafe.org/cs/cc/ctc/care.html>

*Public Comment 2:*

**John Woestman, The Kellen Company, requests Approval as Modified by this public comment.**

**Replace proposal as follows:**

**1008.1.8.6 (IFC [B] 1008.1.8.6) Special locking arrangements in Group I-2.** Listed delayed egress locks shall be permitted in n Grpufl I-2 occupancy where the clinical needs of persons receiving care require such locking. Delayed egress locks shall be permitted in such occupancies where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an exit.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center, a nursing station or other approved location.
4. The procedures for the operation(s) of the unlocking system shall be described and approved as part of the emergency planning and preparedness required by Chapter 4 of the *International Fire Code*.
5. All clinical staff shall have the keys, codes or other means necessary to operate the locking devices.
6. Emergency lighting shall be provided at the door.

**Exception:** Items 1 through 3 shall not apply to doors to areas where persons which because of clinical needs require restraint or containment as part of the function of a mental hospital.

[Renumber subsequent sections]

**Commenter's Reason:** This public comment is the same as that provided by the CTC with one revision – the changing of the first word in the first sentence from "Approved" to "Listed." I respectfully submit that "Listed" should replace "Approved" in this proposal because "listed" requires third-party oversight and provides code officials with a consistent basis for verifying that the delayed egress locks are appropriate for the intended use. With this in mind, I recommend E51 be approved as modified by this public comment.

Final Action:        AS            AM            AMPC \_\_\_\_\_        D

## E55-07/08

### 1008.1.9 (IFC [B] 1008.1.9)

#### *Proposed Change as Submitted:*

**Proponent:** Philip Brazil, PE, Reid Middleton, Inc., representing himself

#### **Revise as follows:**

**1008.1.9 (IFC [B] 1008.1.9) Panic and fire exit hardware.** Where panic and fire exit hardware is installed, it shall comply with the following:

1. The actuating portion of the releasing device shall extend at least one-half of the door leaf width.
2. The maximum unlatching force shall not exceed 15 pounds (67 N).

Each door in a means of egress ~~from serving a Group A or E occupancy having with~~ an occupant load of 50 or more ~~and any or a~~ Group H occupancy shall not be provided with a latch or lock unless it is panic hardware or fire exit hardware.

**Exception:** A main exit of a Group A occupancy in compliance with Section 1008.1.8.3, Item 2.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide that contain overcurrent devices, switching devices or control devices with exit access doors shall be equipped with panic hardware and doors shall swing in the direction of egress.

If balanced doors are used and panic hardware is required, the panic hardware shall be the push-pad type and the pad shall not extend more than one-half the width of the door measured from the latch side.

**Reason:** For Group A and E occupancies, the current language limits the requirement for panic hardware or fire exit hardware to means of egress from the occupancy, thus, exempting the means of egress within the Group A or E occupancy from the requirement. This is not the intent and the proposal corrects this oversight.

**Cost Impact:** The code change proposal will not increase the cost of construction.

#### **Committee Action:**

**Approved as Submitted**

**Committee Reason:** The proposed language clarifies that panic hardware is required at intervening doors as well as doors leading from spaces.

#### **Assembly Action:**

**None**

#### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

#### *Public Comment:*

**Lori Lee Graham, City of Portland, OR, representing herself, requests Approval as Modified by this public comment.**

#### **Modify proposal as follows:**

**1008.1.9 (IFC [B] 1008.1.9) Panic and fire exit hardware.** Where panic and fire exit hardware is installed, it shall comply with the following:

1. The actuating portion of the releasing device shall extend at least one-half of the door leaf width.
2. The maximum unlatching force shall not exceed 15 pounds (67 N).

~~Each door in a means of egress serving a Group A or E occupancy with an occupant load of 50 or more or a Group H occupancy.~~  
Doors serving a Group H occupancy and doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock unless it is panic hardware.

**Exception:** A main exit of a Group A occupancy in compliance with Section 1008.1.8.3, Item 2.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide that contain overcurrent devices, switching devices or control devices with exit access doors shall be equipped with panic hardware and doors shall swing in the direction of egress.

If balanced doors are used and panic hardware is required, the panic hardware shall be the push-pad type and the pad shall not extend more than one-half the width of the door measured from the latch side.

**Commenter's Reason:** The intent of Public Comment is an editorial improvement. As approved by the committee, the section would require that all doors in an A or E occupancy over 50 would need panic hardware. This would include rooms within the A or E occupancy that individually have less than 50 occupants. The revision changes it to requiring panic hardware where the room or space has 50 occupants. It retains the original proponents "serving" so that it is the whole chain of doors from the space to the exit.

Final Action: AS AM AMPC\_\_\_\_ D

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## E56-07/08

### 1009.1 (New), 1009.3, (IFC [B] 1009.1 (New), [B] 1009.3)

#### *Proposed Change as Submitted:*

**Proponent:** Scott Crossfield, Theatre Projects Consultants, Inc., representing himself

#### 1. Add new text as follows:

**1009.1 (IFC [B] 1009.1) Scope.** The provisions of this section shall apply to all stairways. Exterior exit stairways shall also comply with Section 1023.

**Exception:** Existing stairways being altered or replaced shall be permitted to comply with Section 3403.4.

(Renumber subsequent sections)

#### 2. Revise as follows:

**1009.3 (IFC [B] 1009.3) Stair treads and risers.** Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. Stair tread depths shall be 11 inches (279 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured at a right angle to the tread's leading edge at a point 12 inches (305 mm) from the side where the treads are narrower and a minimum tread depth of 10 inches (254 mm).

#### Exceptions:

1. Alternating tread devices in accordance with Section 1009.9.
2. Spiral stairways in accordance with Section 1009.8.
3. Aisle stairs in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1025.11.2.
4. 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; the maximum riser height shall be 7.75 inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walk line shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing not less than 0.75 inch (19.1 mm) but not more than 1.25 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
5. ~~See the Section 3403.4 for the replacement of existing stairways.~~

**Reason:** The intent of this proposal is to provide a general scoping section for stairways. Without this language, there has also been the interpretation that supplemental stairways or non-required stairways do not have to comply with general stairways safety provisions. In addition there is confusion over whether that exterior exit stairways do or do not have to comply with the general provisions for stairways in Section 1009, only the specific provisions in Section 1023. Section 1009.3, Exception 5 is relocated if the general scoping provisions are added.

Code change proposal E55-06/07 had language that limited the stairway scoping to stairways only used as part of the means of egress, similar to the scoping used for ramps in Section 1010.1. The committee's reason for disapproval of the 'means of egress' stairways language proposed in E55-06/07, was that while they believed a scoping section is needed for this section, the proposed language did not clarify if the stairway provisions should be applicable to all stairways, stairways that are part of the means of egress, or just stairways required to serve as part of the means of egress. This proposal by saying "all stairways" will eliminate that concern.

FYI - the provisions in 2004 ADA/ABA Accessibility Guidelines Section 210.1 apply to all means of egress stairways.

**Cost Impact:** The code change proposal will not increase the cost of construction.

**Committee Action:**

**Approved as Modified**



**Modify the proposal as follows:**

**1009.1 (IFC [B] 1009.1) General Scope.** The provisions of this section shall apply to all stairways. Exterior exit stairways shall also comply with Section 1023.

~~**Exception:** Existing stairways being altered or replaced shall be permitted to comply with Section 3403.4.~~

**1009.3 (IFC [B] 1009.3) Stair treads and risers.** Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. Stair tread depths shall be 11 inches (279 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured at a right angle to the tread's leading edge at a point 12 inches (305 mm) from the side where the treads are narrower and a minimum tread depth of 10 inches (254 mm).

**Exceptions:**

1. Alternating tread devices in accordance with Section 1009.9.
2. Spiral stairways in accordance with Section 1009.8.
3. Aisle stairs in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1025.11.2.
4. 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; the maximum riser height shall be 7.75 inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walk line shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing not less than 0.75 inch (19.1 mm) but not more than 1.25 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
5. See Section 3403.4 for the replacement of existing stairways.

**Committee Reason:** The modification is to maintain an exception for existing stairways in Section 1009.3 and not move it to the scoping section. Existing stairways should only be exempted from tread and riser dimensions when the length of the stair is limited. Charging language for stairways is necessary to clarify that the provisions are applicable to all stairways, not just means of egress stairways. This provides good direction to the user of the code.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Lori Lee Graham, City of Portland, OR, representing herself, requests Disapproval.**

**Commenter's Reason:** The proposal aggravates a problem which already exists. Stairways, ladders and similar things in industrial situations which are provided to access equipment for maintenance or adjustment, reaching the top of a tank, etc are not locations where we should be imposing all of the standards of Section 1009. OSHA has standards which apply to these situations, but if we impose a requirement that all stairways have to comply with stairways, some local building officials will continue to impose IBC standards where they don't belong and additional officials will start. The issue raised by the proponent is a valid issue, but this is not the solution.

Final Action: AS AM AMPC\_\_\_\_ D

**E57-07/08, Part I**

**1009.2 (IFC [B] 1009.2)**

*Proposed Change as Submitted:*

**Proponent:** David W. Cooper, Stairway Manufacturers' Association

**PART I – IBC MEANS OF EGRESS**

**Revise as follows:**

**1009.2 (IFC [B] 1009.2) Headroom.** Stairways shall have a minimum headroom clearance of 80 inches (2032 mm) measured vertically from a line connecting the edge of 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 that is available for placement of the foot in ascent or descent.

## Exceptions:

1. Spiral stairways complying with Section 1009.8 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; the edge of a floor opening shall be permitted to project 4.75 inches (121 mm) maximum into the required headroom where guards or handrails on open sides of stairways below are located beyond the edge of the opening, provided that all required stairway widths are provided and the space between the top of an angled guard or handrail and the bottom of the projection shall not narrow to less than 6 inches (152 mm) measured vertically.

**Reason:** Part I- IBC -This is a required change to assure consistent code enforcement and compliance and eliminate the possibility of entrapment. The change to the charging paragraph supports current enforcement policies around the country and more clearly states the intent of the code. Headroom is simply not required where you cannot walk. The code currently allows extending the line of measurement beyond the limit of the "walkable" surface causing legal issues in court interpretations and provides no additional level of safety for the user. Nosings of treads on open stairs most often over lap the supporting wall and stringer below. This supporting wall is placed under the opening above in alignment with the edge of the opening below (see diagram 1) and in the strictest sense of the code as worded now would trigger a headroom violation as successive treads approached the ceiling of the floor above.

The reason for the exception is best illustrated in the photographs attached. The reasons for the exception are also soundly rooted in the most common current application of the code. This necessary alignment of the walls in relation to the edge of the floor openings is understood and not interpreted as a headroom violation in most jurisdictions. There is currently no limit however to the effective projection that is being allowed. Moving the handrails or guards in onto the stairs narrows the exit path unnecessarily without eliminating the current codes literal headroom violation and can create an undesired climbable surface beyond the guard. This code change puts the necessary limits in place and provides an additional level of safety by:

1. Standardizing the most commonly understood current enforcement policies for headroom.
2. Addressing needed prevention of entrapment of an appendage or object being carried in ascent in the narrowing space that is formed when an angled guard or handrail approaches intersection with the ceiling of the next floor or level above. (See photos 1 & 2)
3. Recognizing the standard methods of construction used in the placement and framing of supporting walls and floor systems associated with the perimeter of the openings for stairways. (See diagrams1) In particular it specifies a maximum projection into the headroom space that is based upon the required attachment of a guard/handrail system to the face of a supporting wall sitting solidly on the floor system and limits it to the nominal width of a finished 2 x 4 wall.
4. Allowing the currently accepted methods to transfer stairway loads to the surrounding structure and space saving stacking of stairs and landings in wells without adding juxtaposition support walls that would narrow the stairwells below if the edge of the stair and supporting wall were moved from under the opening above.
5. Allowing the guards and handrails to be positioned such as to widen the stairway in descent, the most common egress direction. (See photos 1 & 2)
6. Allowing the secure attachment of the end of guard/handrail systems providing for the required transfer of loads to the structure.



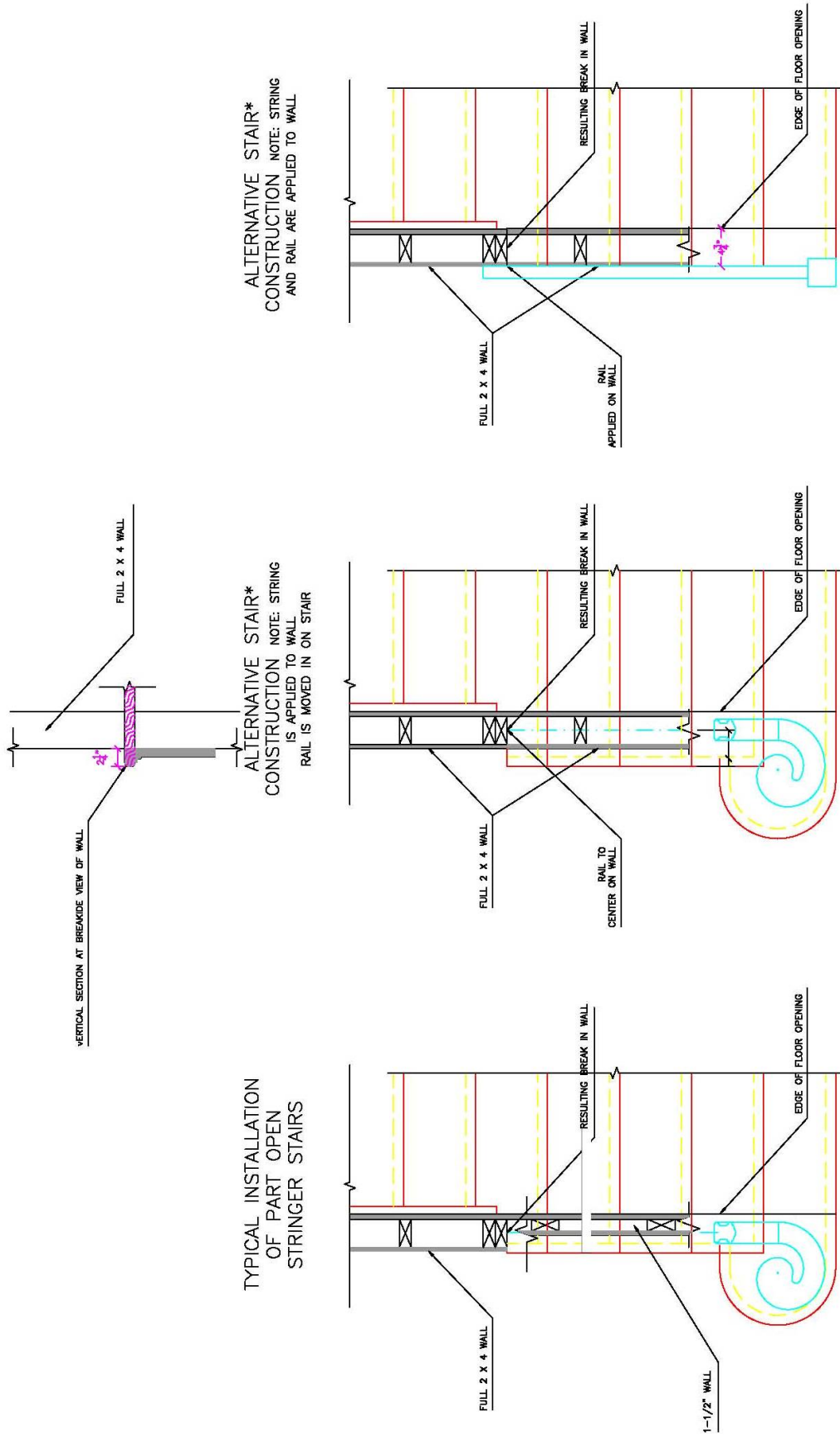


Diagram 1 – TYPICAL WALL SECTIONS AT STAIRS IN PLAN VIEW

**Cost Impact:** The code change proposal will not increase the cost of construction.

**PART I – IBC MEANS OF EGRESS**

**Committee Action:**

**Disapproved**

**Committee Reason:** The proposed language is ambiguous. Indicating that the minimum clearance is required for the full length of the stairway would be clearer.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part I.**

*Public Comment:*

**David W. Cooper, Stairway Manufacturing and Design Consulting, representing Stairway Manufacturers Association, requests Approval as Modified by this public comment.**

**Modify Part I of proposal as follows:**

**1009.2 (IFC [B] 1009.2) Headroom.** Stairways shall have a minimum headroom clearance of 80 inches (2032 mm) measured vertically from a line connecting the edge of 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 ~~that is available for placement of the foot in ascent or descent.~~

**Exceptions:**

1. Spiral stairways complying with Section 1009.8 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; ~~the edge of a floor opening shall be permitted to project 4.75 inches (121 mm) maximum into the required headroom where guards or handrails on open sides of stairways below are located beyond the edge of the opening, provided that all required stairway widths are provided and the space between the top of an angled guard or handrail and the bottom of the projection shall not narrow to less than 6 inches (152 mm) measured vertically. 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 a maximum of 4-3/4 inches (121 mm).~~

**Commenter’s Reason – Part I:** The modification addresses the committees concerns and clarifies the intent of the exception by removing language that could be incorporated in the handrail and guard sections in the next cycle. The need for this residential exception is well illustrated in the photos offered with the original proposal. This is a common situation in residential construction that allows the guard to terminate securely in the end of a wall at the side of a well opening for a stair. The modification clearly reflects the most commonly accepted interpretation of headroom compliance when a flight of stairs widens at the bottom and the nosings extend under the ceiling above beyond the upper stair width. The proposal further improves the code by and limiting the projection to no more than 4¾ inches, the width of a finished 2 X 4 wall. Approval as modified would support the action taken by the IRC committee.

Final Action: AS AM AMPC\_\_\_ D

**E57-07/08, Part II**

**IRC R311.5.2**

*Proposed Change as Submitted:*

**Proponent:** David W. Cooper, Stairway Manufacturers’ Association

**PART II – IRC BUILDING AND ENERGY**

**Revise as follows:**

**R311.5.2 Headroom.** The minimum headroom in all parts of the stairway shall not be less than 6 feet 8 inches (2036 mm) measured vertically from the sloped plane adjoining the tread nosing or from the floor surface of the landing or platform on that portion of the stairway that is available for placement of the foot in ascent or descent.

**Exception:** The edge of a floor opening shall be permitted to project 4.75 inches (121 mm) maximum into the required headroom where guards or handrails on open sides of stairways below are located beyond the edge of the opening, provided that all required stairway widths are provided and the space between the top of an angled guard or handrail and the bottom of the projection shall not narrow to less than 6 inches (152 mm) measured vertically.

**Part II-IRC:** This is a required change to assure consistent code enforcement and compliance and eliminate the possibility of entrapment. The change to the charging paragraph supports current enforcement policies around the country and more clearly states the intent of the code. Headroom is simply not required where you cannot walk. The code currently allows extending the plane of measurement beyond the limit of the “walkable” surface causing legal issues in court interpretations and provides no additional level of safety for the user. Nosings of treads on open stairs most often overlap the supporting wall and stringer below. This supporting wall is placed under the opening above in alignment with the edge of the opening below (see diagram 1) and in the strictest sense of the code as worded now would trigger a headroom violation as successive treads approached the ceiling of the floor above.

The reason for the exception is best illustrated in the photographs attached. The reasons for the exception are also soundly rooted in the most common current application of the code. This necessary alignment of the walls in relation to the edge of the floor openings is understood and not interpreted as a headroom violation. There is currently no limit however to the effective projection that is being allowed. Moving the handrails or guards in onto the stairs narrows the exit path unnecessarily without eliminating the current codes literal headroom violation and can create an undesired climbable surface beyond the guard. This code change puts the necessary limits in place and provides an additional level of safety by:

1. Standardizing the most commonly understood current enforcement policies for headroom.
2. Addressing needed prevention of entrapment of an appendage or object being carried in ascent in the narrowing space that is formed when an angled guard or handrail approaches intersection with the ceiling of the next floor or level above. (See photos 1 & 2)
3. Recognizing the standard methods of construction used in the placement and framing of supporting walls and floor systems associated with the perimeter of the openings for stairways. (See diagram1) In particular it specifies a maximum projection into the headroom space that is based upon the required attachment of a guard/handrail system to the face of a supporting wall sitting solidly on the floor system and limits it to the nominal width of a finished 2 x 4 wall.
4. Allowing the currently accepted methods to transfer stairway loads to the surrounding structure and space saving stacking of stairs and landings in wells without adding juxtaposition support walls that would narrow the stairwells below if the edge of the stair and supporting wall were moved from under the opening above.
5. Allowing the guards and handrails to be positioned such as to widen the stairway in descent, the most common egress direction. (See photos 1 & 2)
6. Allowing the secure attachment of the end of guard/handrail systems providing for the required transfer of loads to the structure.



Photo 1

Photo 2

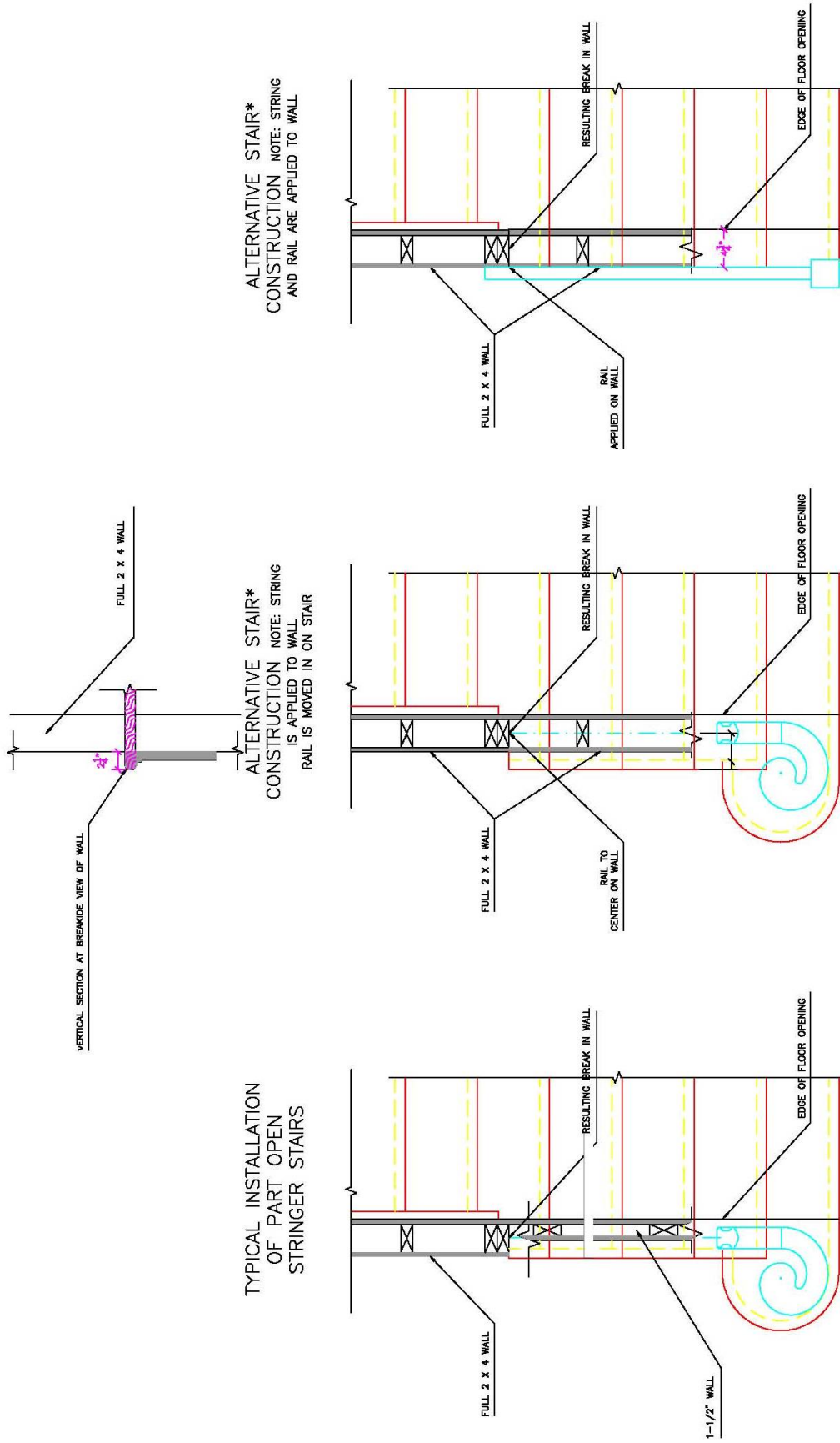


Diagram 1 – TYPICAL WALL SECTIONS AT STAIRS IN PLAN VIEW

**Cost Impact:** The code change proposal will not increase the cost of construction.

**PART II – IRC-B/E  
Committee Action:**

**Approved as Submitted**

**Committee Reason:** The proposal adds clarity on how to measure headroom in relation to stairways in relation to established walk lines. Further, the committee supported the new exception that provides a new method for addressing guards and railings on open sides of stairways.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part II.**

*Public Comment:*

**David W. Cooper, Stairway Manufacturing and Design Consulting, representing Stairway Manufacturers Association, requests Approval as Modified by this public comment.**

**Modify Part II of proposal as follows:**

**R311.5.2 Headroom.** The minimum headroom in all parts of the stairway shall not be less than 6 feet 8 inches (2036 mm) measured vertically from the sloped-plane line adjoining the tread nosing or from the floor surface of the landing or platform on that portion of the stairway that is available for placement of the foot in ascent or descent.

Exception: The edge of a floor opening shall be permitted to project 4.75 inches (121 mm) maximum into the required headroom where guards or handrails on open sides of stairways below are located beyond the edge of the opening, provided that all required stairway widths are provided and the space between the top of an angled guard or handrail and the bottom of the projection shall not narrow to less than 6 inches (152 mm) measured vertically. 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 a maximum of 4-3/4 inches (121 mm)

**Commenter's Reason – Part II:** The committee approved the original proposal but asked that we clarify the original language submitted by public comment. The modification addresses the committees concerns and clarifies the intent of the exception by separating language that can be incorporated in the handrail and guard sections in the next cycle. The need for this residential exception is well illustrated in the photos offered with the original proposal. This is a common situation in residential construction that allows the guard to terminate securely in the end of a wall at the side of a well opening for a stair. The modification clearly reflects the most commonly accepted interpretation of headroom compliance when a flight of stairs widens at the bottom and the nosings extend under the ceiling above beyond the upper stair width. The proposal further improves the code by limiting the projection to no more than 4¾ inches, the width of a finished 2 X 4 wall.

Final Action:        AS            AM            AMPC \_\_\_\_\_        D

**E58-07/08, Part I  
1009.3, 1009.3.2 (IFC [B] 1009.3, 1009.3.2)**

*Proposed Change as Submitted:*

**Proponent:** David W. Cooper, Stairway Manufacturers' Association

**PART I – IBC MEANS OF EGRESS**

**Add new text as follows:**

**1009.3 (IFC [B] 1009.3) Walk line.** The walk line is the line of travel used to provide for uniform layout of the tread depths in the design and regulation of flights with winder treads. The walk line shall be parallel to the side of the flight where the treads are narrowest and located 12 inches (305 mm) from the point of minimum tread depth used for placement of the foot on the flight in ascent or descent.

**Revise as follows:**

~~**1009.3 (IFC [B] 1009.3)**~~ **1009.4 (IFC [B] 1009.4) Stair treads and risers.** Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. ~~Stair tread depths shall be 11 inches (279 mm) minimum.~~ The riser height shall be measured vertically between the leading edges of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum ~~The tread depth shall be measured horizontally between the~~



vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walk line at a right angle to the tread's leading edge at a point 12 inches (305 mm) from the side where the treads are narrower and a minimum tread depth used for placement of the foot ascent or descent of 10 inches (254 mm).

**Exceptions:**

1. Alternating tread devices in accordance with Section 1009.9.
2. Spiral stairways in accordance with Section 1009.8.
3. Aisle stairs in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1025.11.2.
4. 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; the maximum riser height shall be 7.75 inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walk line shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing not less than 0.75 inch (19.1 mm) but not more than 1.25 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
5. See the Section 3403.4 for the replacement of existing stairways.

**~~1009.3.1 (IFC [B] 1009.3.1)~~ 1009.4.1 (IFC [B] 1009.4.1) Winder treads.** (No change to text)

**~~1009.3.2 (IFC [B] 1009.3.2)~~ 1009.4.2 (IFC [B] 1009.4.2) Dimensional uniformity.** Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 0.375 inch (9.5 mm) in any flight of stairs. The greatest winder tread depth at the ~~12-inch (305 mm)~~ walk line within any flight of stairs shall not exceed the smallest by more than 0.375 inch (9.5 mm) ~~measured at a right angle to the tread's leading edge.~~

**Exceptions:**

1. Nonuniform riser dimensions of aisle stairs complying with Section 1025.11.2.
2. Consistently shaped winders, complying with Section 1009.3, differing from rectangular treads in the same stairway flight.

Where the bottom or top riser adjoins a sloping publicway, 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 stairway width. The nosings or leading edges of treads 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 and shall have a slip-resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2 inches (51 mm).

**~~1009.3.3 (IFC [B] 1009.3.3)~~ 1009.4.3 (IFC [B] 1009.4.3) Profile.** (No change to text)

**Reason: PART I – IBC**

**Need for Improvement:**

Current regulation of the placement of the walk line varies for lack of a specific point from which to measure. The tread depth measured at the walk line therefore varies from one enforcement jurisdiction to another sometimes even within a jurisdiction. The complications of varying interpretations of this part of the code have lead to costly hearings and appeals for variances. The industry needs a standard as do code officials but more importantly the people walking these stairs need a standard as well that will provide consistency in the built environment. In this effort the Stairway Manufacturers' Association has offered several proposals over the years that have met with an agreement by the committees involved that *a standard is needed* but with certain objections. Each proposal in succession has improved utilizing the critical direction obtained from the committees in the code development process and in meetings with code officials around the country.

**Separate Section on Walk Line is Needed:**

The walk line is a critical element of stair design just as are width, headroom, rise and run. The separation of this element draws attention to the need to meet this requirement in the planning stage rather than being buried within the code. This allows for further specifics for location and simplification of the subsequent sections relative to tread depth. Finally although the term walk line has been used for years with in the code text on tread depth, this section offers a clear understanding.

**What is the "Walk Line":**

The walk line is related to the person's position *when walking on the stair* and is that line which the inside foot follows when *walking on a stair* and therefore this proposal states that the walk line shall be established based only on that portion of the treads in a flight that can be walked on. Any portion of a tread that cannot be walked on does not require regulation by this section. The extension of the tread or its size beyond the "walk-able" area, whether for structural attachment or decorative purpose, is not necessary to the regulation of tread depth for the safety of the user.

**Ease of enforcement:**

In this proposal the location of the walk line is simply determined by measuring onto the tread at the front of each tread from the point of minimum tread depth because the walk line is defined as being parallel to the side of the flight. This represents no change in the common practice to measure at the leading edge or nosing of the tread and no longer will require a square across the tread depth to accurately determine the winder tread depth at the walk line.

**Simplification of the IBC Tread Related Sections:**

*No changes in any of the specified dimensions* are being made. The first change is to only move the tread depth requirement to allow the riser requirements to appear together. The word "rectangular" used in exception 2 of the dimensional uniformity exception has been added to clarify. The way in which the winder treads will be measured is changed to match the way they are laid out to be uniform. This does not affect typical two or three winder layouts that are typically much deeper than the rectangular treads they are paired with in a flight and more closely reflects the foot positions in both ascent and descent as a person turns while walking on the stair. At the same time this allows for an easier method of accurately measuring the tread depth without the use of a square across the depth of the winder tread. The minimum winder tread depth is now clarified by reflecting the most common enforcement convention and is to be measured on that portion of the stair-walking surface that is actually used for walking as is in the new walk line section.

The Dimensional uniformity section has been edited for simplification because these terms are now clearly stated in the new walk line section.

**Cost Impact:** The code change proposal will not increase the cost of construction.

**PART I – IBC MEANS OF EGRESS****Committee Action:****Disapproved**

**Committee Reason:** The committee felt that Section 1009.3 for the 'walk line' is a definition and would be better placed in Section 1002. The current way to measure the stairs has been used for years and is precise. The proposed language in Section 1009.4 would add ambiguity. The measurements proposed in Section 1009.4 does not specify which angle to which tread, so it is unclear

**Assembly Action:****None***Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part I.**

*Public Comment:*

**David W. Cooper, Stair Manufacturing and Design Consulting, representing Stairway Manufacturers Association, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1009.3 (IFC [B] 1009.3) Walk line.** ~~The walk line is the line of travel used to provide for uniform layout of the tread depths in the design and regulation of flights with winder treads. The walk line shall be parallel to the side of the flight where the treads are narrowest and located 12 inches (305 mm) from the point of minimum tread depth used for placement of the foot on the flight in ascent or descent. The walk line across winder treads shall be concentric to the direction of travel through the turn and located 12 inches (305 mm) from the side where the winders are narrower. The 12 inch (305 mm) dimension shall be measured from the widest point of the clear stair width at the walking surface of the winder. If winders are adjacent within the flight, the point of the widest clear stair width of the adjacent winders shall be used.~~

**1009.4 (IFC [B] 1009.4) Stair treads and risers.** 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 leading edges of adjacent treads. 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 leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walk line and a minimum tread depth ~~used for placement of the foot~~ ascent or descent of 10 inches (254 mm) within the clear width of the stair.

**Exceptions:**

1. Alternating tread devices in accordance with Section 1009.9.
2. Spiral stairways in accordance with Section 1009.8.
3. Aisle stairs in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1025.11.2.
4. 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; the maximum riser height shall be 7.75 inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walk line shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing not less than 0.75 inch (19.1 mm) but not more than 1.25 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
5. See the Section 3403.4 for the replacement of existing stairways.

**Commenter's Reason – Part I:** The modification addresses the concerns of all the committees over several cycles of the code of a need to standardize the walk line location at winder treads. The SMA has consistently listened to their feedback for many years in an effort to address the problem. Attempts made to relate the walk line to the handrail or the guard "in fill" at the side of the stair have met with disapproval but further direction from each committee. At the CDH in Palm Springs the IBC committee gave insightful information suggesting that the walk line could be related to the width of the stair. This modification clearly states that relationship and adds further clarity.

The IRC committee had issues with the terminology “used for placement of the foot...” and that has been stricken. The new section titled walk line states clearly and specifically how to locate the walk line at winder treads where it is used to determine the tread depth of winder tread(s) that provide for turning of the stair’s direction of travel. This line of travel across winders is a curved path and the walk line established for regulation must parallel it. The term concentric is used because it more accurately describes the geometry of parallel arcs or curves sharing the same center. This separate section substantiates this essential element required in the design and construction of stairs that turn. It further provides clarity for regulating its location that is not subject to the wide interpretation of the present code and thereby allows for the direct reference to walk line in subsequent sections of the code. Please also see the original supporting statement for further substantiation of these changes.

The simple steps to determine compliance are:

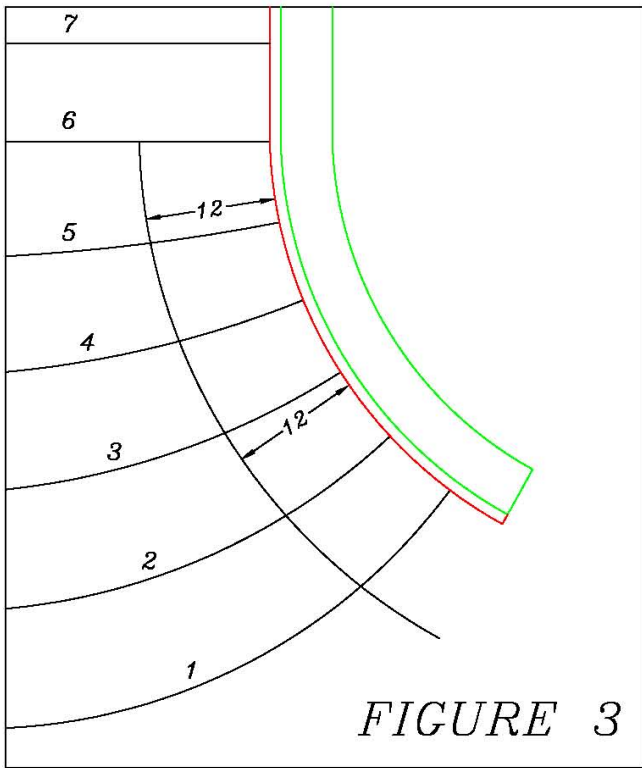
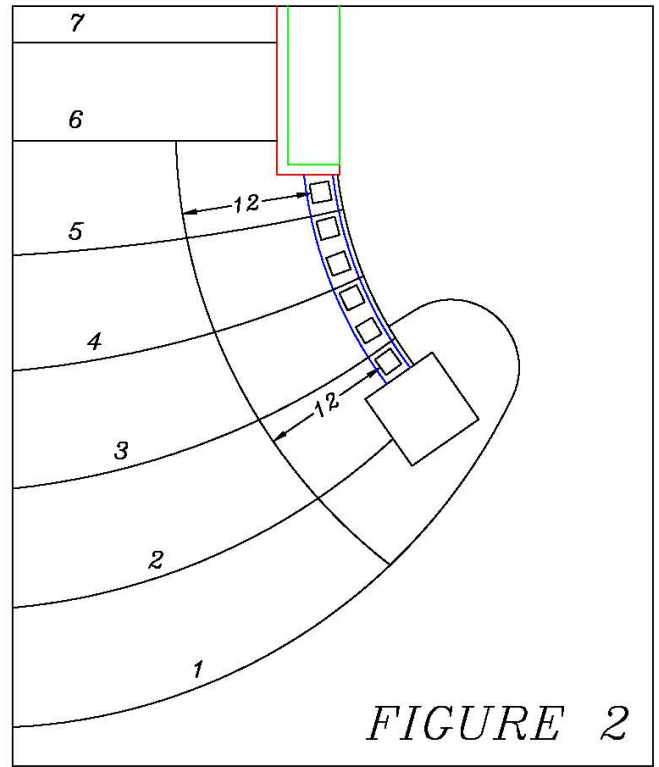
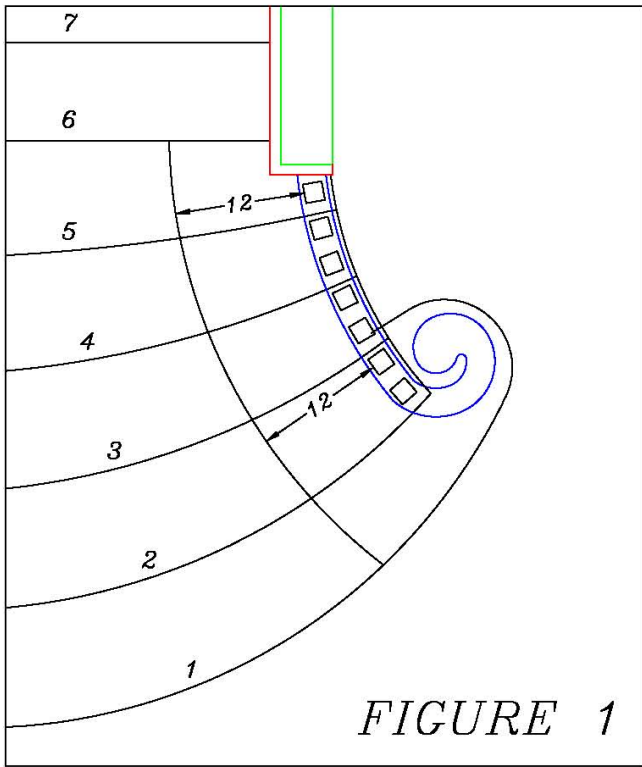
Locate the winder treads in the turn of the stair.

1. Locate the side of the stair where the winder treads are narrower
2. Establish the widest point of clear width of the stair at the surface of the winder or run of adjacent winders
3. Measure across the stair width 12 inches from the object that restricts the clear width at the tread surface
4. Measure tread depth between the intersections of the nosings with the walk line.

Measuring the tread depth at the intersections with the walk line provides for consistent winders that are uniform in depth at the most common path of travel.

The Figures 1, 2 & 3 illustrate common situations in determining the walk line when walls, posts, and balusters/in-fill or combinations of each are located at winder treads. The specification works for any of these situations and assures that the walk line is located as close to the narrow end of the tread as is possible to use. By keeping the walk line closest to the narrow end it assures that the tread is as wide as necessary for safe walking within the width of the stair that is intended and available to use. The 12 inch dimension in the code was determined by measuring the location of a person on a stair while grasping a handrail and is intended to be measured on that portion of the stair that can be used. Portions of winder treads not located within the clear width of the stair do not need to be considered.

For those that wish to offer guidance on complying winder treads at the initial rough inspection it is important to note that this is no more difficult to regulate during the rough stage of inspection than is the width of the stair and probably much easier than regulating the required riser height. In fact the minimum finished clear stair width could easily be determined by marking the place on the rough winder tread where the minimum walk line depth occurs on the rough tread and measuring 12 inches from that location toward the side where the treads are narrower.



Figures 1,2, & 3 show common walk line locations as determined by the modification. The walk line, balusters, post, and tread nosings are in black. The wall is green and the skirt board or finish stringer is in red.

Final Action: AS AM AMPC \_\_\_ D

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## E58-07/08, Part II

### IRC R311.5.2.3 (New), R311.5.3.2

*Proposed Change as Submitted:*

**Proponent:** David W. Cooper, Stairway Manufacturers' Association

#### PART II – IRC BUILDING AND ENERGY

**Revise as follows:**

**R311.5.2.3 Walk line.** The walk line is the line of travel used to provide for uniform layout of the tread depths in the design and regulation of flights with winder treads. The walk line shall be parallel to the side of the flight where the treads are narrowest and located 12 inches (305 mm) from the point of minimum tread depth used for placement of the foot on the flight in ascent or descent.

**R311.5.3.2 Tread depth.** The minimum tread depth shall be 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Winder treads shall have a minimum tread depth of 10 inches (254 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walk line as above at a point 12 inches (305 mm) from the side where the treads are narrower. Winder treads shall have a minimum tread depth used for placement of the foot in ascent or descent of 6 inches (152 mm) at any point. Within any flight of stairs, the largest winder tread depth at the 12 inch (305 mm) walk line shall not exceed the smallest winder tread by more than 3/8 inch (9.5 mm).

#### **Reason: PART II – IRC**

##### **Need for Improvement:**

Current regulation of the placement of the walk line varies for lack of a specific point from which to measure. The tread depth measured at the walk line therefore varies from one enforcement jurisdiction to another sometimes even within a jurisdiction. The complications of varying interpretations of this part of the code have lead to costly hearings and appeals for variances. The industry needs a standard as do code officials but more importantly the people walking these stairs need a standard as well that will provide consistency in the built environment. In this effort the Stairway Manufacturers' Association has offered several proposals over the years that have met with an agreement by the committees involved that a *standard is needed* but with certain objections. Each proposal in succession has improved utilizing the critical direction obtained from the committees in the code development process and in meetings with code officials around the country.

##### **Separate Section on Walk Line is Needed:**

The walk line is a critical element of stair design just as are width, headroom, rise and run. The separation of this element draws attention to the need to meet this requirement in the planning stage rather than being buried within the code. This allows for further specifics for location and simplification of the subsequent sections relative to tread depth. Finally although the term walk line has been used for years with in the code text on tread depth, this section offers a clear understanding.

##### **What is the "Walk Line":**

The walk line is related to the person's position *when walking on the stair* and is that line which the inside foot follows when *walking on a stair* and therefore this proposal states that the walk line shall be established based only on that portion of the treads in a flight that can be walked on. Any portion of a tread that cannot be walked on does not require regulation by this section. The extension of the tread or its size beyond the "walk-able" area, whether for structural attachment or decorative purpose, is not necessary to the regulation of tread depth for the safety of the user.

##### **Ease of enforcement:**

In this proposal the location of the walk line is simply determined by measuring onto the tread at the front of each tread from the point of minimum tread depth because the walk line is defined as being parallel to the side of the flight. This represents no change in the common practice to measure at the leading edge or nosing of the tread and no longer will require a square across the tread depth to accurately determine the winder tread depth at the walk line.

##### **Simplification of the IBC Tread Related Sections:**

*No changes in any of the specified dimensions* are being made. The first change is to only move the tread depth requirement to allow the riser requirements to appear together. The word "rectangular" used in exception 2 of the dimensional uniformity exception has been added to clarify. The way in which the winder treads will be measured is changed to match the way they are laid out to be uniform. This does not affect typical two or three winder layouts that are typically much deeper than the rectangular treads they are paired with in a flight and more closely reflects the foot positions in both ascent and descent as a person turns while walking on the stair. At the same time this allows for an easier method of accurately measuring the tread depth without the use of a square across the depth of the winder tread. The minimum winder tread depth is now clarified by reflecting the most common enforcement convention and is to be measured on that portion of the stair-walking surface that is actually used for walking as is in the new walk line section.

The Dimensional uniformity section has been edited for simplification because these terms are now clearly stated in the new walk line section.

**Cost Impact:** The code change proposal will not increase the cost of construction.

**PART II – IRC B/E  
Committee Action:**

**Disapproved**

**Committee Reason:** The proposed language does not improve the current code language for stairways. The committee felt that the definition for walk line should be placed in Section 202. Further, the committee felt the language appeared to be more consistent with commentary rather than code charging text.

**Assembly Action:** **None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part II.**

*Public Comment:*

**David W. Cooper, Stair Manufacturing and Design Consulting, representing Stairway Manufacturers Association, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**R311.5.2.3 Walk line.** ~~The walk line is the line of travel used to provide for uniform layout of the tread depths in the design and regulation of flights with winder treads. The walk line shall be parallel to the side of the flight where the treads are narrowest and located 12 inches (305 mm) from the point of minimum tread depth used for placement of the foot on the flight in ascent or descent. The walk line across winder treads shall be concentric to the curved direction of travel through the turn and located 12 inches (305 mm) from the side where the winders are narrower. The 12 inch (305 mm) dimension shall be measured from the widest point of the clear stair width at the walking surface of the winder. If winders are adjacent within the flight, the point of the widest clear stair width of the adjacent winders shall be used.~~

**R311.5.3.2 Tread depth.** The minimum tread depth shall be 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Winder treads shall have a minimum tread depth of 10 inches (254 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walk line. Winder treads shall have a minimum tread depth ~~used for placement of the foot ascent or descent~~ of 6 inches (152 mm) at any point within the clear width of the stair. Within any flight of stairs, the largest winder tread depth at the walk line shall not exceed the smallest winder tread by more than 3/8 inch (9.5 mm).

**Commenter's Reason – Part II:** The modification addresses the concerns of all the committees over several cycles of the code of a need to standardize the walk line location at winder treads. The SMA has consistently listened to their feedback for many years in an effort to address the problem. Attempts made to relate the walk line to the handrail or the guard "in fill" at the side of the stair have met with disapproval but further direction from each committee. At the CDH in Palm Springs the IBC committee gave insightful information suggesting that the walk line could be related to the width of the stair. This modification clearly states that relationship and adds further clarity.

The IRC committee had issues with the terminology "used for placement of the foot..." and that has been stricken. The new section titled walk line states clearly and specifically how to locate the walk line at winder treads where it is used to determine the tread depth of winder tread(s) that provide for turning of the stair's direction of travel. This line of travel across winders is a curved path and the walk line established for regulation must parallel it. The term concentric is used because it more accurately describes the geometry of parallel arcs or curves sharing the same center. This separate section substantiates this essential element required in the design and construction of stairs that turn. It further provides clarity for regulating its location that is not subject to the wide interpretation of the present code and thereby allows for the direct reference to walk line in subsequent sections of the code. Please also see the original supporting statement for further substantiation of these changes.

The simple steps to determine compliance are:

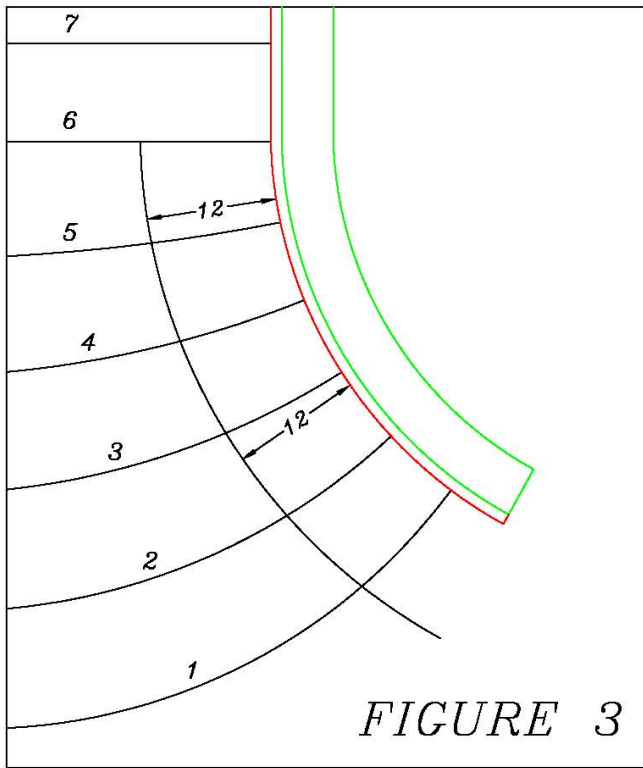
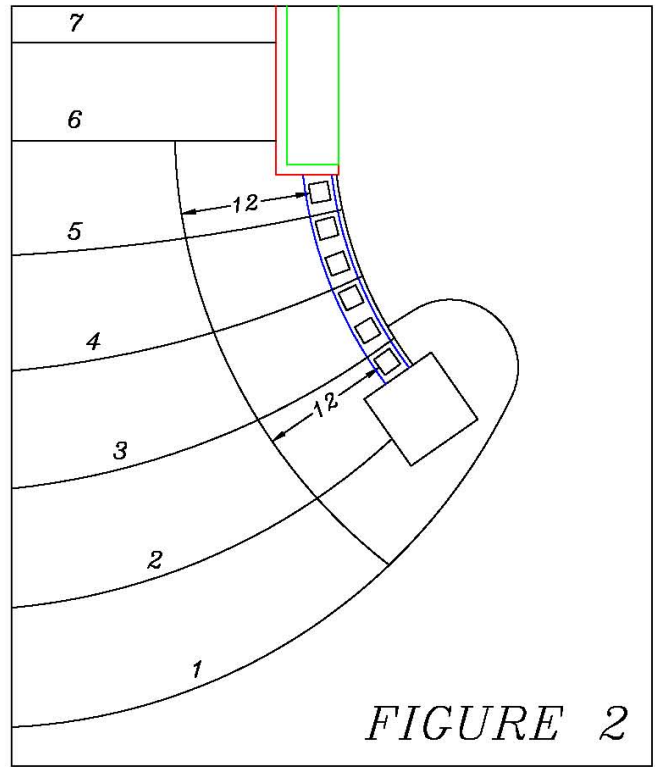
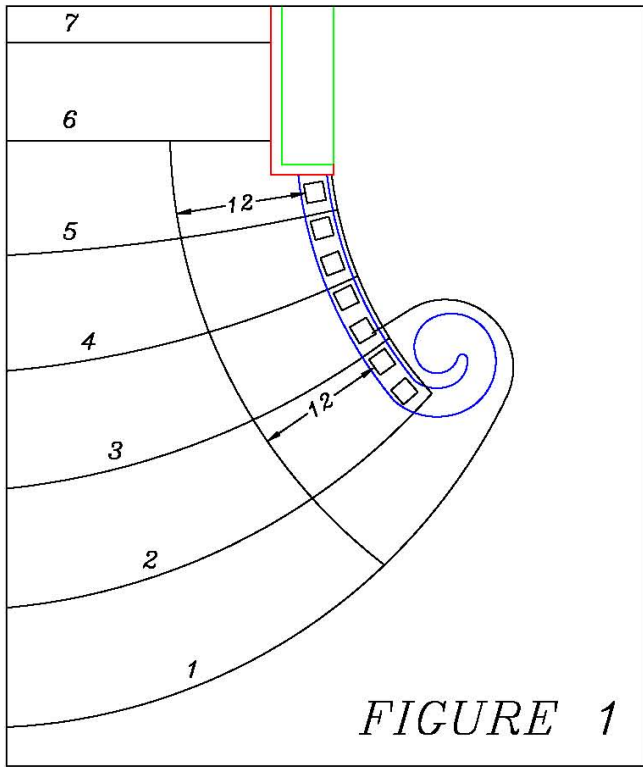
Locate the winder treads in the turn of the stair.

- 1, Locate the side of the stair where the winder treads are narrower
- 2, Establish the widest point of clear width of the stair at the surface of the winder or run of adjacent winders
3. Measure across the stair width 12 inches from the object that restricts the clear width at the tread surface
4. Measure tread depth between the intersections of the nosings with the walk line.

Measuring the tread depth at the intersections with the walk line provides for consistent winders that are uniform in depth at the most common path of travel.

The Figures 1, 2 & 3 illustrate common situations in determining the walk line when walls, posts, and balusters/in-fill or combinations of each are located at winder treads. The specification works for any of these situations and assures that the walk line is located as close to the narrow end of the tread as is possible to use. By keeping the walk line closest to the narrow end it assures that the tread is as wide as necessary for safe walking within the width of the stair that is intended and available to use. The 12 inch dimension in the code was determined by measuring the location of a person on a stair while grasping a handrail and is intended to be measured on that portion of the stair that can be used. Portions of winder treads not located within the clear width of the stair do not need to be considered.

For those that wish to offer guidance on complying winder treads at the initial rough inspection it is important to note that this is no more difficult to regulate during the rough stage of inspection than is the width of the stair and probably much easier than regulating the required riser height. In fact the minimum finished clear stair width could easily be determined by marking the place on the rough winder tread where the minimum walk line depth occurs on the rough tread and measuring 12 inches from that location toward the side where the treads are narrower.



Figures 1, 2, & 3 show common walk line locations as determined by the modification. The walk line, balusters, post, and tread nosings are in black. The wall is green and the skirt board or finish stringer is in red.

Final Action: AS AM AMPC\_\_\_\_\_ D

## E60-07/08, Part I

### 1009.3, 1009.3.1 (IFC [B] 1009.3, [B] 1009.3.1)

**NOTE: PART II DID NOT RECEIVE A PUBLIC COMMENT AND IS ON THE CONSENT AGENDA. PART II IS REPRODUCED FOR INFORMATIONAL PURPOSES ONLY FOLLOWING ALL OF PART I.**

*Proposed Change as Submitted:*

**Proponent:** David W. Cooper, Stairway Manufacturers' Association

#### PART I – IBC MEANS OF EGRESS

##### 1. Add new text as follows:

**1009.3 (IFC [B] 1009.3) Stair treads and risers.** Stair treads and risers shall comply with Sections 1009.3.1 through 1009.3.5.

**1009.3.1 (IFC [B] 1009.3.1) Dimension reference surfaces.** For the purpose of the section, all dimensions are exclusive of carpets, rugs, or runners.

##### 2. Revise as follows:

**1009.3 (IFC [B] 1009.3) Stair treads and risers 1009.3.2 (IFC [B] 1009.3.2) Riser height and tread depth.** Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. Stair tread depths shall be 11 inches (279 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured at a right angle to the tread's leading edge at a point 12 inches (305 mm) from the side where the treads are narrower and a minimum tread depth of 10 inches (254 mm).

##### Exceptions:

1. Alternating tread devices in accordance with Section 1009.9.
2. Spiral stairways in accordance with Section 1009.8.
3. Aisle stairs in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1025.11.2.
4. 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; the maximum riser height shall be 7.75 inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walk line shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing not less than 0.75 inch (19.1 mm) but not more than 1.25 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
5. See the Section 3403.4 for the replacement of existing stairways.

**1009.3.1 (IFC [B] 1009.3.1) 1009.3.3 (IFC [B] 1009.3.3) Winder treads.** (No change to text)

**1009.3.2 (IFC [B] 1009.3.2) 1009.3.4 (IFC [B] 1009.3.4) Dimensional uniformity.** (No change to text)

**1009.3.3 (IFC [B] 1009.3.3) 1009.3.5 (IFC [B] 1009.3.5) (Supp) Profile.** (No change to text)

**Reason:** PART I-IBC- This new section provides for accurate measurements consistent with the intent of the code by standardizing the surfaces to be measured from the dimensions currently described under **1009.3 Treads and risers**. It further makes sense out of the nosing radius and bevel dimensions in **1009.3.3 Profile** as these are not intended to be measured at a carpeted surface.



This clarification would result in more consistent interpretation and enforcement eliminating confusion. In our code seminars around the country I ask how officials determine the riser height if the stair is carpeted. Some have a standard thickness they calculate for the carpet without knowing the thickness that will be used. Others measure in consideration of the compressed thickness and still others wait to pass or fail the stairway based on measuring to the uncompressed surface of a carpet that might change after just a few months use or when it is replaced. We can't have our cake and eat it too. Court battles ensue over such widely interpreted issues that become law upon adoption and in this case should become the sole responsibility of the occupant as they change carpets, rugs, and runners.

Surfaces can easily vary 1 inch or more in thickness when uncompressed carpet and pad is inserted in the calculation of the riser height. The code requires accuracy within 3/8 of an inch and yet it provides for inconsistent measurements and enforcement. The fact is that carpeting is not regulated by the code and cannot be indiscriminately inserted based on widely varying individual interpretation.

Whether the stair is site built or prefabricated the rise of the stair is determined during the rough stage long prior to the selection of carpet for thickness. Prior to layout of the stringer you must know what thickness treads will be used and what materials will be used on the floors. The decision is made to allow the landing tread that meets the floor surface (or also called landing nosing) to be held up to accept floor coverings to abut its back edge or place it flush for carpet to wrap it such that the top riser *should always be the same height as the other stair risers within normal construction tolerances prior to the addition of carpets*. The top and bottom steps should not be controlled based on carpet because the uncontrollable addition of rugs and/or runners at the floors and landings will change at the option of the owners/occupants/residents.

Since carpeting is not controlled by the code then the dimensions of the stair should not be controlled by carpet. The code must provide a product that the end user can rely on regardless of the jurisdiction they decide to live or walk. We mislead ourselves if we think that the variants now allowed in measuring the rise on stairs provide for safety. We need to provide a standard the consumer can count on and walk safely on. This change provides the needed standard the code now lacks.

**Cost Impact:** The code change proposal will not increase the cost of construction.

## **PART I – IBC MEANS OF EGRESS**

**Committee Action:**

**Disapproved**

**Committee Reason:** The allowance to measure riser and tread depth without consideration of the carpeting could result in stairs that exceed the tolerances between the adjoining risers and treads.

**Assembly Action:**

**None**

### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted for Part I.**

*Public Comment:*

**David W. Cooper, Stair Manufacturing and Design Consulting, representing Stairway Manufacturing Association, requests Approval as Submitted.**

**Commenter's Reason:** This issue was approved by the IRC and deserves consideration in the IBC Final Action hearing. Measuring to carpet that does not exist or is subject to changes made by occupants including the addition of mud and water absorbing carpets so commonly used in public spaces provides no level of additional safety and/or can not be regulated. Providing reference surfaces that are standardized will provide consistency through out the built environment.

Final Action:      AS              AM              AMPC\_\_\_\_              D

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**NOTE: PART II REPRODUCED FOR INFORMATIONAL PURPOSES ONLY – SEE ABOVE)**

**E60-07/08, PART II – IRC BUILDING AND ENERGY  
IRC R311.5.3**

**Revise text as follows:**

**R311.5.3 Stair treads and risers.** Stair treads and risers shall meet the requirements of this section. For the purposes of this section all dimensions and dimensioned surfaces shall be exclusive of carpets, rugs, or runners.

**PART II-IRC-**This new section provides for accurate measurements consistent with the intent of the code by standardizing the surfaces to be measured from the dimensions described under R311.5.3 Treads and risers. It further makes sense out of the nosing radius and bevel dimensions in R311.5.3.3 Profile as these are not intended to be measured at a carpeted surface.

This clarification would result in more consistent interpretation and enforcement eliminating confusion. In our code seminars around the country I ask how officials determine the riser height if the stair is carpeted. Some have a standard thickness they calculate for the carpet without knowing the thickness that will be used. Others measure in consideration of the compressed thickness and still others wait to pass or fail the stairway based on measuring to the uncompressed surface of a carpet that might change after just a few months use or when it is replaced. We can't have our cake and eat it too. Court battles ensue over such widely interpreted issues that become law upon adoption and in this case should become the sole responsibility of the occupant as they change carpets, rugs, and runners.

Surfaces can easily vary 1 inch or more in thickness when uncompressed carpet and pad is inserted in the calculation of the riser height. The code requires accuracy within 3/8 of an inch and yet it provides for inconsistent

measurements and enforcement. The fact is that carpeting is not regulated by the code and cannot be indiscriminately inserted based on widely varying individual interpretation.

Whether the stair is site built or prefabricated the rise of the stair is determined during the rough stage long prior to the selection of carpet for thickness. Prior to layout of the stringer you must know what thickness treads will be used and what materials will be used on the floors. The decision is made to allow the landing tread that meets the floor surface (or also called landing nosing) to be held up to accept floor coverings to abut its back edge or place it flush for carpet to wrap it such that the top riser should always be the same height as the other stair risers within normal construction tolerances prior to the addition of carpets. The top and bottom steps should not be controlled based on carpet because the uncontrollable addition of rugs and/or runners at the floors and landings will change at the option of the residents.

Since carpeting is not controlled by the code then the dimensions of the stair should not be controlled by carpet. The code must provide a product that the end user can rely on regardless of the jurisdiction they decide to live or walk. We mislead ourselves if we think that the variants now allowed in measuring the rise on stairs provide for safety. We need to provide a standard the consumer can count on and walk safely on. This change provides the needed standard the code now lacks.

**Cost Impact:** The code change proposal will not increase the cost of construction.

**PART II – IRC-B/E**  
**Committee Action:**

**Approved as Submitted**

**Committee Reason:** The proposed language provides for accurate measurements of the stair tread and riser profiles. Further, establishing that all dimensions and surfaces are measured exclusive of carpets, rugs or runners gives the building official a clear place to measure to.

**Assembly Action:**

**None**

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## E68-07/08

### 1009.6 (IFC [B] 1009.6)

#### *Proposed Change as Submitted:*

**Proponent:** Robert Bagnetto, Lapeyre Stair Inc.

#### **Revise as follows:**

**1009.6 (IFC [B] 1009.6) Vertical rise.** A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

#### **Exceptions:**

1. Aisle stairs complying with Section 1025.
2. Alternating tread devices used as a means of egress shall not have a rise greater than 20 feet (6096mm) between floor levels or landings.

**Reason:** The purpose of this proposed change to IBC-2006 is to allow a maximum allowable vertical height of 20 feet for alternating tread devices used as a means of egress, without requiring an intermediate landing or platform.

The proposed change is superior to the current provisions of the code in that alternating tread devices may be used in heights up to 20 ft, without the use of an intermediate landing platform. In some instances this eliminates the need for unnecessary components; and potentially improves safety by allowing alternating tread devices to be used in areas with limited horizontal space, where otherwise the only alternative would be to use a vertical ladder.

Alternating tread devices are allowed by the code only as a means of egress to locations that are for use by maintenance/industrial workers (see listing below). Such workers are typically able to climb higher vertical distances than the general public without an intermediate landing. Sections 502 and 505 allow the use of a ladder to access equipment platforms which are also typically used by maintenance/industrial workers. Allowable heights for ladders are not addressed in IBC. OSHA regulations in 29CFR1910.27 allow ladders with cages, wells or safety devices up to 30 feet in height before a landing is required; Ladders without cages, wells or safety devices are allowed up to 20 feet in height before a landing is required. IMC section 306.5 allows ladders up to 30 feet in height without a landing. Alternating tread devices are typically not equipped with cages, wells or safety devices; however they are typically safer than a ladder as they have a larger landing area for the users' feet, side rails that act as a guard and a handrail and a shallower angle. Additionally, alternating tread devices have been shown by approximately 25 years of successful use and by the scientific study, "Performance, perceived safety and comfort of the alternating tread stair" to be an acceptable vertical access component and preferred over ships' ladders. Therefore, allowing alternating tread devices with vertical heights of 20 feet (the same vertical distance as ladders without cages, wells or safety devices) without requiring a landing is reasonable.

#### *Allowed Alternating Tread Devices usage as a Means of Egress*

410.5.3	<i>Gridirons of Stage Exits to scuttle in roof</i>
1009.9	<i>Mezzanines <math>\leq 250 \text{ ft}^2</math> &amp; <math>\leq 5</math> occupants in F,H &amp; S occupancies</i>
1009.9	<i>1-3 guard towers observation stations or control rooms <math>\leq 250 \text{ ft}^2</math></i>
1009.9,11	<i>to Unoccupied roofs</i>
1015.3	<i>Secondary means of egress to Boiler, Incinerator and Furnace rooms</i>

1015.4 Secondary means of egress to Refrigeration machinery rooms  
1015.6.1 Stage galleries, gridirons and catwalks  
1019.1.2 Second means of egress for helistops < 60 ft long or 2,000 ft<sup>2</sup> in area

**Bibliography:**

*Performance, perceived safety and comfort of the alternating tread stair* by Jorna, Mohageg & Synder, Virginia Polytechnic Institute and State University, published Applied Ergonomics 1989.20.1,26-32

29CFR1910.27(d)(2) Fixed ladders – landing platforms

**Cost Impact:** The code change proposal could minimally reduce the cost of construction in some cases by eliminating the need for landings for alternating tread devices.

**Analysis:** There is a similar code change by Mr. Bagnetto to Section 505.5.

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** An alternating tread device is not a stairway, so it should be allowed the same as a ladder. Since this is not a stairway, a landing is not required at any height, so the additional exception would provide that clarification.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**David W. Cooper, Stair Manufacturing and Design Consulting, representing Stairway Manufacturing Association, requests Approval as Modified.**

**Modify proposal as follows:**

**1009.6 (IFC [B] 1009.6) Vertical rise.** A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

**Exceptions:**

1. Aisle stairs complying with Section 1025.
2. Alternating tread devices used as a means of egress shall not have a rise greater than 20 feet (6096mm) between floor levels or landings.
3. Spiral stairs complying with 1009.8 shall not have a rise greater than 20 feet (6096mm) between floor levels or landings.

**Commenter's Reason:** Spiral stairs are known to be safer than alternating tread devices. In addition the complying geometry allows for a tread that is wide enough to stand upon to rest if needed reducing the need for a landing. Spiral stairs allow for design options that will fit in a square or equilateral space when the rectangular space required for an alternating tread device is not available. This safer option should be permitted and encouraged by affording the same exception to the vertical rise requirement as is permitted for alternating tread devices.

Final Action: AS AM AMPC\_\_\_\_ D

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**E70-07/08**

**1009.7 (IFC [B] 1009.7)**

*Proposed Change as Submitted:*

**Proponent:** John Berry, Cole + Russell Architects, Inc.

**Revise as follows:**

**1009.7 (IFC [B] 1009.7) Curved stairways.** Curved stairways with winder treads shall have treads and risers in accordance with Section 1009.3 and the smallest radius shall not be less than twice the required width of the stairway.

**Exception:** The radius restriction shall not apply to curved stairways for occupancies in Group R-3<sub>1</sub> and within individual dwelling units and sleeping units in occupancies in Groups R-1 and R-2.

**Reason:** I have recently experienced multi-level sleeping units in hotels that do not qualify as dwelling units since they do not include provisions for cooking. Considering that the typical occupant load in a sleeping unit will be less than dwelling units, I see no reason why curved stairways should not be allowed in sleeping units.

**Cost Impact:** The code change proposal will not increase the cost of construction.

**Committee Action:** **Disapproved**

**Committee Reason:** The proposal was disapproved for consistency with the committee action on E63-07/08.

**Assembly Action:** **None**

### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**David W. Cooper, Stair Manufacturing and Design Consulting, representing Stairway Manufacturing Association, requests Approval as Submitted.**

**Commenter's Reason:** This exception would only allow eliminating the radius restriction allowing them to be fitted into slightly smaller spaces. These stairs would still need to comply with the 11 inch minimum tread depth at the 12 inch walk line and a minimum tread depth of 10 inches and a maximum riser height of 7 inches. Such stairs would be easily navigable by anyone in using a sleeping unit regardless of familiarity and should be allowed. The R1 occupancy is not listed in the residential exception to the **1009.3 Stair treads and risers**.

Final Action:      AS              AM              AMPC\_\_\_\_              D

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## **E71-07/08**

### **1009.8 (IFC [B] 1009.8)**

*Proposed Change as Submitted:*

**Proponent:** John Berry, Cole + Russell Architects, Inc.

**Revise as follows:**

**1009.8 (IFC [B] 1009.8) (Supp) Spiral stairways.** Spiral stairways are permitted to be used as a component in the means of egress only within dwelling units and sleeping units or from a space not more than 250 square feet (23 m<sup>2</sup>) in area and serving not more than five occupants, or from galleries, catwalks and gridirons in accordance with Section 1015.6.

A spiral stairway shall have a 7.5 inch (191 mm) minimum clear tread depth at a point 12 inches (305 mm) from the narrow edge. The risers shall be sufficient to provide a headroom of 78 inches (1981 mm) minimum, but riser height shall not be more than 9.5 inches (241 mm). The minimum stairway clear width at and below the handrail shall be 26 inches (660 mm).

**Reason:** I have recently experienced multi-level sleeping units in hotels that do not qualify as dwelling units since they do not include provisions for cooking. Considering that the typical occupant load in a sleeping unit will be less than dwelling units, I see no reason why spiral stairways should not be allowed in sleeping units.

**Cost Impact:** The code change proposal will not increase the cost of construction.

**Committee Action:** **Disapproved**

**Committee Reason:** The spiral stairway is unsafe for persons unfamiliar with the space and makes a difficult means of egress. The proposal was disapproved for consistency with the committee action on E63-07/08.

**Assembly Action:** **None**

### *Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

Public Comment:

**David W. Cooper, Stair Manufacturing and Design Consulting, representing Stairway Manufacturing Association, requests Approval as Submitted.**

**Commenter's Reason:** R1 occupants would be as familiar with spiral stairs as they are widely used throughout the built environment. Access to sleeping units would not represent a reasonable association of risk for the users of what is known to be a very safe stairway that provides a guiding handrail at the widest end of the tread affording the user a very comfortable angle of ascent.

Final Action: AS AM AMPC\_\_\_ D

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## E72-07/08

### 1009.9.2 (IFC [B] 1009.9.2)

*Proposed Change as Submitted:*

**Proponent:** Robert Bagnetto, Lapeyre Stairs Inc.

**Revise as follows:**

**1009.9.2 (IFC [B] 1009.9.2) Treads of alternating tread devices.** Alternating tread devices shall have a minimum projected tread of 5 inches (127 mm), a minimum tread depth of 8.5 inches (216 mm), a minimum tread width of 7 inches (178 mm) and a maximum riser height of 9.5 inches (241 mm). The projected tread depth shall be measured horizontally between the vertical planes of the foremost projections of adjacent treads. The riser height shall be measured vertically between the leading edges of adjacent treads. The combination of riser height and projected tread depth provided shall result in an alternating tread device angle that complies with Section 1002. The initial tread of the device shall begin at the same elevation as the platform, landing or floor surface.

**Exception:** Alternating tread devices used as an element of a means of egress in buildings from a mezzanine area not more than 250 square feet (23 m<sup>2</sup>) in area which serves not more than five occupants shall have a minimum projected tread of 8.5 inches (216 mm) with a minimum tread depth of 10.5 inches (267 mm). The rise to the next alternating tread surface should not be more than 8 inches (203 mm).

**Reason:** The purpose of this proposed change is to clarify the code. The code is ambiguous in that it does not specify how to measure riser height and projected tread depth of alternating tread devices.

This proposal is superior to the current provisions in the code in that it rectifies shortcomings in the code by clarifying the manner in which alternating tread device projected tread depth and riser height are measured.

IBC Section 1009.3 provides details on how to measure riser height and projected tread depth of traditional stairs. However, exception 1 of this section exempts alternating tread devices from measuring riser height and projected tread depth using the same method as for traditional stairs.

IBC section 1009.9.2 provides the values for minimum projected tread depth and maximum riser height but does not provide the details on how to measure these features.

IBC section 1002 defines alternating tread devices as having a series of steps between 50 and 70 degrees.

By definition, the left and right treads of alternating tread devices are each about ½ the width of the device and therefore do not overlap one another. The most reasonable method of measuring projected tread depth of alternating tread devices is using treads that are directly above and below each other (not adjacent treads which are to the side of each other and do not overlap one another.), as these are the treads that the left and right feet of the user each separately use.

Also, measuring both projected tread depth and riser height from adjacent treads would give maximum angles of 43.26 degrees for alternating tread devices accessing mezzanines and 62.24 degrees for alternating tread devices accessing any other area. This would conflict with section 1002 as the maximum angle of 43.26 degrees would be below the minimum 50 degree allowed by definition in section 1002; and the maximum angle of 62.24 degrees would be significantly more restrictive than the 70 degree angle allowed by section 1002. Measuring projected tread depth and riser height in accordance with this proposal would result in maximum angles of 62.02 degrees for alternating tread devices accessing mezzanines and 75.26 degrees for alternating tread devices accessing other areas. These angles are in the range of 50 to 70 degrees as required by the definition of alternating tread devices in section 1002 (with the exception that either the actual projected tread depth used must be larger than the minimum or the actual riser height used must be below the maximum to ensure a maximum angle of 70 degrees).

Note: The current wording in section 1009.9.2 is almost exactly the same as in section 1014.6.6 of the 1996 and 1999 editions the BOCA National Building Code. The history behind how the wording was incorporated into BOCA could not be ascertained.

#### **Bibliography:**

Standard Building Code; Section 1007.8.4  
The BOCA National Building Code/1999 Sections 1014.6.6

**Cost Impact:** The code change proposal will not affect the cost of construction.

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** The proposed language would provide a controlled way to measure treads and risers in alternating tread devices.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**David W. Cooper, Stair Manufacturing and Design Consulting, representing Stairway Manufacturing Association, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1009.9.2 (IFC [B] 1009.9.2) Treads of alternating tread devices.** Alternating tread devices shall have a minimum ~~projected tread depth~~ of 5 inches (127 mm). The tread shall be projected such that the total width of the tread depth plus the nosing projection is no less than 8.5 inches (216 mm) and depth of 8.5 inches (216 mm), a ~~The~~ minimum tread width shall be of 7 inches (178 mm) and a ~~the~~ maximum riser height shall be of 9.5 inches (241 mm). The ~~projected tread depth shall be measured horizontally between the vertical planes of the foremost projections of adjacent treads. The riser height shall be measured vertically between the leading edges of adjacent treads. The combination of riser height and projected tread depth provided shall result in an alternating tread device angle of ascent from the horizontal that complies with Section 1002. The initial tread of the device shall begin at the same elevation as the platform, landing or floor surface.~~

**Exception:** Alternating tread devices used as an element of a means of egress in buildings from a mezzanine area not more than 250 square feet (23 m2) in area which serves not more than five occupants shall have a minimum ~~projected tread depth~~ of 3.0 inches (76 mm). The tread shall be projected such that the total width of the tread depth plus the nosing projection is no less than 10.5 inches (267 mm) with a minimum tread depth of 10.5 inches (267 mm). The ~~maximum riser height shall be rise to the next alternating tread surface should not be more than 8 inches (203 mm).~~

**Commenter's Reason:** Theses alternating tread devices, ships ladders, and stairs have several things in common in that they all have steps ascending at an angle. Any angle can be defined by two components Rise and Run. When calculating an angle it is these two components that are used. The horizontal component is called Run or Going however the ICC recognizes and substitutes the term "tread depth". Although I can assure you this was not introduced by a stair or ladder builder fluent in the language of the craft, in itself this helps to distinguish between the unit run of a step and the total run of a stair. If this is the given "adopted" term then it should and can be used for these devices, ships ladders and stairs. Currently the code recognizes two different terms that mean the same thing: "tread depth" and "projected tread depth" but have entirely different connotations. The code also recognizes the term "nosing projection" which is the amount that the tread projects beyond the back edge of the tread below.

The new sentence tells us to measure "projected tread depth" the way we measure "tread depth". How can it be the same and why do we need two different kinds of tread depth. It is not necessary! The terms currently used throughout 1009.3 can and should be used to describe all vertical egress devices with steps that are within the stairway section.

For these reasons the text of this proposal and the exception has been modified to eliminate the extremely confusing and difficult to interpret language especially for those companies that make stairs, ships ladders and alternating tread devices as well as their customers not to mention design and enforcement that must deal with all these conundrums. The corrections made are editorial and do not change the requirements in any way but allow all vertical egress devices to use the same terminology without confusion. This further seems the suitable time to address this because E74-07/08 adopted the same misleading language of this section. Vertical egress options can be referenced with the same language and should to assure compliance and ease of enforcement.

The reference to Section 1002 has also been clarified. The definition of alternating tread devices found there defines an angle from the horizontal between 50 and 70 degrees. The maximum angle of the steepest stair allowed with a 5 x 9.5 inch step geometry is 62.24 degrees. In the exception the maximum angle from the horizontal allowed by the 3 x 8 geometry is 69.44 degrees. Although this could be improved to establish a minimum angle without reference to Section 1002 I will leave it for the commentary to explain or revision in another cycle.

Final Action: AS AM AMPC\_\_\_ D

**E74-07/08**

**408.3.4 (New), 1009.10 (New), 1009.3, 1012.2, 1012.5, 1013.2, 1013.5 (IFC [B] 1009.10 (New), [B] 1009.3, [B] 1012.2, [B] 1012.5, [B] 1013.2, [B] 1013.5)**

*Proposed Change as Submitted:*

**Proponent:** A. Brooks Ballard, Virginia Department of Corrections

**1. Add new text as follows:**

**1009.10 (IFC [B] 1009.10) Ships Ladders.** Ships ladders are permitted to be used as a component of a means of egress to and from control rooms or elevated facility observation stations not more than 250 SF (23sq m) with not more than 3 occupants and for access to unoccupied roofs.

Ships ladders shall have a minimum projected tread of 5 inches (127 mm), a minimum tread depth of 8.5 inches (216 mm), a minimum tread width of 15 inches (612 mm) and a maximum riser height of 9.5 inches (241 mm).

Handrails shall be provided on both sides of ships ladders.

(Renumber subsequent sections)

**408.3.4 Ship ladders.** Ship ladders shall be permitted for egress from control rooms or elevated facility observation rooms in accordance with Section 1009.10.

(Renumber subsequent sections)

## 2. Revise text as follows:

**1009.3 (IFC [B] 1009.3) Stair treads and risers.** Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. Stair tread depths shall be 11 inches (279 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured at a right angle to the tread's leading edge at a point 12 inches (305 mm) from the side where the treads are narrower and a minimum tread depth of 10 inches (254 mm).

### Exceptions:

1. Alternating tread devices in accordance with Section 1009.9.
- ~~2.~~ 2. Ships ladders in accordance with Section 1009.10.
- ~~3.~~ 3. Spiral stairways in accordance with Section 1009.8.
- ~~4.~~ 4. Aisle stairs in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1025.11.2.
- ~~5.~~ 5. 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; the maximum riser height shall be 7.75 inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walk line shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing not less than 0.75 inch (19.1 mm) but not more than 1.25 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
- ~~6.~~ 6. See the Section 3403.4 for the replacement of existing stairways.

**1012.2 (IFC [B] 1012.2) Height.** Handrail height, measured above stair tread nosings, or finish surface of ramp slope, shall be uniform, not less than 34 inches (864 mm) and not more than 38 inches (965 mm). Handrail height of alternating tread devices and ship ladders, measured above tread nosings shall be uniform, not less than 30 inches (762 mm) and not more than 34 inches (864 mm).

**1012.5 (IFC [B] 1012.5) Handrail extensions.** Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent stair flight. Where handrails are not continuous between flights the handrails shall extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. At ramps where handrails are not continuous between runs, the handrail shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of ramp runs.

### 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. Aisle handrails in Group A and E occupancies in accordance with Section 1025.13.
3. Handrails for alternating tread devices and ship ladders are permitted to terminate at a location vertically above the top and bottom risers. Handrails for alternating tread devices and ship ladders are not required to be continuous between flights or to extend beyond the top or bottom risers.

**1013.2 (IFC [B] 1013.2) Height.** Guards shall form a protective barrier not less than 42 inches (1067 mm) high, measured vertically above the leading edge of the tread, adjacent walking surface or adjacent seatboard.

**Exceptions:**

1. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, guards whose top rail also serves as a handrail shall have a height not less than 34 inches (864 mm) and not more than 38 inches (1067 mm) measured vertically from the leading edge of the stair tread nosing.
2. The height in assembly seating areas shall be in accordance with section 1024.14.
3. Along alternating tread device and ship ladders, guards whose top rail also 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 the leading edge of the device tread nosing.

**1013.3 (IFC [B] 1013.3) Opening limitations.** Open guards 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 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 openings formed by the riser, tread and bottom rail at the open side of a stairway shall be of a maximum size such that a sphere of 6 inches (152 mm) in diameter cannot pass through the opening.
2. At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, guards shall have balusters or be of solid materials such that a sphere with a diameter of 21 inches (533 mm) cannot pass through any opening.
3. In areas that are not open to the public within occupancies in Group I-3, F, H or S, and for alternating tread devices and ship ladders, balusters, horizontal intermediate rails or other construction shall not permit a sphere with a diameter of 21 inches (533 mm) to pass through any opening.
4. In assembly seating areas, 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) to 42 inches (1067 mm) above the adjacent walking surfaces, a sphere 8 inches (203 mm) in diameter shall not pass.
5. Within individual dwelling units and sleeping units in Group R-2 and R-3 occupancies, openings for required guards on the sides of stair treads shall not allow a sphere of 4.375 inches (111 mm) to pass through.

**Reason:** Applicable to Use Group I-3, allows spaces that are normally occupied by a small number of staff persons to have stairways with greater riser height and narrower tread depth than the standard 7-11 riser/tread requirements. In order to provide the 360-degree visibility and maximum mobility necessary for guard observation stations, the size of the base of such elevated stations must be kept to a minimum. Security is increased without risk to either the general public or the inmates, since access to these spaces is restricted to prison staff personnel.

Ships ladders are easier and safer to maneuver than are alternating tread stairs in conditions related to I-3 functions which require carrying items necessary for occupation.

The proposals to Sections 1009.3, 1012.2, 1012.5, 1013.2 and 1013.3 are for correlation. During the 2006/07 cycle the committee approved the revisions in code changes E86, E93, E99 and E100 that added provisions for alternating tread devices to 1012.2, 1012.5, 1013.2 and 1013.3. The same exceptions for handrails and guards should apply to ship ladders.

**Cost Impact:** The code change will not increase the cost of construction.

**Committee Action:**

**Disapproved**

**Committee Reason:** Ships ladders are undefined terms. This could be misapplied to other locations where this type of access would not be appropriate. This should be limited to Group I-3.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**A. Brooks Ballard, Virginia Department of Corrections, requests Approval as Modified by this public comment.**



**Modify proposal as follows:**

**1009.10 (IFC [B] 1009.10) Ship Ships ladders.** Ship Ships ladders are permitted to be used as a component of a means of egress to and from control rooms or elevated facility observation stations not more than 250 SF (23sq m) with not more than 3 occupants and for access to unoccupied roofs in Group I-3.

Ship Ships ladders shall have a minimum projected tread of 5 inches (127 mm), a minimum tread depth of 8.5 inches (216 mm), a minimum tread width of 15 inches (612 mm) and a maximum riser height of 9.5 inches (241 mm).

Handrails shall be provided on both sides of ship ships ladders.

(Renumber subsequent sections)

**1009.3 (IFC [B] 1009.3) Stair treads and risers.** Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. Stair tread depths shall be 11 inches (279 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured at a right angle to the tread's leading edge at a point 12 inches (305 mm) from the side where the treads are narrower and a minimum tread depth of 10 inches (254 mm).

**Exceptions:**

1. Alternating tread devices in accordance with Section 1009.9.
2. Ship Ships ladders in accordance with Section 1009.10.

(Portions of proposal not shown remain unchanged)

**Commenter's Reason:** These changes, in response to spring hearing comments, are to remove the inconsistency in the term ship vs ships and clarify the original intent of this being allowed for Group I-3 only. Ship ladders are defined within this change by prescriptive requirements and parameters.

*Public Comment 2:*

**David W. Cooper, Stair Manufacturing and Design Consulting, representing Stairway Manufacturers Association, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1009.10 (IFC [B] 1009.10) Ships Ladders.** Ships ladders are permitted to be used as a component of a means of egress to and from control rooms or elevated facility observation stations not more than 250 SF (23sq m) with not more than 3 occupants and for access to unoccupied roofs. Ships ladders shall have a minimum projected tread depth of 5 inches (127 mm). ~~The tread shall be projected such that the total of the tread depth plus the nosing projection is no less than 8.5 inches (216 mm). a minimum tread depth of 8.5 inches (216 mm), a minimum tread width of 15 inches (612 mm) and a~~ The maximum riser height shall be of 9.5 inches (241 mm). Handrails shall be provided on both sides of ships ladders. ~~The minimum clear width at and below the handrails shall be 20 inches (508 mm)~~

(Portions of proposal not shown remain unchanged)

**Commenter's Reason:** This proposal unnecessarily took flawed alternating tread device language and inappropriately applied it to ships ladders. Ships ladders can be easily referenced using the terminology that is used for stairs to allow for ease of understanding by all and provide for consistent enforcement of the code. The clear width of the ladder should be identified as with stairs not the tread width.

Final Action: AS AM AMPC\_\_\_ D

## E85-07/08, Part I

**1013.1, 1013.1.1 (New), 1013.2, 1013.3, 1013.5, 1013.6 (IFC [B] 1013.1, [B] 1013.1.1 (New), [B] 1013.2, [B] 1013.3, [B] 1013.5, [B] 1013.6)**

*Proposed Change as Submitted:*

**Proponent:** Paul K. Heilstedt, P.E., Chair, representing ICC Code Technology Committee (CTC)

### PART I – IBC MEANS OF EGRESS

**1. Revise as follows:**

#### SECTION 1013.0 GUARDS

**1013.1 (IFC [B] 1013.1) (Supp) Where required.** Guards shall be located along open-sided walking surfaces, including mezzanines, equipment platforms, stairways, stairs, ramps and landings, that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches ( 914 mm) horizontally to the edge of the open side ~~above the floor or grade below~~. Guards shall be adequate in strength and attachment in

accordance with Section 1607.7. ~~Where glass is used to provide a guard or as a portion of the guard system, the guard shall also comply with Section 2407. Guards shall also be located along glazed sides of stairways, ramps and landings that are located more than 30 inches (762 mm) above the floor or grade below where the glazing provided does not meet the strength and attachment requirements in Section 1607.7.~~

**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 steps 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 where guards in accordance with Section 1025.14 are permitted and provided.

**2. Add new text as follows:**

**1013.1.1 (IFC [B] 1013.1.1) Glazing.** Where glass is used to provide a guard or as a portion of the guard system, the guard shall also comply with Section 2407. Where the glazing provided does not meet the strength and attachment requirements in Section 1607.7, complying guards shall also be located along glazed sides of open-sided walking surfaces.

**3. Revise as follows:**

**1013.2 (IFC [B] 1013.2) (Supp) Height.** Required guards shall form a protective barrier be not less than 42 inches (1067 mm) high, measured vertically above the adjacent walking surfaces, adjacent fixed seating or the line connecting the leading edge edges of the tread treads , adjacent walking surface or adjacent seatboard.

**Exceptions:**

1. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, guards whose top rail also serves as a handrail shall have a height not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from the leading edge of the stair tread nosing. 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 leading edges of the treads.
2. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.
- ~~2.~~ 3. The height in assembly seating areas shall be in accordance with Section 1024.14.
- ~~3.~~ 4. Along alternating tread device, guards whose top rail also 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 the leading edge of the device tread nosing.

**1013.3 (IFC [B] 1013.3) (Supp) Opening limitations.** Open Required guards shall have balusters or ornamental patterns such that a not have openings which allow passage of a sphere 4-inch-inches (102 mm) diameter sphere in diameter from the walking surface to the required guard height 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. From a height of 36 inches (914 mm) to 42 inches (1067 mm), guards shall not have openings which allow passage of a sphere 4.375 inches (111 mm) in diameter.
- ~~4.~~ 2. The triangular openings at the open sides of a stair, formed by the riser, tread and bottom rail, at the open side of a stairway shall be of a maximum size such that a sphere of 6 inches (152 mm) in diameter cannot pass through the opening. not allow passage of a sphere 6 inches (152 mm) in diameter.

- ~~2~~ 3. At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, guards shall ~~have balusters or be of solid materials such that a sphere with a diameter of 21 inches (533 mm) cannot pass through any opening.~~ not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.
- ~~3.~~ 4. In areas which are not open to the public within occupancies in Group I-3, F, H or S, and for alternating tread devices ~~balusters, horizontal intermediate rails or other construction shall not permit a sphere with a diameter of 21 inches (533 mm) to pass through any opening.~~ guards shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.
- ~~4.~~ 5. In assembly seating areas, 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 sphere cannot pass through any opening up to a height of 26 inches (660 mm).~~ not have openings which allow passage of a sphere 4 inch inches (102mm) in diameter sphere cannot pass through any opening up to a height of 26 inches (660 mm). From a height of 26 inches (660 mm) to 42 inches (1067 mm) above the adjacent walking surfaces, ~~guards shall not have openings which allow passage of a sphere 8 inches (203 mm) in diameter shall not pass.~~
- ~~5.~~ 6. Within individual dwelling units and sleeping units in Group R-2 and R-3 occupancies, ~~openings for required guards on the sides of stair treads shall not allow a sphere of 4.375 inches (111 mm) to pass through.~~ guards on the open sides of stairs shall not have openings which allow passage of a sphere 4.375 (111 mm) inches in diameter.

**1013.4. (IFC [B] 1013.4) Screen porches.** (No change to current text)

**1013.5 (IFC [B] 1013.5) Mechanical equipment.** Guards shall be provided where appliances, equipment, fans, roof hatch openings or other components that require service are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inch inches (533 mm) in diameter sphere. The guard shall extend not less than 30 inches (762 mm) beyond each end of such appliance, equipment, fan or component.

**1013.6 (IFC [B] 1013.6) Roof access.** Guards shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inch inches (533 mm) in diameter sphere.

**Reason:** The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: <http://www.iccsafe.org/cs/cc/ctc/index.html>. Since its inception in April/2005, the CTC has held twelve meetings - all open to the public.

This proposed change is a result of the CTC's investigation of the area of study entitled "Climbable Guards". The scope of the activity is noted as:

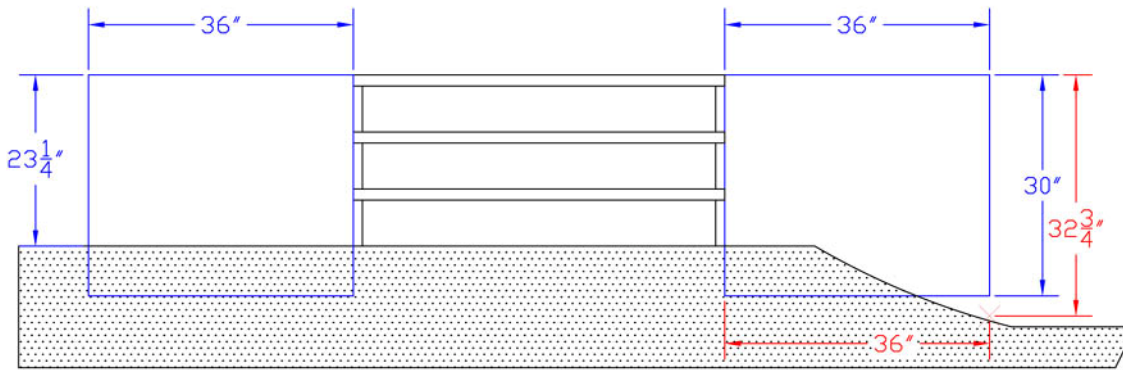
The study of climbable guards will focus on determining the need for appropriate measures to prevent or inhibit an individual from utilizing the elements of a guard system, including rails, balusters and ornamental patterns, to climb the guard, thereby subjecting that person to the falling hazard which the guard system is intended to prevent.

This proposal is a follow-up to E96 – 06/07. As of this writing this area of study has been completed by the CTC relative to these proposals. The general focus of these two proposals, one to the IBC and one to the IRC, is to create consistency in language regulating guards in the two codes.

**Part I – IBC**

IBC 1013.1. Laundry lists of items in the code are typically not all-inclusive. The word "including" provides this clarification in the following sections as well. This section is divided into two paragraphs with the second paragraph dealing with glass and glazing without a change in intent.

The key part of this change to IBC 1013.1 is submitted in order to clarify how the height measurement which triggers the guard requirement is made relative to proximity to the adjacent fall-off. This is illustrated in the following figure:



The view is taken from the landing of a 3 riser stair, looking towards the face of the risers.



IBC 1013.2: The technical portions of this change are the changes that stipulates that the provisions are applicable to only required guards and that a fixed seat becomes a potential walking surface to a child and thus warrants the guard height to be measured from that point. The remainder does not change the intent but rather provides standardized text dealing with stair treads and the determination of how to measure guard height. This public comment revises the term to “fixed seating” so as to clarify the measurement, using common terminology. Fixed seating represents a walking surface that is sure to be utilized by children. As such, the measurement of the guard must be taken from this location to address the hazard of a child falling over the guard. It is impossible for the code to regulate ornamentals such as planters, furniture and the like and this proposal does not intend to regulate them.

IBC 1013.3: This section is also clarified to apply to only required guards. In the disapproval of E96-06/07, committee notes that they feel that exceptions 1 and 2 are redundant. A careful reading of the text revisions reveals a subtle difference. Exception 1 is a general exception for guard height along stairs. Exception 2 addresses the guard height where the top of the guard serves as a handrail. This distinction is intended to provide clarification in the code for the two possible scenarios.

The majority of the revision in this section and exception involve editorial rewording of the sentences for clarity and consistency. The technical change is to exception 1 to reduce the maximum opening (8” to 4-3/8” inches) for this upper portion of the guard above 36 inches.

The 8 inch limitation on openings at the upper section of the guard was based on the difference between the 34 inch height being the part of the guard that protects small children and the 42 inch height for the rest of the population. However this does not take into account that residential R-3 use groups require a minimum guard height of 36 inches. Proposed exception 1 raises the height for which the 4 inch opening requirement is applicable - to coincide with the minimum guard height of 36 inches in residential occupancies.

The change in maximum opening size at the upper portion of the guard, from the current 8 inch sphere criteria to a 4-3/8 inch sphere, is based on providing an equivalent level of protection as that provided by the current 4 inch opening on the lower portion of the guard. As a point of reference, the following measurements of head sizes of infants are excerpted from Drawing #2 Measurement of Infants from a book entitled “The Measure of Man and Woman: Human Factors” by Alvin R. Tilley, first published by Whitney Library of Design in 1993, republished and copyrighted by John Wiley & Sons, New York (ISBN 0-471-09955-4) in 2002.

The publication states “We have chosen to accommodate 98% of the U.S. population, which lies between the 99 percentile and the 1 percentile, for product designs for civilians” page 10-11 headlined percentiles.

Age	Side-to-side measurement	Back-to-front measurement
12-15 months:	5”	6.5”
16-19 months:	5”	6.5”
20-23 months:	5.1”	6.8”

Additional point of reference, from the same book entitled "The Measure of Man and Woman: Human Factors" by Alvin R. Tilley, figure number 8, page 14, showing child age 2.5 – 3 years. The chest dimension when scaled (1" = 12") shows a 4-3/4" dimension from the back to the front.

The following information from various resources has been compiled to illustrate how countries outside of the US are regulating the openings in guards:

Country of Origin	Sphere Rule Metric	Sphere Rule Inches
Canada	100mm	3.94"
United Kingdom	100mm	3.94"
United States	102mm	4"
Australia	125mm	4.92"
Germany	120mm	4.72"
France	110mm	4.33"
Mexico (no code – standard followed)	102mm – 152mm	4" – 6"
Russia	100mm	3.94"
Romania	100mm	3.94"
Trinidad & Tobago	102mm	4"
Japan (Confirmation Pending)	125mm	4.92"
Spain (Confirmation Pending)	(120mm) (125mm)	(4.72") (4.92")
Switzerland	120mm	4.72"
Sweden	100mm	3.94"
Taiwan (Confirmation Pending)	125mm	4.92"
Singapore (Confirmation Pending)	125mm	4.92"
Poland (Confirmation Pending)	100mm	3.94"
Turkey	100 mm	3.94"
Netherlands (Confirmation Pending)	100mm	3.94"

**Bibliography:**

Interim Report No. 1 of the CTC, Area of Study – Climbable Guards, March 9, 2006.  
 "The Measure of Man and Woman: Human Factors" by Alvin R. Tilley

**Cost Impact:** The code change proposal will not increase the cost of construction.

**PART I – IBC MEANS OF EGRESS**

**Committee Action:**

**Approved as Submitted**

**Committee Reason:** The proposal comprehensively revises guard requirements and clarifies where they are required. It also directs users to the appropriate structural provisions.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because public comments were submitted.**

*Public Comment 1:*

**Bill Conner, Bill Conner Associates, LLC, representing American Society of Theatre Consultants, requests Approval as Modified by this public comment.**

**Joshua Grossman, Schuler Shook, requests Approval as Modified by this public comment.**

**Darrell Ziegler, Westlake Reed Leskosky, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1013.2 (IFC [B] 1013.2) (Supp) Height.** Required guards shall be not less than 42 inches (1067 mm) high, measured vertically above the adjacent walking surfaces, ~~adjacent fixed seating~~ or the line connecting the leading edges of the treads.

**Exceptions:**

1. 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 leading edges of the treads.
2. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.
3. The height in assembly seating areas shall be in accordance with Section 1024.14.
4. Along alternating tread device, guards whose top rail also 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 the leading edge of the device tread nosing.

(Portions of proposal not shown remain unchanged)

**Commenter's Reason: (Conner)** The guard heights should be measured from walking surfaces, not sitting surfaces. Fixed seating should not be considered a walking surface. In addition, the term "fixed seating" is very unspecific and measurement could be from arms, backs, or seats, resulting in ridiculously high and unwarranted guards.

**Commenter's Reason: (Grossman)** Section as written appears to require guard height to be measured from a point on the seats. The guard height should be measured from a walking surface not a seating surface. In addition, there is no specific place on the seat from which the measurement is required to be taken. This could be interpreted as measured from the anchor point of the seat or the top of the backrest, making design compliance impossible.

**Commenter's Reason: (Ziegler)** Guard should be measured from the walking surface – not from the fixed seating. As fixed seating is comprised of multiple parts at varying elevations, there would be no clear point to measure from. If an inspector interpreted the guard to be measured from the seat back, the guard could be at an elevation 72" above the walking surface or if measured from the armrest, the guard would be at approx. 65" above the walking surface. Guards at these elevations would create major sightline problems for patrons. The critical measurement is from the walking surface.

*Public Comment 2:*

**Ed Roether, HOK SVE, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

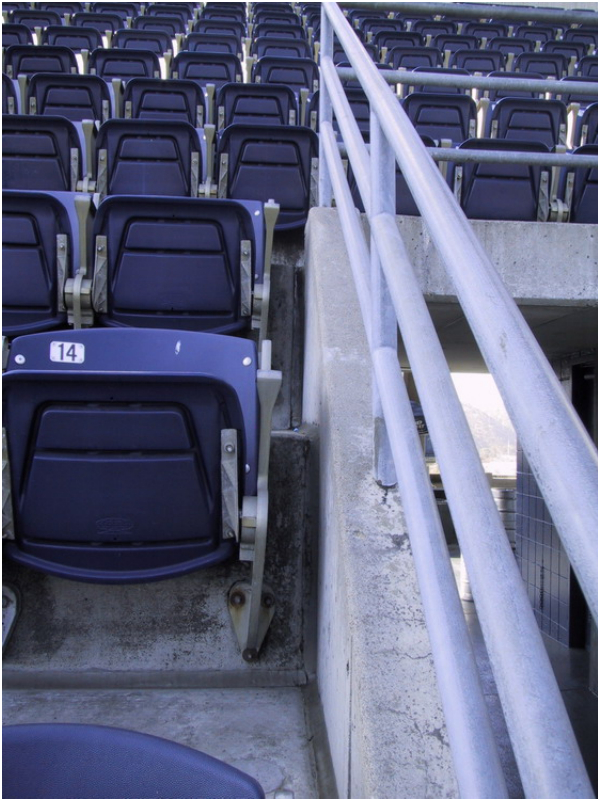
**1013.2 (IFC [B] 1013.2) (Supp) Height.** Required guards shall be not less than 42 inches (1067 mm) high, measured vertically above the adjacent walking surfaces, adjacent ~~fixed seating~~ seatboard or the line connecting the leading edges of the treads.

**Exceptions:**

1. 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 leading edges of the treads.
2. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.
3. The height in assembly seating areas shall be in accordance with Section 1024.14.
4. Along alternating tread device, guards whose top rail also 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 the leading edge of the device tread nosing.

(Portions of proposal not shown remain unchanged)

**Commenter's Reason:** The term "seatboard" that was replaced with the term "fixed seating" should be maintained for several reasons. The term "fixed seating" does not offer any greater clarity in determining the height of a guard than did the original term "seatboard". In fact, the term "fixed seating" offers more confusion. Where do you measure the height of the guard on the fixed seats in these photographs.



Even though the term "seatboard" is not defined in the building code, offering debate about what might be considered a seatboard, neither is the term "fixed seating". The use of the term "fixed seating" will not end the debate. The term "fixed seating" is used in Section 1108 and elsewhere within the building code in order to determine accessible seating requirements. Therefore, the term "fixed seating" potentially is more limiting than the term "seatboard". Would it only apply to fixed seating in assembly seating if it stands as written? This is not the proponent's intent. The proponent's reason stated that "a fixed seat becomes a walking surface to a child and thus warrants the guard height to be measured from that point." While this would certainly be true for some cases, it is not true in all cases. The "seatboards" in the following photographs certainly become a walking surface and measurable. The fixed seating in the photographs above is not.



*Public Comment 3:*

**Anne vonWeller, Murray City, UT, representing Utah Chapter of ICC, requests Approval as Modified by this public comment.**

**Modify proposal as follows:**

**1013.3 (IFC [B] 1013.3) (Supp) Opening limitations.** Required guards shall not have openings which allow passage of a sphere 4-inches (102 mm) in diameter from the walking surface to the required guard height.

**Exceptions:**

1. From a height of ~~36 inches (914 mm)~~ **34 inches (864 mm)** to 42 inches (1067 mm), guards shall not have openings which allow passage of a sphere ~~4.375 inches (111 mm)~~ **8 inches (203 mm)** in diameter.
2. The triangular openings at the open sides of a stair, formed by the riser, tread and bottom rail, not allow passage of a sphere 6 inches (152 mm) in diameter.
3. At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, guards shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.
4. In areas which are not open to the public within occupancies in Group I-3, F, H or S, and for alternating tread devices guards shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.
5. In assembly seating areas, guards at the end of aisles where they terminate at a fascia of boxes, balconies and galleries shall not have openings which allow passage of a sphere 4 inches (102mm) in diameter up to a height of 26 inches (660 mm). From a height of 26 inches (660 mm) to 42 inches (1067 mm) above the adjacent walking surfaces, guards shall not have openings which allow passage of a sphere 8 inches (203 mm) in diameter.
6. Within individual dwelling units and sleeping units in Group R-2 and R-3 occupancies, guards on the open sides of stairs shall not have openings which allow passage of a sphere 4.375 (111 mm) inches in diameter.

(Portions of proposal not shown remain unchanged)

**Commenter's Reason:** This modification restores the original technical requirement of the 2000, 2003 and 2006 IBC. No history or reasoning was cited to indicate the original IBC regulation has been the least unsafe. Justification for changing this portion of guard requirements was supposedly to make it consistent with Group R-3 requirements. The stated reason is confusing because with the language in E85-07/08, Group R-3 and within R-2 uses remain not only inconsistent with other uses, but inconsistent with guards at stairs. The proposed change is also less practical and forces a less flexible design. The Utah Chapter of ICC supports the balance of the change and urges approval as modified by this comment.

Final Action:      AS              AM              AMPC\_\_\_\_              D



# E85-07/08, Part II

## IRC R312.1, R312.2

*Proposed Change as Submitted:*

**Proponent:** Paul K. Heilstedt, P.E., Chair, representing ICC Code Technology Committee (CTC)

### PART II – IRC BUILDING AND ENERGY

#### 1. Revise as follows:

#### SECTION R312 GUARDS

**R312.1 (Supp) Where Guards required.** ~~Guards shall be provided on all decks, landings, porches, balconies, ramps or raised floor surfaces located more than 30 inches (762 mm) above the floor or grade below. Required guards shall not be less than 36 inches in height. Open sides of stairs with a total rise of more than 30 inches (762 mm) above the floor or grade below shall have guards not less than 34 inches (864 mm) in height measured vertically from the nosing of the treads. Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches ( 914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a guard.~~

~~Porches and decks which are enclosed with insect screening shall be equipped with guards where the walking surface is located more than 30 inches (762 mm) above the floor or grade below.~~

#### 2. Add new text as follows:

**R312.2 Height.** Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches (914 mm) high measured vertically above the adjacent walking surface, adjacent fixed seating or the line connecting the leading edges of the treads.

#### Exceptions:

1. 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 leading edges of the treads.
2. Where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.

#### 3. Revise as follows:

**R312.2 R312.3 Guard Opening limitations.** ~~Required guards on open sides of stairways, raised floor areas, balconies and porches shall not have openings intermediate rails or ornamental closures which do not allow passage of a sphere 4 inches (102 mm) or more in diameter from the walking surface to the required guard height.~~

#### Exceptions:

- ~~1. The triangular openings at the open side of a stair, formed by the riser, tread and bottom rail of a guard, at the open side of a stairway shall ~~are permitted to be of such a size that a sphere 6 inches cannot pass through.~~ not allow passage of a sphere 6 inches (153 mm) in diameter.~~
- ~~2. Openings for required guards on the open sides of stair treads stairs shall not allow passage of a sphere 43/8 inches or more in diameter to pass through~~ Guards on the open sides of stairs shall not have openings which allow passage of a sphere 4.375 inches (111 mm) in diameter

**Reason:** The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: <http://www.iccsafe.org/cs/cc/ctc/index.html>. Since its inception in April/2005, the CTC has held twelve meetings - all open to the public.

This proposed change is a result of the CTC's investigation of the area of study entitled "Climbable Guards". The scope of the activity is noted as:

The study of climbable guards will focus on determining the need for appropriate measures to prevent or inhibit an individual from utilizing the elements of a guard system, including rails, balusters and ornamental patterns, to climb the guard, thereby subjecting that person to the falling hazard which the guard system is intended to prevent.

This proposal is a follow-up to E96 – 06/07. As of this writing this area of study has been completed by the CTC relative to these proposals. The general focus of these two proposals, one to the IBC and one to the IRC, is to create consistency in language regulating guards in the two codes.

**Part II – IRC**

IRC R312.1: This section is being divided into two sections, similar to the IBC. The first section includes the general guard requirement, and the new section (R312.2) includes the height requirements. See reason for IBC Section 1013.1.

IRC R312.2: This new section includes the guard height requirements. It is reformatted to place emphasis on the 36" high guard required at level surfaces. There are not technical changes to the minimum height. As noted in the current text to IRC Section R312.2, the IRC applies to required guards. The term "required" is proposed here as well. This section uses the term "adjacent fixed seating" – intended to clarify that where there is built-in seating, the guard height is to be measured from the seat itself to provide for the minimum required height where it is assumed that children may be standing. See reason for IBC Section 1013.2.

IRC R312.3: The majority of the revision in this section and exception involve editorial rewording of the sentences for clarity and consistency.

**Bibliography:**

Interim Report No. 1 of the CTC, Area of Study – Climbable Guards, March 9, 2006.  
"The Measure of Man and Woman: Human Factors" by Alvin R. Tilley

**Cost Impact:** The code change proposal will not increase the cost of construction.

**PART II – IRC B/E  
Committee Action:**

**Approved as Submitted**

**Committee Reason:** The committee agreed that the rewording of this section which includes fixed seating as a measuring point for guard rails and new language on how to measure open sided walking surfaces at any point within 36 inches horizontally to the edge of the open side significantly improves the existing code language. The committee felt this new language helps to address a significant amount of issues with where guards are to be located and how they are to be measured while bringing the *International Residential Code* closer to the current language in the *International Building Code*.

**Assembly Action:**

**None**

*Individual Consideration Agenda*

**This item is on the agenda for individual consideration because a public comment was submitted.**

*Public Comment:*

**Rick Davidson, City of Maple Grove, MN, representing Association of Minnesota Building Officials, requests Disapproval.**

**Commenter's Reason:** This proposal significantly expands the locations where guards are required in the IRC without any substantiation or justification. The rule is currently specific to "decks, landings, porches, balconies, ramps and raised floor surfaces". This code change expands the application to all "open-sided walking surfaces". This could be interpreted to be retaining walls, landscaping, driveways, and other elevated surfaces that could be considered walking surfaces. The proponent provided no statistics or justification for broadening the scope of the guard rules.

Furthermore, it changes the method by which guards are determined to be required again without any justification that the current method results in unsafe conditions. Currently, one measures straight down from the deck, landing, etc. to the floor or grade below to determine if a guard is required. The proposed language requires one to measure to all points within 36 inches horizontally of the walking surface. This means a field inspector will need to carry a four foot level to accurately measure the proper height. It also could mean that the measurement could extend onto neighboring property or a public way or even under a deck.

Last, it requires that guards extend 36 inches above "adjacent fixed seating". It doesn't define how close seating has to be to be considered "adjacent". Is a picnic table "fixed seating"? People sit on decks to enjoy the outside and outside views. To require a guard 36 inches above a seating space will result in all kinds of games being played with removal of seating for the inspection only to have it reinstalled after the inspection.

And, the proponent states that this change will have no cost impact. When guards are required where they weren't before, there will be a cost increase. And, the proponent claims there are no technical changes in the height requirements. Clearly, changing the points of measurement that require guards where they weren't required before is a technical change.

Final Action: AS AS AM AMPC\_\_\_\_\_ D