

## **BCAC IRC General WG Items**

### **October 2-3, 2018 Meeting**

## **BCAC IRC 3-2/IBC 10-4** Emergency Escape and Rescue Openings

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### **Proposal 1 -**

IRC

**[RB] EMERGENCY ESCAPE AND RESCUE OPENING.** An operable exterior window, door or **other** similar device that provides for a means of escape and access for rescue in the event of an emergency.

IEBC

**[BE] EMERGENCY ESCAPE AND RESCUE OPENING.** An operable exterior window, door or other similar device that provides for a means of escape and access for rescue in the event of an emergency.

**Reason:** Proposal to IBC, IFC, IPMC were G5-18 Part 1 and 2(AS/AM).

Coordinate the definitions for emergency escape and rescue openings between IBC, IRC, IEBC, IPMC, IFC.

(No change to IRC – Add to IEBC)

This is what the EERO requirements would look like if all of the proposals are approved.

IRC

**[RB] EMERGENCY ESCAPE AND RESCUE OPENING.** An operable exterior window, door or similar device that provides for a means of escape and access for rescue in the event of an emergency.

**GRADE FLOOR EMERGENCY ESCAPE AND RESCUE OPENING.** An emergency escape and rescue opening located such that the bottom of the clear opening is not more than 44 inches (1118 mm) above or below the finished ground level adjacent to the opening.

### **SECTION R310 EMERGENCY ESCAPE AND RESCUE OPENINGS**

**R310.1 Where required.** Basements, habitable attics and every sleeping room shall have no fewer than one emergency escape and rescue opening in accordance with this section. Where basements contain one or more sleeping rooms, an emergency escape and rescue opening shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Such openings shall open directly into a public way, or to a yard or court that opens to a public way.

#### **Exceptions:**

1. Basements with a ceiling height of less than 80 inches (2032 mm) shall not be required to have emergency escape and rescue openings.
2. Emergency escape and rescue openings are not required from basements or sleeping rooms that have an exit door or exit access door that opens directly into a public way or to a yard, or that opens to a public way.
3. Basements used only to house mechanical equipment not exceeding a total floor area of 200 square feet (18.58 m) shall not be required to have emergency escape and rescue openings.
4. Storm shelters are not required to comply with this section where the shelter is constructed in accordance with ICC 500.

5. Where the dwelling or townhouse is equipped with an automatic sprinkler system installed in accordance with Section P2904, sleeping rooms in basements shall not be required to have emergency escape and rescue openings provided that the basement has one of the following:
  - 5.1. One means of egress complying with Section R311 and one emergency escape and rescue opening.
  - 5.2. Two means of egress complying with Section R311.

**R310.1.1 Operational constraints and opening control devices.** Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. Where Window opening control devices are required on windows serving as a required emergency escape and rescue opening the control devices shall comply with Section 312.2.2.

**R310.2 Emergency escape and rescue openings.** Emergency escape and rescue openings shall have minimum dimensions in accordance with Section R310.2.1 through R310.2.3.

**R310.2.1 Minimum size.** Emergency and escape rescue openings shall have a net clear opening of not less than 5.7 square feet (0.530 m ).

**Exception:** The minimum net clear opening for grade-floor emergency escape and rescue openings shall be 5 square feet (0.465 m ).

**R310.2.2 Minimum dimensions.** The minimum net clear opening height dimension shall be 24 inches (610 mm). The minimum net clear opening width dimension shall be 20 inches (508 mm). The net clear opening dimensions shall be the result of normal operation of the opening.

**R310.2.3 Maximum height from floor.** Where a window is provided as the emergency escape and rescue openings such window shall have the bottom of the clear opening not greater than 44 inches (1118 mm) above the floor.

**R310.3 Emergency escape and rescue doors.** Where a door is provided as the required emergency escape and rescue opening, it shall be a swinging door or a sliding door.

**R310.4 Area wells.** An emergency escape and rescue opening with the bottom of the clear opening below the adjacent grade shall be provided with an area well in accordance with Sections R310.4.1 through R310.4.4.

**R310.4.1 Minimum size.** The horizontal area of the area well shall be not less than 9 square feet (0.9 m ), with a horizontal projection and width of not less than 36 inches (914 mm). The area well shall allow the emergency escape and rescue opening to be fully opened.

**Exception:** The ladder or steps required by Section R310.4.2.1 shall be permitted to encroach not more than 6 inches (152 mm) into the required dimensions of the area well.

**R310.4.2 Ladder and steps.** Area wells with a vertical depth greater than 44 inches (1118 mm) shall be equipped with an approved permanently affixed ladder or steps. The ladder or steps shall not be obstructed by the emergency escape and rescue opening when the window or door is in the open position. Ladders or steps required by this section shall not be required to comply with Section R311.7.

**R310.4.2.1 Ladders.** Ladders or rungs shall have an inside width of at least 12 inches (305 mm), shall project at least 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center (o.c.) vertically for the full height of the area well.

**R310.4.2.2 Steps.** Steps shall have an inside width of at least 12 inches (305 mm), shall have minimum treads depth of 5 inches (127 mm) and a maximum riser height of 18 inches (457 mm) for the full height of the area well.

**R310.4.3 Drainage.** Area wells shall be designed for proper drainage by connecting to the building's foundation drainage system required by Section R405.1.

**Exception:** A drainage system for area wells is not required where the foundation is on well-drained soil or sand gravel mixture soils in accordance with the United Soil Classification System, Group I Soils, as detailed in Table R405.1.

**R310.4.4 Bars, grilles, covers and screens.** Where bars, grilles, covers, screens or similar devices are placed over emergency escape and rescue openings, bulkhead enclosures, or area wells that serve such

openings, the minimum net clear opening size shall comply with Sections R310.2 through R310.2.2 and R310.4.1. Such devices shall be releasable or removable from the inside without the use of a key or tool or force greater than that required for the normal operation of the escape and rescue opening.

**R310.5 Emergency escape and rescue openings under decks and porches.** Emergency escape and rescue openings installed under decks and porches shall be fully operable and provide a path not less than 36 inches (914 mm) in height to a yard or court.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction . This is a coordination item for requirements for EEROs already permitted between the codes.

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## Proposal 2:

IRC

**GRADE FLOOR EMERGENCY ESCAPE AND RESCUE OPENING.** ~~A window or other~~ An emergency escape and rescue opening located such that the ~~sill~~ height of the bottom of the clear opening is not more than 44 inches (1118 mm) above or below the finished ground level adjacent to the opening.

**Reason:** IBC proposal was G4-18(AS)

Revise defined term to that used in technical criteria (this term is only used for emergency escape and rescue openings). What is a 'sill' is not clear – change for consistency with technical criteria. Need to indicate that this is to the bottom of the opening (otherwise a below grade window could be very deep). See also revisions to IBC 1030.2 and IRC R310.2.1.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction . This is a coordination item for requirements for EEROs already permitted between the codes.

Grade floor opening is defined in the IFC, but it is not used.

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## Proposal 3:

IRC

### SECTION R310 EMERGENCY ESCAPE AND RESCUE OPENINGS

**R310.1 ~~Emergency escape and rescue opening~~ Where required.**

*Basements, ~~habitable attics~~* and every sleeping room shall have ~~not less~~ no fewer than one ~~operable~~ emergency escape and rescue opening in accordance with this section.

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

**Exceptions:**

1. *Basements with a ceiling height of less than 80 inches (2032 mm) shall not be required to have emergency escape and rescue openings.*

2. ~~Storm shelters and basements used only to house mechanical equipment~~ not exceeding a total floor area of 200 square feet (18.58 m<sup>2</sup>) shall not be required to have emergency escape and rescue openings.
3. ~~Storm shelters not exceeding a total floor area of 200 square feet (18.58 m<sup>2</sup>) shall not be required to have emergency escape and rescue openings.~~
- 4.2. Where the *dwelling* or *townhouse* is equipped with an automatic sprinkler system installed in accordance with Section P2904, sleeping rooms in *basements* shall not be required to have emergency escape and rescue openings provided that the *basement* has one of the following:
  - 4.1 2.4. One means of egress complying with Section R311 and one emergency escape and rescue opening.
  - 4.2 2.2. Two means of egress complying with Section R311.

**September 20, 2018**

Glenn Overcash suggestion for additional definition and new Exception #3:

3. *Residential storm shelters shall not be required to have emergency escape and rescue openings.*

**Add definition to Chapter 2 (copied from 2018 IBC)**

STORM SHELTER. A building, structure, or portion(s) thereof, constructed in accordance with ICC 500, designated for use during a severe wind storm event such as a hurricane or tornado.

**Community storm shelter.** A storm shelter not defined as a “Residential storm shelter.”

**Residential storm shelter.** A storm shelter serving occupants of *dwelling units* and having an occupant load not exceeding 16 persons.

Kim Paarlberg suggestion for new Exception #3:

3. *Residential storm shelters are not required to have emergency escape and rescue openings where the storm shelter is constructed in accordance with ICC 500.*

**Reason:** This is one of a series of 11 proposals to coordinate the Emergency Escape and Rescue Openings (EERO) technical criteria in the IBC and IRC. Please see the proposal for the definition of Emergency Escape and Rescue Openings for additional information. The IBC proposal was E107-18(AM). The modification was to leave Exception 2 with different wording.

- IRC coordination for basement areas outside of bedrooms.
- IRC new exception 1 – coordination with IBC. Provide exemption for basements that have low ceilings.
- Split out storm shelters in IRC and add to IBC.
- Make all exceptions in IRC clear on what is exempted.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction. This is a coordination item for exceptions for EEROs already permitted between the codes.

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## Proposal 4:

IRC

**R310.1.1 Operational constraints and opening control devices.** Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, or tools ~~or special knowledge~~. Where Window opening control devices are required on windows serving as a required emergency escape and rescue opening the control devices shall comply with ASTM F2090 Section 312.2.2.

**Reason:** This is a series of changes to coordinate the provisions for emergency escape and rescue openings. Please see the proposal for the definition of Emergency Escape and Rescue Openings for additional information. The IBC proposal was E108 – there is a PC.

This term “special knowledge” was removed from IBC because the phrase “special knowledge” is too open for interpretations.

Jeff Inks was concerned about an editorial revision in the IRC that made ASTM F2090 mandatory.

This is the language for fall protection.

**R312.2 Window fall protection.** Window fall protection shall be provided in accordance with Sections R312.2.1 and R312.2.2.

**R312.2.1 Window sills.** In dwelling units, where the top of the sill of an operable window opening is located less than 24 inches (610 mm) above the finished floor and greater than 72 inches (1829 mm) above the finished *grade* or other surface below on the exterior of the building, the operable window shall comply with one of the following:

1. Operable window openings will not allow a 4-inch diameter (102 mm) sphere to pass through where the openings are in their largest opened position.
2. Operable windows are provided with window fall prevention devices that comply with ASTM F2090.
3. Operable windows are provided with window opening control devices that comply with Section R312.2.2.

**R312.2.2 Window opening control devices.** Window opening control devices shall comply with ASTM F2090. The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the net clear opening area of the window unit to less than the area required by Section R310.2.1.

9-13-2018 : Kim to send question to Dave Collins and Jeff Inks about option for fall prevention devices and opening control devices.

This is in the IBC commentary –

ASTM F2090 includes window fall prevention devices (Item 3) and window opening control devices (Item 4) (see Section 1015.8.1). Window fall-prevention devices (such as a window guard) must be removable from the interior of the building so the window can be used for emergency escape. Window opening-control devices allow the window to be opened beyond 4 inches, so that a window can be used for emergency escape. This standard is specifically written for window openings within 75 feet (22 860 mm) of grade and specifically allows for windows to be used for emergency escape and rescue. Both the code and IRC reference ASTM F2090, *Specification for Window Fall Prevention Devices with Emergency Escape (Egress Release Mechanisms)*. This standard was updated in 2008 to address window opening control devices. Opening control devices allow for normal operation to result in a 4-inch (102 mm) maximum opening (Section 1015.8 and Section R612.4.1 of the IRC). This control device can be released from the inside to allow the window to be fully opened in order to comply with the emergency escape provisions in both the code (Section 1030.2) and IRC (Section R310.1.1).

Criteria have also been added to IEBC to address window opening controls in existing buildings.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction . This is a coordination item for requirements for EEROs already permitted between the codes.

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## Proposal 5:

IRC

**R310.2 Emergency escape and rescue openings.** Emergency escape and rescue openings shall have minimum dimensions ~~as specified in this section~~ in accordance with Section 1030.2.1 through 1030.2.3.

**R310.2.1 Minimum opening area size.** Emergency and escape rescue openings shall have a net clear opening of not less than 5.7 square feet (0.530 m<sup>2</sup>). ~~The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. The net clear height of the opening shall be not less than 24 inches (610 mm) and the net clear width shall be not less than 20 inches (508 mm).~~

**Exception:** ~~Grade floor or below grade openings shall have a net clear opening area of not less than~~ The minimum net clear opening for grade-floor emergency escape and rescue openings shall be 5 square feet (0.465 m<sup>2</sup>).

**R310.2.2 Minimum dimensions.** The minimum net clear opening height dimension shall be 24 inches (610 mm). The minimum net clear opening width dimension shall be 20 inches (508 mm). The net clear opening dimensions shall be the result of normal operation of the opening.

**R310.2.2 R310.2.3 Window sill Maximum height from floor.** ~~Where a window is provided as the emergency escape and rescue openings, it~~ such window shall have a sill height of not more the bottom of the clear opening not greater than 44 inches (1118 mm) above the floor; where the sill height is below grade, it shall be provided with a window well in accordance with Section R310.2.3.

**R312.2.2 Window opening control devices.** Window opening control devices shall comply with ASTM F2090. The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the net clear opening area of the window unit to less than the area required by Section R310.2.1 and R310.2.2.

**Reason:** This is a series of changes to coordinate the provisions for emergency escape and rescue openings. Please see the proposal for the definition of Emergency Escape and Rescue Openings for additional information. IBC proposal was E109-18 – there is a public comment.

This proposal deals with Minimum size, dimensions and height.

R310.2.1 - IRC text relocated to subsection (new 310.2.1). IRC exception does not need to say ‘below grade’ as this could be considered a conflict with the definition (i.e., 44” above or below finished grade). Note: If the intent is to allow for a 5 sq.ft. opening in basement levels that do not meet the definition, the definition and exception needs to be revised.

R310.2.2 - The IRC should clarify that the 44” is to the bottom of the opening. The sill can be interpreted a lot of different ways. Move window well requirement into next section.

The change to R312.2.2 is correlation only.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction .  
This is a coordination item for requirements for EEROs already permitted between the codes.

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## Proposal 6:

IRC

**R310.3 Emergency escape and rescue doors.** Where a door is provided as the required emergency escape and rescue opening, it shall be a side-hinged door or a ~~slider~~ sliding door. Where the opening is below the adjacent grade, it shall be provided with an area well.

~~**R310.3.1 Minimum door opening size.** The minimum net clear height opening for any door that serves as an emergency and escape rescue opening shall be in accordance with Section R310.2.1.~~

IRC

~~**R310.3.2 Area Wells.** Area wells shall have a width of not less than 36 inches (914 mm). The area of the area well shall allow the emergency escape and rescue door to be fully opened.~~

~~**R310.3.2.1 Ladder and steps.** Area wells with a vertical depth greater than 44 inches (1118 mm) shall be equipped with a permanently affixed ladder or steps usable with the door in the fully open position. Ladders or steps required by this section shall not be required to comply with Sections R311.7. Ladders or rungs shall have an inside width of not less than 12 inches (305 mm), shall project not less than 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center vertically for the full height of the exterior stairwell.~~

~~**R310.3.2.2 Drainage.** Area wells shall be designed for proper drainage by connecting to the building's foundation drainage system required by Section R405.1 or by an approved alternative method.~~

~~**Exception:** A drainage system for area wells is not required where the foundation is on well drained soil or sand gravel mixture soils in accordance with the United Soil Classification System, Group I Soils, as detailed in Table R405.1.~~

**Reason:** This is a series of changes to coordinate the provisions for emergency escape and rescue openings. Please see the proposal for the definition of Emergency Escape and Rescue Openings for additional information. The IBC portion was E110-18 (AS).

This proposal deals with doors used as emergency escape and rescue openings.

IBC and IRC have different phrases for types of doors. Rather than totally separate requirements for doors and windows, use the same criteria as much as possible. That is literally what the current text does, but with a lot of duplication.

IRC Section R310.3.1 - You already have the size applicable for all emergency escape and rescue openings, so not needed. Plus, the reference would literally allow for a 24 inch high door. IRC 311.2 does allow for doors that are of any size unless it is the one egress door for the dwelling.

The requirements for areas wells at doors are a repeat of window wells – Proposal to R310.2.3 changes the name to area wells, and then requirements don't need to be repeated.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction .  
This is a coordination item for requirements for EEROs already permitted between the codes.

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## Proposal 7:

IRC

**R310.4 Area wells.** An emergency escape and rescue opening with a the bottom of the clear opening below the adjacent grade shall be provided with an area well in accordance with Sections R310.4.1 through R310.4.4.

**R310.2.34.1 Window wells Minimum size.** The horizontal area of the window area well shall be not less than 9 square feet (0.9 m<sup>2</sup>), with a horizontal projection and width of not less than 36 inches (914 mm). The area of the window area well shall allow the emergency escape and rescue opening to be fully opened.

**Exception:** The ladder or steps required by Section R310.4.2.1 shall be permitted to encroach not more than 6 inches (152 mm) into the required dimensions of the window area well.

**R310.2.3-1 4.2 Ladder and steps.** ~~Window Area wells with a vertical depth greater than 44 inches (1118 mm) shall be equipped with a an approved permanently affixed ladder or steps usable with the window in the fully open position. The ladder or steps shall not be obstructed by the emergency escape and rescue opening when the window or door is in the open position. Ladders or steps required by this section shall not be required to comply with Section R311.7. Ladders or rungs shall have an inside width of not less than 12 inches (305 mm), shall project not less than 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center vertically for the full height of the window well.~~

**R310.4.2.1 Ladders.** Ladders or rungs shall have an inside width of at least 12 inches (305 mm), shall project at least 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center (o.c.) vertically for the full height of the area well.

**R310.2.3-2 4.3 Drainage.** ~~Window Area wells shall be designed for proper drainage by connecting to the building's foundation drainage system required by Section R405.1 or by an approved alternative method.~~

**Exception:** A drainage system for window area wells is not required where the foundation is on well-drained soil or sand-gravel mixture soils in accordance with the United Soil Classification System, Group I Soils, as detailed in Table R405.1.

**R310.4.4 Bars, grilles, covers and screens.** Where bars, grilles, covers, screens or similar devices are placed over emergency escape and rescue openings, bulkhead enclosures, or area walls, or window wells that serve such openings, ~~The the minimum net clear opening size shall comply with Sections R310.2-4 through R310.2.32 and R310.4.1., and~~ Such devices shall be releasable or removable from the inside without the use of a key, or tool, ~~special knowledge~~ or force greater than that required for the normal operation of the escape and rescue opening.

**Reason:** This is a series of changes to coordinate the provisions for emergency escape and rescue openings. The IBC portion was E111-18(AS)

This deals with area wells.



- IRC R310.4 - The same point of measurement should be used for both the maximum height above floor (section above) and the window well. Should not mix ‘grade’ and ‘ground level’.
- IRC R310.4.1 - “horizontal projection and width” is more specific. IBC exception for ladder encroachment moved up from 1030.4.2.
- IRC 1030.4.2 - IBC encroachment of ladder into well moved up to 1030.4.1. IRC. The sentence about the window not obstructing the ladder has been clarified. Added ‘doors’. Requirements for ladders moved into separate section.
- IRC R1030.4.3 - No change to requirements. Just pulled out to separate section.
- IRC R310.4.4 - Revisions for coordination. Reference to emergency and escape opening size and minimum window well size. IBC existing building sentence should be in IEBC. “Special knowledge is revised to be consistent with IBC and IRC R310.1.1 – the term allows for too broad of an interpretation.
- IRC Section R310.3.2, R310.3.2.1 and R310.3.2.2 – delete the separate window well requirements for doors.

**Cost Impact:** The code change proposal will not increase or decrease the cost of construction . This is a coordination item for requirements for EEROs already permitted between the codes.

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## Proposal 8:

### IRC

**R310.4.2 Ladder and steps.** Area wells with a vertical depth greater than 44 inches (1118 mm) shall be equipped with an approved permanently affixed ladder or steps. The ladder or steps shall not be obstructed by the *emergency escape and rescue opening* when the window or door is in the open position. Ladders or steps required by this section shall not be required to comply with Section R311.7

**R310.4.2.1 Ladders.** Ladders or rungs shall have an inside width of at least 12 inches (305 mm), shall project at least 3 inches (76 mm) from the wall and shall be spaced not more than 18 inches (457 mm) on center (o.c.) vertically for the full height of the area well.

**R310.4.2.2 Steps.** Steps shall have an inside width of at least 12 inches (305 mm), shall have minimum treads depth of 5 inches (127 mm) and a maximum riser height of 18 inches (457 mm) for the full height of the area well.

**Reason:** Blue text from Proposal 7 – shown here for context only.

The IBC portion was E112-18(AS).

The current provisions says ladders and steps don’t have to comply with the standard stairway provisions, however, while specific provisions are provided for ladders, no limits are provided for steps. The option here it the same width and distance between steps are permitted for ladders. The tread depth is the minimum width from alternating tread devices and ships ladders.

Following are examples of stepped configurations that are used today. The proposed language would allow for the use of Figures 1 and 3, but not 2 and 4.



**Cost Impact:** The code change proposal will not increase or decrease the cost of construction . This is a coordination item for requirements for EEROs already permitted between the codes.

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## Proposal 9:

IRC

**R310.2.45 Emergency escape and rescue openings under decks and porches.** Emergency escape and rescue openings installed under decks and porches shall be fully operable and provide a path not less than 36 inches (914 mm) in height to a *yard* or court.

**Reason:** This is a series of changes to coordinate the provisions for emergency escape and rescue openings. This deals with allowing window wells under decks.

No proposal at this time, but some in the last meeting felt that the 36" height was too restrictive for access to the window wells under decks.

**Cost Impact:**

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## Proposal 10: Also IEBC 5-2

**[BE] EMERGENCY ESCAPE AND RESCUE OPENING.** An operable exterior window, door or other similar device that provides for a means of escape and access for rescue in the event of an emergency.

Chapter 5 Prescriptive Compliance method	Chapter 7 Alterations Level 1
<b>SECTION 505 WINDOWS AND EMERGENCY ESCAPE OPENINGS</b>	<b>SECTION 702 BUILDING ELEMENTS AND MATERIALS</b>
<b>505.1 Replacement glass.</b> The installation or replacement of glass shall be as required for new installations.	
<p><b>505.2 <u>Window opening control devices on replacement windows</u> <del>Replacement window opening control devices.</del></b> In Group R-2 or R-3 buildings containing dwelling units, and one- and two-family dwellings and townhouses regulated by the <i>International Residential Code</i>, window opening control devices <u>or fall prevention devices</u> complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:</p> <ol style="list-style-type: none"> <li>1. The window is operable.</li> <li>2. The window replacement includes replacement of the sash and the frame.</li> <li>3. One of the following applies:             <ol style="list-style-type: none"> <li>3.1. In Group R-2 or R-3 buildings containing dwelling units, the top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor.</li> <li>3.2. In one- and two-family dwellings and townhouses regulated by the <i>International Residential Code</i>, the top of the sill of the window opening is at a height less than 24 inches (610 mm) above the finished floor.</li> </ol> </li> <li>4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.</li> <li>5. The vertical distance from the top of the sill of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).</li> </ol> <p>The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by Section 1030.2 of the <i>International Building Code</i>.</p>	<p><b>702.4 Window opening control devices on replacement windows.</b> In Group R-2 or R-3 buildings containing dwelling units, and one- and two-family dwellings and townhouses regulated by the <i>International Residential Code</i>, window opening control devices <u>or fall prevention devices</u> complying with ASTM F2090 shall be installed where an existing window is replaced and where all of the following apply to the replacement window:</p> <ol style="list-style-type: none"> <li>1. The window is operable.</li> <li>2. The window replacement includes replacement of the sash and the frame.</li> <li>3. One of the following applies:             <ol style="list-style-type: none"> <li>3.1. In Group R-2 or R-3 buildings containing dwelling units, the top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor.</li> <li>3.2. In one- and two-family dwellings and townhouses regulated by the <i>International Residential Code</i>, the top of the sill of the window opening is at a height less than 24 inches (610 mm) above the finished floor.</li> </ol> </li> <li>4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere when the window is in its largest opened position.</li> <li>5. The vertical distance from the top of the sill of the window opening to the finished grade or other surface below, on the exterior of the building, is greater than 72 inches (1829 mm).</li> </ol> <p>The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by Section 1030.2 of the <i>International Building Code</i>.</p>

<p><b>Exceptions-Exception:</b></p> <ol style="list-style-type: none"> <li>1.—Operable windows where the top of the sill of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F2006.</li> <li>2.—Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.</li> </ol>	<p><b>Exceptions-Exception:</b></p> <ol style="list-style-type: none"> <li>1.—Operable windows where the top of the sill of the window opening is located more than 75 feet (22 860 mm) above the finished grade or other surface below, on the exterior of the room, space or building, and that are provided with window fall prevention devices that comply with ASTM F2006.</li> <li>2.—Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.</li> </ol>
<p><b>505.3 Replacement window emergency escape and rescue openings.</b> Where windows are required to provide <i>emergency escape</i> and <i>rescue openings</i> in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the <i>International Residential Code</i>, replacement windows shall be exempt from the requirements of Sections 1030.2, <del>1030.3</del> and 1030.4 of the <i>International Building Code</i> and Sections <del>R310.2 and R310.4</del> <del>R310.2.1, R310.2.2 and R310.2.3</del> of the <i>International Residential Code</i>, provided that the replacement window meets the following conditions:</p> <ol style="list-style-type: none"> <li>1. The replacement window is the manufacturer’s largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.</li> <li>2. The replacement of the window is not part of a <i>change of occupancy</i>.</li> </ol> <p><u>Emergency escape and rescue openings with Window opening control devices or fall prevention devices complying with ASTM F2090, after operation to release the control device allowing the window to fully open, shall not reduce the net clear opening area of the window unit shall be permitted for use on windows required to provide emergency escape and rescue openings. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools.</u></p>	<p><b>702.5 Replacement window emergency escape and rescue openings.</b> Where windows are required to provide <i>emergency escape</i> and <i>rescue openings</i> in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the <i>International Residential Code</i>, replacement windows shall be exempt from the requirements of Sections 1030.2, <del>1030.3</del> and 1030.4 of the <i>International Building Code</i> and Sections <del>R310.2 and R310.4</del> <del>R310.2.1, R310.2.2 and R310.2.3</del> of the <i>International Residential Code</i>, provided that the replacement window meets the following conditions:</p> <ol style="list-style-type: none"> <li>1. The replacement window is the manufacturer’s largest standard size window that will fit within the existing frame or existing rough opening. The replacement window shall be permitted to be of the same operating style as the existing window or a style that provides for an equal or greater window opening area than the existing window.</li> <li>2. The replacement of the window is not part of a <i>change of occupancy</i>.</li> </ol> <p><u>Emergency escape and rescue openings with Window opening control devices or fall prevention devices complying with ASTM F2090, after operation to release the control device allowing the window to fully open, shall not reduce the net clear opening area of the window unit shall be permitted for use on windows required to provide emergency escape and rescue openings. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools.</u></p>
<p><b><del>505.4 Emergency escape and rescue openings Bars, grilles covers or screens.</del></b> <del>Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates covers, screens or similar devices are permitted to be placed over emergency escape and rescue openings, bulkhead enclosure or window wells that serve such</del></p>	<p><b>Section 701 General</b></p> <p><b><del>702.6 701.4 Emergency escape and rescue openings Bars, grilles covers or screens.</del></b> <del>Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates covers, screens or similar devices are permitted to be placed over emergency escape and rescue openings, bulkhead enclosure or window wells that serve such</del></p>

<p><u>openings</u>, provided that the minimum net clear opening size complies with the code that was in effect at the time of construction and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening. Where such bars, grilles, <del>grates</del> covers, screens or similar devices are installed, they shall not reduce the net clear opening of the emergency escape and rescue openings. Smoke alarms shall be installed in accordance with Section 907.2.10 of the <i>International Building Code</i> regardless of the valuation of the <i>alteration</i>.</p>	<p><u>openings</u>, provided that the minimum net clear opening size complies with the code that was in effect at the time of construction and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening. Where such bars, grilles, <del>grates</del> covers, screens or similar devices are installed, they shall not reduce the net clear opening of the emergency escape and rescue openings. Smoke alarms shall be installed in accordance with Section 907.2.10 of the <i>International Building Code</i> regardless of the valuation of the <i>alteration</i>.</p>

## Chapter 10 Changer of occupancy

### SECTION 1011 CHANGE OF OCCUPANCY CLASSIFICATION

**1011.4.1 Means of egress for change to a higher-hazard category.** Where a change of occupancy classification is made to a higher-hazard category (lower number) as shown in Table 1011.4, 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 903.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 9 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 on both sides of wood lath and plaster in good condition or 1/2-inch-thick (12.7 mm) gypsum wallboard shall be permitted. Such walls shall either terminate at the underside of a ceiling of equivalent construction or extend to the underside of the floor or roof next above.
5. Existing corridor doorways, transoms and other corridor openings shall comply with the requirements in Sections 805.5.1, 805.5.2 and 805.5.3.
6. Existing dead-end corridors shall comply with the requirements in Section 805.6.
7. An existing operable window with clear opening area not less than 4 square feet (0.38 m<sup>2</sup>) and 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.

#### Reason:

Coordination with proposals for Emergency Escape and Rescue openings for IBC and IRC started by BCAC committee MOE work group in Group A.

505.2, 702.3—In the current text it is difficult to see how the exceptions apply. By separating out the requirement for emergency escape and rescue openings, the allowance for ASTM F2006 (exception 1) in taller buildings is clearer. Since both opening control devices and fall prevention devices are addressed in ASTM F2090, that can be addressed in the main text, and does not need to be an exception 2.

505.3, 702.4 - The purpose of the revision to this section is to move all the requirements for EEROs into one section. By moving the requirements for opening control/fall prevention devices from 505.2 to 505.3 it becomes clear that 505.3 allowed for non-compliance with Section 1030.2 (EERO size) and 505.2 required it. This is one option for resolution of that conflict. The sentence about operation is relocated from 505.4 – however, it is arguable if it is needed since the requirement is in IBC 1030.1.1 and IRC R310.1.1 for EEROs. The changes to the

referenced section in the main text is correlative with the revisions to EERO's accepted in Group A for IBC and proposed for EERO's in IRC as part of Group B.

505.4, 701.4 - The revisions are consistent in what was approved for IBC Section 1030.5 and IRC Section 310.4 in the 2018 codes. Move 701.4 should be relocated to the window provisions. That would be consistent with the organization for EEROs in IBC and IRC and the IEBC prescriptive method.

## **IRC 2-1 Definition of “two-family dwelling”**

**TWO-FAMILY DWELLING.**

**Reason:**

## IRC 3-3 Soffit fireresistance

Staff suggestion

The following are suggested changes to the 2018 IRC.

### Revise as follows:

2018 IRC Table R302.1(1):

b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the ~~rake~~ overhang where ~~gable~~ vent openings are not installed in the overhang or in any gable end walls that are common to attic areas.

*(Portions of the table and footnotes not shown remain unchanged)*

2018 IRC Table R302.1(2):

c. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the ~~rake~~ overhang where ~~gable~~ vent openings are not installed in the overhang or in any gable end walls that are common to attic areas.

*(Portions of the table and footnotes not shown remain unchanged)*

**Reason:** Staff continues to get questions regarding these footnotes. The existing language remains unclear, despite recent attempts to fix it. Ray Allshouse, the proponent of the code change that brought this language into the code, was contacted. He indicated that the intent was that if there were no vents at the underside of the overhang, or in any gable end walls (both of which would allow fire to freely move into attic areas), then there should be no requirement to rate the underside of the overhang. Mr. Allshouse also indicated that this concept could be applied gable, hip and any other roof style with overhangs. Where additional attic ventilation is required to make up for the loss of vents at overhangs where fire-separation distance is an issue in accordance these tables and footnotes, additional vents could be added at the underside of eaves in other areas of the dwelling where the fire-separation distance is not an issue, or at roof ridges.



## IRC 8-1 Attic access

**R807.1 Attic access.** Buildings with combustible ceiling or roof construction shall have an *attic* access opening to *attic* areas that have a vertical height of 30 inches (762 mm) or greater over an area of not less than 30 square feet (2.8 m<sup>2</sup>). The vertical height shall be measured from the top of the ceiling framing members to the underside of the roof framing members.

The ~~rough-framed~~ **clear finished** opening shall be not less than 22 inches by 30 inches (559 mm by 762 mm) and shall be located in a hallway or other location ~~providing similar~~ **with ready** access. Where located in a wall, the **clear finished** opening shall be not less than 22 inches wide by 30 inches high (559 mm wide by 762 mm high). Where the access is located in a ceiling, minimum unobstructed headroom in the *attic* space shall be 30 inches (762 mm) at some point above the access measured vertically from the bottom of ceiling framing members. See Section M1305.1.3 for access requirements where mechanical *equipment* is located in *attics*.

**Reason:** The definition of “ready access” in the IRC does not allow a panel or a door to be used to gain access to the attic, which is exactly how attics are typically accessed. The term “access” is also defined in the IRC, and allows the use of a panel or door, which is appropriate for attic access openings. **Requiring the opening size to be measured as the clear finished opening is consistent with the mechanical, fuel gas and plumbing requirements of the IRC and the IMC w.r.t access requirements for equipment.**

**Cost Impact:**

# IRC 3-4 – SHIPPING CONTAINERS

## BCAC – IRC Chapter 3 – Intermodal Shipping Containers Draft Code Change Proposal

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**PRELIMINARY DRAFT – 24 August 2018**

**Developed:** 24 August 2018 (Submission to ICC BCAC for consideration in ICC Group B 2019)

### International Residential Code

#### SECTION R202 - DEFINITIONS

*(NEW DEFINITION)*

**INTERMODAL SHIPPING CONTAINER.** A six-sided steel unit originally constructed as a general cargo container used for the transport of goods and materials.

#### CHAPTER 3 – BUILDING PLANNING

*(NEW SECTION)*

**SECTION R301.4 Intermodal shipping containers.** *Intermodal shipping containers shall be permitted to be designed in accordance with the Section 3114.0 of the *International Building Code*.*

#### Reason:

This code change purpose is to introduce intermodal shipping containers into the International Residential Code based on requests by code officials in the U.S. Prior to this proposal, several jurisdictions had created their own individual regulations or ordinances, or had administered additional requirements beyond the code (e.g. Section R104.11 “Alternative Materials, design and methods of construction and equipment”) so as to be comfortable to ensure a safe structure. This code change proposal is in response to those requests to develop a provision in order to establish a consistent set of provisions which cover the minimum safety requirements, but which do not duplicate existing code provisions.

The proposed definition is consistent with the successful code change proposal to the International Building Code, new Section 3114. And for consistency we are introducing that same definition here.

The reference to the International Building Code has been modeled after Sections R301.1 through R301.3. In order to not duplicate the performance language of the International

Building Code this proposal is making a simple reference to the International Building Code where the provisions of structural safety are contained, and therefore allowing the other provisions of the International Residential Code to apply as needed (e.g. energy, plumbing, mechanical, electrical, etc.).

**BCAC** - The International Code Council's Building Code Action Committee (BCAC) was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes and the public comments. Related documentation and reports are posted on the BCAC website at: <http://www.iccsafe.org/cs/BCAC/Pages/default.aspx>.

The ICC Building Code Action Committee created a task group to facilitate the development of this proposal. Members of the assigned task group included representatives from: City of Long Beach, CA; County of Mecklenburg, NC; Modular Building Institute; American Iron and Steel Institute; Underwriters Laboratories; and the Portland Cement Association. Additional contacts included the State of California (Division of State Architect, Housing and Community Development), City of San Diego; City of Los Angeles, CA; City of Seattle; Clark County, NV; Falcon Structures, RADCO a Twining Company, SEABOX Company, FEMA ATC Seismic Code Support Committee, and other guests who provided their individual expertise.

**Cost impact category:** The net effect of the public comment and code change proposal will not increase or decrease the cost of construction.

**Cost Impact:**

The code change proposal will decrease the cost of construction. This new code section will provide clarity on how to consistently design with, permit, and field inspect shipping containers that are repurposed for building construction. Current use of repurposed intermodal shipping containers requires the building owner or designee to submit through the alternative means and methods administrative provisions.