

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

Revised 9-12-2018

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 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*. 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. *Basements* used only to house mechanical *equipment* not exceeding a total floor area of 200 square feet (18.58 m²) shall not be required to have *emergency escape and rescue openings*.
3. Residential storm shelters are not required to have emergency escape and rescue openings where the shelter is constructed in accordance with ICC 500.
4. 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. One means of egress complying with Section R311 and one emergency escape and rescue opening.
 - 4.2. 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 m²).

Exception: The minimum net clear opening for grade-floor emergency escape and rescue openings shall be 5 square feet (0.465 m²).

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 m²), 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.

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.

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 m²) shall not be required to have emergency escape and rescue openings.
3. Residential storm shelters are not required to have emergency escape and rescue openings where the shelter is constructed in accordance with ICC 500.
- 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 2-1. 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.

Add new definition as follows:

SECTION 202 DEFINITIONS

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.

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.
- 1. Split out storm shelters in IRC and add to IBC. The 200 foot floor area should not apply to storm shelter. Criteria instead is based on whether the shelter is classified as community or residential. The ICC 500 standard should be referenced for shelter requirements. This does not require compliance with the ICC 500 unless someone wants to use this exception. Compliance with ICC 500 is addressed in Section R323. **The requirements for storm shelters are found in ICC 500. The first two editions of the standard require emergency escape and rescue openings for community storm shelters but not for residential storm shelters. Therefore those definitions have also been added to IRC to clarify that in order to be classified as a residential storm shelter and be exempted from the EERO requirement, the shelter must serve dwellings units and have no more than 16 occupants.**
- 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.

Staff note: IRC does not currently include the term ‘community storm shelter’ in the code text.

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.

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 m²). ~~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 m²).

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.

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 EERs already permitted between the codes.

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 m²), 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.

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.

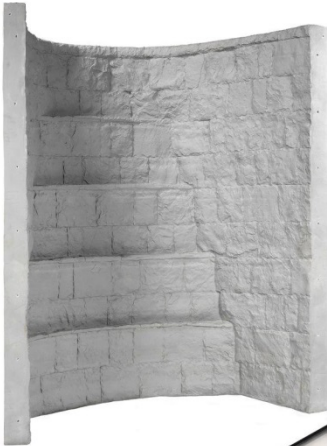
R310.4.2.2 Steps. Steps shall have an inside width of at least 12 inches (305 mm), shall have minimum treads depth of 5 inches (127 mm) and a maximum riser height of 18 inches (457 mm) for the full height of the area well.

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.

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:

Proposal 10: Part 1

Also IEBC 5-2

EEROs in Alterations

(COO in Part 2)
Revised 9-21

[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.

IEBC Chapter 5 Prescriptive Compliance method	IEBC Chapter 7 Alterations Level 1	IRC APPENDIX J EXISTING BUILDINGS AND STRUCTURES
SECTION 505 WINDOWS AND EMERGENCY ESCAPE OPENINGS	SECTION 702 BUILDING ELEMENTS AND MATERIALS	SECTION AJ102 COMPLIANCE
<p>505.1 Replacement glass. The installation or replacement of glass shall be as required for new installations.</p>		<p>AJ102. 4 Replacement windows. Regardless of the category of work, where an existing window, including the sash and glazed portion, or safety glazing is replaced, the replacement window or safety glazing shall comply with the requirements of Sections AJ102.4.1 through AJ102.4.4, as applicable.</p>
<p>505.2 <u>Window opening control devices on replacement windows</u> Replacement window opening control devices. 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"> 1. The window is operable. 2. The window replacement includes replacement of the sash and the frame. 3. One of the following applies: <ol style="list-style-type: none"> 3.1. In Group R-2 or R-3 buildings containing dwelling units, the top of the sill of the window 	<p>702.4 Window opening control devices on replacement windows. 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"> 1. The window is operable. 2. The window replacement includes replacement of the sash and the frame. 3. One of the following applies: <ol style="list-style-type: none"> 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 	<p>AJ102. 4. 4 Window control devices. Where window fall prevention devices complying with ASTM F2090 are not provided, window opening control devices <u>or fall preventions 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"> 1. The window is operable. 2. The window replacement includes replacement of the sash and the frame. 3. The top of the sill of the window opening is at a height less than 24 inches (610 mm) above the finished floor.

<p>opening is at a height less than 36 inches (915 mm) above the finished floor.</p> <p>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.</p> <p>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.</p> <p>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).</p> <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><u>Exceptions: Exception:</u></p> <p>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.</p> <p>2.—Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.</p>	<p>than 36 inches (915 mm) above the finished floor.</p> <p>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.</p> <p>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.</p> <p>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).</p> <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><u>Exceptions: Exception:</u></p> <p>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.</p> <p>2.—Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.</p>	<p>4. The window will permit openings that will allow passage of a 4-inch-diameter (102 mm) sphere where the window is in its largest opened position.</p> <p>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).</p> <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.</p>
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505.3 Replacement window emergency escape and rescue openings. Where windows are required to provide *emergency escape* and *rescue openings* in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, replacement windows shall be exempt from the requirements of Sections 1030.2, ~~1030.3~~ and 1030.4 (*note: this us size, height and window well*) of the *International Building Code* and Sections ~~R310.2 and R310.4~~ ~~R310.2.1, R310.2.2 and R310.2.3~~ of the *International Residential Code*, provided that the replacement window meets the following conditions:

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.
2. Where The replacement of the window is ~~not~~ part of a *change of occupancy* it shall comply with Section 1011.4.6. (See 1011.4.1 Exception 7 and notes).

505.3.1 Control devices. 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.

702.5 Replacement window emergency escape and rescue openings. Where windows are required to provide *emergency escape* and *rescue openings* in Group R-2 and R-3 occupancies and one- and two-family dwellings and townhouses regulated by the *International Residential Code*, replacement windows shall be exempt from the requirements of Sections 1030.2, ~~1030.3~~ and 1030.4 (*note: this us size, height and window well*) of the *International Building Code* and Sections ~~R310.2 and R310.4~~ ~~R310.2.1, R310.2.2 and R310.2.3~~ of the *International Residential Code*, provided that the replacement window meets the following conditions:

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.
2. Where The replacement of the window is ~~not~~ part of a *change of occupancy* it shall comply with Section 1011.4.6. (See 1011.4.1 Exception 7 and notes).

702.5.1 Control devices. 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.

AJ102. 4. 3 Emergency escape and rescue openings. Where windows are required to provide emergency escape and rescue openings, replacement windows shall be exempt from the ~~maximum sill height requirements of Section R310.2.2 and the requirements of Sections R310.2.1 and R310.2.3~~ (*note: this us size, height and window well*) ~~R310.2 and R310.4~~ provided that the replacement window ~~meets the following conditions:~~

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.~~
2. ~~The replacement window is not part of a change of occupancy. (IRC Appendix J does not address COO)~~
3. ~~Window opening control devices complying with ASTM F2090 shall be permitted for use on windows required to provide emergency escape and rescue openings.~~

AJ102.4.3.1 Control devices. 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. Emergency escape and rescue openings shall be operational from the

		<u>inside of the room without the use of keys or tools.</u>
	Section 701 General	
<p>505.4 Emergency escape and rescue openings Bars, grilles, covers or screens. 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, <u>bulkhead enclosure or window wells that serve such 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, grates 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>702.6 701.4 Emergency escape and rescue openings Bars, grilles, covers or screens. 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, <u>bulkhead enclosure or window wells that serve such 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, grates 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>	

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.

9-18-2018 Notes from BCAC IEBC work group: First part is good as three separate code changes – replacement windows, EEROs and cover.

There was concern about the 4'-0" area for COO with higher hazard. A COO with the same or lower hazard is not currently addressed. How do we fix this? Also conflict with replacement windows saying allowance is not permitted for COO – then what do we do?

Check to see if this is addressed in Appendix J in IRC. – Kim added third column.

Proposal 10: Part 2

Also IEBC 5-2

EEROs in COO

Chapter 10 Changer of occupancy

SECTION 1011 CHANGE OF OCCUPANCY CLASSIFICATION

1011.4 Means of egress, general. Hazard categories in regard to life safety and means of egress shall be in accordance with Table 1011.4.

TABLE 1011.4
MEANS OF EGRESS HAZARD CATEGORIES

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	I-2; I-3; I-4
3	A; E; I-1; M; R-1; R-2; R-4, Condition 2
4	B; F-1; R-3; R-4, Condition 1; S-1
5 (Lowest Hazard)	F-2; S-2; U

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 m²) and minimum opening height and width of 22 inches (559 mm) and of 20 inches (508 mm), respectively, complying with Section 1011.4.6 shall be accepted as an emergency escape and rescue openings.

1011.4.2 Means of egress for change of use to an equal or lower-hazard category. Where a change of occupancy classification is made to an equal or lesser-hazard category (higher number) as shown in Table 1011.4, existing elements of the means of egress shall comply with the requirements of Section 905 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. An operable window complying with Section 1011.4.6 shall be acceptable as an emergency escape and rescue opening.

1011.4.3 Egress capacity. Egress capacity shall meet or exceed the occupant load as specified in the *International Building Code* for the new occupancy.

1011.4.4 Handrails. Existing stairways shall comply with the handrail requirements of Section 805.9 in the area of the *change of occupancy* classification.

1011.4.5 Guards. Existing guards shall comply with the requirements in Section 805.11 in the area of the *change of occupancy* classification.

1011.4.6 Emergency escape and rescue openings. Where a change of occupancy would require emergency escape and rescue opening in accordance with Section 1030.1, operable windows serving as the emergency escape and rescue opening shall comply with the following:

1. An existing operable window shall provide a minimum net clear opening of 4 square feet (0.38 m²) with a minimum net clear opening height of 22 inches (559 mm) and a minimum net clear opening width of 20 inches (508 mm).
2. A replacement window where such window complies with both of the following:
 - 2.1 The replacement window meets the size requirements in Item 1.
 - 2.2 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.

Chapter 5 Prescriptive Method
Section 506 Change of occupancy

506.4 Emergency escape and rescue openings. Where a change of occupancy would require emergency escape and rescue opening in accordance with Section 1030.1, operable windows serving as the emergency escape and rescue opening shall comply with the following:

1. An existing operable window shall provide a minimum net clear opening of 4 square feet (0.38 m²) with a minimum net clear opening height of 22 inches (559 mm) and a minimum net clear opening width of 20 inches (508 mm).
2. A replacement window where such window complies with both of the following:
 - 2.1 The replacement window meets the size requirements in Item 1.
 - 2.2 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.

Reason for COO: EEROs are required in IBC Section 1030 only in R-3 and R-4 dwellings and for R-2 apartments in single exit buildings (4 units per floor, 3 stories maximum). So looking at

something converting to a single family home per Table 1011.1, Section 1104.1 would only apply if a house was made out of an F-2, S-2 or U – such as a barn to a house. Any other use being converted to a house would be under 1011.4.2 – which has no language for EEROs. There does not appear to be any justification for a moving to the same or lesser hazard to be more restrictive than what is allowed for an increased hazard.

The provisions in Section 505 and 702 say they are not applicable to COO, so it should be addressed here for any occupancy that converts to R-3, R-4 and single exit R-2. The size currently permitted under Section 1104.1 Exception 7 for existing window is maintained. The requirements for replacement windows is from current language in 505 and 702.

The same language is proposed for COO under the prescriptive method – which currently does not address EEROs at all.

Question: Doe the committee want to take on window control devices or bars over the window wells for COO? This could be as simple as a reference back to the provisions in the respective chapters for alterations.