

**CTC Meeting #28
September 16 - 17, 2013
Child Window Safety**

The following 2013 Group B changes have been compiled for the above noted CTC Area of Study. Included in this report are code changes which received a public comment following the 2013 Group B Committee Action Hearings. These changes are intended to serve as the agenda for the CTC in order to establish CTC positions, if any, for the upcoming 2013 Group B Public Comment Hearings. THIS REPORT ONLY INCLUDES THOSE CODE CHANGES FOR WHICH CTC HAS TAKEN A POSITION ON A CODE CHANGE

EB15 - 13

RB467-13

EB15-13

702.4 (NEW), 702.5 (NEW)

Proposed Change as Submitted

Proponent: Jeff Inks, Window & Door Manufacturers Association (jinks@wdma.com)

Revise as follows:

702.1 Interior finishes. All newly installed interior wall and ceiling finishes shall comply with Chapter 8 of the *International Building Code*.

702.2 Interior floor finish. New interior floor finish, including new carpeting used as an interior floor finish material, shall comply with Section 804 of the *International Building Code*.

702.3 Interior trim. All newly installed interior trim materials shall comply with Section 806 of the *International Building Code*.

702.4 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 *International Residential Code*, window opening control devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all the following apply to the replacement window:

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 36 inches (915 mm) above the finished floor;
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; and
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).

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 the International Building Code.

Exceptions:

1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22.86 m) 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 F 2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.

702.5 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 1029.2, 1029.3 and 1029.5 of the *International Building Code* and Sections R310.1.1, R310.1.2, R310.1.3 and R310.2 of the *International Residential Code* accordingly provided 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 of the window is not part of a change of occupancy.

Window opening control devices complying with ASTM F 2090 shall be permitted for use on windows required to provide *emergency escape and rescue openings*.

Reason: The intent of this proposal is to ensure window replacements meet the requirements for new construction for window fall protection and emergency escape and rescue openings when practical and avoid discouraging or preventing the replacement of windows when it is not -- provided there is no reduction in existing safety.

With respect to the proposed provisions for window opening control devices on replacement windows, they are intended to ensure window fall protection is provided where required for new construction when windows, including sash and frame, are replaced. The proposed WOCD provisions have already been approved for Chap. 4 of the IEBC (during the Group A proceedings) and are also being proposed for IRC Appendix J by us and the ICC CTC.

With respect to the proposed emergency escape and rescue opening provisions, they are based on Minnesota's residential code which actually (and effectively) incorporates them into the main body of the code in Chapter 3, under Section 310.1. The same provisions have also already been approved for Chap. 4 of the IEBC (during the Group A proceedings) and we, as well as the ICC CTC are also proposing the same provisions for IRC Appendix J (in addition to this proposal for the IEBC). Most importantly, it's important to note that the provisions do not allow for any decrease in safety and will help ensure improvements in safety can be made.

More specifically, the intent of this proposal is to ensure that the IRC does not discourage or prevent improvements in emergency escape and rescue openings, especially for fire safety, in older residential occupancies by requiring replacement windows to meet all of the provisions of Section 310 when doing so can only be accomplished by increasing the size of the rough opening or altering the interior wall.

Because many of these older buildings were constructed under codes that did not include the same emergency escape and rescue opening provisions that the IBC or IRC now require for new construction, the only way to fully meet all of the requirements of IBC Section 1029 or IRC Section 310 for new construction if required when windows are replaced, is to enlarge the rough opening and/or make significant alterations to the interior wall in order to accommodate any increase in window size or lowering of a sill.

At the very least, the significant cost and design challenges of altering the rough opening or interior wall can discourage or prevent window replacement and at worst can discourage or prevent the replacement of older windows that are harder to operate or inoperable all together because of their age or poor maintenance and, that are significantly less energy efficient. When that happens, improvements to safety as well as to energy efficiency are needlessly compromised.

Furthermore and on the whole, while some bedroom windows in older homes may not provide the full clear opening that is required for new construction or may have a sill height above 44 inches, they nonetheless still provide a viable emergency and escape rescue opening which is the primary intent of the code. Replacement of these windows with the same type of operating window or other type that can provide an equal or greater clear opening than the existing window -- even if they do not fully meet the clear opening or sill height requirements of IBC Section 1029 or IRC Section 310 accordingly -- is always an improvement in safety, especially when a replacement opening can provide a larger clear opening than the existing window. Such improvements in safety should not be discouraged or prevented by overly onerous requirements for replacement windows.

This proposal will help ensure that doesn't happen by providing limited exceptions to the requirements of IBC Section 1029 and IRC Section 310 accordingly that can only be applied when certain conditions are met and that as already noted, will not result in a decrease in safety.

The requirements for new construction that emergency escape and rescue openings be provided as well as the operational requirements of IBC Section 1029 and IRC Section 310 respectively are maintained and still applicable to replacement windows.

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

702.4 (NEW)-EB-INKS.doc

Committee Action Hearing Results

Committee Action:

Approved as Modified

Modify the proposal as follows:

702.4 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 *International Residential Code*, window opening control devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all the following apply to the replacement window:

1. The window is operable;
2. The window replacement includes replacement of the sash and the frame;
3. 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, or in one- and two-family dwellings and townhouses regulated by the *International Residential Code*, the top of the sill of the window opening is at a height less than 24 inches (610 mm) above the finished floor;
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; and
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).

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 the *International Building Code*.

Exceptions:

1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22.86 m) 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 F 2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.

702.5 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 1029.2, 1029.3 and 1029.5 of the *International Building Code* and Sections R310.1.1, R310.1.2, R310.1.3 and R310.2 of the *International Residential Code* accordingly provided 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 of the window is not part of a change of occupancy.~~

Window opening control devices complying with ASTM F 2090 shall be permitted for use on windows required to provide *emergency escape and rescue openings*.

Committee Reason: The proposal was preferred to EB9-13. The provisions were seen necessary to address the replacement windows with regard to fall safety and emergency escape and rescue openings in existing buildings. The proposal was similar to EB9-13 but did not add revisions to Section 602.3 or one and two family dwelling. One and two family dwellings can be addressed by the IEBC. The modification adds clarification that the window opening control device requirement has a different applicability to one and two family dwellings than Group R-2 or R-3 buildings. One and two family dwellings are permitted to have a window opening as low as 24 inches above the finished floor versus 36 inches. This is more consistent with the IRC as a trigger for window opening control devices.

Assembly Action:

None

Individual Consideration Agenda

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

Public Comment:

Maureen Traxler, City of Seattle Department of Planning & Development, requests Approval as Modified by this Public Comment.

Further modify the proposal as follows:

WINDOW SAFETY-CTC PUBLIC COMMENTS – 09/03/13

Group B

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702.4 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 *International Residential Code*, window opening control devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all the following apply to the replacement window:

1. The window is operable;
2. The window replacement includes replacement of the sash and the frame;
3. One of the following applies:
 - 3.1. In Group R-2 or R-3 buildings containing dwelling units regulated by the International Building Code, the top of the sill of the window opening is at a height less than 36 inches (915 mm) above the finished floor, or
 - 3.2. In one- and two-family dwellings and townhouses regulated by the *International Residential Code*, the top of the sill of the window opening is at a height less than 24 inches (610 mm) above the finished floor;
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; and
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).

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 the *International Building Code*.

Exceptions:

1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22.86 m) 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 F 2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.

Commenter's Reason: This is an editorial change to make item 3 clearer and easier to read.

EB15-13

Final Action: AS AM AMPC_____ D

RB467-13

Appendix J

Proposed Change as Submitted

Proponent: Carl Baldassarra, P.E., FSFPE, Chair, ICC Code Technology Committee
(cbaldassarra@rjagroup.com)

Revise as follows:

AJ102.4 Replacement windows and replacement safety glazing. Regardless of the category of work, when an existing window, including the sash and glazed portion, or safety glazing is replaced, the replacement window or safety glazing shall comply with the following requirements as applicable: ~~of Chapter 11.~~

AJ102.4.1 Energy efficiency. Replacement windows shall comply with the requirements of Chapter 11.

AJ102.4.2 Safety glazing. Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Section R308.

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 Sections R310.1 and the requirements of Sections R310.1.1, R310.1.2, R310.1.3 and R310.2 provided 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.
3. Window opening control devices complying with ASTM F 2090 shall be permitted for use on windows required to provide *emergency escape and rescue openings*.

AJ102.4.4 Window control devices. Where window fall prevention devices complying with ASTM F2090 are not provided, window opening control devices complying with ASTM F 2090 shall be installed where an existing window is replaced and where all the following apply to the replacement window:

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;
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; and
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).

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.

~~**AJ301.3 Safety glazing.** Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Section R308.1.~~

Reason: This proposed change is a result of the CTC's investigation of the area of study entitled "Child Window Safety". The scope of the activity is noted as:

To evaluate the necessity of developing code proposals for the inclusion of requirements dealing with the conditions, circumstances and devices for window safety which could reduce the number of falls by children to surfaces below.

The purpose of this proposal is to coordinate the existing building provisions of the IRC with the changes approved to the IBC/IEBC in the 2012 Group A cycle. Code changes G225-12 and G227-12 were approved as modified by public comment to revise Section 3407 of the IBC (IEBC Section 406 – see below). In addition, Code change G201-12 last cycle removed the existing building provisions from Chapter 34 of the IBC in favor of a reference to the IEBC. This action was subsequently affirmed by the ICC Board as this was a code change related to I-Code scoping.

The format/terminology of Appendix J in the IRC is a bit different than the approach in the IEBC. However, Section AJ102 stipulates that the provisions of the section are applicable to all categories of work. It is for this reason that the provisions have been comprehensively located in AJ102 versus the sections that deal with the different categories of work (ie repairs in AJ301; renovations in AJ401; and alterations in AJ501).

For reference, the approved IEBC text is as follows:

**IEBC SECTION 406
GLASS REPLACEMENT AND REPLACEMENT WINDOWS**

406.1 Replacement glass. *The installation or replacement of glass shall be as required for new installations.*

406.2 Replacement Window Opening Control Devices. *In Group R-2 or R-3 buildings containing dwelling units, window opening control devices complying with ASTM F2090 shall be installed where an existing window is replaced and where all the following apply to the replacement window:*

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 36 inches (915 mm) above the finished floor;*
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; and*
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).*

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 1029.2.

Exceptions:

1. Operable windows where the top of the sill of the window opening is located more than 75 feet (22.86 m) 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 F 2006.
2. Operable windows with openings that are provided with window fall prevention devices that comply with ASTM F2090.

406.3 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, replacement windows shall be exempt from the requirements of Sections 1029.2, 1029.3 and 1029.5 provided 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 of the window is not part of a change of occupancy.

This proposal is submitted by the ICC Code Technology Committee. The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: <http://www.iccsafe.org/cs/CTC/Pages/default.aspx>. Since its inception in April/2005, the CTC has held twenty-five meetings - all open to the public. In 2012, three of the 25 face-to face meetings were held. In addition to the CTC meetings, the CTC established Study Groups (SG) of interested parties for each of the areas of study. These SG's are responsible for reviewing the available information and making recommendations to the CTC. All totaled, the SG's held over 70 conference calls in 2012.

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

AJ102.4-RB-BALDASSARRA-CTC

Committee Action Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: Approval was based upon the proponent's published reason. The proponent should bring back a public comment to address the committee's concern about the largest standard window size.

Assembly Action:

None

Individual Consideration Agenda

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

Public Comment:

J. William Degnan, President, representing National Association of State Fire Marshals, requests Approval as Modified by this Public Comment.

Modify the proposal as follows:

~~**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 Sections R310.1 and the requirements of Sections R310.1.1, R310.1.2, R310.1.3 and R310.2 provided 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.~~
3. ~~Window opening control devices complying with ASTM F 2090 shall be permitted for use on windows required to provide emergency escape and rescue openings.~~

(Renumber subsequent sections)

(Portions of proposal not shown remain unchanged)

Commenter's Reason: The purpose of this Comment is to delete the Exceptions for increases to maximum sill heights for replacement windows. It is also intended to retain the requirements for maximum sill heights for emergency escape openings as currently stated in other Code provisions.

The sill heights for openings utilized as emergency escape for occupants of residential spaces, as well as for emergency access by first responders, play a critical role in the emergency escape from fires. As stated, AJ 102.4.3 would provide no restriction for the sill heights for replacement windows along emergency escape routes from dwelling units. Even though a size criteria remains, access to the opening by occupants remains a primary consideration for the overall intended use of the escape opening, by both building occupants seeking escape from the fire and for fire service personnel seeking escape from untenable conditions. In addition, the lack of restriction of sill heights could present further restriction of fire department rescue operations from both inside and outside of the dwelling unit.

It is understood that the proponent was directed to address issues concerning the largest standard window size. It is the intent of this Comment that the maximum sill height issue also be considered in the overall approach to the use of these openings for both emergency escape and rescue.

RB467-13

Final Action: AS AM AMPC____ D
