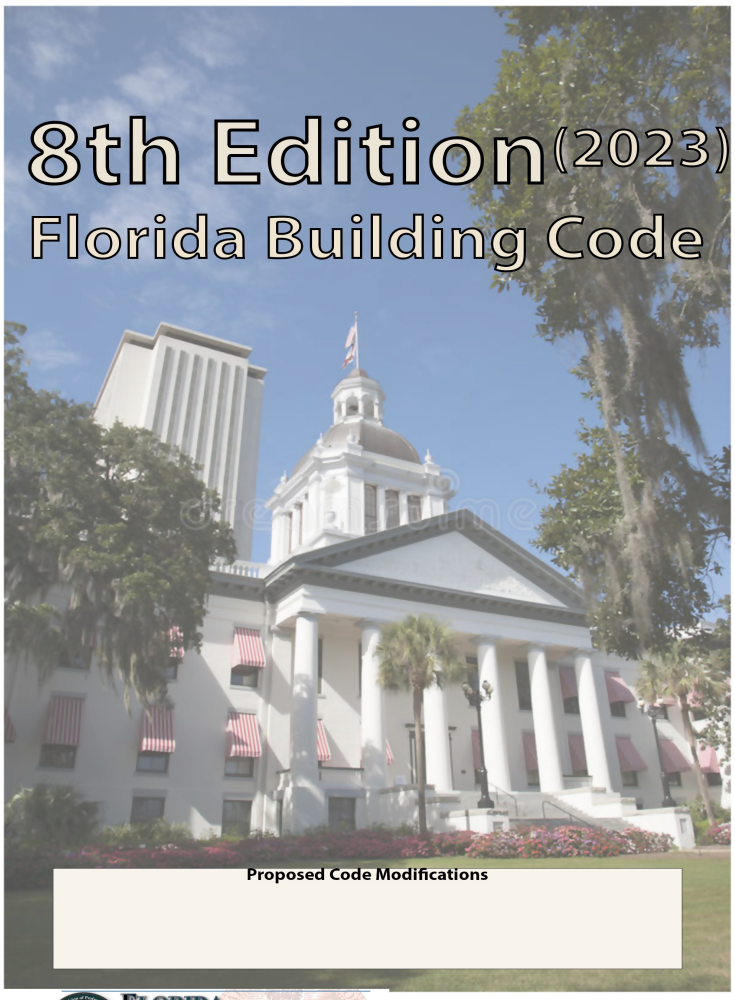


FLORIDA BUILDING COMMISSION
"Stronger Codes Through Science and Consensus"

dbpr Department of Business & Professional Regulation

ICC 2021 Code Changes

This document created by the Florida Department of Business and Professional Regulation - 850-487-1824

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review: 24**

Total Mods for report: 24

Sub Code: Building

SP9481/G18-19

1

Date Submitted	3/2/2021	**Section**	105.1	**Proponent**	Mo Madani
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Flood Requirements

Comments

General Comments **Yes**

Related Modifications

G105.1, G105.5, G105.6, G105.7

This appendix is reserved under the 2020 FBC-B.

Overlap

Summary of Modification

This proposal allows jurisdictions to establish or designate a board to hear and decide requests for variances, concerning G105.1 General.

Rationale

This proposal allows jurisdictions to establish or designate a board to hear and decide requests for variances. The NFIP gives the community the authority to approve or disapprove variances from the strict application of the minimum floodplain management requirements. The IBC authorizes the building official, not the board of appeals, to grant variances for buildings in flood hazard areas. When a local jurisdiction uses IBC Appendix G to regulate development other than buildings it should be able to designate the appropriate board or body, which may be the board of appeals or another body, such as the planning commission, the elected governing body, or a committee of department leadership.

Comment Period History

SP9481-G1

Proponent Rebecca Quinn obo F **Submitted** 6/18/2021 **Attachments** No

Comment:

Do not retain this change. The Commission has not make IBC Appendix G available in recent years and should continue that. Nearly all Florida communities that participate in the NFIP have adopted floodplain management ordinances that rely on the flood provisions of the FBC to satisfy the NFIP.

Approved as Modified

Original Proposal:

2018 International Building Code

Revise as follows:

G105.1 General. The ~~*board of appeals* established pursuant to Section 113 shall~~ jurisdiction shall establish or designate a board to hear and decide requests for variances. The board ~~of appeals~~ shall base its determination on technical justifications, and has the right to attach such conditions to variances as it deems necessary to further the purposes and objectives of this appendix and Section 1612.

G105.5 Restrictions. The board ~~of appeals~~ shall not issue a variance for any proposed development in a floodway if any increase in flood levels would result during the base flood discharge.

G105.6 Considerations. In reviewing applications for variances, the board ~~of appeals~~ shall consider all technical evaluations, all relevant factors, all other portions of this appendix and the following:

1. **The danger that materials and debris may be swept onto other lands resulting in further injury or damage.**
2. **The danger to life and property due to flooding or erosion damage.**
3. **The susceptibility of the proposed development, including contents, to flood damage and the effect of such damage on current and future owners.**
4. **The importance of the services provided by the proposed development to the community.**
5. **The availability of alternate locations for the proposed development that are not subject to flooding or erosion.**
6. **The compatibility of the proposed development with existing and anticipated development.**
7. **The relationship of the proposed development to the comprehensive plan and flood plain management program for that area.**
8. **The safety of access to the property in times of flood for ordinary and emergency vehicles.**
9. **The expected heights, velocity, duration, rate of rise and debris and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site.**
10. **The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, streets and bridges.**

G105.7 Conditions for issuance. Variances shall only be issued by the board ~~of appeals~~ where all of the following criteria are met:

1. A technical showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site renders the elevation standards inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, nor create nuisances, cause fraud on or victimization of the public or conflict with existing local laws or ordinances.
4. A determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
5. Notification to the applicant in writing over the signature of the building official that the issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as $25 for $100 of insurance coverage, and that such construction below the base flood level increases risks to life and property.

Modified Proposal:

G105.1 General. The ~~jurisdiction shall establish or designate a board to~~ board of appeals established pursuant to Section 113, or other established or designated board, shall hear and decide requests for variances. The board shall base its determination on technical justifications, and has the right to attach such conditions to variances as it deems necessary to further the purposes and objectives of this appendix and Section 1612.

Code Change No: G18-19

Original Proposal

Section(s): G105.1, G105.5, G105.6, G105.7

Proponent: Gregory Wilson, representing Federal Emergency Management Agency (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, on behalf of Federal Emergency Management Agency, representing Federal Emergency Management Agency (rcquinn@earthlink.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

2018 International Building Code

Revise as follows:

G105.1 General. The ~~*board of appeals* established pursuant to Section 113 shall~~ jurisdiction shall establish or designate a board to hear and decide requests for variances. The board ~~of appeals~~ shall base its determination on technical justifications, and has the right to attach such conditions to variances as it deems necessary to further the purposes and objectives of this appendix and Section 1612.

G105.5 Restrictions. The board ~~of appeals~~ shall not issue a variance for any proposed development in a floodway if any increase in flood levels would result during the base flood discharge.

G105.6 Considerations. In reviewing applications for variances, the board ~~of appeals~~ shall consider all technical evaluations, all relevant factors, all other portions of this appendix and the following:

1. The danger that materials and debris may be swept onto other lands resulting in further injury or damage.
2. The danger to life and property due to flooding or erosion damage.
3. The susceptibility of the proposed development, including contents, to flood damage and the effect of such damage on current and future owners.
4. The importance of the services provided by the proposed development to the community.
5. The availability of alternate locations for the proposed development that are not subject to flooding or erosion.
6. The compatibility of the proposed development with existing and anticipated development.
7. The relationship of the proposed development to the comprehensive plan and flood plain management program for that area.
8. The safety of access to the property in times of flood for ordinary and emergency vehicles.
9. The expected heights, velocity, duration, rate of rise and debris and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site.
10. The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, streets and bridges.

G105.7 Conditions for issuance. Variances shall only be issued by the board ~~of appeals~~ where all of the following criteria are met:

1. A technical showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site renders the elevation standards inappropriate.

2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, nor create nuisances, cause fraud on or victimization of the public or conflict with existing local laws or ordinances.
4. A determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
5. Notification to the applicant in writing over the signature of the building official that the issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as $25 for $100 of insurance coverage, and that such construction below the base flood level increases risks to life and property.

Reason: This proposal allows jurisdictions to establish or designate a board to hear and decide requests for variances. The NFIP gives the community the authority to approve or disapprove variances from the strict application of the minimum floodplain management requirements. The IBC authorizes the building official, not the board of appeals, to grant variances for buildings in flood hazard areas. When a local jurisdiction uses IBC Appendix G to regulate development other than buildings it should be able to designate the appropriate board or body, which may be the board of appeals or another body, such as the planning commission, the elected governing body, or a committee of department leadership.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
There is no cost impact because this proposal is related to designation of a deliberative body by individual jurisdictions.

Report of Committee Action Hearings

Committee Action: **Approved as Modified**

Modify proposal as follows:

G105.1 General. The ~~jurisdiction shall establish or designate a board to~~ board of appeals established pursuant to Section 113, or other established or designated board, shall hear and decide requests for variances. The board shall base its determination on technical justifications, and has the right to attach such conditions to variances as it deems necessary to further the purposes and objectives of this appendix and Section 1612.

Committee Reason: Allows establishment of a board to hear floodplain concerns. (Vote: 11-3)

The modification allows alternate boards.

Assembly Action: **None**

Final Action

G18-19 **AM**

SP9674/EB72-19

2

Date Submitted	3/11/2021	**Section**	608	**Proponent**	Mo Madani
Chapter	6	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Correlates Directly

Comments

General Comments **No**

Related Modifications

608, 608.1, 608.2

Summary of Modification

Deletes Section 608 "Relocated Buildings", 608.1 and 608.2.

Rationale

Section 301.4 already denotes that outside the three methods that relocated buildings are addressed by Chapter 14.
This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. Since 2017 the BCAC has held 6 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as w ell as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at:
https://www.iccsafe.org/codes-tech-support/codes/codedevelopment-process/building-code-actioncommittee-bcac

Approved as Submitted

2018 International Existing Building Code

Delete without substitution:

~~**SECTION 608**~~
~~**RELOCATED BUILDINGS**~~

~~**608.1 Scope.Relocated building provisions shall apply to relocated or moved buildings.**~~

~~**608.2 Application.Relocated buildings shall comply with the provisions of Chapter 14.**~~

Code Change No: EB72-19

Original Proposal

Section(s): SECTION 608, 608.1, 608.2

Proponents: Ed Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2018 International Existing Building Code

Delete without substitution:

~~**SECTION 608**~~
~~**RELOCATED BUILDINGS**~~

~~**608.1 Scope.** Relocated building provisions shall apply to relocated or moved buildings.~~

~~**608.2 Application.** Relocated buildings shall comply with the provisions of Chapter 14.~~

Reason: Section 301.4 already denotes that outside the three methods that relocated buildings are addressed by Chapter 14.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. Since 2017 the BCAC has held 6 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as w ell as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: https://www.iccsafe.org/codes-tech-support/codes/codedevelopment-process/building-code-actioncommittee-bcac.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Editorial change.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: The deletion of this section reduces duplicative language which no longer applies as relocated buildings are addressed outside all of the compliance methods. (Vote: 13-0)

Assembly Action: **None**

Final Action

EB72-19 **AS**

SP9557/S80-19

3

Date Submitted 3/5/2021	**Section** 1612.4	**Proponent** Mo Madani
Chapter 16	**Affects HVHZ** Yes	**Attachments** Yes
TAC Recommendation Pending Review		
Commission Action Pending Review		**Staff Classification** Flood Requirements

Comments

General Comments **Yes**

Related Modifications

1612.4

Directly correlated

Summary of Modification

This proposal emphasizes the requirement for a flood emergency plan consistent with ASCE 24 and makes clear that such a plan, when indicated, is to be submitted with other flood hazard documentation.

Rationale

Reason: This proposal emphasizes the requirement for a flood emergency plan consistent with ASCE 24 and makes clear that such a plan, when indicated, is to be submitted with other flood hazard documentation. ASCE 24 requires the submittal and approval of a flood emergency plan where dry floodproofing measures requiring human intervention are used. ASCE 24 requires flood emergency plans to specify the storage location of the shields, the method of installation, conditions activating installation, maintenance of shields and attachment devices, periodic practice of installing shields, testing sump pumps and other drainage measures, and inspecting necessary material and equipment to activate or implement floodproofing.
The design professional developing dry floodproofing measures that require human intervention should take into consideration the effort needed to effectively deploy such measures. Preparation of a flood emergency plan ensures that the methods specified by the design professional can be installed and implemented within the given warning time. If a design requires more warning time than reasonably available before the onside of flooding, then the designer should interpret that to mean the contemplated dry floodproofing measures must be redesigned, or that dry floodproofing may not be appropriate for the building. Additionally, maintenance, testing, and inspection are critical to ensuring system performance. The possible inability of owners or occupants to implement dry floodproofing due to lack of preparation or maintenance is regarded as an unacceptable risk.
(Please see the uploaded mod S80-19 for the complete text)

Comment Period History

SP9557-G1

Proponent Rebecca Quinn obo F **Submitted** 6/18/2021 **Attachments** No

Comment:

Retain this change. It is important that the emergency plan for dry flooproofing that requires human intervention be considered during design of the floodproofing measures. That's the only way the owner/applicant and the community has some assurance the measures can be implemented in the available time and expected personnel and resources available. Designs may need to be changed if implementation is infeasible. See FEMA Technical Bulletin 3.

Approved as Submitted

2018 International Building Code

Revise as follows:

1612.4 Flood hazard documentation. The following documentation shall be prepared and sealed by a *registered design professional* and submitted to the *building official*:

1. For construction in *flood hazard areas* other than *coastal high hazard areas* or *coastal A zones*:
   1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.11.1.
   1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, *construction documents* shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.
   1.3. For dry floodproofed nonresidential buildings, *construction documents* shall include a statement that the dry floodproofing is designed in accordance with ASCE 24 and shall include the flood emergency plan specified in Chapter 6 of ASCE 24.
2. For construction in *coastal high hazard areas* and *coastal A zones*:
   2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.11.1.
   2.2. *Construction documents* shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.
   2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m^2) determined using *allowable stress design*, *construction documents* shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

Code Change No: S80-19

Original Proposal

Section(s): 1612.4

Proponent: Gregory Wilson, representing Federal Emergency Management Agency (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, on behalf of Federal Emergency Management Agency, RCQuinn Consulting, Inc., representing Federal Emergency Management Agency (rcquinn@earthlink.net)

2018 International Building Code

Revise as follows:

1612.4 Flood hazard documentation. The following documentation shall be prepared and sealed by a *registered design professional* and submitted to the *building official*:

1. For construction in *flood hazard areas* other than *coastal high hazard areas* or *coastal A zones*:
   1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.11.1.
   1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, *construction documents* shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.
   1.3. For dry floodproofed nonresidential buildings, *construction documents* shall include a statement that the dry floodproofing is designed in accordance with ASCE 24 and shall include the flood emergency plan specified in Chapter 6 of ASCE 24.
2. For construction in *coastal high hazard areas* and *coastal A zones*:
   2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.11.1.
   2.2. *Construction documents* shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.
   2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m^2) determined using *allowable stress design*, *construction documents* shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

Reason: This proposal emphasizes the requirement for a flood emergency plan consistent with ASCE 24 and makes clear that such a plan, when indicated, is to be submitted with other flood hazard documentation. ASCE 24 requires the submittal and approval of a flood emergency plan where dry floodproofing measures requiring human intervention are used. ASCE 24 requires flood emergency plans to specify the storage location of the shields, the method of installation, conditions activating installation, maintenance of shields and attachment devices, periodic practice of installing shields, testing sump pumps and other drainage measures, and inspecting necessary material and equipment to activate or implement floodproofing.

The design professional developing dry floodproofing measures that require human intervention should take into consideration the effort needed to effectively deploy such measures. Preparation of a flood emergency plan ensures that the methods specified by the design professional can be installed and implemented within the given warning time. If a design requires more warning time than reasonably available before the onside of flooding, then the designer should interpret that to mean the contemplated dry floodproofing measures must be redesigned, or that dry floodproofing may not be appropriate for the building. Additionally,

maintenance, testing, and inspection are critical to ensuring system performance. The possible inability of owners or occupants to implement dry floodproofing due to lack of preparation or maintenance is regarded as an unacceptable risk.

After Hurricanes Harvey and Irma, FEMA Mitigation Assessment Teams (MATs) observed dry floodproofing measures that failed for a variety of reasons directly related to inadequate deployment or improper maintenance, validating the ASCE 24 requirement. Challenges included systems that required sizeable crews with heavy and specialized equipment to mobilize over a period of several days in advance of the storm to properly install the system. Lack of maintenance of gaskets around doors and flood shields contributed to water intrusion. Lack of inspection and owner/manager awareness of components integral to dry floodproofing meant inadvertent alterations (in one case, a large opening had been cut into a concrete wall to install new utility lines and was not restored to watertight condition). The MATs observed failures and difficulties related to storage (e.g., storage outside where ultraviolet radiation and temperature extremes degrade rubber seals, gaskets, and component identification labels; unsecured storage locations vulnerable to theft and vandalism).

Cost Impact: The code change proposal will not increase or decrease the cost of construction
No additional cost. Flood emergency plans are already required by ASCE 24 when designs for dry floodproofing are prepared.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: This proposal emphasizes the requirement for a flood emergency plan consistent with ASCE 24 and makes clear that such a plan, when indicated, is to be submitted with other flood hazard documentation. ASCE 24 requires the submittal and approval of a flood emergency plan where dry floodproofing measures requiring human intervention are used. ASCE 24 requires flood emergency plans to specify the storage location of the shields, the method of installation, conditions activating installation, maintenance of shields and attachment devices, periodic practice of installing shields, testing sump pumps and other drainage measures, and inspecting necessary material and equipment to activate or implement floodproofing.
(Vote: 14-0)

Assembly Action: **None**

Final Action

S80-19 **AS**

SP9558/S81-19

4

Date Submitted 3/5/2021	**Section** 1612.4	**Proponent** Mo Madani
Chapter 16	**Affects HVHZ** Yes	**Attachments** Yes
TAC Recommendation Pending Review		
Commission Action Pending Review		**Staff Classification** Flood Requirements

Comments

General Comments **Yes**

Related Modifications

1612.4

Directly correlated.

Summary of Modification

This proposal specifies that construction documents include certification of engineered openings when used in breakaway walls in coastal high hazard areas and coastal A zones.

Rationale

For construction in flood hazard areas, the 2018 IBC refers to the 2014 edition of ASCE 24, Flood Resistant Design and Construction. ASCE 24 requires openings in breakaway walls in all flood hazard areas (as does the IRC, in Section R322.2.2 and R322.3.6). Flood openings may be non-engineered (providing 1 square inch of net open area for each square foot of enclosure area) or engineered. Certification of engineered openings is a requirement of the NFIP (and IRC Section R322.2.2). Currently, Section 1612.4 only requires certification of engineered openings in flood hazard areas other than coastal high hazard areas or coastal A Zones (Item 1 of Section 1612.4).

This proposal specifies that construction documents include certification of engineered openings when used in breakaway walls in coastal high hazard areas and coastal A zones.

Comment Period History

SP9558-G1

Proponent Rebecca Quinn obo F **Submitted** 6/18/2021 **Attachments** No

Comment:

Retain this change. Certification of engineered openings is necessary to determine compliance. This is similar to what is already in 1612.5 (1.2).

Approved as Submitted

2018 International Building Code

Revise as follows:

1612.4 Flood hazard documentation. The following documentation shall be prepared and sealed by a *registered design professional* and submitted to the *building official*:

1. For construction in flood hazard areas other than coastal high hazard areas or coastal A zones:
   1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.11.1.
   1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.
   1.3. For dry floodproofed nonresidential buildings, construction documents shall include a statement that the dry floodproofing is designed in accordance with ASCE 24.
2. For construction in coastal high hazard areas and coastal A zones:
   2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.11.1.
   2.2. Construction documents shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.
   2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m2) determined using allowable stress design, construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.
   2.4. For breakaway walls where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.

Code Change No: S81-19

Original Proposal

Section(s): 1612.4

Proponent: Gregory Wilson, representing Federal Emergency Management Agency (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, on behalf of Federal Emergency Management Agency, representing Federal Emergency Management Agency (rcquinn@earthlink.net)

2018 International Building Code

Revise as follows:

1612.4 Flood hazard documentation. The following documentation shall be prepared and sealed by a *registered design professional* and submitted to the *building official*:

1. For construction in flood hazard areas other than coastal high hazard areas or coastal A zones:
   1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.11.1.
   1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.
   1.3. For dry floodproofed nonresidential buildings, construction documents shall include a statement that the dry floodproofing is designed in accordance with ASCE 24.
2. For construction in coastal high hazard areas and coastal A zones:
   2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.11.1.
   2.2. Construction documents shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.
   2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m2) determined using allowable stress design, construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.
   2.4. For breakaway walls where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.

Reason: For construction in flood hazard areas, the 2018 IBC refers to the 2014 edition of ASCE 24, *Flood Resistant Design and Construction*. ASCE 24 requires openings in breakaway walls in all flood hazard areas (as does the IRC, in Section R322.2.2 and R322.3.6). Flood openings may be non-engineered (providing 1 square inch of net open area for each square foot of enclosure area) or engineered. Certification of engineered openings is a requirement of the NFIP (and IRC Section R322.2.2). Currently, Section 1612.4 only requires certification of engineered openings in flood hazard areas other than coastal high hazard areas or coastal A Zones (Item 1 of Section 1612.4).

This proposal specifies that construction documents include certification of engineered openings when used in breakaway walls in coastal high hazard areas and coastal A zones.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
No additional cost because certification of engineered openings has always been required by the NFIP.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: For construction in flood hazard areas, the 2018 IBC refers to the 2014 edition of ASCE 24, Flood Resistant Design and Construction. ASCE 24 requires openings in breakaway walls in all flood hazard areas (as does the IRC, in Section R322.2.2 and R322.3.6). Flood openings may be non-engineered (providing 1 square inch of net open area for each square foot of enclosure area) or engineered. Certification of engineered openings is a requirement of the NFIP (and IRC Section R322.2.2). Currently, Section 1612.4 only requires certification of engineered openings in flood hazard areas other than coastal high hazard areas or coastal A Zones (Item 1 of Section 1612.4).

This proposal specifies that construction documents include certification of engineered openings when used in breakaway walls in coastal high hazard areas and coastal A zones.
(Vote: 14-0)

Assembly Action: **None**

Final Action

S81-19 **AS**

SP9445/G138-18

5

Date Submitted	3/2/2021	**Section**	3001.2	**Proponent**	Mo Madani
Chapter	30	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Overlap

Comments

General Comments **No**

Related Modifications

3001.2

The original text for this code change does not exist in the 2020 FBC-B.

Summary of Modification

This proposal is submitted as there is no new standard published, as of this writing, under the ASME a17 in support of IBC 2018 3001.2.

Rationale

This proposal is submitted as there is no new standard published, as of this writing, under the ASME a17 in support of IBC 2018 3001.2. This code proposal also provides additional direction and clarification for industry. Underlined wording is added text to capture the intent of the proposal. This proposal clarifies as to what type of feature and assistance is required and shall be provided regards to the utilization of a text-based system (consisting of keyboard, visual indicators and button indicators) by an entrapped Deaf or Hard of Hearing passenger(s).

I have been working with a dedicated group of industry professionals who have been working hard to develop an a17 standard for 3001.2. My participation in these ASME efforts for the past 3 years have been exciting and productive in attempting to improve the standard to include criteria for these systems. However, the ASME a17 EOC reviews are not yet completed and finalized to my satisfaction to the current code

(Please see the uploaded mod G138-18 for the completed text)

Approved as Submitted

2018 International Building Code

Revise as follows:

3001.2 Emergency elevator communication systems for the deaf, hard of hearing and speech impaired. An emergency two-way communication system shall be ~~provided~~ provided. The system shall provide visible text and audible modes that:

1. ~~Is a visual and text-based and a video-based 24/7 live interactive system.~~ When operating in each mode, includes a live interactive system that allows back and forth conversation between the elevator occupants and emergency personnel:

2. Is ~~fully accessible by the deaf, hard of hearing and speech impaired, and shall include voice-only options for hearing individuals.3.Has the ability to communicate with emergency personnel utilizing existing video conferencing technology, chat/text software or other approved technology.~~ operational when the elevator is operational; and

3. Allows elevator occupants to select the text-based or audible mode depending on their communication needs to interact with emergency personnel.

Code Change No: G138-18

Original Proposal

Section(s): 3001.2

Proponent: Andrew Cid, Barrier Free Solutions For The Deaf and Hard of Hearing, representing Barrier Free Solutions For The Deaf and Hard of Hearing

2018 International Building Code

Revise as follows:

3001.2 Emergency elevator communication systems for the deaf, hard of hearing and speech impaired. An emergency two-way communication system shall be ~~provided~~ provided. The system shall provide visible text and audible modes that:

1. ~~Is a visual and text-based and a video-based 24/7 live interactive system.~~ When operating in each mode, includes a live interactive system that allows back and forth conversation between the elevator occupants and emergency personnel;
2. Is ~~fully accessible by the deaf, hard of hearing and speech impaired, and shall include voice-only options for hearing individuals.3.Has the ability to communicate with emergency personnel utilizing existing video conferencing technology, chat/text software or other approved technology.~~ operational when the elevator is operational; and
3. Allows elevator occupants to select the text-based or audible mode depending on their communication needs to interact with emergency personnel.

Reason: This proposal is submitted as there is no new standard published, as of this writing, under the ASME a17 in support of IBC 2018 3001.2. This code proposal also provides additional direction and clarification for industry. Underlined wording is added text to capture the intent of the proposal. This proposal clarifies as to what type of feature and assistance is required and shall be provided regards to the utilization of a text-based system (consisting of keyboard, visual indicators and button indicators) by an entrapped Deaf or Hard of Hearing passenger(s).

I have been working with a dedicated group of industry professionals who have been working hard to develop an a17 standard for 3001.2. My participation in these ASME efforts for the past 3 years have been exciting and productive in attempting to improve the standard to include criteria for these systems. However, the ASME a17 EOC reviews are not yet completed and finalized to my satisfaction to the current code.

It is unfortunate that due to code hearing revision schedules between the ICC and the A17 Emergency Operations Committee where the ICC has a 1/8/18 proposal closing date and the A17 committee may have some possible revisions to 2.27 of A17.1 later this year reflecting provisions addressing two-way communication incorporating video means. It is hopeful that work continues on proposed revisions to 2.27 satisfying the intent of the original provisions of 3001.2. It is recognized that as a general practice that the applicable standard as referenced by the IBC contain the necessary text and provisions and it is the intent that once the A17 committee has developed the necessary language that incorporates the provisions of 3001.2 that this section could be removed. But until such time, recognizing that the A17.1 document revision schedule may not permit inclusion for the 2021 IBC edition, the provisions of 3001.2 need to be maintained.

Unfortunately, I have been the target of recent threats, bullying and intimidation by some individuals who are attempting to discredit me or disrupt our standard language efforts. As a result, I fear for my safety and well being. However, I will continue working to provide assistance to industry, to Fire/Life Safety and First Responders in their jobs in helping others, and to provide access to 50M Deaf & Hard of Hearing citizens.

I hope the IBC committee, industry representatives, and the ICC voters, especially the professional First Responders, agree with this proposal. If approved, this will be effective 2021 and the a17 will hopefully be in place by then to support 3001.2.

Cost Impact: The code change proposal will increase the cost of construction
The code change proposal may increase the cost of construction by a minimum of less than $250 (the approximate cost of a keyboard component and several visual indicators).

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: The committee approved the proposal based on the proponents reason statement and the proponents promise to withdraw the proposal if the A117.1 standard incorporates the desired language, though it may simply be a duplication of the language, not a conflict. A portion of Item 2 in the proposal was Item 3 in the 2018 IBC. The committee verified with the proponent that the intent of the proponent was that Item 3 should not be deleted and the Item 3 as shown in this proposal should become Item 4. The committee indicated its intent was to approve the proposal in the form that the proponent intended, in the form as follows:

3001.2 Emergency elevator communication systems for the deaf, hard of hearing and speech impaired. An emergency two-way communication system shall be provided. The system shall provide visible text and audible modes that:

1. ~~Is a visual and text-based and a video-based 24/7 live interactive system.~~ When operating in each mode, includes a live interactive system that allows back and forth conversation between the elevator occupants and emergency personnel;
~~2.~~ Is operational when the elevator is operational; ~~fully accessible by the deaf, hard of hearing and speech impaired, and shall include voice-only options for hearing individuals. and~~
3. Has the ability to communicate with emergency personnel utilizing existing video conferencing technology, chat/text software or other approved technology; and
4. Allows elevator occupants to select the text-based or audible mode depending on their communication needs to interact with emergency personnel.

(Vote: 10-4)

Assembly Action: **None**

Final Action

G138-18	**AS**

SP9446/G142-18

6

Date Submitted 3/2/2021	**Section** 3007.1	**Proponent** Mo Madani
Chapter 30	**Affects HVHZ** Yes	**Attachments** Yes
TAC Recommendation Pending Review		**Staff Classification** Correlates Directly
Commission Action Pending Review		

Comments

General Comments **No**

Related Modifications

3007.1

Summary of Modification

Proposal to align 3007.1 with Section 403.6.1 which addresses occupied floors.

Rationale

To align with Section 403.6.1 which addresses occupied floors.

Approved as Submitted

2018 International Building Code

Revise as follows:

3007.1 General. Where required by Section 403.6.1, every floor above and including the lowest level of fire department vehicle access of the building shall be served by fire service access elevators complying with Sections 3007.1 through 3007.9. Except as modified in this section, fire service access elevators shall be installed in accordance with this chapter and ASME A17.1/CSA B44.

~~**Exception**~~ **Exceptions:**

1. Elevators that only service an open or enclosed parking garage and the lobby of the building shall not be required to serve as fire service access elevators.

2. The elevator shall not be required to serve the top floor of a building where that floor is utilized only for equipment for building systems.

Code Change No: G142-18

Original Proposal

Section(s): 3007.1

Proponent: Kevin Brinkman, representing National Elevator Industry, Inc. (klbrinkman@neii.org)

2018 International Building Code

Revise as follows:

3007.1 General. Where required by Section 403.6.1, every floor above and including the lowest level of fire department vehicle access of the building shall be served by fire service access elevators complying with Sections 3007.1 through 3007.9. Except as modified in this section, fire service access elevators shall be installed in accordance with this chapter and ASME A17.1/CSA B44.

~~**Exception**~~ **Exceptions:**

1. Elevators that only service an open or enclosed parking garage and the lobby of the building shall not be required to serve as fire service access elevators.
2. The elevator shall not be required to serve the top floor of a building where that floor is utilized only for equipment for building systems.

Reason: To align with Section 403.6.1 which addresses occupied floors.

Cost Impact: The code change proposal will decrease the cost of construction
This would decrease the cost of construction because it would not require an extension on top of the roof of the building so that the elevator could serve an unoccupied floor.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: In many tall buildings there are fire service access elevators. When fire service personnel access a floor, the elevator is typically is staged on a floor below, not on the floor they are on. (Vote: 9-5)

Assembly Action: **None**

Final Action

G142-18 **AS**

SP9447/G143-18

7

Date Submitted	3/2/2021	**Section**	3005.4	**Proponent**	Mo Madani
Chapter	30	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Correlates Directly

Comments

General Comments **No**

Related Modifications

3005.4

Summary of Modification

There was some confusion with the current wording that the phrase " outside of but attached to a hoistway that have openings into the hoistway" as to how it relates to machine rooms. Proposal to clarify.

Rationale

There was some confusion with the current wording that the phrase " outside of but attached to a hoistway that have openings into the hoistway" as to how it relates to machine rooms. Essentially this could be possibly interpreted that if no openings to the hoistway exist that a fire resistance rated enclosure would not be required. Control rooms and control spaces should be treated no differently for separation requirements so the added phrase is not necessary. This section is essentially an extension of the hoistway protection.

Approved as Submitted

2018 International Building Code

Revise as follows:

3005.4 Machine rooms, control rooms, machinery spaces, and control spaces. ~~Elevator machine rooms, control rooms, control spaces and machinery spaces outside of but attached to a hoistway that have openings into the hoistway~~ The following rooms and spaces shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or ~~both.~~ both:

1. Machine rooms
2. Control rooms
3. Control spaces
4. Machinery spaces outside of the hoistway enclosure

The fire-resistance rating shall be not less than the required rating of the hoistway enclosure served by the machinery. Openings in the fire barriers shall be protected with assemblies having a fire protection rating not less than that required for the hoistway enclosure doors.

Exceptions:

1. For other than fire service access elevators and occupant evacuation elevators, where machine rooms, machinery spaces, control rooms and control spaces do not abut and do not have openings to the hoistway enclosure they serve, the fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both, shall be permitted to be reduced to a 1-hour fire-resistance rating.
2. For other than fire service access elevators and occupant evacuation elevators, in buildings four stories or less above grade plane where machine room, machinery spaces, control rooms and control spaces do not abut and do not have openings to the hoistway enclosure they serve, the machine room, machinery spaces, control rooms and control spaces are not required to be fire-resistance rated.

Code Change No: G143-18

Original Proposal

Section(s): 3005.4

Proponent: Kevin Brinkman, representing National Elevator Industry, Inc. (klbrinkman@neii.org)

2018 International Building Code

Revise as follows:

3005.4 Machine rooms, control rooms, machinery spaces, and control spaces. ~~Elevator machine rooms, control rooms, control spaces and machinery spaces outside of but attached to a hoistway that have openings into the hoistway~~ The following rooms and spaces shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or ~~both.~~ both:

1. Machine rooms
2. Control rooms
3. Control spaces
4. Machinery spaces outside of the hoistway enclosure

The fire-resistance rating shall be not less than the required rating of the hoistway enclosure served by the machinery. Openings in the fire barriers shall be protected with assemblies having a fire protection rating not less than that required for the hoistway enclosure doors.

Exceptions:

1. For other than fire service access elevators and occupant evacuation elevators, where machine rooms, machinery spaces, control rooms and control spaces do not abut and do not have openings to the hoistway enclosure they serve, the fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both, shall be permitted to be reduced to a 1-hour fire-resistance rating.
2. For other than fire service access elevators and occupant evacuation elevators, in buildings four stories or less above grade plane where machine room, machinery spaces, control rooms and control spaces do not abut and do not have openings to the hoistway enclosure they serve, the machine room, machinery spaces, control rooms and control spaces are not required to be fire-resistance rated.

Reason: There was some confusion with the current wording that the phrase " outside of but attached to a hoistway that have openings into the hoistway" as to how it relates to machine rooms. Essentially this could be possibly interpreted that if no openings to the hoistway exist that a fire resistance rated enclosure would not be required. Control rooms and control spaces should be treated no differently for separation requirements so the added phrase is not necessary. This section is essentially an extension of the hoistway protection.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
There is no impact since this is just a clarification of the language.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: Committee members have experience with these provisions and believe the proposal clarifies the requirements. (Vote: 14-0)

Assembly Action: **None**

Final Action

G143-18 **AS**

SP9453/G149-18

8

Date Submitted	3/2/2021	**Section**	3112	**Proponent**	Mo Madani
Chapter	31	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Flood Requirements

Comments

General Comments **No**

Related Modifications

3112, 3112.1, 3112.2

Proposed code change is in conflict with the flood management regulation of the NFIP. This code change was disapproved by the Commission during the 2020 FBC code development process.

Summary of Modification

Adds new Section 3112 "Public Use Restroom Buildings in Flood Hazard Areas", and adds provisions for such.

Rationale

Thousands of communities and state agencies have public open space and parks along rivers and shorelines. Many communities experience economic value from tourism and public access to areas that feature water resources. Under the current requirements of the IBC, restrooms for public use that are located in flood hazard areas must meet the same requirements as residential and commercial buildings. In flood hazard areas other than coastal high hazard areas and Coastal A Zones (i.e., in flood zones identified on Federal Emergency Management Agency Flood Insurance Rate Maps with the letter "A"), restroom buildings must either be elevated or dry floodproofed to or above the elevations required by the IBC/ASCE 24. In coastal high hazard areas (flood Zone V) and Coastal A Zones, restroom buildings must be elevated to or above the elevations required by the IBC/ASCE 24.
In Florida and other coastal states, this has resulted in construction of public use restrooms as high as 6 to 18 feet above grade. This poses many challenges, not the least of which is access. Figures 1, 2, 3 and 4 (below) illustrate elevated restrooms with long ramps. While ramps can be built to meet ADA requirements, to reach some heights required in some flood hazard areas the ramps may be as long as 300 feet. In coastal high hazard areas, such ramps likely conflict with the NFIP requirements that elevated buildings be “free of obstruction,” and the presence of such ramps would likely interfere with the ability of walls around enclosures to break away under flood conditions. Those same provisions are required by IBC Section 1612, Flood Loads, which references ASCE 24, Flood Resistant Design and Construction.
(Please see uploaded mod G149-18 for the complete text)

Approved as Modified by Public Comment 1

Original Proposal:

2018 International Building Code

Add new text as follows:

SECTION 3112
PUBLIC USE RESTROOM BUILDINGS IN FLOOD HAZARD AREAS

3112.1 General. Public use restroom buildings that contain toilet rooms, bathrooms, showers and changing rooms, and those portions of buildings that contain toilet rooms, bathrooms, showers and changing rooms, and where such buildings and portions of buildings are intended for public use and located on publicly owned lands in flood hazard areas, shall comply with the requirements of this section. Public use restrooms that are not elevated or dry floodproofed in accordance with Section 1612 shall comply with Section 3112.2. Portions of buildings that include uses other than public use toilet rooms, bathrooms, showers and changing rooms shall comply with Section 1612.

3112.2 Flood resistance. Public use restrooms that are located in flood hazard areas shall comply with the requirements of ASCE 24, except for elevation requirements, and shall comply with all of the following criteria:

1. The building footprint is not more than 1,500 square feet.
2. Located, designed and constructed to resist the effects of flood hazards and flood loads to minimize flood damage from a combination of wind and water loads associated with the base flood.
3. Anchored to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy during conditions of the base flood.
4. Constructed of flood damage-resistant materials.
5. Where enclosed by walls, the walls have flood openings.
6. Mechanical and electrical systems are located above the base flood elevation.
7. Plumbing fixtures and plumbing connections are located above the base flood elevation.
8. An emergency plan, approved by the jurisdiction, is submitted to the building official where the building design specifies implementation of protection measures prior to the onset of flooding conditions.

Exceptions:

1. Minimum electric service required to address life safety and electric code requirements is permitted below the base flood elevation.
2. Plumbing fixtures and connections are permitted below the base flood elevation provided the fixtures and connections are designed and installed to minimize or eliminate infiltration of floodwaters into the sanitary sewage system and discharges from sanitary sewage systems into floodwaters.

Modified Proposal PC1:

2018 International Building Code

3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, pedestrian walkways and tunnels, automatic vehicular gates, awnings and canopies, marquees, signs, towers, antennas, relocatable buildings, swimming pool enclosures and safety devices, ~~and~~ solar energy systems, and public use restroom buildings on publicly owned lands in flood hazard areas.

SECTION ~~3112~~ 3114
PUBLIC USE RESTROOM BUILDINGS IN FLOOD HAZARD AREAS

~~3112~~ 3114.1 General. ~~Public use restroom buildings that contain toilet rooms, bathrooms, showers and changing rooms, and those portions of buildings that contain~~ For the purpose of this section, public restroom buildings are located on publicly owned lands in flood hazard areas and intended for public use. Public restroom buildings and portions of other buildings that contain public restrooms, are limited to toilet rooms, bathrooms, showers and changing rooms~~, and where such~~. Public restroom buildings and portions of buildings ~~are intended for public use and located on publicly owned lands in flood hazard areas,~~ that contain public restrooms shall comply with the requirements of this section. Public use restrooms that are not elevated or dry floodproofed in accordance with Section 1612 shall comply with Section ~~3112~~ 3114.2. Portions of buildings that include uses other than public use toilet rooms, bathrooms, showers and changing rooms shall comply with Section 1612.

~~3112.2~~ 3114.2 Flood resistance. Public use restrooms ~~that are located~~ on publicly owned lands in flood hazard areas shall comply with the requirements of ASCE 24, except for elevation requirements, and shall comply with all of the following criteria:

1. The building footprint is not more than 1,500 square feet.
2. Located, designed and constructed to resist the effects of flood hazards and flood loads to minimize flood damage from a combination of wind and water loads associated with the base flood.
3. Anchored to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy during conditions of the base flood.
4. Constructed of flood damage-resistant materials.
5. Where enclosed by walls, the walls have flood openings.
6. Mechanical and electrical systems are located above the base flood elevation.
7. Plumbing fixtures and plumbing connections are located above the base flood elevation.
8. An emergency plan, approved by the jurisdiction, is submitted to the building official where the building design ~~specifies~~ documents specify implementation of protection measures prior to the onset of flooding conditions.

Exceptions:

1. Minimum necessary electric ~~service~~ equipment required to address health, life safety and electric code requirements is permitted below the base flood elevation in accordance with ASCE 24 provisions for electric elements installed below the minimum elevations.
2. Plumbing fixtures and connections are permitted below the base flood elevation provided the fixtures and connections are designed and installed to minimize or eliminate infiltration of floodwaters into the sanitary sewage system and discharges from sanitary sewage systems into floodwaters.

Code Change No: G149-18

Original Proposal

Section(s): 3112, 3112.1, 3112.2

Proponent: Steve Martin, Florida Division of Emergency Management, representing Florida Division of Emergency Management (steve.martin@em.myflorida.com); Douglas Wise, Building Officials Association of Florida, representing Building Officials Association of Florida (douglasbwise@att.net)

2018 International Building Code

Add new text as follows:

SECTION 3112
PUBLIC USE RESTROOM BUILDINGS IN FLOOD HAZARD AREAS

3112.1 General. Public use restroom buildings that contain toilet rooms, bathrooms, showers and changing rooms, and those portions of buildings that contain toilet rooms, bathrooms, showers and changing rooms, and where such buildings and portions of buildings are intended for public use and located on publicly owned lands in flood hazard areas, shall comply with the requirements of this section. Public use restrooms that are not elevated or dry floodproofed in accordance with Section 1612 shall comply with Section 3112.2. Portions of buildings that include uses other than public use toilet rooms, bathrooms, showers and changing rooms shall comply with Section 1612.

3112.2 Flood resistance. Public use restrooms that are located in flood hazard areas shall comply with the requirements of ASCE 24, except for elevation requirements, and shall comply with all of the following criteria:

1. The building footprint is not more than 1,500 square feet.
2. Located, designed and constructed to resist the effects of flood hazards and flood loads to minimize flood damage from a combination of wind and water loads associated with the base flood.
3. Anchored to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy during conditions of the base flood.
4. Constructed of flood damage-resistant materials.
5. Where enclosed by walls, the walls have flood openings.
6. Mechanical and electrical systems are located above the base flood elevation.
7. Plumbing fixtures and plumbing connections are located above the base flood elevation.
8. An emergency plan, approved by the jurisdiction, is submitted to the building official where the building design specifies implementation of protection measures prior to the onset of flooding conditions.

Exceptions:

1. Minimum electric service required to address life safety and electric code requirements is permitted below the base flood elevation.
2. Plumbing fixtures and connections are permitted below the base flood elevation provided the fixtures and connections are designed and installed to minimize or eliminate infiltration of floodwaters into the sanitary sewage system and discharges from sanitary sewage systems into floodwaters.

Reason: Thousands of communities and state agencies have public open space and parks along rivers and shorelines. Many communities experience economic value from tourism and public access to areas that feature water resources. Under the current requirements of the IBC, restrooms for public use that are located in flood hazard areas must meet the same requirements as residential and commercial buildings. In flood hazard areas other than coastal high hazard areas and Coastal A Zones (i.e., in flood zones identified on Federal Emergency Management Agency Flood Insurance Rate Maps with the letter "A"), restroom buildings must either be elevated or dry floodproofed to or above the elevations required by the IBC/ASCE 24. In coastal high hazard areas (flood Zone V) and Coastal A Zones, restroom buildings must be elevated to or above the elevations required by the IBC/ASCE 24.

In Florida and other coastal states, this has resulted in construction of public use restrooms as high as 6 to 18 feet above grade. This poses many challenges, not the least of which is access. Figures 1, 2, 3 and 4 (below) illustrate elevated restrooms with long ramps. While ramps can be built to meet ADA requirements, to reach some heights required in some flood hazard areas the ramps may be as long as 300 feet. In coastal high hazard areas, such ramps likely conflict with the NFIP requirements that elevated buildings be "free of obstruction," and the presence of such ramps would likely interfere with the ability of walls around enclosures to break away under flood conditions. Those same provisions are required by IBC Section 1612, Flood Loads, which references ASCE 24, Flood Resistant Design and Construction.

Long ramps defeat accessibility when the distance of travel still renders restroom facilities inaccessible to many persons with disabilities or limited mobility. Although the IBC (and FEMA) permits elevators to extend below the base flood elevation, installing elevators to provide access to elevated public use restrooms is expensive and creates many maintenance issues, and a high rate of failure to function, especially in beach areas where blowing sand and windborne salt aerosols create corrosive conditions.

This proposal creates a new section in IBC Chapter 31, Special Construction to limit the scope to public use restrooms that include public use toilet rooms, bathrooms, showers and changing rooms and spaces. Portions of such buildings that include other uses would have to fully comply with the elevation and other flood resistant requirements of IBC Section 1612, Flood Loads, which references ASCE 24, Flood Resistant Design and Construction.

In recognition that most public use restrooms are built on public land using public funds, the proposal is to limit the potential financial losses associated with flooded public facilities in two ways: by limiting the footprint to not more than 1,500 square feet and by specifying design requirements that minimize or eliminate physical damage when flooding occurs. Enabling public use restrooms to be designed to withstand the hydrodynamic and hydrostatic loads below the base flood elevation is an appropriate alternative to the extremely high cost for design, construction and maintenance of highly elevated public restrooms and their required access ramps or elevators.

Although the proposed design requirements are intended to preclude significant damage during flood conditions up to and including conditions of the design flood (e.g., the base or 100-year flood), more severe floods can and do occur. Figure 5 (below) illustrates one modest design option that demonstrates the feasibility of the proposal. It shows a small masonry restroom on a beach after Hurricane Irma pushed onshore. The drawings for the building show below-grade piling support and it appears the masonry units were filled. Despite approximately 6-8 feet of flooding (including waves), there is no evidence of structural damage and the non-structural damage appears readily repairable.

The proposal includes requirements for flood resistance similar to those found in IBC Appendix G, Section G1001 for Utility and Miscellaneous Group U and similar to the requirements of ASCE 24-14 for Flood Design Class 1 (which is essentially equivalent to Structure/Risk Category I). Those requirements effectively are the same as the NFIP requirements in 44 Code of Federal Regulations Section 60.3(a)(3)(ii), (iii), and (iv). FEMA deems the flood provisions of the I-Codes, with reference to ASCE 24, to meet or exceed the requirements of the National Flood Insurance Program (NFIP).

The intent is to allow public use restrooms to be at-grade or above-grade but below the base flood (partially elevated), provided they meet the design requirements listed in 3112.2. The proponent acknowledges that, at present, FEMA guidance states that restroom buildings and comfort stations in coastal high hazard areas must be elevated and meet the same design and construction requirements as other buildings. This proposal is intended to meet the intent of all NFIP requirements, except elevation requirements, to minimize flood damage, while acknowledging the special needs and access required or appropriate for public use restrooms. The Florida Floodplain Management Association prepared a white paper on this subject: Policy and Design Options for Public Restrooms in Special Flood Hazard Areas (2014), www.FLfloods.org/ffmawhitepaper.

Figure 1. Florida, flood Zone V. Ramp wraps around entire building. Has composting toilets, battery and solar electric system, emergency plan requires pumping out tank and filling with clean water.

Figure 2. Coastal Mississippi, flood Zone V. This facility cost $1.1 million.

Figure 3. Florida, Gulf Coast, flood Zone V. Ramp built after original elevator determined to be unsustainable due to significant maintenance problems.

Figure 4. Southwest Florida, flood Zone V. Extensive ramp wraps around three sides.

Figure 5. Florida, after Hurricane Irma, flood Zone V. No evidence of structural damage after estimated 5 ft stillwater plus waves. From upper left: facing beach, side, interior, rear.

Bibliography: Policy and Design Options for Public Restrooms in Special Flood Hazard Areas, Florida Floodplain Management Associations, 2014. 55 pages. www.FLfloods.org/ffmawhitepaper

Cost Impact: The code change proposal will decrease the cost of construction

The proposal will lower the initial cost of construction and lower routine and long-term facility maintenance. The cost to construct as specified in this proposal to resist the effects of flood hazards and flood loads may be somewhat higher than a typical non-elevated restroom building that is not designed to resist flood loads and flood damage (not currently allowed). However, the cost for construction under the proposal will be less than the cost to elevate and provide and maintain elevators and extensive ramp systems (current method of compliance).

Report of Committee Action Hearings

Committee Action: **Disapproved**

Committee Reason: This proposal has some merit, but the language is too loose. "Public" could mean any building that is considered public in the Americans with Disabilities Act. "Governmental entities" may be a better term. (Vote: 9-5)

Assembly Action: **None**

Public Comments

Public Comment 1:

Steven Martin, Florida Division of Emergency Management, representing Florida Division of Emergency Management (steve.martin@em.myflorida.com); Douglas Wise (douglasbwise@att.net) requests As Modified by Public Comment

Modify as follows:

2018 International Building Code

3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, pedestrian walkways and tunnels, automatic vehicular gates, awnings and canopies, marquees, signs, towers, antennas, relocatable buildings, swimming pool enclosures and safety devices, ~~and~~ solar energy systems, and public use restroom buildings on publicly owned lands in flood hazard areas.

SECTION ~~3112~~ 3114
PUBLIC USE RESTROOM BUILDINGS IN FLOOD HAZARD AREAS

~~3112~~ 3114.1 General. ~~Public use restroom buildings that contain toilet rooms, bathrooms, showers and changing rooms, and those portions of buildings that contain~~ For the purpose of this section, public restroom buildings are located on publicly owned lands in flood hazard areas and intended for public use. Public restroom buildings and portions of other buildings that contain public restrooms, are limited to toilet rooms, bathrooms, showers and changing rooms~~, and where such~~. Public restroom buildings and portions of buildings ~~are intended for public use and located on publicly owned lands in flood hazard areas,~~ that contain public restrooms shall comply with the requirements of this section. Public use restrooms that are not elevated or dry floodproofed in accordance with Section 1612 shall comply with Section ~~3112~~ 3114.2. Portions of buildings that include uses other than public use toilet rooms, bathrooms, showers and changing rooms shall comply with Section 1612.

~~3112.2~~ 3114.2 Flood resistance. Public use restrooms ~~that are located~~ on publicly owned lands in flood hazard areas shall comply with the requirements of ASCE 24, except for elevation requirements, and shall comply with all of the following criteria:

1. The building footprint is not more than 1,500 square feet.
2. Located, designed and constructed to resist the effects of flood hazards and flood loads to minimize flood damage from a combination of wind and water loads associated with the base flood.
3. Anchored to prevent flotation, collapse or lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy during conditions of the base flood.
4. Constructed of flood damage-resistant materials.
5. Where enclosed by walls, the walls have flood openings.
6. Mechanical and electrical systems are located above the base flood elevation.
7. Plumbing fixtures and plumbing connections are located above the base flood elevation.
8. An emergency plan, approved by the jurisdiction, is submitted to the building official where the building design ~~specifies~~ documents specify implementation of protection measures prior to the onset of flooding conditions.

Exceptions:

1. Minimum necessary electric ~~service~~ equipment required to address health, life safety and electric code requirements is permitted below the base flood elevation in accordance with ASCE 24 provisions for electric elements installed below the minimum elevations.
2. Plumbing fixtures and connections are permitted below the base flood elevation provided the fixtures and connections are designed and installed to minimize or eliminate infiltration of floodwaters into the sanitary sewage system and discharges from sanitary sewage systems into floodwaters.

Commenter's Reason: This public comment addresses issues raised by committee members at the March 13, 2018 Committee Action Hearing by clarifying that this new section applies to public restroom buildings and portions of other buildings that contain public restrooms in flood hazard areas located only on publicly-owned land.

The intent is to provide an alternative to elevating public restrooms in publicly-owned open spaces and parks along rivers and shorelines which otherwise may be challenging to access for persons with limited mobility because of excessively long ramps. Restrooms designed and constructed in accordance with this section, which references ASCE 24, Flood Resistant Design and Construction, will be minimal in nature and designed to resist flooding with minimal, if any damage.

FEMA deployed a Mitigation Assessment Team after Hurricane Irma to investigate damage, including how public restrooms were affected. The results of that field work were not released as of the deadline for submission of this public comment. Florida Division of Emergency Management staff participated in the field work and, along with the other team members, observed some below-BFE small public restrooms designed to resist flood loads that sustained superficial damage (finishes and fixtures) and were readily repairable. At a June 2018 meeting between the Florida Division of Emergency Management and senior management officials with the FEMA Flood Insurance and Mitigation Administration, FEMA concurred with the public comment and indicated the

agency would work to achieve consistency across agency programs to develop guidance or procedures based on the proposed amendment. No opposition to the proposal was expressed during that meeting.

Another clarification to the proposal is to specify the minimum necessary “electric equipment” (rather than “electric service”) that may be below the base flood elevation. ASCE 24 specifies requirements for electric elements installed below minimum required elevations, including conduits and cables; lighting circuits, switches, receptacles, and fixtures; wiring and splices suitable for submergence; and energizing from distribution panels located above and accessible from above flood elevation supplied by branch circuits originating from ground-fault circuit-interrupter breakers. ASCE 24 also requires installations to be in accordance with NFPA 70, National Electric Code. The proponents will submit to ICC proposed text for the commentary volume that describes allowances for light switches and fixtures, GFCI receptacles, exhaust fans, and electrical equipment and attendant utilities that are the minimum necessary to meet health and life safety requirements.

Cost Impact: The net effect of the public comment and code change proposal will decrease the cost of construction
This public comment clarifies the intent and does not change the cost impact submitted as part of the original proposal.

Final Action

G149-18	**AMPC1**

SP9454/G151-18

9

Date Submitted	3/2/2021	**Section**	3114	**Proponent**	Mo Madani
Chapter	31	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Correlates Directly

Comments

General Comments **No**

Related Modifications

3101.1, 3114 (New), 3114.1 (New), 3114.2 (New), 3114.3 (New), 3114.4 (New), 3114.5 (New), 3114.6 (New), 3114.7 (New), 3114.8 (New), 3114.8.1 (New), 3114.8.3 (New), 3114.8.4, 3114.8.5 (New), 3114.8.5.1 (New), 3114.8.5.2 (New), 3114.8.5.3 (New), Reference Standards

Summary of Modification

This code change purpose is to introduce intermodal shipping containers into the International Building Code based on requests by code officials in the U.S.

Rationale

This code change purpose is to introduce intermodal shipping containers into the International Building 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 104.11 “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 set of consistent code provisions which cover the minimum safety requirements, but which do not duplicate existing code provisions.

This proposal covers:

- Creation of a new definition in order to separate the container from other I-code sections which refer to, but intentionally do not define, shipping containers,
- Creating exceptions so to differentiate the intermodal shipping container from other code sections which could be interpreted as applying to intermodal shipping containers under other applications (e.g. temporary storage, relocatable buildings, energy storage facilities, and listed equipment),
- Verification of containers construction, condition, and structural integrity to assist the structural engineer in the evaluation for building construction,

(Please see the uploaded mod G151-18 for the complete text)

Approved as Modified by Public Comment 1,2

Original Proposal:

2018 International Building Code

Add new definition as follows:

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

Revise as follows:

3101.1 Scope. The provisions of this chapter shall govern special building construction including *membrane structures*, temporary structures, *pedestrian walkways* and tunnels, automatic vehicular gates, awnings and *canopies*, marquees, signs, towers, antennas, relocatable buildings, swimming pool enclosures and safety devices, ~~and~~ solar energy ~~systems.~~systems and intermodal shipping containers.

Add new text as follows:

SECTION 3114

INTERMODAL SHIPPING CONTAINERS

3114.1 General. The provisions of Section 3114 and other applicable sections of this code, shall apply to intermodal shipping containers that are repurposed for use as buildings or structures or as a part of buildings or structures.

-

Exceptions:

1. Intermodal shipping containers previously approved as existing relocatable buildings complying with Chapter 14 of the International Existing Building Code.

2. Stationary storage battery arrays located in intermodal shipping containers complying with Chapter 12 of the International Fire Code.

3. Intermodal shipping containers that are listed as equipment complying with the standard for equipment, such as air chillers, engine generators, modular data centers, and other similar equipment.

4. Intermodal shipping containers housing or supporting experimental equipment are exempt from the requirements of Section 3114 provided they comply with all of the following:

   4.1. Such units shall be single stand-alone units supported at grade level and used only for occupancies as specified under Risk Category I in Table 1604.5;.

   4.2. Such units are located a minimum of 8 feet from adjacent structures, and are not connected to a fuel gas system or fuel gas utility; and

   4.3. In hurricane-prone regions and flood hazard areas, such units are designed in accordance with the applicable provisions of Chapter 16.

-

3114.2 Construction Documents. The construction documents shall contain information to verify the dimensions and establish the physical properties of the steel components, and wood floor components, of the intermodal shipping container in addition to the information required by Sections 107 and 1603.

-

3114.3 Intermodal shipping container information. Intermodal shipping containers shall bear an existing data plate containing the following information as required by ISO 6346 and verified by an approved agency. A report of the verification process and findings shall be provided to the building owner.

-

1. Manufacturer's name or identification number

2. Date manufactured.

3. Safety approval number.

4. Identification number.

5. Maximum operating gross mass or weight (kg) (Lbs)

6. Allowable stacking load for 1.8G (kg) (lbs)

7. Transverse racking test force (Newtons)

8. Valid maintenance examination date

Where approved by the building official, the markings and existing data plateare permitted to be removed from the intermodal shipping containers before they are repurposed for use as buildings or structures or as a part of buildings or structures.

3114.4 Protection against decay and termites. Wood structural floors of intermodal shipping containers shall be protected from decay and termites in accordance with the applicable provisions of Section 2304.12.1.1.

3114.5 Under-floor ventilation. The space between the bottom of the floor joists and the earth under any intermodal shipping container, except spaces occupied by basements and cellars, shall be provided with ventilation in accordance with Section 1202.4.

3114.6 Roof assemblies. Intermodal shipping container roof assemblies shall comply with the applicable requirements of Chapter 15.

-

Exception: Single-unit stand-alone intermodal shipping containers not attached to, or stacked vertically over, other intermodal shipping containers, buildings or structures.

3114.7 Joints and voids. Joints and voids that create concealed spaces between intermodal shipping containers, that are connected or stacked, at fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved fire-resistant joint system in accordance with Section 715.

3114.8 Structural. Intermodal shipping containers which conform to ISO 1496-1 that are repurposed for use as buildings or structures, or as a part of buildings or structures, shall be designed in accordance with Chapter 16 and this section.

3114.8.1 Foundations. Intermodal shipping containers repurposed for use as a permanent building or structure shall be supported on foundations or other supporting structures designed and constructed in accordance with Chapters 16 through 23 of this code.

Add new text as follows:

3114.8.1.1 Anchorage. Intermodal shipping containers shall be anchored to foundations or other supporting structures as necessary to provide a continuous load path for all applicable design and environmental loads in accordance with Chapter 16.

3114.8.2 Welds. All new welds and connections shall be equal to or greater than the original connections.

3114.8.3 Structural design. The structural design for the intermodal shipping containers repurposed for use as a building or structure, or as part of a building or structure, shall comply with Section 3114.8.4 or 3114.8.5.

3114.8.4 Detailed design procedure. A structural analysis meeting the requirements of this section shall be provided to the building official to demonstrate the structural adequacy of the intermodal shipping containers.

-

Exception: Intermodal shipping containers designed in accordance with Section 3114.8.5.

3114.8.4.1 Material properties. Structural material properties for existing intermodal shipping container steel components shall be established by material testing where the steel grade and composition cannot be identified by the manufacturer's designation as to manufacture and mill test.

-

3114.8.4.2 Seismic design parameters. The seismic force-resisting system shall be designed and detailed in accordance with one of the following:

-

1. Where all or portions of the corrugated steel container sides are considered to be the seismic force-resisting system, design and detailing shall be in accordance with the ASCE 7 Table 12.2-1 requirements for light-frame bearing-wall systems with shear panels of all other materials.

2. Where portions of the corrugated steel container sides are retained, but are not considered to be the seismic force-resisting system, an independent seismic force-resisting system shall be selected, designed and detailed in accordance with ASCE 7 Table 12.2-1, or

3. Where portions of the corrugated steel container sides are retained and integrated into a seismic force-resisting system other than as permitted by Section 3114.4.2 Item 1, seismic design parameters shall be developed from testing and analysis in accordance with Section 104.11 and ASCE 7 Section 12.2.1.1 or 12.2.1.2.

3114.8.4.3 Allowable shear value. The allowable shear values for the intermodal shipping container corrugated steel sheet panel side walls and end walls shall be demonstrated by testing and analysis

accordance with Section 104.11. Where penetrations are made in the side walls or end walls designated as part of the lateral force-resisting system, the penetrations shall be substantiated by rational analysis.

3114.8.5 Simplified structural design of single-unit containers. Single-unit intermodal shipping containers conforming to the limitations of Section 3114.8.5.1 shall be permitted to be designed in accordance with the simplified structural design provisions of Section 3114.8.5.

3114.8.5.1 Limitations. Use of Section 3114.8.5 is subject to all the following limitations:

-

1. The intermodal shipping container shall be a single-unit, stand-alone unit supported on a foundation and shall not be in contact with or supporting any other shipping container or other structure.

2. The intermodal shipping container top and bottom rails, corner castings, and columns or any portion thereof shall not be notched, cut, or removed in any manner.

3. The intermodal shipping container shall be erected in a level and horizontal position with the floor located at the bottom.

4. The intermodal shipping container shall be located in Seismic Design Category A, B, C or D.

-

3114.8.5.2 Simplified structural design. Where permitted by Section 3114.8.5.1, single-unit, stand-alone intermodal shipping containers shall be designed using the following assumptions for the corrugated steel shear walls:

-

1. The appropriate detailing requirements contained in Chapters 16 through 23.

2. Response modification coefficient, R=2,

3. Overstrength factor, ?0=2.5,

4. Deflection amplification factor, Cd = 2, and

5. Limits on structural height, hn = 9.5 feet (2,900 mm).

3114.8.5.3 Allowable shear. The allowable shear for the corrugated steel side walls (longitudinal) and end walls (transverse) for wind design and for seismic design using the coefficients of Section 3114.8.5.2 shall be in accordance with Table 3114.8.5.3 provided that all of the following conditions are met:

-

1. The total linear length of all openings in any individual side walls or end walls shall be limited to not more than 50% of the length of that side walls or end walls, as shown in Figure 3114.8.5.3(1).

2. Any full height wall length, or portion thereof, less than 4 feet (305 mm) long shall not be considered as a portion of the lateral force-resisting system, as shown in Figure 3114.8.5.3(2).

3. All side walls or end walls used as part of the lateral force-resisting system shall have an existing or new boundary element on all sides to form a continuous load path, or paths, with adequate strength and stiffness to transfer all forces from the point of application to the final point of resistance, as shown in Figure 3114.8.5.3(3).

4. Where openings are made in container walls, floors, or roofs for doors, windows and other openings:

   4.1. The openings shall be framed with steel elements that are designed in accordance with Chapter 16 and Chapter 22.

   4.2. The cross section and material grade of any new steel element shall be equal to or greater than the steel element removed.

5. A maximum of one penetration not greater than a 6-inch (152 mm) diameter hole for conduits, pipes, tubes or vents, or not greater than 16 square inches (10,322 sq mm) for electrical boxes, is permitted for each individual 8 foot length (2,438 mm) lateral force resisting wall. Penetrations located in walls that are not part of the wall lateral force resisting system shall not be limited in size or quantity. Existing intermodal shipping container vents shall not be considered a penetration, as shown in Figure 3114.8.5.3(4).

6. End wall door or doors designated as part of the lateral force-resisting system shall be welded closed.

(Please see the uploaded mod G151-18 for the Images)

FIGURE 3114.8.5.3(1)
BRACING UNIT DISTRIBUTION--MAXIMUM LINEAR LENGTH

-

FIGURE 3114.8.5.3(2)
BRACING UNIT DISTRIBUTION -- MINIMUM LINEAR LENGTH
FIGURE 3114.8.5.3(3)
BRACING UNIT DISTRIBUTION -- BOUNDARY ELEMENTS

-

FIGURE 3114.8.5.3(4)
BRACING UNIT DISTRIBUTION -- PENETRATION LIMITATIONS

-

Add new text as follows:

-

TABLE 3114.8.5.3
ALLOWABLE STRENGTH VALUES FOR INTERMODAL SHIPPING CONTAINER CORRUGATED STEEL SIDING SHEAR WALLS FOR WIND OR SEISMIC LOADING

CONTAINER DESIGNATION[b]	CONTAINER DIMENSION	CONTAINER DIMENSION (Nominal Height)	ALLOWABLE SHEAR VALUES (PLF)[a,c]

	(Nominal Length)			
			Side Wall	End Wall
1EEE	45 feet (13.7 M)	9.5 feet (2896 mm)	75	843
1EE		8.6 feet (2591 mm)		
1AAA	40 feet (12.2 M)	9.5 feet (2896 mm)	84	
1AA		8.5 feet (2592 mm)		
1A		8.0 feet (2438 mm)		
1AX		< 8.0 feet (2438 mm)		
1BBB	30 feet (9.1 M)	9.5 feet (2896 mm)	112	
1BB		8.5 feet (2591 mm)		
1B		8.0 feet (2438 mm)		
1BX		< 8.0 feet (2438 mm)		
1CC	20 feet (9.1 M)	8.5 feet (2591 mm)	168	
1C		8.0 feet (2438 mm)		
1CX		< 8.0 feet (2438 mm)		
1D	10 feet (3.0 M)	8.0 feet (2438 mm)	337	
1DX		< 8.0 feet (2438 mm)		

a. The allowable strength shear for the side walls and end walls of the intermodal shipping containers are derived from ISO 1496-1 and reduced by a factor of safety of 5.
b. Container designation type is derived from ISO 668.
c. Limitations of Sections 3114.8.5.1 shall apply

Add new standard(s) follows:

ISO
ISO 668: 2013: Series 1 Freight Containers - Classifications, dimensions and ratings
ISO 1496-1: 2013: Series 1 Freight Containers - Specification and Testing - Part 1: General Cargo Containers for General Purposes
ISO 6346: 1995, with Amendment 3: 2012: Freight Containers - Coding, Identification and marking

Modified Proposal PC1:

2018 International Building Code

3114.1 General. The provisions of Section 3114 and other applicable sections of this code, shall apply to intermodal shipping containers that are repurposed for use as buildings or structures or as a part of buildings or structures.

Exceptions:

1. Intermodal shipping containers previously approved as existing relocatable buildings complying with Chapter 14 of the International Existing Building Code.
2. Stationary storage battery arrays located in intermodal shipping containers complying with Chapter 12 of the International Fire Code.

3. Intermodal shipping containers that are listed as equipment complying with the standard for equipment, such as air chillers, engine generators, modular data centers, and other similar equipment.

4. Intermodal shipping containers housing or supporting experimental equipment are exempt from the requirements of Section 3114 provided they comply with all of the following:

4.1. Such units shall be single stand-alone units supported at grade level and used as experimental equipment or apparatuses, only for occupancies as specified under Risk Category I in Table 1604.5;

4.2. Such units are located a minimum of 8 feet from adjacent structures, and are not connected to a fuel gas system or fuel gas utility; and

4.3 .In hurricane-prone regions and flood hazard areas, such units are designed in accordance with the applicable provisions of Chapter 16

Modified Proposal PC2:

2018 International Building Code

TABLE 3114.8.5.3

ALLOWABLE SHEAR VALUES FOR INTERMODAL SHIPPING CONTAINER CORRUGATED STEEL ~~SIDING SHEAR~~ WALLS FOR WIND OR SEISMIC LOADING

CONTAINER DESIGNATION[b]	CONTAINER DIMENSION (Nominal Length)	CONTAINER DIMENSION (Nominal Height)	ALLOWABLE SHEAR VALUES (PLF)[a, c]		
			Side Wall	End Wall	
1EEE	45 feet (13.7 M)	9.5 feet (2896 mm)	75	843	
1EE		8.6 feet (2591 mm)			
1AAA	40 feet (12.2 M)	9.5 feet (2896 mm)	84		
1AA		8.5 feet (2592 mm)			
1A		8.0 feet (2438 mm)			
1AX					
1BBB	30 feet (9.1 M)	9.5 feet (2896 mm)	112		
1BB		8.5 feet (2591 mm)			
1B		8.0 feet (2438 mm)			
1BX					
1CC	20 feet (9.1 M)	8.5 feet (2591 mm)	168		
1C		8.0 feet (2438 mm)			
1CX					
1D	10 feet (3.0 M)	8.0 feet (2438 mm)	337		
1DX					

a. The allowable shear for the side walls and end walls of the intermodal shipping containers are derived from ISO 1496-1 and reduced by a factor of safety of 5.

b. Container designation type is derived from ISO 668.

c. Limitations of Sections 3114.8.5.1 shall apply

3114.8.4.2 Seismic design parameters. The seismic force-resisting system shall be designed and detailed in accordance with one of the following:

1. Where all or portions of the corrugated steel container sides are considered to be the seismic force-resisting system, design and detailing shall be in accordance with the ASCE 7 Table 12.2-1 requirements for light-frame bearing-wall systems with shear panels of all other materials,

2. Where portions of the corrugated steel container sides are retained, but are not considered to be the seismic force-resisting system, an independent seismic force-resisting system shall be selected, designed and detailed in accordance with ASCE 7 Table 12.2-1, or

3. Where portions of the corrugated steel container sides are retained and integrated into a seismic force-resisting system other than as permitted by Section 3114.4.2 Item 1, seismic design parameters shall be developed from testing and analysis in accordance with Section 104.11 and ASCE 7 Section 12.2.1.1 or 12.2.1.2.

(Please see uploaded mod G151-18 for the Images)

FIGURE 3114.8.5.3(1)

BRACING UNIT DISTRIBUTION--MAXIMUM LINEAR LENGTH

3114.8.5.3(2)

Bracing Unit Distribution -- Minimum Linear Length

FIGURE 3114.8.5.3(3)

BRACING UNIT DISTRIBUTION -- BOUNDARY ELEMENTS

FIGURE 3114.8.5.3(4)

BRACING UNIT DISTRIBUTION -- PENETRATION LIMITATIONS

Code Change No: G151-18

Original Proposal

Section(s): 3101.1, 3114 (New), 3114.1 (New), 3114.2 (New), 3114.3 (New), 3114.4 (New), 3114.5 (New), 3114.6 (New), 3114.7 (New), 3114.8 (New), 3114.8.1 (New), 3114.8.1.1 (New), 3114.8.2 (New), 3114.8.3 (New), 3114.8.4 (New), 3114.8.4.1 (New), 3114.8.4.2 (New), 3114.8.4.3 (New), 3114.8.5 (New), 3114.8.5.1 (New), 3114.8.5.2 (New), 3114.8.5.3 (New), 3114.8.5.3(1) (New), 3114.8.5.3(2) (New), 3114.8.5.3(4) (New), 3114.8.5.3(3) (New), 3114.8.5.3 (New), Chapter 35

Proponent: Ed Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2018 International Building Code

Add new definition as follows:

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

Revise as follows:

3101.1 Scope. The provisions of this chapter shall govern special building construction including *membrane structures*, temporary structures, *pedestrian walkways* and tunnels, automatic vehicular gates, awnings and *canopies*, marquees, signs, towers, antennas, relocatable buildings, swimming pool enclosures and safety devices, ~~and~~ solar energy ~~systems.~~ systems and intermodal shipping containers.

Add new text as follows:

SECTION 3114
INTERMODAL SHIPPING CONTAINERS

3114.1 General. The provisions of Section 3114 and other applicable sections of this code, shall apply to intermodal shipping containers that are repurposed for use as buildings or structures or as a part of buildings or structures.

Exceptions:

1. Intermodal shipping containers previously approved as existing relocatable buildings complying with Chapter 14 of the International Existing Building Code.
2. Stationary storage battery arrays located in intermodal shipping containers complying with Chapter 12 of the International Fire Code.
3. Intermodal shipping containers that are listed as equipment complying with the standard for equipment, such as air chillers, engine generators, modular data centers, and other similar equipment.
4. Intermodal shipping containers housing or supporting experimental equipment are exempt from the requirements of Section 3114 provided they comply with all of the following:
   - 4.1. Such units shall be single stand-alone units supported at grade level and used only for occupancies as specified under Risk Category I in Table 1604.5;.
   - 4.2. Such units are located a minimum of 8 feet from adjacent structures, and are not connected to a fuel gas system or fuel gas utility; and

4.3. In hurricane-prone regions and flood hazard areas, such units are designed in accordance with the applicable provisions of Chapter 16.

3114.2 Construction Documents. The construction documents shall contain information to verify the dimensions and establish the physical properties of the steel components, and wood floor components, of the intermodal shipping container in addition to the information required by Sections 107 and 1603.

3114.3 Intermodal shipping container information. Intermodal shipping containers shall bear an existing data plate containing the following information as required by ISO 6346 and verified by an approved agency. A report of the verification process and findings shall be provided to the building owner.

1. Manufacturer's name or identification number
2. Date manufactured.
3. Safety approval number.
4. Identification number.
5. Maximum operating gross mass or weight (kg) (Lbs)
6. Allowable stacking load for 1.8G (kg) (lbs)
7. Transverse racking test force (Newtons)
8. Valid maintenance examination date

Where approved by the building official, the markings and existing data plateare permitted to be removed from the intermodal shipping containers before they are repurposed for use as buildings or structures or as a part of buildings or structures.

3114.4 Protection against decay and termites. Wood structural floors of intermodal shipping containers shall be protected from decay and termites in accordance with the applicable provisions of Section 2304.12.1.1.

3114.5 Under-floor ventilation. The space between the bottom of the floor joists and the earth under any intermodal shipping container, except spaces occupied by basements and cellars, shall be provided with ventilation in accordance with Section 1202.4.

3114.6 Roof assemblies. Intermodal shipping container roof assemblies shall comply with the applicable requirements of Chapter 15.

Exception: Single-unit stand-alone intermodal shipping containers not attached to, or stacked vertically over, other intermodal shipping containers, buildings or structures.

3114.7 Joints and voids. Joints and voids that create concealed spaces between intermodal shipping containers, that are connected or stacked, at fire-resistance-rated walls, floor or floor/ceiling assemblies and roofs or roof/ceiling assemblies shall be protected by an approved fire-resistant joint system in accordance with Section 715.

3114.8 Structural. Intermodal shipping containers which conform to ISO 1496-1 that are repurposed for use as buildings or structures, or as a part of buildings or structures, shall be designed in accordance with Chapter 16 and this section.

3114.8.1 Foundations. Intermodal shipping containers repurposed for use as a permanent building or structure shall be supported on foundations or other supporting structures designed and constructed in accordance with Chapters 16 through 23 of this code.

Add new text as follows:

3114.8.1.1 Anchorage. Intermodal shipping containers shall be anchored to foundations or other supporting structures as necessary to provide a continuous load path for all applicable design and environmental loads in accordance with Chapter 16.

3114.8.2 Welds. All new welds and connections shall be equal to or greater than the original connections.
3114.8.3 Structural design. The structural design for the intermodal shipping containers repurposed for use as a building or structure, or as part of a building or structure, shall comply with Section 3114.8.4 or 3114.8.5.

3114.8.4 Detailed design procedure. A structural analysis meeting the requirements of this section shall be provided to the building official to demonstrate the structural adequacy of the intermodal shipping containers.

Exception: Intermodal shipping containers designed in accordance with Section 3114.8.5.

3114.8.4.1 Material properties. Structural material properties for existing intermodal shipping container steel components shall be established by material testing where the steel grade and composition cannot be identified by the manufacturer's designation as to manufacture and mill test.

3114.8.4.2 Seismic design parameters. The seismic force-resisting system shall be designed and detailed in accordance with one of the following:

1. Where all or portions of the corrugated steel container sides are considered to be the seismic force-resisting system, design and detailing shall be in accordance with the ASCE 7 Table 12.2-1 requirements for light-frame bearing-wall systems with shear panels of all other materials,
2. Where portions of the corrugated steel container sides are retained, but are not considered to be the seismic force-resisting system, an independent seismic force-resisting system shall be selected, designed and detailed in accordance with ASCE 7 Table 12.2-1, or
3. Where portions of the corrugated steel container sides are retained and integrated into a seismic force-resisting system other than as permitted by Section 3114.4.2 Item 1, seismic design parameters shall be developed from testing and analysis in accordance with Section 104.11 and ASCE 7 Section 12.2.1.1 or 12.2.1.2.

3114.8.4.3 Allowable shear value. The allowable shear values for the intermodal shipping container corrugated steel sheet panel side walls and end walls shall be demonstrated by testing and analysis accordance with Section 104.11. Where penetrations are made in the side walls or end walls designated as part of the lateral force-resisting system, the penetrations shall be substantiated by rational analysis.

3114.8.5 Simplified structural design of single-unit containers. Single-unit intermodal shipping containers conforming to the limitations of Section 3114.8.5.1 shall be permitted to be designed in accordance with the simplified structural design provisions of Section 3114.8.5.

3114.8.5.1 Limitations. Use of Section 3114.8.5 is subject to all the following limitations:

1. The intermodal shipping container shall be a single-unit, stand-alone unit supported on a foundation and shall not be in contact with or supporting any other shipping container or other structure.
2. The intermodal shipping container top and bottom rails, corner castings, and columns or any portion thereof shall not be notched, cut, or removed in any manner.
3. The intermodal shipping container shall be erected in a level and horizontal position with the floor located at the bottom.
4. The intermodal shipping container shall be located in Seismic Design Category A, B, C or D.

3114.8.5.2 Simplified structural design. Where permitted by Section 3114.8.5.1, single-unit, stand-alone intermodal shipping containers shall be designed using the following assumptions for the corrugated steel shear walls:

1. The appropriate detailing requirements contained in Chapters 16 through 23.
2. Response modification coefficient, R=2,

3. **Overstrength factor, Ω0=2.5,**
4. Deflection amplification factor, Cd = 2, and
5. Limits on structural height, hn = 9.5 feet (2,900 mm).

3114.8.5.3 Allowable shear. The allowable shear for the corrugated steel side walls (longitudinal) and end walls (transverse) for wind design and for seismic design using the coefficients of Section 3114.8.5.2 shall be in accordance with Table 3114.8.5.3 provided that all of the following conditions are met:

1. The total linear length of all openings in any individual side walls or end walls shall be limited to not more than 50% of the length of that side walls or end walls, as shown in Figure 3114.8.5.3(1).
2. Any full height wall length, or portion thereof, less than 4 feet (305 mm) long shall not be considered as a portion of the lateral force-resisting system, as shown in Figure 3114.8.5.3(2).
3. All side walls or end walls used as part of the lateral force-resisting system shall have an existing or new boundary element on all sides to form a continuous load path, or paths, with adequate strength and stiffness to transfer all forces from the point of application to the final point of resistance, as shown in Figure 3114.8.5.3(3).
4. Where openings are made in container walls, floors, or roofs for doors, windows and other openings:
   4.1. The openings shall be framed with steel elements that are designed in accordance with Chapter 16 and Chapter 22.
   4.2. The cross section and material grade of any new steel element shall be equal to or greater than the steel element removed.
5. A maximum of one penetration not greater than a 6-inch (152 mm) diameter hole for conduits, pipes, tubes or vents, or not greater than 16 square inches (10,322 sq mm) for electrical boxes, is permitted for each individual 8 foot length (2,438 mm) lateral force resisting wall. Penetrations located in walls that are not part of the wall lateral force resisting system shall not be limited in size or quantity. Existing intermodal shipping container vents shall not be considered a penetration, as shown in Figure 3114.8.5.3(4).
6. End wall door or doors designated as part of the lateral force-resisting system shall be welded closed.

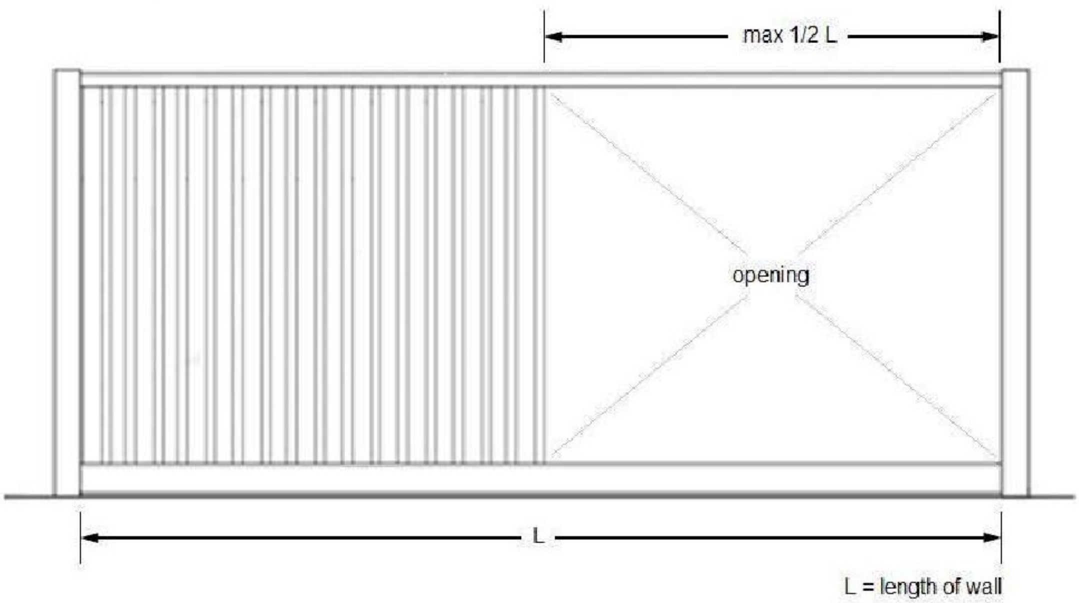


FIGURE 3114.8.5.3(1)
BRACING UNIT DISTRIBUTION--MAXIMUM LINEAR LENGTH

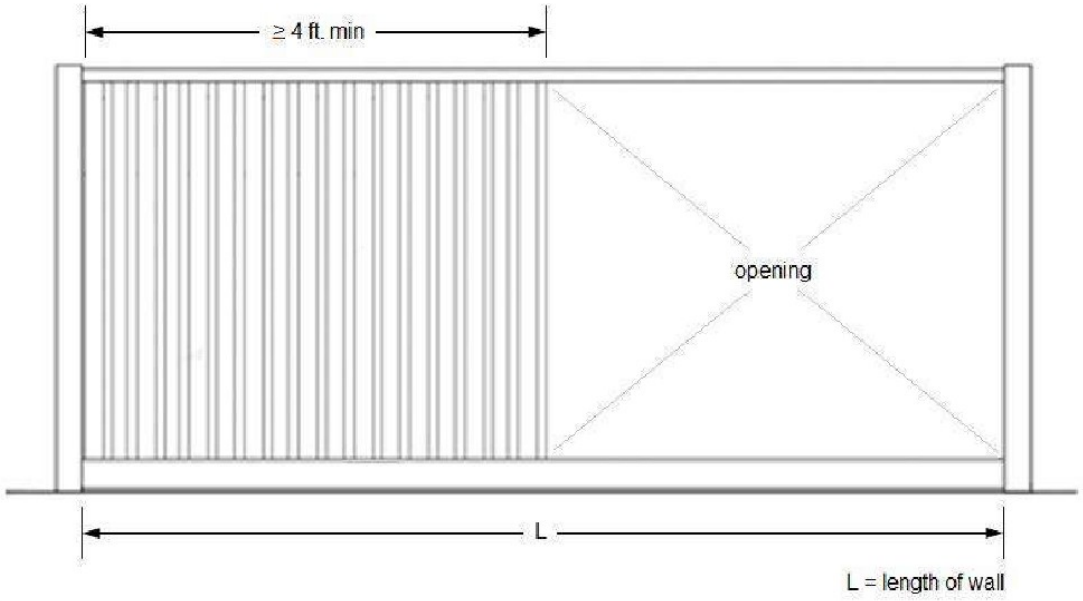


FIGURE 3114.8.5.3(2)
BRACING UNIT DISTRIBUTION -- MINIMUM LINEAR LENGTH

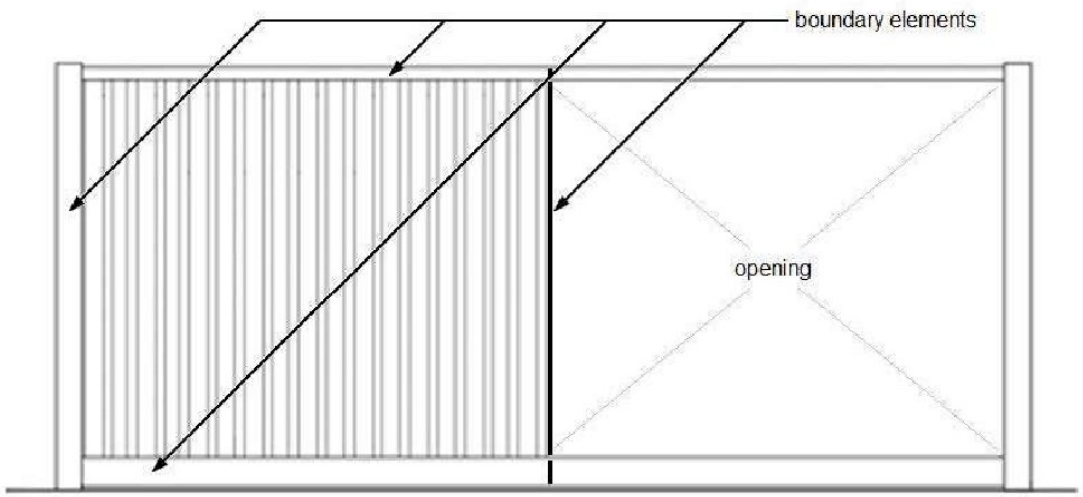


FIGURE 3114.8.5.3(3)
BRACING UNIT DISTRIBUTION -- BOUNDARY ELEMENTS

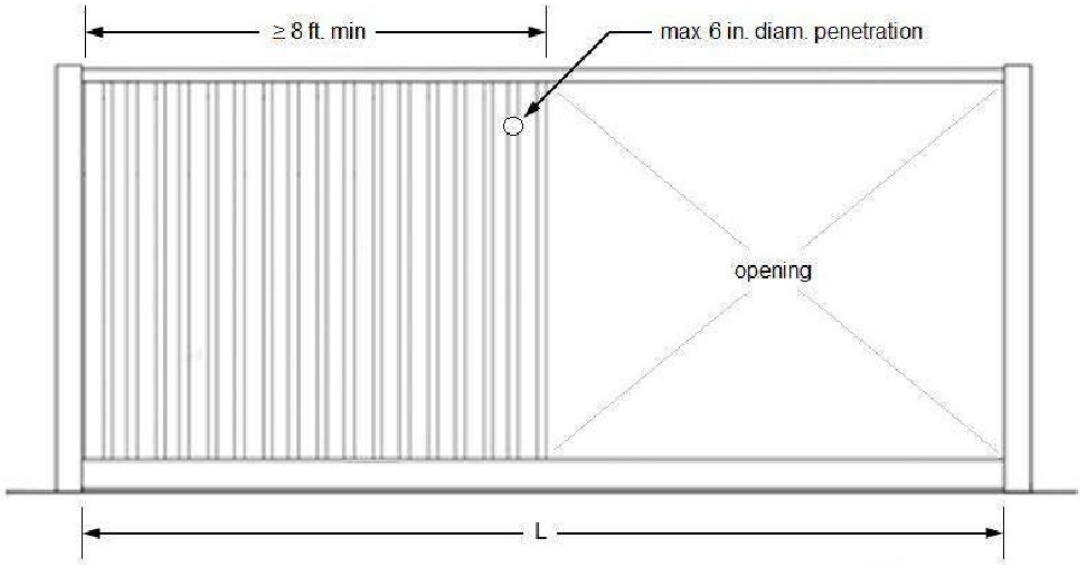


FIGURE 3114.8.5.3(4)
BRACING UNIT DISTRIBUTION -- PENETRATION LIMITATIONS

Add new text as follows:

TABLE 3114.8.5.3
ALLOWABLE STRENGTH VALUES FOR INTERMODAL SHIPPING CONTAINER CORRUGATED STEEL SIDING SHEAR WALLS FOR WIND OR SEISMIC LOADING

CONTAINER DESIGNATION[b]	CONTAINER DIMENSION (Nominal Length)	CONTAINER DIMENSION (Nominal Height)	ALLOWABLE SHEAR VALUES (PLF)[a,c]	
			Side Wall	End Wall
1EEE	45 feet (13.7 M)	9.5 feet (2896 mm)	75	843
1EE		8.6 feet (2591 mm)		
1AAA	40 feet (12.2 M)	9.5 feet (2896 mm)	84	
1AA		8.5 feet (2592 mm)		
1A		8.0 feet (2438 mm)		
1AX		< 8.0 feet (2438 mm)		
1BBB	30 feet (9.1 M)	9.5 feet (2896 mm)	112	
1BB		8.5 feet (2591 mm)		
1B		8.0 feet (2438 mm)		
1BX		< 8.0 feet (2438 mm)		
1CC	20 feet (9.1 M)	8.5 feet (2591 mm)	168	
1C		8.0 feet (2438 mm)		
1CX		< 8.0 feet (2438 mm)		
1D	10 feet (3.0 M)	8.0 feet (2438 mm)	337	
1DX		< 8.0 feet (2438 mm)		

a. The allowable strength shear for the side walls and end walls of the intermodal shipping containers are derived from ISO 1496-1 and reduced by a factor of safety of 5.
b. Container designation type is derived from ISO 668.
c. Limitations of Sections 3114.8.5.1 shall apply

Add new standard(s) follows:

ISO

<u>ISO 668: 2013:</u>	**<u>Series 1 Freight Containers - Classifications, dimensions and ratings</u>**
<u>ISO 1496-1: 2013:</u>	**<u>Series 1 Freight Containers - Specification and Testing - Part 1: General Cargo Containers for General Purposes</u>**
<u>ISO 6346:</u>	**<u>1995, with Amendment 3: 2012: Freight Containers - Coding, Identification and marking</u>**

Reason: This code change purpose is to introduce intermodal shipping containers into the International Building 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 104.11 "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 set of consistent code provisions which cover the minimum safety requirements, but which do not duplicate existing code provisions.

This proposal covers:

- Creation of a new definition in order to separate the container from other I-code sections which refer to, but intentionally do not define, shipping containers,
- Creating exceptions so to differentiate the intermodal shipping container from other code sections which could be interpreted as applying to intermodal shipping containers under other applications (e.g. temporary storage, relocatable buildings, energy storage facilities, and listed equipment),
- Verification of containers construction, condition, and structural integrity to assist the structural engineer in the evaluation for building construction,
- References to other sections concerning foundations, decay and termite control, crawlspace ventilation, roof assemblies, interior finishes, and joints/intersections.
- Introduction of structural provisions unique to intermodal shipping containers and which do not duplicate the existing structural requirements, and
- Addition of three ISO standards for reference.

Chapter 2 - New definition - A new definition has been created in order that these provisions can be adequately enforced and not confused the other multiple varieties of definitions of containers currently in the market.

Section 3114.1 – This represents the charging statement that outlines the requirements for containers, and list the appropriate exceptions with the I-codes in order to coordinate with other provisions that may appear similar in nature and where intermodal shipping containers could possibly be used in those other applications.

Section 3114.2 –Construction documents – These provision emphasize the material requirements as specified in this section.

Section 3114.3 – Verification - These provisions focus on the characteristics of the intermodal shipping container prior to it being repurposed. In this case the provisions require a straight forward inspection by an approved agency, and verification of the data plate which is normally found on intermodal shipping containers. There was an intent not to specify who the approved agency would be for two reasons; 1) so as to allow the code official or state law(s) to handle this aspect recognizing that in each jurisdiction their requirements may be different, and 2) to avoid dictating an international agreement onto jurisdictions that are currently employed by the shipping and container manufacturers worldwide today. In this case, the standards are regulated by the International Convention of Safe Containers (CSC) that have policies and procedures for inspecting containers worldwide. These procedures include policies for Approved Continuous Examination Program (ACEP) at the time the container is used in production, and policies for third party inspection agencies. The list shown in this section is a extract from the ISO standard and serves as a reference of items to be verified in order to validate the type of container.

3114.4 through 3114.6 – While we have strived to focus on only those provisions that recognize the unique aspects of intermodal shipping containers, we felt that some direction references were appropriate. In this case specific pointers are provided to foundations, decay and termite control, crawlspace ventilation, and roof requirements addressing drainage and weather protection.

3114.7 – Joints and voids – This provision is provided to address the interstitial spaces that may be created when multiple intermodal shipping containers are connected or stacked, whereby that concealed space between the containers is protected to prevent fire and hot gasses from passing between containers.

Section 3114.8 – Structural - The structural provisions are divided into multiple categories, as follows: 1) the general characteristics for all containers; 2) engineered structural design; and 3) simplified method for single-unit stand-alone container.

3114.8.1 – Foundations or supports – Provisions have been included to outline the two options for securing the container; a foundation or the connection to another structure. This provision makes it clear that the load path anchorage is required for all containers and to ensure the designed performance provided by the remainder of the structural provisions.

3114.8.2 – Welds – An additional provision has been added to require that any new welds be designed and installed with welds of greater structural capabilities.

Section 3114.8.4 – Detailed structural analysis - The detailed analysis engineering approach represents the general engineering practice allowed for all other types of building constructions. For this section the engineer of record is allowed to practice as they normally would for any other building type. As may be noted much of this section requires submission through the alternative means and methods provisions in order to obtain a permit as information about intermodal shipping containers is not readily listed in the IBC provisions or referenced standards.

Section 3114.8.5 – Simplified analysis - The concept for the single container approach is to make the design and construction process simpler. The provisions include a strict listing of limitations for use of these provisions. The proposal also provides structural

design information, and pre-established shear wall information that is contained in the ISO 1496-1 standard, which is used to design and construct intermodal shipping containers. The shear wall values were obtained from the ISO 1496-1 standard through engineering analysis using a factor of safety of 5. In addition, a provision was installed to limit the number and size of openings and service holes within the container, as well as to prevent building owners or designers from embellishing the size to something most engineers would define as an opening. This method is intended to address the simple structure approach and provide available information for use by the structural engineer to supplement their work.

Chapter 35 – Referenced Standards – Included with this proposal are three ISO standards which are relevant to the intermodal shipping container's construction. These standards are part of the industry standards regulated by the International Convention of Safe Containers (CSC) that have policies and procedures for inspecting containers worldwide.

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:

The code change proposal will decrease the cost of construction

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.

Analysis: A review of the standards proposed for inclusion in the code, ISO 668, ISO 1496-1 and ISO 6346, with regard to the ICC criteria for referenced standards (Section 3.6 of CP#28) will be posted on the ICC website on or before April 2, 2018.

Report of Committee Action Hearings

Errata: This proposal includes published errata
The proposed table has been corrected.

Committee Action: **Approved as Modified**

Committee Modification:

3114.1 General. The provisions of Section 3114 and other applicable sections of this code, shall apply to intermodal shipping containers that are repurposed for use as buildings or structures or as a part of buildings or structures.

Exceptions:

1. Intermodal shipping containers previously approved as existing relocatable buildings complying with Chapter 14 of the International Existing Building Code.
2. Stationary storage battery arrays located in intermodal shipping containers complying with Chapter 12 of the International Fire Code.
3. Intermodal shipping containers that are listed as equipment complying with the standard for equipment, such as air chillers, engine generators, modular data centers, and other similar equipment.
4. Intermodal shipping containers used as experimental equipment or apparatuses.

3114.3 Intermodal shipping container information. Intermodal shipping containers shall bear an existing data plate containing the following information as required by ISO 6346 and verified by an approved agency. A report of the verification process and findings shall be provided to the building owner.

1. Manufacturer's name or identification number
2. Date manufactured.
3. Safety approval number.
4. Identification number.
5. Maximum operating gross mass or weight (kg) (Lbs)
6. Allowable stacking load for 1.8G (kg) (lbs)
7. Transverse racking test force (Newtons)
8. Valid maintenance examination date

Where approved by the building official, the markings and existing data are permitted to be removed from the intermodal shipping

containers before they are repurposed for use as buildings or structures or as a part of buildings or structures.

3114.8.4.2 Seismic design parameters. ~~The appropriate detailing requirements of ASCE 7; response modification coefficient, R; overstrength factor; deflection amplification factor, Cd; and limits on structural height, hn, for the corrugated shear wall is permitted to be developed in accordance with generally accepted procedures where approved by the building official in accordance with Section 104.11.~~ The seismic force-resisting system shall be designed and detailed in accordance with one of the following:

1. Where all or portions of the corrugated steel container sides are considered to be the seismic force-resisting system, design and detailing shall be in accordance with the ASCE 7 Table 12.2-1 requirements for light-frame bearing-wall systems with shear panels of all other materials.
2. Where portions of the corrugated steel container sides are retained, but are not considered to be the seismic force-resisting system, an independent seismic force-resisting system shall be selected, designed and detailed in accordance with ASCE 7 Table 12.2-1, or
3. Where portions of the corrugated steel container sides are retained and integrated into a seismic force-resisting system other than as permitted by Section 3114.4.2 Item 1, seismic design parameters shall be developed from testing and analysis in accordance with Section 104.11 and ASCE 7 Section 12.2.1.1 or 12.2.1.2.

3114.8.5.3 Allowable shear. The allowable shear for the corrugated steel side walls (longitudinal) and end walls (transverse) for wind design and for seismic design using the coefficients of Section 3114.8.5.2 shall be ~~permitted to have the allowable shear values set forth in~~ in accordance with Table 3114.8.5.3 provided that all of the following conditions are met:

1. The total linear length of all openings in any individual side walls or end walls shall be limited to not more than 50% of the length of that side walls or end walls, as shown in Figure 3114.8.5.3(1).
2. Any full height wall length, or portion thereof, less than 4 feet (305 mm) long shall not be considered as a portion of the lateral force-resisting system, as shown in Figure 3114.8.5.3(2).
3. All side walls or end walls used as part of the lateral force-resisting system shall have an existing or new boundary element on all sides to form a continuous load path, or paths, with adequate strength and stiffness to transfer all forces from the point of application to the final point of resistance, as shown in Figure 3114.8.5.3(3).
4. Where openings are made in container walls, floors, or roofs for doors, windows and other openings: 4.1. The openings shall be framed with steel elements that are designed in accordance with Chapter 16 and Chapter 4.2. The cross section and material grade of any new steel element shall be equal to or greater than the steel element removed.
5. A maximum of one penetration not greater than a 6-inch (152 mm) diameter hole for conduits, pipes, tubes or vents, or not greater than 16 square inches (10,322 sq mm) for electrical boxes, is permitted for each individual 8 foot length (2,438 mm) lateral force resisting wall. Penetrations located in walls that are not part of the wall lateral force resisting system shall not be limited in size or quantity. Existing intermodal shipping container vents shall not be considered a penetration, as shown in Figure 3114.8.5.3(4).
6. End wall door or doors designated as part of the lateral force-resisting system shall be welded closed.

TABLE 3114.8.5.3
ALLOWABLE ~~STRENGTH~~ SHEAR VALUES FOR INTERMODAL SHIPPING CONTAINER CORRUGATED STEEL SIDING SHEAR WALLS FOR WIND OR SEISMIC LOADING

(No changes to body of table)

a. The allowable ~~strength~~ shear for the side walls and end walls of the intermodal shipping containers are derived from ISO 1496-1 and reduced by a factor of safety of 5.
b. Container designation type is derived from ISO 668.
c. Limitations of Sections 3114.8.5.1 shall apply

(Portions of proposal not shown are not modified)

Committee Reason: The modifications add clarifications that will help the approval process go smoothly, but the committee would like to see a public comment to change the term "corrugated" container to "intermodal" container to be consistent with other language in the proposal. Other discrepancies in the modifications are minor and could also be cleaned up in the public comment process. The proposal addresses a need for guidance regarding the approval of intermodal shipping containers in the context of the building code. (Vote: 14-0)

Assembly Action: **None**

Public Comments

Public Comment 1:

Ed Kullik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests As Modified by Public Comment

Modify as follows:

2018 International Building Code

3114.1 General. The provisions of Section 3114 and other applicable sections of this code, shall apply to intermodal shipping containers that are repurposed for use as buildings or structures or as a part of buildings or structures.

Exceptions:

1. Intermodal shipping containers previously approved as existing relocatable buildings complying with Chapter 14 of the International Existing Building Code.
2. Stationary storage battery arrays located in intermodal shipping containers complying with Chapter 12 of the International Fire Code.
3. Intermodal shipping containers that are listed as equipment complying with the standard for equipment, such as air chillers, engine generators, modular data centers, and other similar equipment.
4. Intermodal shipping containers housing or supporting experimental equipment are exempt from the requirements of Section 3114 provided they comply with all of the following:
   - 4.1. Such units shall be single stand-alone units supported at grade level and used as experimental equipment or apparatuses, only for occupancies as specified under Risk Category I in Table 1604.5;
   - 4.2. Such units are located a minimum of 8 feet from adjacent structures, and are not connected to a fuel gas system or fuel gas utility; and
   - 4.3 . In hurricane-prone regions and flood hazard areas, such units are designed in accordance with the applicable provisions of Chapter 16

Commenter's Reason: Without scoping limits, this exception could permit varying uses and locations in which the container could pose substantial earthquake safety hazard to surrounding structures and persons. This could include containers located in or on structures, where container shifting could damage the structure, or fall and injure persons in the vicinity. This could also include fire hazard if a container shifts and gas lines are damaged.

This safety concern is addressed by the public comment language which provides scoping limits defining conditions under which risk is minimal such that regulation of the structural design and anchorage is not needed. The proposed language addresses:

- Occupancies that represent low risk to human life,
- Supported at grade where the risk of damage or injury due to falling is minimal,
- Eight foot distance to surrounding structures provides a zone for container shifting without causing damage to other structures,
- Prohibition of fuel gas intends to avoid fire ignition hazards should the container shift under seismic or wind loading,
- For hurricane prone and flood hazard areas, Chapter 16 will trigger requirements to reduce hazard.

These are believed to be scoping limits that can be readily screened for, permitting true low-hazard uses to occur with minimal regulation.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. The resulting new provisions 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.

Public Comment 2:

Ed Kullik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests As Modified by Public Comment

Further modify as follows:

2018 International Building Code

TABLE 3114.8.5.3
ALLOWABLE SHEAR VALUES FOR INTERMODAL SHIPPING CONTAINER CORRUGATED STEEL ~~SIDING SHEAR~~ WALLS FOR WIND OR SEISMIC LOADING

CONTAINER DESIGNATION[b]	CONTAINER DIMENSION (Nominal Length)	CONTAINER DIMENSION (Nominal Height)	ALLOWABLE SHEAR VALUES (PLF)[a, c]		
			Side Wall	End Wall	
1EEE	45 feet (13.7 M)	9.5 feet (2896 mm)	75	843	
1EE		8.6 feet (2591 mm)			
1AAA	40 feet (12.2 M)	9.5 feet (2896 mm)	84		
1AA		8.5 feet (2592 mm)			
1A		8.0 feet (2438 mm)			
1AX					
1BBB	30 feet (9.1 M)	9.5 feet (2896 mm)	112		
1BB		8.5 feet (2591 mm)			
1B		8.0 feet (2438 mm)			
1BX					
1CC	20 feet (9.1 M)	8.5 feet (2591 mm)	168		
1C		8.0 feet (2438 mm)			
1CX					
1D	10 feet (3.0 M)	8.0 feet (2438 mm)	337		
1DX					

a. The allowable shear for the side walls and end walls of the intermodal shipping containers are derived from ISO 1496-1 and reduced by a factor of safety of 5.
b. Container designation type is derived from ISO 668.
c. Limitations of Sections 3114.8.5.1 shall apply

3114.8.4.2 Seismic design parameters. The seismic force-resisting system shall be designed and detailed in accordance with one of the following:

1. Where all or portions of the corrugated steel container sides are considered to be the seismic force-resisting system, design and detailing shall be in accordance with the ASCE 7 Table 12.2-1 requirements for light-frame bearing-wall systems with shear panels of all other materials,
2. Where portions of the corrugated steel container sides are retained, but are not considered to be the seismic force-resisting system, an independent seismic force-resisting system shall be selected, designed and detailed in accordance with ASCE 7 Table 12.2-1, or
3. Where portions of the corrugated steel container sides are retained and integrated into a seismic force-resisting system other than as permitted by Section 3114.4.2 Item 1, seismic design parameters shall be developed from testing and analysis in accordance with Section 104.11 and ASCE 7 Section 12.2.1.1 or 12.2.1.2.

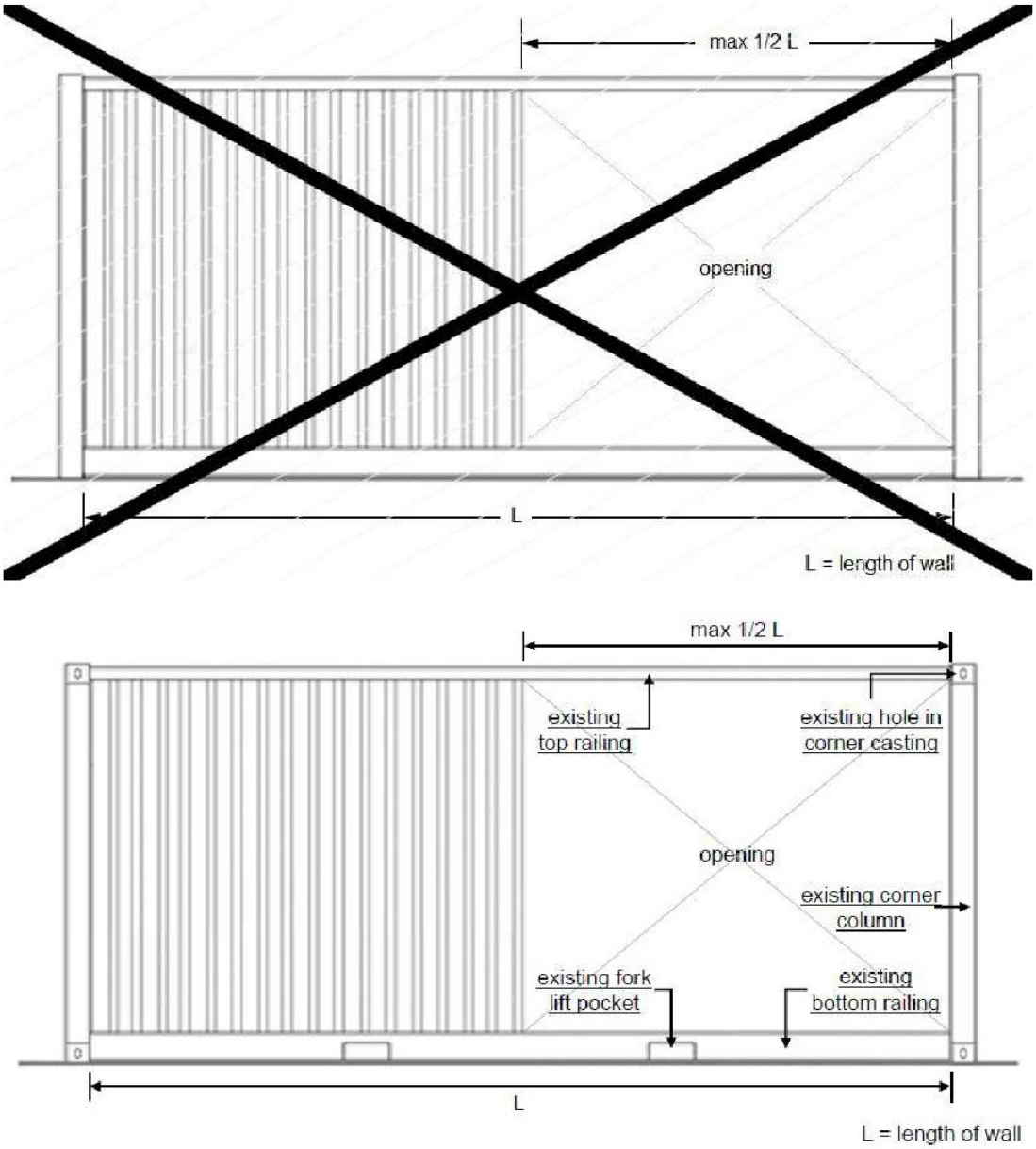
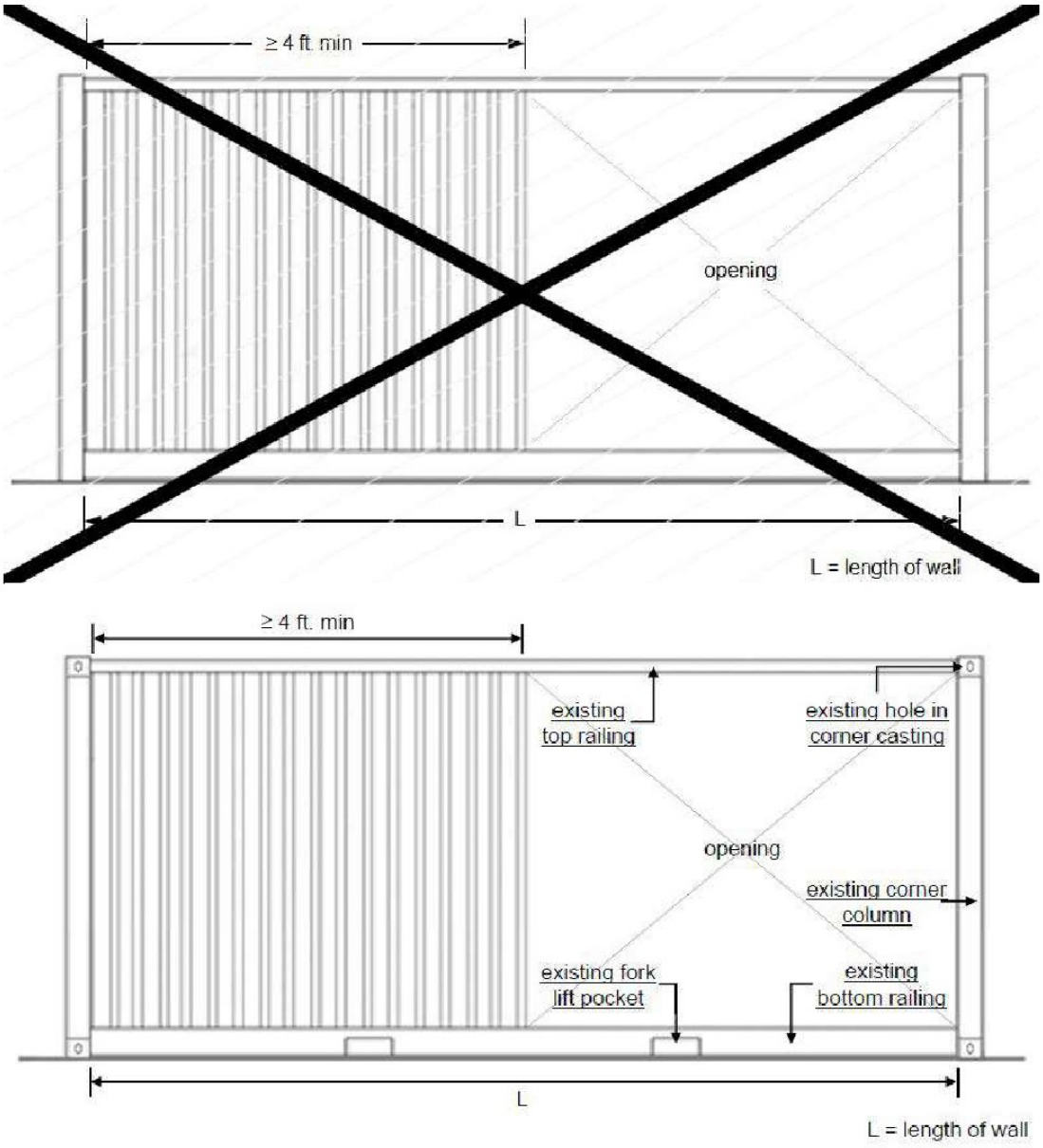
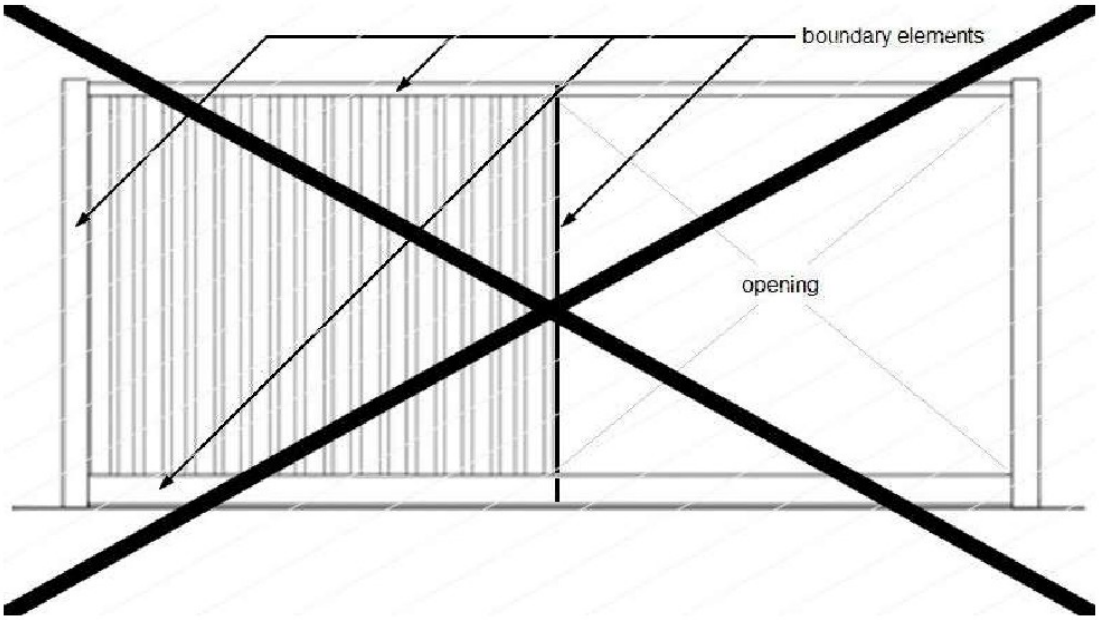


FIGURE 3114.8.5.3(1)
BRACING UNIT DISTRIBUTION–MAXIMUM LINEAR LENGTH



3114.8.5.3(2)
Bracing Unit Distribution -- Minimum Linear Length



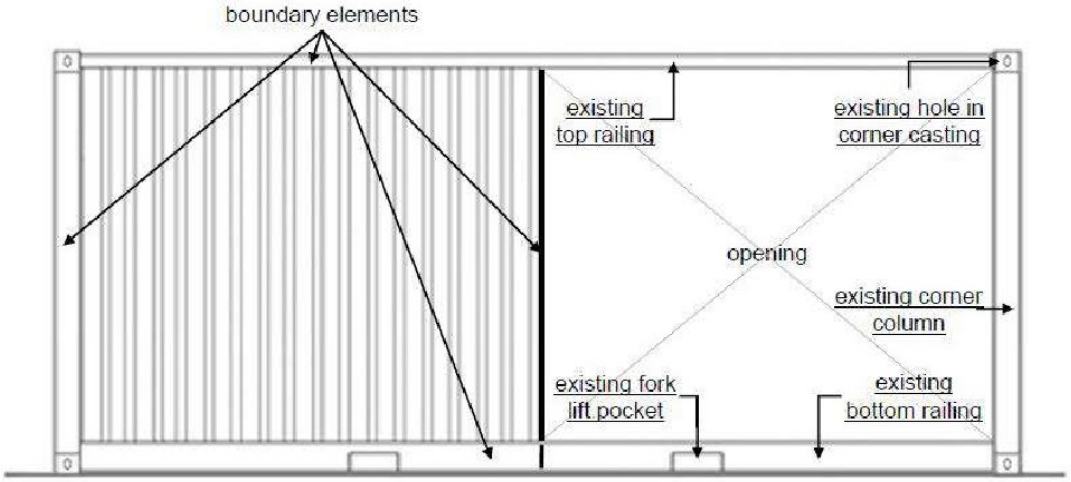


FIGURE 3114.8.5.3(3)
BRACING UNIT DISTRIBUTION -- BOUNDARY ELEMENTS

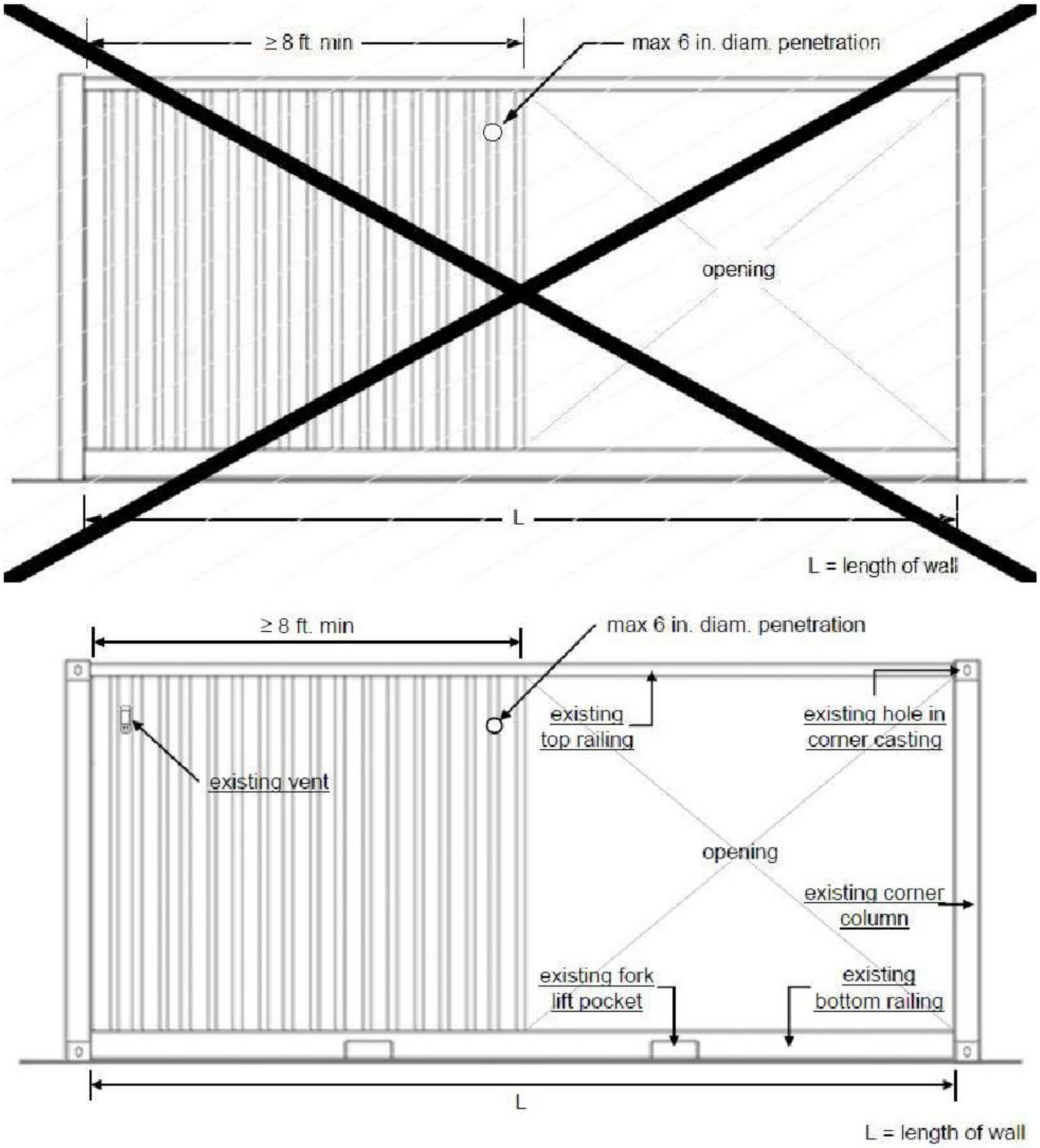


FIGURE 3114.8.5.3(4)
BRACING UNIT DISTRIBUTION – PENETRATION LIMITATIONS

Commenter's Reason: Section 3114.8.4.2 – This is an editorial correction in order to cite the correct section number.

Table 3114.8.5.3 title - This represents a change to heading to delete "siding shear". The change is based on public testimony and comments received during the committee action hearing to keep terms consistent throughout the code change proposal.

Figures 3114.8.5.3 (1) through (4) – It was brought to our attention that it may be beneficial to identify parts of the intermodal shipping container more clearly rather than use a simple line drawing figure. This is for the benefit of the user to more readily recognize existing conditions versus the permissible cut-aways as allowed by Section 3114.8.5.3. In response we are proposing to add identifying text (the rails, lift slots, and holes) to illustrate those existing elements that are part of the manufacture of intermodal shipping containers.

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

The net effect of the public comment and code change proposal will not increase or decrease the cost of construction. The resulting new provisions 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.

Final Action

G151-18 **AMPC1, 2**

SP9124/ADM47-16

10

Date Submitted	2/18/2021	**Section**	101	**Proponent**	Mo Madani
Chapter	35	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Correlates Directly

Comments

General Comments **Yes**

Related Modifications

Standards update as applicable to all sub-codes.

Summary of Modification

Updates Referenced standards

Rationale

The CP28 Code Development Policy, Section 4.6 requires the updating of referenced standards to be accomplished administratively, and be processed as a Code Change Proposal for consideration by the Administrative Code Change Committee. In September 2018, a letter was sent to each developer of standards that is referenced in the International Codes, asking them to provide ICC with a list of their standards in order to update to the current edition. Listed are the referenced standards that are to be updated based upon responses received from standards developers.

Comment Period History

SP9124-G1

Proponent Joseph Belcher **Submitted** 7/1/2021 **Attachments** No

Comment:

The Florida Home Builders Association (FHBA) joins the Leading Builders of America in requesting denial of the NEC 2020 Article 210.8(F) adopted by this proposed code change. Specifically, the requirement for GFCI on outdoor outlets [Article 210.8(F)] is leading to the shutdown of HVAC systems in many locations that have adopted the NEC 2020. Numerous occurrences of field tripping of the GFCI breaker on ductless mini splits, units containing power conversion equipment, and many single-stage units have been reported. Due to this issue, ten states (WA, OR, CO, ND, SD, MN, IA, TX, GA, MA) have already taken steps to delete, modify or delay enforcement of the requirement. Another six states (UT, NC, WV, CT, NH, ME) all plan to adopt the 2020 NEC with modifications to section 210.8(F). This issue poses a serious health risk to Floridians. We are open to resolving the issue with modifications if an interested party submits a change during Phase II.

SP9124 Text Modification

Please see attachment

Code Change No: ADM47-16

Original Proposal

The following table provides a comprehensive list of all standards that the respective standards promulgators have indicated have been, or will be, updated from the listing in the 2018 Editions of the International Codes. According to Section 4.5.1 of ICC Council Policy #CP 28, Code Development Policy, the updating of standards referenced by the Codes shall be accomplished administratively by the Administrative code development committee. Therefore, referenced standards that are to beupdated for the 2020 edition of any of the I-Codes are listed in this single code change proposal. Note that the table below indicates the change to the standard, and the code or codes in which each standard appears. The list includes standards that the promulgators have already updated or will have updated by December 1, 2020.

AA — Aluminum Association

Standard Reference Number	Title	Referenced In Code(s):
~~ADM1—2015~~ ADM1—2020	Aluminum Design Manual: Part ~~1—A Specification~~ 1—Specification for Aluminum Structures	IBC®

AAMA — American Architectural Manufacturers Association

Standard Reference Number	Title	Referenced in Code(s):	
~~711—16~~ 711—20	Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products	IBC®	IRC®
~~714—15~~ 714—20	Voluntary Specification for Liquid Applied Flashing Used to Create a Water-resistive Seal around Exterior Wall Openings in Buildings	IBC®	IRC®

ACI — American Concrete Institute

Standard Reference Number	Title	Referenced in Code(s):	
~~318—14~~ 318—19	Building Code Requirements for Structural Concrete	IBC®	IRC®

AISI — American Iron and Steel Institute

Standard Reference Number	Title	Referenced in Code(s):	
AISI S100—16/S1-18	North American Specification for the Design of Cold-formed Steel Structural Members, 2016, with Supplement 1, dated 2018	IBC®	IRC®
AISI ~~S202—15~~ S202—20	Code of Standard Practice for Cold-formed Steel Structural Framing, ~~2015~~ 2020	IBC®	
AISI ~~S220—15~~ S220—20	North American Standard for Cold-formed Steel Framing—Nonstructural Members, ~~2015~~ 2020	IBC®	IRC®
AISI ~~S230—15~~ S230—18	Standard for Cold-formed Steel Framing—Prescriptive Method for One- and Two-family Dwellings, ~~2015~~ 2018	IBC®	IRC®
AISI ~~S240—15~~ S240—20	North American Standard for Cold-Formed Steel Structuring Framing, ~~2015~~ 2020	IBC®	IRC®
AISI ~~S400—15/S1—16~~ S400—20	North American Standard for Seismic Design of Cold-formed Steel Structural Systems, ~~2015, with Supplement 1, dated 2016;~~ 2020	IBC®	

ANSI — American National Standards Institute

Standard Reference Number	Title	Referenced in Code(s):	
~~A13.1—2015~~ A13.1—2020	Scheme for the Identification of Piping Systems	IBC®	IFC®
~~A108.1A—16~~ A108.1A—17	Installation of Ceramic Tile in the Wet-set Method, with Portland Cement Mortar	IBC®	IRC®
~~A108.1B—99~~ A108.1B—17	Installation of Ceramic Tile, Quarry Tile on a Cured Portland Cement Mortar Setting Bed with Dry-set or Latex-Portland Mortar	IBC®	IRC®
~~A108.4—99~~ A108.4—09	Installation of Ceramic Tile with Organic Adhesives or Water-cleanable Tile-setting Epoxy Adhesive	IBC®	IRC®

~~A108.5—99~~ A108.5—19	Installation of Ceramic Tile with Dry-set Portland Cement Mortar or Latex-Portland Cement Mortar	IBC®	IRC®
~~A108.6—99~~ A108.6—19	Installation of Ceramic Tile with Chemical-resistant, Water Cleanable Tile-setting and -grouting Epoxy	IBC®	IRC®
~~A108.8—99~~ A108.8—19	Installation of Ceramic Tile with Chemical-resistant Furan Resin Mortar and Grout	IBC®	
~~A108.9—99~~ A108.9—19	Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout	IBC®	
~~A108.10—99~~ A108.10—17	Installation of Grout in Tilework	IBC®	
~~A118.1—16~~ A118.1—18	American National Standard Specifications for Dry-set Portland Cement Mortar	IBC®	IRC®
~~A118.3—13~~ A118.3—20	American National Standard Specifications for Chemical-resistant, Water-cleanable Tile-setting and -grouting Epoxy and Water Cleanable Tile-setting Epoxy Adhesive	IBC®	IRC®
~~A118.4—16~~ A118.4—18	American National Standard Specifications for Modified Dry-set Cement Mortar	IBC®	IRC®
~~A118.6—18~~ A118.6—19	American National Standard Specifications for Cement Grouts for Tile Installation	IBC®	
~~A136.1—08~~ A136.1—19	American National Standard Specifications for the Installation of Ceramic Tile	IBC®	IRC®
~~A137.1—17~~ A137.1—19	American National Standard Specifications for Ceramic Tile	IBC®	IRC®

APA — APA - Engineered Wood Association

Standard Reference Number	Title	Referenced In Code(s):
ANSI ~~117—15~~ 117—2020	Standard Specification for Structural Glued Laminated Timber of Softwood Species	IBC®
ANSI/APA ~~A190.1—17~~ A190.1—2017	Structural Glued Laminated Timber	IBC®
ANSI/APA PRP ~~210—14~~ 210—2019	Standard for Performance-Rated Engineered Wood Siding	IBC®
APA ~~PDS—12~~ PDS—20	Panel Design Specification	IBC®
ANSI/APA PRG ~~320—17~~ 320—2019	Standard for Performance-rated Cross-laminated Timber	IBC®
APA ~~R540—13~~ R540—19	~~Builders~~ Builder Tips: Proper Storage and Handling of Glulam Beams	IBC®
APA ~~S475—16~~ S475—20	Glued Laminated Beam Design Tables	IBC®
APA ~~S560—14~~ S560—20	Field Notching and Drilling of Glued Laminated Timber Beams	IBC®
APA ~~X450—01~~ X450—18	Glulam in Residential ~~Construction—Western Edition~~ Building—Construction Guide	IBC®

ASABE — American Society of Agricultural and Biological Engineers

Standard Reference Number	Title	Referenced In Code(s):
EP 484.3 ~~MON2016~~ DEC2017	Diaphragm Design of Metal-clad, Wood-frame Rectangular Buildings	IBC®
EP ~~486.2 OCT 2012ED~~ 486.3 SEP2017	Shallow-post and Pier Foundation Design	IBC®
EP ~~559.2 MON2016~~ 559.1 W/Corr. AUG2010 (R2014)	Design Requirements and Bending Properties for Mechanically Laminated Wood Assemblies	IBC®

ASCE/SEI — American Society of Civil EngineersStructural Engineering Institute

Standard Reference Number	Title	Referenced in Code(s):	
7—16 with Supplement 1	Minimum Design Loads and Associated Criteria for Buildings and Other Structures	IBC® IRC®	IEBC®

~~24—14~~ 24—20	Flood Resistant Design and Construction	IBC®	IRC®
~~29—17~~ 29—19	Standard Calculation Methods for Structural Fire Protection	IBC®	
~~49—07~~ 49—12	Wind Tunnel Testing for Buildings and Other Structures	IBC®	

ASME — American Society of Mechanical Engineers

Standard Reference Number	Title	Referenced in Code(s):	
ASME/~~A17.1—2016~~ A17.1—2019/CSA ~~B44—16~~ B44—19	Safety Code for Elevators and Escalators	IBC®	
A17.7—2007/CSA B44—07(~~R2012~~ R2019)	Performance-based Safety Code for Elevators and Escalators	IBC®	
~~A18.1—2014~~ A18.1—2020	Safety Standard for Platform Lifts and Stairway Chairlifts	IBC® IRC®	IEBC®
~~A90.1—2015~~ A90.1—2020	Safety Standard for Belt Manlifts	IBC®	
~~B16.18—2012~~ B16.18—2018	Cast Copper Alloy Solder Joint Pressure Fittings	IBC® IMC® IRC®	IFC® IPC®
~~B16.22—2013~~ B16.22—2018	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings	IBC® IMC® IRC®	IFC® IPC®
~~B20.1—2015~~ B20.1—2021	Safety Standard for Conveyors and Related Equipment	IBC®	
~~B31.3—2016~~ B31.3—2020	Process Piping	IBC® IFGC®	IFC®

ASSE — American Society of Safety Engineers

Standard Reference Number	Title	Referenced In Code(s):	
ANSI/~~ASSE Z359.1—2016~~ ASSP Z359.1—2019	~~Requirements for the ANSI/ASSE Z359~~ The Fall Protection Code	IBC® IMC®	IFC®

ASTM — ASTM International

Standard Reference Number	Title	Referenced in Code(s):	
A6/~~A6M—14~~ A6M—2017A	Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes and Sheet Piling	IBC®	
A153/~~A153M—09~~ A153M—2016A	Specification for Zinc Coating (Hot-dip) on Iron and Steel Hardware	IBC®	IRC®
~~A240/A240M—15a~~ A240M—17	Standard Specification for Chromium and Chromium-nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications	IBC® ISPSC®	IRC®
~~A252—10~~ A252—2010(2018)	Specification for Welded and Seamless Steel Pipe Piles	IBC®	
A283/~~A283M—13~~ A283M—2018	Specification for Low and Intermediate Tensile Strength Carbon Steel Plates	IBC®	
A416/~~A416M—15~~ A416M—2017A	Specification for Steel Strand, Uncoated Seven-wire for Prestressed Concrete	IBC®	
A572/~~A572M—15~~ A572M—2018	Specification for High-strength Low-alloy Columbium-Vanadium Structural Steel	IBC®	
A653/~~A653M—15~~ A653M—2017	Specification for Steel Sheet, Zinc-coated Galvanized or Zinc-iron Alloy-coated Galvannealed by the Hot-dip Process	IBC®	IRC®

A690/A690M—13a(2018)	Standard Specification for High-strength Low-alloy Nickel, Copper, Phosphorus Steel H-piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments	IBC®	
~~A706/A706M—15~~ A706M—2016	Specification for Low-alloy Steel Deformed and Plain Bars for Concrete Reinforcement	IBC®	IRC®
~~A722/A722M—15~~ A722M—2018	Specification for High-strength Steel Bars for Prestressed Concrete	IBC®	
~~A755/A755M—15~~ A755M—2016E1	Specification for Steel Sheet, Metallic-coated by the Hot-dip Process and Prepainted by the Coil-coating Process for Exterior Exposed Building Products	IBC®	
~~A924/A924M—14~~ A924M—2017A	Standard Specification for General Requirements for Steel Sheet, Metallic-coated by the Hot-dip Process	IBC®	IRC®
~~B88—14~~ B88—2016	Specification for Seamless Copper Water Tube	IBC® IFGC® IPC® IRC®	IFC® IMC® IPSDC® ISPSC®
~~B251—10~~ B251/B251M—2017	Specification for General Requirements for Wrought Seamless Copper and Copper-alloy Tube	IBC® IMC® IPSDC®	IFC® IPC® IRC®
~~B280—13~~ B280—2018	Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service	IBC® IFGC®	IFC® IMC®
~~B695—04~~ B695—2004(~~2009~~ 2016)	Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel Strip for Building Construction	IBC®	IRC®
~~C5—18~~ C5—2018	Specification for Quicklime for Structural Purposes	IBC®	IRC®
~~C27—98~~ C27—1998(~~2013~~ 2018)	Specification for Classification of Fireclay and High-alumina Refractory Brick	IBC®	IRC®
C31/~~C31M—15~~ C31M—2018B	Practice for Making and Curing Concrete Test Specimens in the Field	IBC®	
C33/~~C33M—13~~ C33M—2018	Specification for Concrete Aggregates	IBC®	IRC®
~~C55—2014e~~ C55—2017	Specification for Concrete Building Brick	IBC®	IRC®
~~C62—13a~~ C62—2017	Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)	IBC®	IRC®
~~C67—14~~ C67/C67M—2018	Test Methods of Sampling and Testing Brick and Structural Clay Tile	IBC®	
~~C73—14~~ C73—2017	Specification for Calcium Silicate Brick (Sand-lime Brick)	IBC®	IRC®
~~C90—14~~ C90—2016A	Specification for Loadbearing Concrete Masonry Units	IBC® IRC®	IECC
C91/~~C91M—12~~ C91M—2018	Specification for Masonry Cement	IBC®	IRC®
C94/~~C94M—15a~~ C94M—2017A	Specification for Ready-mixed Concrete	IBC® IRC®	IEBC®
C140/~~C140M—15~~ C140M—2018	Test Method Sampling and Testing Concrete Masonry Units and Related Units	IBC®	
C150/~~C150M—15~~ C150M—2018	Specification for Portland Cement	IBC®	IRC®
C172/~~C172M—14a~~ C172M—2017	Practice for Sampling Freshly Mixed Concrete	IBC®	
~~C199—84~~ C199—1984(~~2011~~ 2016)	Test Method for Pier Test for Refractory Mortars	IBC®	IRC®
~~C208—12~~ C208—2012(2017)E1	Specification for Cellulosic Fiber Insulating Board	IBC®	IRC®
~~C216—15~~ C216—2017A	Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale)	IBC®	IRC®
~~C315—07~~ C315—2007(~~2011~~ 2016)	Specification for Clay Flue Liners and Chimney Pots	IBC® IMC®	IFGC® IRC®

C317/~~C317M—00~~ C317M—2000(2015)	Specification for Gypsum Concrete	IBC®	
C330/~~C330M—14~~ C330M—2017A	Specification for Lightweight Aggregates for Structural Concrete	IBC®	
C331/~~C331M—14~~ C331M—2017	Specification for Lightweight Aggregates for Concrete Masonry Units	IBC®	
~~C473—15~~ C473—2017	Test Methods for Physical Testing of Gypsum Panel Products	IBC®	
C475/~~C475M—15~~ C475M—2017	Specification for Joint Compound and Joint Tape for Finishing Gypsum Board	IBC®	IRC®
~~C516—08~~ C516—2008(~~2014~~ 2013)~~e1~~ E1	Specifications for Vermiculite Loose Fill Thermal Insulation	IBC®	
~~C547—15~~ C547—2017	Specification for Mineral Fiber Pipe Insulation	IBC®	
C549—06(2012)	Specification for Perlite Loose Fill Insulation	IBC®	
~~C552—15~~ C552—2017E1	Standard Specification for Cellular Glass Thermal Insulation	IBC®	IRC®
~~C557—03~~ C557—2003(~~2009~~ 2017)~~e01~~	Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing	IBC®	IRC®
~~C578—15~~ C578—2018	Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation	IBC®	IRC®
~~C587—04~~ C587—2004(~~2014~~ 2018)	Specification for Gypsum Veneer Plaster	IBC®	IRC®
C595/~~C595M—14e1~~ C595M—2018	Specification for Blended Hydraulic Cements	IBC®	IRC®
C635/~~C635M—13a~~ C635M—2017	Specification for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings	IBC®	
~~C652—15~~ C652—2017A	Specification for Hollow Brick (Hollow Masonry Units Made from Clay or Shale)	IBC®	IRC®
~~C726—12~~ C726—2017	Standard Specification for Mineral Wool Roof Insulation Board	IBC®	IRC®
~~C728—15~~ C728—2017A	Standard Specification for Perlite Thermal Insulation Board	IBC®	IRC®
~~C744—14~~ C744—2016	Specification for Prefaced Concrete and Calcium Silicate Masonry Units	IBC®	IRC®
~~C754—15~~ C754—2018	Specification for Installation of Steel Framing Members to Receive Screw-attached Gypsum Panel Products	IBC®	
C836/~~C836M—15~~ C836M—2018	Specification for High-solids Content, Cold Liquid-applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course	IBC®	IRC®
~~C840—13~~ C840—2018A	Specification for Application and Finishing of Gypsum Board	IBC®	
~~C841—03~~ C841—2003(~~2013~~ 2018)	Specification for Installation of Interior Lathing and Furring	IBC®	IRC®
~~C843—99(2012)~~ C843—2017	Specification for Application of Gypsum Veneer Plaster	IBC®	IRC®
~~C847—14a~~ C847—2018	Specification for Metal Lath	IBC®	IRC®
~~C920—14a~~ C920—2018	Standard for Specification for Elastomeric Joint Sealants	IBC®	IRC®
~~C926—15b~~ C926—2018B	Specification for Application of Portland Cement-based Plaster	IBC®	IRC®
~~C933—14~~ C933—2018	Specification for Welded Wire Lath	IBC®	IRC®
~~C946—10~~ C946—2018	Specification for Construction of Dry-stacked, Surface-bonded Walls	IBC®	IRC®
~~C954—15~~ C954—2018	Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 inch (0.84 mm) to 0.112 inch (2.84 mm) in Thickness	IBC®	IRC®
C957/~~C957M—15~~ C957M—2017	Specification for High-solids Content, Cold Liquid-applied Elastomeric Waterproofing Membrane with Integral Wearing Surface	IBC®	IRC®
~~C1002—14~~ C1002—2018	Specification for Steel Self-piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs	IBC®	IRC®
~~C1032—14~~ C1032—2018	Specification for Woven Wire Plaster Base	IBC®	IRC®
~~C1047—14a~~ C1047—2018	Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base	IBC®	IRC®
	Specification for Installation of Lathing and Furring to Receive Interior and Exterior		

~~C1063—15a~~ C1063—2018B	Portland Cement-based Plaster	IBC®	IRC®
~~C1088—14~~ C1088—2018	Specification for Thin Veneer Brick Units Made from Clay or Shale	IBC®	IRC®
C1157/~~C1157M—11~~ C1157M—2017	Standard Performance Specification for Hydraulic Cement	IBC®	
~~C1167—11~~ C1167—2011(2017)	Specification for Clay Roof Tiles	IBC®	IRC®
C1177/~~C1177M—13~~ C1177M—2017	Specification for Glass Mat Gypsum Substrate for Use as Sheathing	IBC®	IRC®
C1178/~~C1178M—13~~ C1178M—2018	Specification for Coated Mat Water-resistant Gypsum Backing Panel	IBC®	IRC®
~~C1186—08~~ C1186—2008(~~2012~~ 2016)	Specification for Flat Fiber Cement Sheets	IBC®	IRC®
~~C1261—13~~ C1261—2013(2017)E1	Specification for Firebox Brick for Residential Fireplaces	IBC®	IRC®
C1278/~~C1278M—07a(2011)~~ C1278M—2017	Specification for Fiber-reinforced Gypsum Panel	IBC®	IRC®
~~C1283—11~~ C1283—2015	Practice for Installing Clay Flue Lining	IBC®	IRC®
~~C1288—14~~ C1288—2017	Standard Specification for Discrete Nonasbestos Fiber-cement Interior Substrate Sheets	IBC®	IRC®
~~C1289—15~~ C1289—2018	Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board	IBC®	IRC®
~~C1325—14~~ C1325—2018	Standard Specification for Nonasbestos Fiber-mat Reinforced Cement Backer Units	IBC®	IRC®
~~C1364—18B~~ C1364—2017	Standard Specification for Architectural Cast Stone	IBC®	IRC®
C1396/~~C1396M—14a~~ C1396M—2017	Specification for Gypsum Board	IBC®	
~~C1492—03~~ C1492—2003(~~2009~~ 2016)	Standard Specification for Concrete Roof Tile	IBC®	IRC®
C1600/~~C1600M—11~~ C1600M—2017	Standard Specification for Rapid Hardening Hydraulic Cement	IBC®	
C1629/~~C1629M—15~~ C1629M—2018A	Standard Classification for Abuse-resistant Nondecorated Interior Gypsum Panel Products and Fiber-reinforced Cement Panels	IBC®	
C1658/~~C1658M—13~~ C1658M—2018	Standard Specification for Glass Mat Gypsum Panels	IBC®	IRC®
~~C1670—16~~ C1670/C1670M—2018	Standard Specification for Adhered Manufactured Stone Masonry Veneer Units	IBC®	
~~C1766—13~~ C1766—2015	Standard Specification for Factory-laminated Gypsum Panel Products	IBC®	IRC®
~~D25—12~~ D25—2012(2017)	Specification for Round Timber Piles	IBC®	
D41/~~D41M—11~~ D41M—2011(2016)	Specification for Asphalt Primer Used in Roofing, Dampproofing and Waterproofing	IBC®	
D43/~~D43M—00~~ D43M—2000(~~2012~~ 2018)~~e1~~	Specification for Coal Tar Primer Used in Roofing, Dampproofing and Waterproofing	IBC®	
~~D56—05(2010)~~ D56—2016A	Test Method for Flash Point by Tag Closed Cup Tester	IBC® IMC®	IFC®
~~D86—15~~ D86—2017	Test Method for Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure	IBC®	IFC®
~~D93—15~~ D93—2018	Test Methods for Flash Point by Pensky-Martens Closed Cup Tester	IBC® IMC®	IFC®
D226/~~D226M—09~~ D226M—2017	Specification for Asphalt-saturated Organic Felt Used in Roofing and Waterproofing	IBC®	IRC®
D227/~~D227M—03~~ D227M—2003(~~2011~~ 2018)~~e1~~	Specification for Coal-tar-saturated Organic Felt Used in Roofing and Waterproofing	IBC®	IRC®
D312/~~D312M—15~~ D312M—			

~~2016M~~ D448—2012(2017)	Specification for Asphalt Used in Roofing Standard Classification for Sizes of Aggregate for Road and Bridge Construction	IBC® IBC®	
D450/~~D450M—07~~ D450M—2017(~~2013~~ 2018)~~e1~~	Specification for Coal-tar Pitch Used in Roofing, Dampproofing and Waterproofing	IBC®	IRC®
D1143/~~D1143M—07~~ D1143M—2007(2013) E1	Test Methods for Deep Foundations Under Static Axial Compressive Load	IBC®	
D1863/~~D1863M—05~~ D1863M—2005(~~2011~~ 2018)~~e1~~	Specification for Mineral Aggregate Used on Built-up Roofs	IBC®	IRC®
D1970/~~D1970M—15a~~ D1970M—2017A	Specification for Self-adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roof Underlayment for Ice Dam Protection	IBC®	
D2178/~~D2178M—15~~ D2178M—15A	Specification for Asphalt Glass Felt Used in Roofing and Waterproofing	IBC®	IRC®
~~D2487—11~~ D2487—2017	Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)	IBC®	
D2822/~~D2822M—05~~ D2822M—2005(2011)~~e1~~	Specification for Asphalt Roof Cement, Asbestos Containing	IBC®	IRC®
D2824/~~D2824M—13~~ D2824M—2018	Standard Specification for Aluminum-pigmented Asphalt Roof Coatings, Nonfibered and Fibered without Asbestos	IBC®	
~~D2859—16~~ D2859—2016	Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials	IBC®	IFC®
~~D2898—10~~ D2898—2010(2017)	Test Methods for Accelerated Weathering of Fire-retardant-treated Wood for Fire Testing	IBC® IWUIC®	IRC®
~~D3019—08~~ D3019/D3019M—2017	Specification for Lap Cement Used with Asphalt Roll Roofing, Nonfibered, Asbestos Fibered and Nonasbestos Fibered	IBC®	IRC®
D3161/~~D3161M—15~~ D3161M—2016A	Test Method for Wind Resistance of Steep Slope Roofing Products (Fan Induced Method)	IBC®	IRC®
~~D3200—74~~ D3200—1974(~~2012~~ 2017)	Standard Specification and Test Method for Establishing Recommended Design Stresses for Round Timber Construction Poles	IBC®	
D3462/~~D3462M—10a~~ D3462M—2016	Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules	IBC®	IRC®
~~D3679—13~~ D3679—2017	Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding	IBC®	IRC®
~~D3737—12~~ D3737—2018E1	Practice for Establishing Allowable Properties for Structural Glued Laminated Timber (Glulam)	IBC®	
~~D3746—85~~ D3746/D3746M—1985(~~2008~~ 2015) E1	Test Method for Impact Resistance of Bituminous Roofing Systems	IBC®	
~~D3957—09~~ D3957—2009(2015)	Standard Practices for Establishing Stress Grades for Structural Members Used in Log Buildings	IBC®	
~~D4318—10e1~~ D4318—2017E1	Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils	IBC®	IRC®
D4434/~~D4434M—12~~ D4434M—2015	Specification for Poly (Vinyl Chloride) Sheet Roofing	IBC®	IRC®
D4479/~~D4479M—07~~ D4479M—2007(~~2012~~ 2018)~~e1~~	Specification for Asphalt Roof Coatings—Asbestos-free	IBC®	IRC®
D4586/~~D4586M—07~~ D4586M—2007(~~2012~~ 2018)~~e1~~	Specification for Asphalt Roof Cement—Asbestos-free	IBC®	IRC®
D4637/~~D4637M—14e1~~ D4637M—2015	Specification for EPDM Sheet Used in Single-ply Roof Membrane	IBC®	IRC®
D4869/~~D4869M—15~~ D4869M—2016A	Specification for Asphalt-saturated (Organic Felt) Underlayment Used in Steep Slope Roofing	IBC®	IRC®
D4897/~~D4897M—01(2009)~~			

~~D4897M—2016~~ ~~D4945—12~~ D4945—2017	Specification for Asphalt-coated Glass Fiber Venting Base Sheet Used in Roofing Test Method for High-strain Dynamic Testing of Deep Foundations	IBC® IBC®	IRC®
~~D5055—13e1~~ D5055—2016	Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-joists	IBC®	IRC®
~~D5456—14b~~ D5456—2018	Specification for Evaluation of Structural Composite Lumber Products	IBC®	IRC®
~~D5516—09~~ D5516—2018	Test Method of Evaluating the Flexural Properties of Fire-retardant Treated Softwood Plywood Exposed to Elevated Temperatures	IBC®	IRC®
D5643/~~D5643M—06~~ D5643M—2006(~~2012~~ 2018)~~e1~~	Specification for Coal Tar Roof Cement, Asbestos-free	IBC®	IRC®
~~D5664—10~~ D5664—2017	Standard Test Method for Evaluating the Effects of Fire-retardant Treatment and Elevated Temperatures on Strength Properties of Fire-retardant Treated Lumber	IBC®	IRC®
~~D6083—05e01~~ D6083/D6083M—2018	Specification for Liquid Applied Acrylic Coating Used in Roofing	IBC®	IRC®
D6162/~~D6162M—00a(2015)e1~~ D6162M—2016	Specification for Styrene-butadiene-styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements	IBC®	
D6163/~~D6163M—00(2015)e1~~ D6163M—2016	Specification for Styrene-butadiene-styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements	IBC®	
D6164/~~D6164M—11~~ D6164M—2016	Specification for Styrene-butadiene-styrene (SBS) Modified Bituminous Sheet Metal Materials Using Polyester Reinforcements	IBC®	IRC®
D6222/~~D6222M—11~~ D6222M—2016	Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements	IBC®	IRC®
D6223/~~D6223M—02(2009)e1~~ D6223M—2016	Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements	IBC®	IRC®
~~D6298—13~~ D6298/D6298M—2016	Specification for Fiberglass Reinforced Styrene-butadiene-styrene (SBS) Modified Bituminous Sheets with a Factory Applied Metal Surface	IBC®	IRC®
D6380/~~D6380M—03~~ D6380M—2003(~~2013~~ 2018)~~e1~~	Standard Specification for Asphalt Roll Roofing (Organic) Felt	IBC®	
~~D6464—03a~~ D6464—2003A(~~2009~~ 2017)~~e1~~	Standard Specification for Expandable Foam Adhesives for Fastening Gypsum Wallboard to Wood Framing	IBC®	IRC®
D6509/~~D6509M—09(2015)~~ D6509M—2016	Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Base Sheet Materials Using Glass Fiber Reinforcements	IBC®	
D6754/~~D6754M—10~~ D6754M—2015	Standard Specification for Ketone Ethylene Ester Based Sheet Roofing	IBC®	IRC®
~~D6757—2013~~ D6757/D6757M—2018	Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep Slope Roofing	IBC®	IRC®
~~D6841—08~~ D6841—2016	Standard Practice for Calculating Design Value Treatment Adjustment Factors for Fire-retardant Treated Lumber	IBC®	IRC®
D6878/~~D6878M—13~~ D6878M—2017	Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing	IBC®	IRC®
D6947/~~D6947M—07(2013)e1~~ D6947M—2016	Standard Specification for Liquid Applied Moisture Cured Polyurethane Coating Used in Spray Polyurethane Foam Roofing System	IBC®	IRC®
~~D7032—14~~ D7032—2017	Standard Specification for Establishing Performance Ratings for Wood, Plastic Composite Deck Boards and Guardrail Systems (Guards or Rails)	IBC® IWUIC®	IRC®
~~D7147—11~~ D7147—2011(2018)	Specification for Testing and Establishing Allowable Loads of Joist Hangers	IBC®	
D7158/~~D7158M—16~~ D7158M—2019	Standard Test Method for Wind Resistance of Asphalt Shingles (Uplift Force/Uplift Resistance Method)	IBC®	
~~D7254—15~~ D7254—2017	Standard Specification for Polypropylene (PP) Siding	IBC®	IRC®
D7655/~~D7655M—12~~ D7655M—2012(2017)	Standard Classification for Size of Aggregate Used as Ballast for Roof Membrane Systems	IBC®	

~~D7672—14~~ D7672—14E1	Standard Specification for Evaluating Structural Capacities of Rim Board Products and Assemblies	IBC®	IRC®
~~E84—16~~ E84—2018B	Standard Test Methods for Surface Burning Characteristics of Building Materials	IBC®	
~~E90—09~~ E90—2009(2016)	Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements	IBC®	
E96/~~E96M—15~~ E96M—2016	Standard Test Methods for Water Vapor Transmission of Materials	IBC®	
~~E108—16~~ E108—2017	Standard Test Methods for Fire Tests of Roof Coverings	IBC® IWUIC®	IEBC®
~~E119—16~~ E119—2018B	Standard Test Methods for Fire Tests of Building Construction and Materials	IBC®	
~~E136—16~~ E136—2016A	Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C	IBC® IFGC® IWUIC®	IEBC® IMC®
~~E283—04~~ E283—2004(2012)	Standard Test Method for Determining Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences across the Specimen	IBC® IECC	IECC IRC®
~~E331—00~~ E331—2000(~~2009~~ 2016)	Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference	IBC®	IRC®
~~E492—09~~ E492—2009(2016)E1	Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-ceiling Assemblies Using the Tapping Machine	IBC®	
~~E648—15e1~~ E648—2017A	Standard Test Method for Critical Radiant Flux of Floor-covering Systems Using a Radiant Heat Energy Source	IBC®	IFC®
E736/~~E736M—00(2015)e1~~ E736M—2017	Test Method for Cohesion/Adhesion of Sprayed Fire-resistive Materials Applied to Structural Members	IBC®	
E814—2013A(2017)	Test Method for Fire Tests of Penetration Firestop Systems	IBC®	IRC®
~~E970—14~~ E970—2017	Standard Test Method for Critical Radiant Flux of Exposed Attic Floor Insulation Using a Radiant Heat Energy Source	IBC®	IRC®
~~E1300—12ae1~~ E1300—2016	Practice for Determining Load Resistance of Glass in Buildings	IBC®	
~~E1354—16~~ E1354—17	Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter	IBC®	
~~E1592—05~~ E1592—2005(~~2012~~ 2017)	Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference	IBC®	
~~E1602—03~~ E1602—2003(~~2010~~ 2017)~~e1~~	Guide for Construction of Solid Fuel-burning Masonry Heaters	IBC®	IRC®
~~E1886—13A~~ E1886—2013A	Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials	IBC®	IRC®
~~E1996—14a~~ E1996—2017	Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes	IBC®	
~~E2174—14b~~ E2174—2018	Standard Practice for On-site Inspection of Installed Fire Stops	IBC®	
~~E2273—03(2011)~~ E2273—2018	Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies	IBC®	IRC®
~~E2307—15b~~ E2307—15BE1	Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using the Intermediate-scale, Multistory Test Apparatus	IBC®	
~~E2353—14~~ E2353—2016	Standard Test Methods for Performance of Glazing in Permanent Railing Systems, Guards and Balustrades	IBC®	
~~E2404—15a~~ E2404—2017	Practice for Specimen Preparation and Mounting of Textile, Paper or Polymeric (Including Vinyl) and Wood Wall or Ceiling Coverings, Facing and Veneers to Assess Surface Burning Characteristics	IBC®	IFC®
E2556/~~E2556M—10~~ E2556M—2010(2016)	Standard Specification for Vapor Permeable Flexible Sheet Water-resistive Barriers Intended for Mechanical Attachment	IBC®	
~~E2568—09e1~~ E2568—	Standard Specification for PB Exterior Insulation and Finish Systems	IBC®	IRC®

~~2017A~~ E2570/E2570M—07(2014)e1	Standard Test Method for Evaluating Water-resistive Barrier (WRB) Coatings Used under Exterior Insulation and Finish Systems (EIFS) for EIFS with Drainage	IBC®	IRC®
~~E2573—12~~ E2573—2017	Standard Practice for Specimen Preparation and Mounting of Site-fabricated Stretch Systems to Assess Surface Burning Characteristics	IBC®	IFC®
~~E2579—13~~ E2579—2015	Standard Practice for Specimen Preparation and Mounting of Wood Products to Assess Surface Burning Characteristics	IBC®	IFC®
~~E2599—15~~ E2599—2018	Standard Practice for Specimen Preparation and Mounting of Reflective Insulation, Radiant Barrier and Vinyl Stretch Ceiling Materials for Building Applications to Assess Surface Burning Characteristics	IBC®	
~~E2634—11(2015)~~ E2634—2018	Standard Specification for Flat Wall Insulating Concrete Form (ICF) Systems	IBC®	IRC®
E2751/~~E2751M—13~~ E2751M—2017A	Practice for Design and Performance of Supported Laminated Glass Walkways	IBC®	
~~F547—06(2012)~~ F547—2017	Terminology of Nails for Use with Wood and Wood-base Materials	IBC®	
~~F1667—15~~ F1667—2018	Specification for Driven Fasteners: Nails, Spikes and Staples	IBC®	IRC®
~~F2200—14~~ F2200—2017	Standard Specification for Automated Vehicular Gate Construction	IBC®	IFC®
~~G154—12a~~ G154—2016A	Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials	IBC®	

AWC — American Wood Council

Standard Reference Number	Title	Referenced In Code(s):	
AWC ~~STJR—2015~~ STJR—2021	Span Tables for Joists and Rafters	IBC®	IRC®
ANSI/AWC ~~PWF—2015~~ PWF—2021	Permanent Wood Foundation Design Specification	IBC®	IRC®
ANSI/AWC ~~SDPWS—2015~~ SDPWS—2021	Special Design Provisions for Wind and Seismic	IBC®	

AWPA — American Wood Protection Association

Standard Reference Number	Title	Referenced In Code(s):	
~~M4—16~~ M4—15	Standard for the Care of Preservative-treated Wood Products	IBC®	IRC®
~~U1—16~~ U1—20	USE CATEGORY SYSTEM: User Specification for Treated Wood Except Commodity Specification H	IBC®	IRC®

AWS — American Welding Society

Standard Reference Number	Title	Referenced in Code(s):
D1.4/~~D1.4M—2017~~ D1.4M—2018	Structural Welding ~~Code—Reinforcing Steel Including Metal Inserts and Connections in Reinforced Concrete Construction~~ Code—Steel Reinforcing Bars	IBC®

BHMA — Builders Hardware Manufacturers' Association

Standard Reference Number	Title	Referenced In Code(s):
A ~~156.10—2011~~ 156.10—2017	Power Operated Pedestrian Doors	IBC®

A ~~156.19—2013~~ 156.19—2020	Standard for Power Assist and Low Energy Power Operated Doors	IBC®
A ~~156.27—2011~~ 156.27—2019	Power and Manual Operated Revolving Pedestrian Doors	IBC®
A ~~156.38—2014~~ 156.38—2020	Low Energy Power Operated Sliding and Folding Doors	IBC®

CSA — Canadian Standards Association

Standard Reference Number	Title	Referenced In Code(s):
ASME ~~A17.1—2016~~ A17.1—2019/CSA ~~B44—16~~ B44—19	Safety Code for Elevators and Escalators	IBC®
ASME A17.7—2007/CSA B44.7—07(R2017)	Performance-based Safety Code for Elevators and Escalators	IBC®

DASMA — Door & Access Systems Manufacturers Association International

Standard Reference Number	Title	Referenced in Code(s):
ANSI/DASMA ~~115—2016~~ 115—2017	Standard Method for Testing Sectional Garage Doors, Rolling Doors and Flexible Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure	IBC®

DOC — U.S. Department of Commerce

Standard Reference Number	Title	Referenced In Code(s):	
PS ~~1—09~~ 1—19	Structural Plywood	IBC®	IRC®
PS ~~2—10~~ 2—18	Performance Standard for ~~Wood-based Structural-use~~ Wood Structural Panels	IBC®	IRC®
PS 20—05	American Softwood Lumber Standard	IBC®	IRC®

FM — FM Approvals

Standard Reference Number	Title	Referenced in Code(s):
~~4880—2015~~ 4880—2017	~~Approval~~ American National Standard for ~~Class 1 Fire Rating of Building Panels or~~ Evaluating the Fire Performance Insulated Building Panel Assemblies and Interior Finish Materials	IBC®

GA — Gypsum Association

Standard Reference Number	Title	Referenced in Code(s):
GA ~~216—2016~~ 216—2018	Application and Finishing of Gypsum Panel Products	IBC®
GA ~~600—2015~~ 600—2018	Fire-resistance and Sound Control Design Manual, ~~21st~~ 22nd Edition	IBC®

NAAMM — National Association of Architectural Metal Manufacturers

Standard Reference Number	Title	Referenced in Code(s):
FP ~~1001—17~~ 1001—18	Guide Specifications for Design of Metal Flag Poles	IBC®

NCMA	National Concrete Masonry Association	
Standard Reference Number	**Title**	**Referenced In Code(s):**
TEK 5—84(~~1996~~ 2005)	Details for Concrete Masonry Fire Walls	IBC®

NFPA	National Fire Protection Association		
Standard Reference Number	**Title**	**Referenced In Code(s):**	
~~10—18~~ 10—21	Standard for Portable Fire Extinguishers	IBC®	IFC®
11—16	Standard for ~~Low~~ Low-, Medium, and High Expansion Foam	IBC®	IFC®
~~12A—15~~ 12A—18	Standard on Halon 1301 Fire Extinguishing Systems	IBC® IPMC®	IFC®
~~13—16~~ 13—19	Standard for Installation of Sprinkler Systems	IBC® IRC®	IFC®
~~13D—16~~ 13D—19	Standard for the Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes	IBC® IRC®	IFC®
~~13R—16~~ 13R—19	Standard for the Installation of Sprinkler Systems in Low-rise Residential Occupancies	IBC® IRC®	IFC®
~~14—16~~ 14—19	Standard for the Installation of Standpipe and Hose System	IBC®	IFC®
~~16—15~~ 16—19	Standard for the Installation of Foam-water Sprinkler and Foam-water Spray Systems	IBC®	IFC®
~~17—17~~ 17—20	Standard for Dry Chemical Extinguishing Systems	IBC® IPMC®	IFC®
~~17A—17~~ 17A—20	Standard for Wet Chemical Extinguishing Systems	IBC® IPMC®	IFC®
~~20—16~~ 20—19	Standard for the Installation of Stationary Pumps for Fire Protection	IBC®	IFC®
~~30—18~~ 30—21	Flammable and Combustible Liquids Code	IBC®	IFC®
~~30A—18~~ 30A—21	Code for Motor Fuel Dispensing Facilities and Repair Garages	IBC® IFGC®	IFC® IMC®
~~31—16~~ 31—20	Standard for the Installation of Oil-burning Equipment	IBC® IMC®	IFC® IRC®
32—16	Standard for ~~Dry Cleaning Plants~~ Drycleaning Facilities	IBC®	IFC®
~~40—16~~ 40—19	Standard for the Storage and Handling of Cellulose Nitrate Film	IBC®	IFC®
~~45—15~~ 45—19	Standard on Fire Protection Laboratories Using Chemicals (2015 Edition)	IBC®	IFC®
~~58—17~~ 58—20	Liquefied Petroleum Gas Code	IBC® IFGC® IRC®	IFC® IMC®
~~61—17~~ 61—20	Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Product Facilities	IBC®	IFC®
~~72—16~~ 72—19	National Fire Alarm and Signaling Code	IBC® IMC® IRC®	IFC® IPMC®
~~80—16~~ 80—19	Standard for Fire Doors and Other Opening Protectives	IBC® IPMC®	IFC®
~~82—14~~ 82—19	Standard on Incinerators and Waste and Linen Handling Systems and Equipment	IBC® IMC®	IFGC®
~~85—15~~ 85—19	Boiler and Combustion System Hazards Code	IBC® IFGC® IRC®	IFC® IMC®
~~92—15~~ 92—18	Standard for Smoke Control Systems	IBC® IMC®	IFC®

~~99—18~~ 99—21	Health Care Facilities Code	IBC® IPC®	IFC®
~~101—18~~ 101—21	Life Safety Code	IBC®	IFC®
~~105—16~~ 105—19	Standard for Smoke Door Assemblies and Other Opening Protectives	IBC® IPMC®	IFC®
~~110—16~~ 110—19	Standard for Emergency and Standby Power Systems	IBC®	IFC®
~~111—13~~ 111—19	Standard on Stored Electrical Energy Emergency and Standby Power Systems	IBC®	IFC®
~~120—15~~ 120—20	Standard for Fire Prevention and Control in Coal Mines	IBC®	IFC®
~~211—16~~ 211—19	Standard for Chimneys, Fireplaces, Vents and Solid Fuel-burning Appliances	IBC® IFGC® IRC®	IFC® IMC®
~~221—18~~ 221—21	Standard for High Challenge Fire Walls, Fire Walls and Fire Barrier Walls	IBC®	
~~253—15~~ 253—19	Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source	IBC®	IFC®
~~265—15~~ 265—19	Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile or Expanded Vinyl Wall Coverings on Full Height Panels and Walls	IBC®	IFC®
~~286—15~~ 286—19	Standard Methods of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth	IBC® IMC®	IFC® IRC®
~~276—15~~ 276—19	Standard Method of Fire Tests for Determining the Heat Release Rate of Roofing Assemblies with Combustible Above-deck Roofing Components	IBC®	
~~289—18~~ 289—19	Standard Method of Fire Test for Individual Fuel Packages	IBC®	IFC®
~~484—18~~ 484—19	Standard for Combustible Metals	IBC®	
~~652—16~~ 652—19	Standard on the Fundamentals of Combustible Dust	IBC®	IFC®
~~654—17~~ 654—20	Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids	IBC®	IFC®
~~664—17~~ 664—20	Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities	IBC®	IFC®
~~701—15~~ 701—19	Standard Methods of Fire Tests for Flame Propagation of Textiles and Films	IBC®	IFC®
~~750—15~~ 750—19	Standard on Water Mist Fire Protection Systems	IBC®	IFC®
~~2001—15~~ 2001—18	Standard on Clean Agent Fire Extinguishing Systems	IBC® IPMC®	IFC®
~~2010—15~~ 2010—20	Standard for Fixed Aerosol Fire-extinguishing Systems	IBC®	IFC®

PCI — Precast Prestressed Concrete Institute

Standard Reference Number	Title	Referenced In Code(s):
~~MNL-124—11~~ PCI 124—18	~~Design~~ Specification for Fire Resistance of Precast / Prestressed Concrete	IBC®
~~MNL-128—01~~ PCI 128—19	~~Recommended Practice~~ Specification for Glass Fiber Reinforced Concrete Panels	IBC®

PTI — Post-Tensioning Institute

Standard Reference Number	Title	Referenced In Code(s):
PTI ~~DC—10.5-12~~ DC—10.5-19	Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive and Stable Soils	IBC®

SBCA — Structural Building Components Association

Standard Reference Number	Title	Referenced in Code(s):
ANSI/FS 100-12(R2018)	Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulating	IBC®

Sheathing Used in Exterior Wall Covering Assemblies

SPRI — Single-Ply Roofing Institute

Standard Reference Number	Title	Referenced In Code(s):
ANSI/SPRI/FM ~~4435-ES-1—11~~ 4435 ES-1—17	Wind Test Design Standard for Edge Systems Used with Low Slope Roofing Systems	IBC®
ANSI/SPRI ~~RP-4—13~~ RP-4—18	Wind Design Guide for Ballasted Single-ply Roofing Systems	IBC®
ANSI/SPRI ~~VF-1—16~~ VF-1—17	External Fire Design Standard for Vegetative Roofs	IBC®

TIA — Telecommunications Industry Association

Standard Reference Number	Title	Referenced In Code(s):
~~222-H—2016~~ ANSI/TIA 222-H—2017	Structural ~~Standards~~ Standard for Antenna Supporting Structures ~~and Antennas~~ , Antennas and Small Wind Turbine Support Structures	IBC®

TMS — The Masonry Society

Standard Reference Number	Title	Referenced In Code(s):
~~302—2012~~ 302—2018	Standard Method for Determining the Sound Transmission Class Rating for Masonry Walls	IBC®

UL — UL LLC

Standard Reference Number	Title	Referenced in Code(s):	
10A—2009	Tin Clad Fire Doors—with Revisions through ~~December 2013~~ July 2018	IBC®	
~~10C—2009~~ 10C—2016	Positive Pressure Fire Tests of Door ~~Assemblies—with Revisions through February 2015~~ Assemblies	IBC®	
14B—2008	Sliding Hardware for Standard Horizontally Mounted Tin Clad Fire Doors—with Revisions through ~~May 2013~~ July 2017	IBC®	
~~14C—06~~ 14C—2006	Swinging Hardware for Standard Tin Clad Fire Doors Mounted Singly and in Pairs—with Revisions through ~~May 2013~~ July 2017	IBC®	
~~55A—04~~ 55A—2004	Materials for Built-up Roof Coverings	IBC®	IRC®
103—2010	Factory-built Chimneys, for Residential Type and Building Heating Appliances—with Revisions through ~~July 2012~~ March 2017	IBC® IMC®	IFGC® IRC®
127—2011	Factory-built Fireplaces—with Revisions through ~~May 2015~~ July 2016	IBC® IMC®	IFGC® IRC®
~~199E—04~~ 199E—2004	Outline of Investigation for Fire Testing of Sprinklers and Water Spray Nozzles for Protection of Deep Fat Fryers	IBC®	IFC®
~~217—06~~ 217—2015	Single and Multiple Station Smoke Alarms—with Revisions through ~~October 2015~~ November 2016	IBC® IRC®	IFC®
263—11	Fire Tests of Building Construction and Materials—with Revisions through ~~June 2015~~ March 2018	IBC®	
~~268—09~~ 268—2016	Smoke Detectors for Fire Alarm ~~Systems~~ Systems-with revisions through July 2016	IBC® IPMC®	IFC®
~~294—1999~~ 294—2018	Access Control System Units—with Revisions through ~~February 2015~~ October 2018	IBC®	IFC®
	Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking		

~~300—05~~ 300—2005(R2010)	Equipment—with Revisions through December 2014	IBC®	IFC®
~~300A—06~~ 300A—2006	Outline of Investigation for Extinguishing System Units for Residential Range Top Cooking Surfaces	IBC®	IFC®
305—2012	Panic Hardware—with Revisions through ~~August 2014~~ March 2017	IBC®	IFC®
~~325—02~~ 325—2017	Door, Drapery, Gate, Louver and Window Operations and ~~Systems—with Revisions through May 2015~~ Systems	IBC® IRC®	IFC®
555—2006	Fire Dampers—with Revisions through ~~May 2014~~ October 2016	IBC®	
~~555C—2006~~ 555C—2014	Ceiling Dampers—with Revisions through ~~December 2014~~ May 2017	IBC®	
~~555S—99~~ 555S—2014	Smoke Dampers—with Revisions through ~~February 2014~~ October 2016	IBC®	IMC®
580—2006	Test for Uplift Resistance of Roof Assemblies—with Revisions through October ~~2013~~ 2018	IBC®	
641—2010	Type L Low-temperature Venting Systems—with Revisions through ~~June 2013~~ April 2018	IBC® IMC®	IFGC® IRC®
~~723—2008~~ 723—2018	Test for Surface Burning Characteristics of Building ~~Materials—with Revisions through August 2013~~ Materials	IBC® IWUIC®	IMC®
~~790—04~~ 790—2004	Standard Test Methods for Fire Tests of Roof Coverings—with Revisions through ~~July 2014~~ October 2018	IBC® IFC®	IEBC® IRC®
~~793—08~~ 793—2008	Automatically Operated Roof Vents for Smoke and Heat—with Revisions through ~~September 2011~~ March 2017	IBC®	IFC®
~~864—03~~ 864—2014	Control Units and Accessories for Fire Alarm Systems—with Revisions through ~~December 2014~~ March 2018	IBC®	IFC®
~~924—06~~ 924—2016	Safety Emergency Lighting and Power Equipment—with Revisions through ~~April 2014~~ May 2018	IBC®	IFC®
~~1040—96~~ 1040—1996	Fire Test of Insulated Wall Construction—with Revisions through ~~October 2012~~ April 2017	IBC®	IRC®
1256—02	Fire Test of Roof Deck Construction—with Revisions through ~~July 2013~~ August 2018	IBC®	IRC®
~~1479—03~~ 1479—2015	Fire Tests of Penetration ~~Firestops—with Revisions through June 2015~~ Firestops	IBC® IRC®	IMC®
~~1703—02~~ 1703—2002	Flat-plate Photovoltaic Modules and Panels—with Revisions through ~~October 2015~~ September 2018	IBC®	IRC®
1715—97	Fire Test of Interior Finish Material—with Revisions through ~~January 2013~~ April 2017	IBC®	IRC®
1741—2010	Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources—with Revisions through ~~January 2015~~ February 2018	IBC®	IRC®
1777—2007	Chimney Liners—with Revisions through ~~October 2015~~ April 2014	IBC® IMC®	IFGC®
~~1784—01~~ 1784—2015	Air Leakage Tests of Door ~~Assemblies—with Revisions through February 2015~~ Assemblies	IBC®	IECC
~~1897—12~~ 1897—2015	Uplift Tests for Roof Covering ~~Systems—with Revisions through September 2015~~ Systems	IBC®	IRC®
~~1994—04~~ 1994—2015	Luminous Egress Path Marking ~~Systems—with Revisions through May 2015~~ Systems	IBC®	IFC®
~~2034—2008~~ 2034—2017	Single- and Multiple-station Carbon Monoxide Alarms—with Revisions through ~~March 2015~~ September 2018	IBC®	
2075—2013	Standard for Gas and Vapor Detectors and ~~Sensors~~ Sensors-with revisions through December 2017	IBC® IMC®	IFC® IRC®
~~2079—04~~ 2079—2015	Tests for Fire Resistance of Building Joint ~~Systems—with Revisions through August 2015~~ Systems	IBC®	IFC®
~~2196—2001~~ 2196—2017	~~Tests~~ Standard for Fire ~~Resistive Cables—with Revisions through March 2012~~ Test for Circuit Integrity of Fire- Resistive Power, Instrumentation, Control and Data Cables	IBC®	IFC®
2200—2012	Stationary Engine Generator Assemblies—with Revisions through ~~July~~ October 2015	IBC® IFGC®	IFC® IMC®
2202—2009	Electric Vehicle (EV) Charging System ~~Equipment~~ Equipment-with revisions through February 2018	IBC®	

~~2594—2013~~ 2594—2016	Electric Vehicle Supply Equipment	IBC®
2703—2014	~~Outline of Investigation for~~ Mounting Systems, Mounting Devices, Clamping/Retention Devices and Ground Lugs for Use with Flat-plate Photovoltaic Modules and ~~Panels~~ Panels-with revisions through December 2019	IBC®

ULC	Underwriters Laboratories of Canada		
Standard Reference Number	**Title**	**Referenced in Code(s):**	
CAN/ULC S ~~102.2—2010~~ 102.2—2018	Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and ~~Assemblies—with 2000 Revisions~~ Assemblies	IBC®	IRC®

Reason: THIS IS THE ADMIN STANDARDS UPDATE CODE CHANGE FOR THE IBC.
The CP28 Code Development Policy, Section 4.6 requires the updating of referenced standards to be accomplished administratively, and be processed as a Code Change Proposal for consideration by the Administrative Code Change Committee. In September 2018, a letter was sent to each developer of standards that is referenced in the International Codes, asking them to provide ICC with a list of their standards in order to update to the current edition. Listed are the referenced standards that are to be updated based upon responses received from standard developers.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Not applicable.

Proposal # 5823

ADM47-IBC-19

Code Change No: ADM47-16

Original Proposal

The following table provides a comprehensive list of all standards that the respective standards promulgators have indicated have been, or will be, updated from the listing in the 2018 Editions of the International Codes. According to Section 4.5.1 of ICC Council Policy #CP 28, Code Development Policy, the updating of standards referenced by the Codes shall be accomplished administratively by the Administrative code development committee. Therefore, referenced standards that are to beupdated for the 2020 edition of any of the I-Codes are listed in this single code change proposal. Note that the table below indicates the change to the standard, and the code or codes in which each standard appears. The list includes standards that the promulgators have already updated or will have updated by December 1, 2020.

AA — Aluminum Association

Standard Reference Number	Title	Referenced In Code(s):	
~~ADM1—2015~~ ADM1—2020	Aluminum Design Manual: Part ~~1—A Specification~~ 1—Specification for Aluminum Structures	IBC®	

AAMA — American Architectural Manufacturers Association

Standard Reference Number	Title	Referenced in Code(s):	
~~711—16~~ 711—20	Voluntary Specification for Self Adhering Flashing Used for Installation of Exterior Wall Fenestration Products	IBC®	IRC®
~~714—15~~ 714—20	Voluntary Specification for Liquid Applied Flashing Used to Create a Water-resistive Seal around Exterior Wall Openings in Buildings	IBC®	IRC®

ACI — American Concrete Institute

Standard Reference Number	Title	Referenced in Code(s):	
~~318—14~~ 318—19	Building Code Requirements for Structural Concrete	IBC®	IRC®

AISI — American Iron and Steel Institute

Standard Reference Number	Title	Referenced in Code(s):	
AISI S100—16/S1-18	North American Specification for the Design of Cold-formed Steel Structural Members, 2016, with Supplement 1, dated 2018	IBC®	IRC®
AISI ~~S202—15~~ S202—20	Code of Standard Practice for Cold-formed Steel Structural Framing, ~~2015~~ 2020	IBC®	
AISI ~~S220—15~~ S220—20	North American Standard for Cold-formed Steel Framing—Nonstructural Members, ~~2015~~ 2020	IBC®	IRC®
AISI ~~S230—15~~ S230—18	Standard for Cold-formed Steel Framing—Prescriptive Method for One- and Two-family Dwellings, ~~2015~~ 2018	IBC®	IRC®
AISI ~~S240—15~~ S240—20	North American Standard for Cold-Formed Steel Structuring Framing, ~~2015~~ 2020	IBC®	IRC®
AISI ~~S400—15/S1—16~~ S400—20	North American Standard for Seismic Design of Cold-formed Steel Structural Systems, ~~2015, with Supplement 1, dated 2016;~~ 2020	IBC®	

ANSI — American National Standards Institute

Standard Reference Number	Title	Referenced in Code(s):	
~~A13.1—2015~~ A13.1—2020	Scheme for the Identification of Piping Systems	IBC®	IFC®
~~A108.1A—16~~ A108.1A—17	Installation of Ceramic Tile in the Wet-set Method, with Portland Cement Mortar	IBC®	IRC®
~~A108.1B—99~~ A108.1B—17	Installation of Ceramic Tile, Quarry Tile on a Cured Portland Cement Mortar Setting Bed with Dry-set or Latex-Portland Mortar	IBC®	IRC®
~~A108.4—99~~ A108.4—09	Installation of Ceramic Tile with Organic Adhesives or Water-cleanable Tile-setting Epoxy Adhesive	IBC®	IRC®

~~A108.5—99~~ A108.5—19	Installation of Ceramic Tile with Dry-set Portland Cement Mortar or Latex-Portland Cement Mortar	IBC®	IRC®
~~A108.6—99~~ A108.6—19	Installation of Ceramic Tile with Chemical-resistant, Water Cleanable Tile-setting and -grouting Epoxy	IBC®	IRC®
~~A108.8—99~~ A108.8—19	Installation of Ceramic Tile with Chemical-resistant Furan Resin Mortar and Grout	IBC®	
~~A108.9—99~~ A108.9—19	Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout	IBC®	
~~A108.10—99~~ A108.10—17	Installation of Grout in Tilework	IBC®	
~~A118.1—16~~ A118.1—18	American National Standard Specifications for Dry-set Portland Cement Mortar	IBC®	IRC®
~~A118.3—13~~ A118.3—20	American National Standard Specifications for Chemical-resistant, Water-cleanable Tile-setting and -grouting Epoxy and Water Cleanable Tile-setting Epoxy Adhesive	IBC®	IRC®
~~A118.4—16~~ A118.4—18	American National Standard Specifications for Modified Dry-set Cement Mortar	IBC®	IRC®
~~A118.6—18~~ A118.6—19	American National Standard Specifications for Cement Grouts for Tile Installation	IBC®	
~~A136.1—08~~ A136.1—19	American National Standard Specifications for the Installation of Ceramic Tile	IBC®	IRC®
~~A137.1—17~~ A137.1—19	American National Standard Specifications for Ceramic Tile	IBC®	IRC®

APA — APA - Engineered Wood Association

Standard Reference Number	Title	Referenced In Code(s):
ANSI ~~117—15~~ 117—2020	Standard Specification for Structural Glued Laminated Timber of Softwood Species	IBC®
ANSI/APA ~~A190.1—17~~ A190.1—2017	Structural Glued Laminated Timber	IBC®
ANSI/APA PRP ~~210—14~~ 210—2019	Standard for Performance-Rated Engineered Wood Siding	IBC®
APA ~~PDS—12~~ PDS—20	Panel Design Specification	IBC®
ANSI/APA PRG ~~320—17~~ 320—2019	Standard for Performance-rated Cross-laminated Timber	IBC®
APA ~~R540—13~~ R540—19	~~Builders~~ Builder Tips: Proper Storage and Handling of Glulam Beams	IBC®
APA ~~S475—16~~ S475—20	Glued Laminated Beam Design Tables	IBC®
APA ~~S560—14~~ S560—20	Field Notching and Drilling of Glued Laminated Timber Beams	IBC®
APA ~~X450—01~~ X450—18	Glulam in Residential ~~Construction—Western Edition~~ Building—Construction Guide	IBC®

ASABE — American Society of Agricultural and Biological Engineers

Standard Reference Number	Title	Referenced In Code(s):
EP 484.3 ~~MON2016~~ DEC2017	Diaphragm Design of Metal-clad, Wood-frame Rectangular Buildings	IBC®
EP ~~486.2 OCT 2012ED~~ 486.3 SEP2017	Shallow-post and Pier Foundation Design	IBC®
EP ~~559.2 MON2016~~ 559.1 W/Corr. AUG2010 (R2014)	Design Requirements and Bending Properties for Mechanically Laminated Wood Assemblies	IBC®

ASCE/SEI — American Society of Civil EngineersStructural Engineering Institute

Standard Reference Number	Title	Referenced in Code(s):	
7—16 with Supplement 1	Minimum Design Loads and Associated Criteria for Buildings and Other Structures	IBC® IRC®	IEBC®

~~24—14~~ 24—20	Flood Resistant Design and Construction	IBC®	IRC®
~~29—17~~ 29—19	Standard Calculation Methods for Structural Fire Protection	IBC®	
~~49—07~~ 49—12	Wind Tunnel Testing for Buildings and Other Structures	IBC®	

ASME — American Society of Mechanical Engineers

Standard Reference Number	Title	Referenced in Code(s):	
ASME/~~A17.1—2016~~ A17.1—2019/CSA ~~B44—16~~ B44—19	Safety Code for Elevators and Escalators	IBC®	
A17.7—2007/CSA B44—07(~~R2012~~ R2019)	Performance-based Safety Code for Elevators and Escalators	IBC®	
~~A18.1—2014~~ A18.1—2020	Safety Standard for Platform Lifts and Stairway Chairlifts	IBC® IRC®	IEBC®
~~A90.1—2015~~ A90.1—2020	Safety Standard for Belt Manlifts	IBC®	
~~B16.18—2012~~ B16.18—2018	Cast Copper Alloy Solder Joint Pressure Fittings	IBC® IMC® IRC®	IFC® IPC®
~~B16.22—2013~~ B16.22—2018	Wrought Copper and Copper Alloy Solder Joint Pressure Fittings	IBC® IMC® IRC®	IFC® IPC®
~~B20.1—2015~~ B20.1—2021	Safety Standard for Conveyors and Related Equipment	IBC®	
~~B31.3—2016~~ B31.3—2020	Process Piping	IBC® IFGC®	IFC®

ASSE — American Society of Safety Engineers

Standard Reference Number	Title	Referenced In Code(s):	
ANSI/~~ASSE Z359.1—2016~~ ASSP Z359.1—2019	~~Requirements for the ANSI/ASSE Z359~~ The Fall Protection Code	IBC® IMC®	IFC®

ASTM — ASTM International

Standard Reference Number	Title	Referenced in Code(s):	
A6/~~A6M—14~~ A6M—2017A	Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes and Sheet Piling	IBC®	
A153/~~A153M—09~~ A153M—2016A	Specification for Zinc Coating (Hot-dip) on Iron and Steel Hardware	IBC®	IRC®
~~A240/A240M—15a~~ A240M—17	Standard Specification for Chromium and Chromium-nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications	IBC® ISPSC®	IRC®
~~A252—10~~ A252—2010(2018)	Specification for Welded and Seamless Steel Pipe Piles	IBC®	
A283/~~A283M—13~~ A283M—2018	Specification for Low and Intermediate Tensile Strength Carbon Steel Plates	IBC®	
A416/~~A416M—15~~ A416M—2017A	Specification for Steel Strand, Uncoated Seven-wire for Prestressed Concrete	IBC®	
A572/~~A572M—15~~ A572M—2018	Specification for High-strength Low-alloy Columbium-Vanadium Structural Steel	IBC®	
A653/~~A653M—15~~ A653M—2017	Specification for Steel Sheet, Zinc-coated Galvanized or Zinc-iron Alloy-coated Galvannealed by the Hot-dip Process	IBC®	IRC®

A690/A690M—13a(2018)	Standard Specification for High-strength Low-alloy Nickel, Copper, Phosphorus Steel H-piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments	IBC®	
~~A706/A706M—15~~ A706M—2016	Specification for Low-alloy Steel Deformed and Plain Bars for Concrete Reinforcement	IBC®	IRC®
~~A722/A722M—15~~ A722M—2018	Specification for High-strength Steel Bars for Prestressed Concrete	IBC®	
~~A755/A755M—15~~ A755M—2016E1	Specification for Steel Sheet, Metallic-coated by the Hot-dip Process and Prepainted by the Coil-coating Process for Exterior Exposed Building Products	IBC®	
~~A924/A924M—14~~ A924M—2017A	Standard Specification for General Requirements for Steel Sheet, Metallic-coated by the Hot-dip Process	IBC®	IRC®
~~B88—14~~ B88—2016	Specification for Seamless Copper Water Tube	IBC® IFGC® IPC® IRC®	IFC® IMC® IPSDC® ISPSC®
~~B251—10~~ B251/B251M—2017	Specification for General Requirements for Wrought Seamless Copper and Copper-alloy Tube	IBC® IMC® IPSDC®	IFC® IPC® IRC®
~~B280—13~~ B280—2018	Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service	IBC® IFGC®	IFC® IMC®
~~B695—04~~ B695—2004(~~2009~~ 2016)	Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel Strip for Building Construction	IBC®	IRC®
~~C5—18~~ C5—2018	Specification for Quicklime for Structural Purposes	IBC®	IRC®
~~C27—98~~ C27—1998(~~2013~~ 2018)	Specification for Classification of Fireclay and High-alumina Refractory Brick	IBC®	IRC®
C31/~~C31M—15~~ C31M—2018B	Practice for Making and Curing Concrete Test Specimens in the Field	IBC®	
C33/~~C33M—13~~ C33M—2018	Specification for Concrete Aggregates	IBC®	IRC®
~~C55—2014e~~ C55—2017	Specification for Concrete Building Brick	IBC®	IRC®
~~C62—13a~~ C62—2017	Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)	IBC®	IRC®
~~C67—14~~ C67/C67M—2018	Test Methods of Sampling and Testing Brick and Structural Clay Tile	IBC®	
~~C73—14~~ C73—2017	Specification for Calcium Silicate Brick (Sand-lime Brick)	IBC®	IRC®
~~C90—14~~ C90—2016A	Specification for Loadbearing Concrete Masonry Units	IBC® IRC®	IECC
C91/~~C91M—12~~ C91M—2018	Specification for Masonry Cement	IBC®	IRC®
C94/~~C94M—15a~~ C94M—2017A	Specification for Ready-mixed Concrete	IBC® IRC®	IEBC®
C140/~~C140M—15~~ C140M—2018	Test Method Sampling and Testing Concrete Masonry Units and Related Units	IBC®	
C150/~~C150M—15~~ C150M—2018	Specification for Portland Cement	IBC®	IRC®
C172/~~C172M—14a~~ C172M—2017	Practice for Sampling Freshly Mixed Concrete	IBC®	
~~C199—84~~ C199—1984(~~2011~~ 2016)	Test Method for Pier Test for Refractory Mortars	IBC®	IRC®
~~C208—12~~ C208—2012(2017)E1	Specification for Cellulosic Fiber Insulating Board	IBC®	IRC®
~~C216—15~~ C216—2017A	Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale)	IBC®	IRC®
~~C315—07~~ C315—2007(~~2011~~ 2016)	Specification for Clay Flue Liners and Chimney Pots	IBC® IMC®	IFGC® IRC®

C317/~~C317M—00~~ C317M—2000(2015)	Specification for Gypsum Concrete	IBC®	
C330/~~C330M—14~~ C330M—2017A	Specification for Lightweight Aggregates for Structural Concrete	IBC®	
C331/~~C331M—14~~ C331M—2017	Specification for Lightweight Aggregates for Concrete Masonry Units	IBC®	
~~C473—15~~ C473—2017	Test Methods for Physical Testing of Gypsum Panel Products	IBC®	
C475/~~C475M—15~~ C475M—2017	Specification for Joint Compound and Joint Tape for Finishing Gypsum Board	IBC®	IRC®
~~C516—08~~ C516—2008(~~2014~~ 2013)~~e1~~ E1	Specifications for Vermiculite Loose Fill Thermal Insulation	IBC®	
~~C547—15~~ C547—2017	Specification for Mineral Fiber Pipe Insulation	IBC®	
C549—06(2012)	Specification for Perlite Loose Fill Insulation	IBC®	
~~C552—15~~ C552—2017E1	Standard Specification for Cellular Glass Thermal Insulation	IBC®	IRC®
~~C557—03~~ C557—2003(~~2009~~ 2017)~~e01~~	Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing	IBC®	IRC®
~~C578—15~~ C578—2018	Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation	IBC®	IRC®
~~C587—04~~ C587—2004(~~2014~~ 2018)	Specification for Gypsum Veneer Plaster	IBC®	IRC®
C595/~~C595M—14e1~~ C595M—2018	Specification for Blended Hydraulic Cements	IBC®	IRC®
C635/~~C635M—13a~~ C635M—2017	Specification for the Manufacture, Performance and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings	IBC®	
~~C652—15~~ C652—2017A	Specification for Hollow Brick (Hollow Masonry Units Made from Clay or Shale)	IBC®	IRC®
~~C726—12~~ C726—2017	Standard Specification for Mineral Wool Roof Insulation Board	IBC®	IRC®
~~C728—15~~ C728—2017A	Standard Specification for Perlite Thermal Insulation Board	IBC®	IRC®
~~C744—14~~ C744—2016	Specification for Prefaced Concrete and Calcium Silicate Masonry Units	IBC®	IRC®
~~C754—15~~ C754—2018	Specification for Installation of Steel Framing Members to Receive Screw-attached Gypsum Panel Products	IBC®	
C836/~~C836M—15~~ C836M—2018	Specification for High-solids Content, Cold Liquid-applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course	IBC®	IRC®
~~C840—13~~ C840—2018A	Specification for Application and Finishing of Gypsum Board	IBC®	
~~C841—03~~ C841—2003(~~2013~~ 2018)	Specification for Installation of Interior Lathing and Furring	IBC®	IRC®
~~C843—99(2012)~~ C843—2017	Specification for Application of Gypsum Veneer Plaster	IBC®	IRC®
~~C847—14a~~ C847—2018	Specification for Metal Lath	IBC®	IRC®
~~C920—14a~~ C920—2018	Standard for Specification for Elastomeric Joint Sealants	IBC®	IRC®
~~C926—15b~~ C926—2018B	Specification for Application of Portland Cement-based Plaster	IBC®	IRC®
~~C933—14~~ C933—2018	Specification for Welded Wire Lath	IBC®	IRC®
~~C946—10~~ C946—2018	Specification for Construction of Dry-stacked, Surface-bonded Walls	IBC®	IRC®
~~C954—15~~ C954—2018	Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 inch (0.84 mm) to 0.112 inch (2.84 mm) in Thickness	IBC®	IRC®
C957/~~C957M—15~~ C957M—2017	Specification for High-solids Content, Cold Liquid-applied Elastomeric Waterproofing Membrane with Integral Wearing Surface	IBC®	IRC®
~~C1002—14~~ C1002—2018	Specification for Steel Self-piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs	IBC®	IRC®
~~C1032—14~~ C1032—2018	Specification for Woven Wire Plaster Base	IBC®	IRC®
~~C1047—14a~~ C1047—2018	Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base	IBC®	IRC®
	Specification for Installation of Lathing and Furring to Receive Interior and Exterior		

~~C1063—15a~~ C1063—2018B	Portland Cement-based Plaster	IBC®	IRC®
~~C1088—14~~ C1088—2018	Specification for Thin Veneer Brick Units Made from Clay or Shale	IBC®	IRC®
C1157/~~C1157M—11~~ C1157M—2017	Standard Performance Specification for Hydraulic Cement	IBC®	
~~C1167—11~~ C1167—2011(2017)	Specification for Clay Roof Tiles	IBC®	IRC®
C1177/~~C1177M—13~~ C1177M—2017	Specification for Glass Mat Gypsum Substrate for Use as Sheathing	IBC®	IRC®
C1178/~~C1178M—13~~ C1178M—2018	Specification for Coated Mat Water-resistant Gypsum Backing Panel	IBC®	IRC®
~~C1186—08~~ C1186—2008(~~2012~~ 2016)	Specification for Flat Fiber Cement Sheets	IBC®	IRC®
~~C1261—13~~ C1261—2013(2017)E1	Specification for Firebox Brick for Residential Fireplaces	IBC®	IRC®
C1278/~~C1278M—07a(2011)~~ C1278M—2017	Specification for Fiber-reinforced Gypsum Panel	IBC®	IRC®
~~C1283—11~~ C1283—2015	Practice for Installing Clay Flue Lining	IBC®	IRC®
~~C1288—14~~ C1288—2017	Standard Specification for Discrete Nonasbestos Fiber-cement Interior Substrate Sheets	IBC®	IRC®
~~C1289—15~~ C1289—2018	Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board	IBC®	IRC®
~~C1325—14~~ C1325—2018	Standard Specification for Nonasbestos Fiber-mat Reinforced Cement Backer Units	IBC®	IRC®
~~C1364—18B~~ C1364—2017	Standard Specification for Architectural Cast Stone	IBC®	IRC®
C1396/~~C1396M—14a~~ C1396M—2017	Specification for Gypsum Board	IBC®	
~~C1492—03~~ C1492—2003(~~2009~~ 2016)	Standard Specification for Concrete Roof Tile	IBC®	IRC®
C1600/~~C1600M—11~~ C1600M—2017	Standard Specification for Rapid Hardening Hydraulic Cement	IBC®	
C1629/~~C1629M—15~~ C1629M—2018A	Standard Classification for Abuse-resistant Nondecorated Interior Gypsum Panel Products and Fiber-reinforced Cement Panels	IBC®	
C1658/~~C1658M—13~~ C1658M—2018	Standard Specification for Glass Mat Gypsum Panels	IBC®	IRC®
~~C1670—16~~ C1670/C1670M—2018	Standard Specification for Adhered Manufactured Stone Masonry Veneer Units	IBC®	
~~C1766—13~~ C1766—2015	Standard Specification for Factory-laminated Gypsum Panel Products	IBC®	IRC®
~~D25—12~~ D25—2012(2017)	Specification for Round Timber Piles	IBC®	
D41/~~D41M—11~~ D41M—2011(2016)	Specification for Asphalt Primer Used in Roofing, Dampproofing and Waterproofing	IBC®	
D43/~~D43M—00~~ D43M—2000(~~2012~~ 2018)~~e1~~	Specification for Coal Tar Primer Used in Roofing, Dampproofing and Waterproofing	IBC®	
~~D56—05(2010)~~ D56—2016A	Test Method for Flash Point by Tag Closed Cup Tester	IBC® IMC®	IFC®
~~D86—15~~ D86—2017	Test Method for Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure	IBC®	IFC®
~~D93—15~~ D93—2018	Test Methods for Flash Point by Pensky-Martens Closed Cup Tester	IBC® IMC®	IFC®
D226/~~D226M—09~~ D226M—2017	Specification for Asphalt-saturated Organic Felt Used in Roofing and Waterproofing	IBC®	IRC®
D227/~~D227M—03~~ D227M—2003(~~2011~~ 2018)~~e1~~	Specification for Coal-tar-saturated Organic Felt Used in Roofing and Waterproofing	IBC®	IRC®
D312/~~D312M—15~~ D312M—			

~~2016M~~ D448—2012~~(2017)~~	Specification for Asphalt Used in Roofing Standard Classification for Sizes of Aggregate for Road and Bridge Construction	IBC® IBC®	
D450/~~D450M—07~~ D450M—2017(~~2013~~ 2018)~~e1~~	Specification for Coal-tar Pitch Used in Roofing, Dampproofing and Waterproofing	IBC®	IRC®
D1143/~~D1143M—07~~ D1143M—2007(2013) E1	Test Methods for Deep Foundations Under Static Axial Compressive Load	IBC®	
D1863/~~D1863M—05~~ D1863M—2005(~~2011~~ 2018)~~e1~~	Specification for Mineral Aggregate Used on Built-up Roofs	IBC®	IRC®
D1970/~~D1970M—15a~~ D1970M—2017A	Specification for Self-adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roof Underlayment for Ice Dam Protection	IBC®	
D2178/~~D2178M—15~~ D2178M—15A	Specification for Asphalt Glass Felt Used in Roofing and Waterproofing	IBC®	IRC®
~~D2487—11~~ D2487—2017	Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)	IBC®	
D2822/~~D2822M—05~~ D2822M—2005(2011)~~e1~~	Specification for Asphalt Roof Cement, Asbestos Containing	IBC®	IRC®
D2824/~~D2824M—13~~ D2824M—2018	Standard Specification for Aluminum-pigmented Asphalt Roof Coatings, Nonfibered and Fibered without Asbestos	IBC®	
~~D2859—16~~ D2859—2016	Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials	IBC®	IFC®
~~D2898—10~~ D2898—2010(2017)	Test Methods for Accelerated Weathering of Fire-retardant-treated Wood for Fire Testing	IBC® IWUIC®	IRC®
~~D3019—08~~ D3019/D3019M—2017	Specification for Lap Cement Used with Asphalt Roll Roofing, Nonfibered, Asbestos Fibered and Nonasbestos Fibered	IBC®	IRC®
D3161/~~D3161M—15~~ D3161M—2016A	Test Method for Wind Resistance of Steep Slope Roofing Products (Fan Induced Method)	IBC®	IRC®
~~D3200—74~~ D3200—1974(~~2012~~ 2017)	Standard Specification and Test Method for Establishing Recommended Design Stresses for Round Timber Construction Poles	IBC®	
D3462/~~D3462M—10a~~ D3462M—2016	Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules	IBC®	IRC®
~~D3679—13~~ D3679—2017	Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding	IBC®	IRC®
~~D3737—12~~ D3737—2018E1	Practice for Establishing Allowable Properties for Structural Glued Laminated Timber (Glulam)	IBC®	
~~D3746—85~~ D3746/D3746M—1985(~~2008~~ 2015) E1	Test Method for Impact Resistance of Bituminous Roofing Systems	IBC®	
~~D3957—09~~ D3957—2009(2015)	Standard Practices for Establishing Stress Grades for Structural Members Used in Log Buildings	IBC®	
~~D4318—10e1~~ D4318—2017E1	Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils	IBC®	IRC®
D4434/~~D4434M—12~~ D4434M—2015	Specification for Poly (Vinyl Chloride) Sheet Roofing	IBC®	IRC®
D4479/~~D4479M—07~~ D4479M—2007(~~2012~~ 2018)~~e1~~	Specification for Asphalt Roof Coatings—Asbestos-free	IBC®	IRC®
D4586/~~D4586M—07~~ D4586M—2007(~~2012~~ 2018)~~e1~~	Specification for Asphalt Roof Cement—Asbestos-free	IBC®	IRC®
D4637/~~D4637M—14e1~~ D4637M—2015	Specification for EPDM Sheet Used in Single-ply Roof Membrane	IBC®	IRC®
D4869/~~D4869M—15~~ D4869M—2016A	Specification for Asphalt-saturated (Organic Felt) Underlayment Used in Steep Slope Roofing	IBC®	IRC®
~~D4897/D4897M—01(2009)~~			

~~D4897M—2016~~ ~~D4945—12~~ D4945—2017	Specification for Asphalt-coated Glass Fiber Venting Base Sheet Used in Roofing Test Method for High-strain Dynamic Testing of Deep Foundations	IBC® IBC®	IRC®
~~D5055—13e1~~ D5055—2016	Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-joists	IBC®	IRC®
~~D5456—14b~~ D5456—2018	Specification for Evaluation of Structural Composite Lumber Products	IBC®	IRC®
~~D5516—09~~ D5516—2018	Test Method of Evaluating the Flexural Properties of Fire-retardant Treated Softwood Plywood Exposed to Elevated Temperatures	IBC®	IRC®
D5643/~~D5643M—06~~ D5643M—2006(~~2012~~ 2018)~~e1~~	Specification for Coal Tar Roof Cement, Asbestos-free	IBC®	IRC®
~~D5664—10~~ D5664—2017	Standard Test Method for Evaluating the Effects of Fire-retardant Treatment and Elevated Temperatures on Strength Properties of Fire-retardant Treated Lumber	IBC®	IRC®
~~D6083—05e01~~ D6083/D6083M—2018	Specification for Liquid Applied Acrylic Coating Used in Roofing	IBC®	IRC®
D6162/~~D6162M—00a(2015)e1~~ D6162M—2016	Specification for Styrene-butadiene-styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements	IBC®	
D6163/~~D6163M—00(2015)e1~~ D6163M—2016	Specification for Styrene-butadiene-styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements	IBC®	
D6164/~~D6164M—11~~ D6164M—2016	Specification for Styrene-butadiene-styrene (SBS) Modified Bituminous Sheet Metal Materials Using Polyester Reinforcements	IBC®	IRC®
D6222/~~D6222M—11~~ D6222M—2016	Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements	IBC®	IRC®
D6223/~~D6223M—02(2009)e1~~ D6223M—2016	Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements	IBC®	IRC®
~~D6298—13~~ D6298/D6298M—2016	Specification for Fiberglass Reinforced Styrene-butadiene-styrene (SBS) Modified Bituminous Sheets with a Factory Applied Metal Surface	IBC®	IRC®
D6380/~~D6380M—03~~ D6380M—2003(~~2013~~ 2018)~~e1~~	Standard Specification for Asphalt Roll Roofing (Organic) Felt	IBC®	
~~D6464—03a~~ D6464—2003A(~~2009~~ 2017)~~e1~~	Standard Specification for Expandable Foam Adhesives for Fastening Gypsum Wallboard to Wood Framing	IBC®	IRC®
D6509/~~D6509M—09(2015)~~ D6509M—2016	Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Base Sheet Materials Using Glass Fiber Reinforcements	IBC®	
D6754/~~D6754M—10~~ D6754M—2015	Standard Specification for Ketone Ethylene Ester Based Sheet Roofing	IBC®	IRC®
~~D6757—2013~~ D6757/D6757M—2018	Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep Slope Roofing	IBC®	IRC®
~~D6841—08~~ D6841—2016	Standard Practice for Calculating Design Value Treatment Adjustment Factors for Fire-retardant Treated Lumber	IBC®	IRC®
D6878/~~D6878M—13~~ D6878M—2017	Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing	IBC®	IRC®
D6947/~~D6947M—07(2013)e1~~ D6947M—2016	Standard Specification for Liquid Applied Moisture Cured Polyurethane Coating Used in Spray Polyurethane Foam Roofing System	IBC®	IRC®
~~D7032—14~~ D7032—2017	Standard Specification for Establishing Performance Ratings for Wood, Plastic Composite Deck Boards and Guardrail Systems (Guards or Rails)	IBC® IWUIC®	IRC®
~~D7147—11~~ D7147—2011(2018)	Specification for Testing and Establishing Allowable Loads of Joist Hangers	IBC®	
D7158/~~D7158M—16~~ D7158M—2019	Standard Test Method for Wind Resistance of Asphalt Shingles (Uplift Force/Uplift Resistance Method)	IBC®	
~~D7254—15~~ D7254—2017	Standard Specification for Polypropylene (PP) Siding	IBC®	IRC®
D7655/~~D7655M—12~~ D7655M—2012(2017)	Standard Classification for Size of Aggregate Used as Ballast for Roof Membrane Systems	IBC®	

~~D7672—14~~ D7672—14E1	Standard Specification for Evaluating Structural Capacities of Rim Board Products and Assemblies	IBC®	IRC®
~~E84—16~~ E84—2018B	Standard Test Methods for Surface Burning Characteristics of Building Materials	IBC®	
~~E90—09~~ E90—2009(2016)	Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements	IBC®	
~~E96/E96M—15~~ E96M—2016	Standard Test Methods for Water Vapor Transmission of Materials	IBC®	
~~E108—16~~ E108—2017	Standard Test Methods for Fire Tests of Roof Coverings	IBC® IWUIC®	IEBC®
~~E119—16~~ E119—2018B	Standard Test Methods for Fire Tests of Building Construction and Materials	IBC®	
~~E136—16~~ E136—2016A	Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C	IBC® IFGC® IWUIC®	IEBC® IMC®
~~E283—04~~ E283—2004(2012)	Standard Test Method for Determining Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences across the Specimen	IBC® IECC	IECC IRC®
~~E331—00~~ E331—2000(~~2009~~ 2016)	Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference	IBC®	IRC®
~~E492—09~~ E492—2009(2016)E1	Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-ceiling Assemblies Using the Tapping Machine	IBC®	
~~E648—15c1~~ E648—2017A	Standard Test Method for Critical Radiant Flux of Floor-covering Systems Using a Radiant Heat Energy Source	IBC®	IFC®
E736/~~E736M—00(2015)e1~~ E736M—2017	Test Method for Cohesion/Adhesion of Sprayed Fire-resistive Materials Applied to Structural Members	IBC®	
E814—2013A(2017)	Test Method for Fire Tests of Penetration Firestop Systems	IBC®	IRC®
~~E970—14~~ E970—2017	Standard Test Method for Critical Radiant Flux of Exposed Attic Floor Insulation Using a Radiant Heat Energy Source	IBC®	IRC®
~~E1300—12ae1~~ E1300—2016	Practice for Determining Load Resistance of Glass in Buildings	IBC®	
~~E1354—16~~ E1354—17	Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter	IBC®	
~~E1592—05~~ E1592—2005(~~2012~~ 2017)	Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference	IBC®	
~~E1602—03~~ E1602—2003(~~2010~~ 2017)e1	Guide for Construction of Solid Fuel-burning Masonry Heaters	IBC®	IRC®
~~E1886—13A~~ E1886—2013A	Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials	IBC®	IRC®
~~E1996—14a~~ E1996—2017	Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes	IBC®	
~~E2174—14b~~ E2174—2018	Standard Practice for On-site Inspection of Installed Fire Stops	IBC®	
~~E2273—03(2011)~~ E2273—2018	Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies	IBC®	IRC®
~~E2307—15b~~ E2307—15BE1	Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using the Intermediate-scale, Multistory Test Apparatus	IBC®	
~~E2353—14~~ E2353—2016	Standard Test Methods for Performance of Glazing in Permanent Railing Systems, Guards and Balustrades	IBC®	
~~E2404—15a~~ E2404—2017	Practice for Specimen Preparation and Mounting of Textile, Paper or Polymeric (Including Vinyl) and Wood Wall or Ceiling Coverings, Facing and Veneers to Assess Surface Burning Characteristics	IBC®	IFC®
E2556/~~E2556M—10~~ E2556M—2010(2016)	Standard Specification for Vapor Permeable Flexible Sheet Water-resistive Barriers Intended for Mechanical Attachment	IBC®	
~~E2568—09e1~~ E2568—	Standard Specification for PB Exterior Insulation and Finish Systems	IBC®	IRC®

~~2017A~~ E2570/E2570M—07(2014)e1	Standard Test Method for Evaluating Water-resistive Barrier (WRB) Coatings Used under Exterior Insulation and Finish Systems (EIFS) for EIFS with Drainage	IBC®	IRC®
~~E2573—12~~ E2573—2017	Standard Practice for Specimen Preparation and Mounting of Site-fabricated Stretch Systems to Assess Surface Burning Characteristics	IBC®	IFC®
~~E2579—13~~ E2579—2015	Standard Practice for Specimen Preparation and Mounting of Wood Products to Assess Surface Burning Characteristics	IBC®	IFC®
~~E2599—15~~ E2599—2018	Standard Practice for Specimen Preparation and Mounting of Reflective Insulation, Radiant Barrier and Vinyl Stretch Ceiling Materials for Building Applications to Assess Surface Burning Characteristics	IBC®	
~~E2634—11(2015)~~ E2634—2018	Standard Specification for Flat Wall Insulating Concrete Form (ICF) Systems	IBC®	IRC®
E2751/~~E2751M—13~~ E2751M—2017A	Practice for Design and Performance of Supported Laminated Glass Walkways	IBC®	
~~F547—06(2012)~~ F547—2017	Terminology of Nails for Use with Wood and Wood-base Materials	IBC®	
~~F1667—15~~ F1667—2018	Specification for Driven Fasteners: Nails, Spikes and Staples	IBC®	IRC®
~~F2200—14~~ F2200—2017	Standard Specification for Automated Vehicular Gate Construction	IBC®	IFC®
~~G154—12a~~ G154—2016A	Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials	IBC®	

AWC — American Wood Council

Standard Reference Number	Title	Referenced In Code(s):	
AWC ~~STJR—2015~~ STJR—2021	Span Tables for Joists and Rafters	IBC®	IRC®
ANSI/AWC ~~PWF—2015~~ PWF—2021	Permanent Wood Foundation Design Specification	IBC®	IRC®
ANSI/AWC ~~SDPWS—2015~~ SDPWS—2021	Special Design Provisions for Wind and Seismic	IBC®	

AWPA — American Wood Protection Association

Standard Reference Number	Title	Referenced In Code(s):	
~~M4—16~~ M4—15	Standard for the Care of Preservative-treated Wood Products	IBC®	IRC®
~~U1—16~~ U1—20	USE CATEGORY SYSTEM: User Specification for Treated Wood Except Commodity Specification H	IBC®	IRC®

AWS — American Welding Society

Standard Reference Number	Title	Referenced in Code(s):
D1.4/~~D1.4M—2017~~ D1.4M—2018	Structural Welding ~~Code—Reinforcing Steel Including Metal Inserts and Connections in Reinforced Concrete Construction~~ Code—Steel Reinforcing Bars	IBC®

BHMA — Builders Hardware Manufacturers' Association

Standard Reference Number	Title	Referenced In Code(s):
A ~~156.10—2011~~ 156.10—2017	Power Operated Pedestrian Doors	IBC®

A ~~156.19—2013~~ 156.19—2020	Standard for Power Assist and Low Energy Power Operated Doors	IBC®
A ~~156.27—2011~~ 156.27—2019	Power and Manual Operated Revolving Pedestrian Doors	IBC®
A ~~156.38—2014~~ 156.38—2020	Low Energy Power Operated Sliding and Folding Doors	IBC®

CSA — Canadian Standards Association

Standard Reference Number	Title	Referenced In Code(s):
ASME ~~A17.1—2016~~ A17.1—2019/CSA ~~B44—16~~ B44—19	Safety Code for Elevators and Escalators	IBC®
ASME A17.7—2007/CSA B44.7—07(R2017)	Performance-based Safety Code for Elevators and Escalators	IBC®

DASMA — Door & Access Systems Manufacturers Association International

Standard Reference Number	Title	Referenced in Code(s):
ANSI/DASMA ~~115—2016~~ 115—2017	Standard Method for Testing Sectional Garage Doors, Rolling Doors and Flexible Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure	IBC®

DOC — U.S. Department of Commerce

Standard Reference Number	Title	Referenced In Code(s):	
PS ~~1—09~~ 1—19	Structural Plywood	IBC®	IRC®
PS ~~2—10~~ 2—18	Performance Standard for ~~Wood-based Structural-use~~ Wood Structural Panels	IBC®	IRC®
PS 20—05	American Softwood Lumber Standard	IBC®	IRC®

FM — FM Approvals

Standard Reference Number	Title	Referenced in Code(s):
~~4880—2015~~ 4880—2017	~~Approval~~ American National Standard for ~~Class 1 Fire Rating of Building Panels or~~ Evaluating the Fire Performance Insulated Building Panel Assemblies and Interior Finish Materials	IBC®

GA — Gypsum Association

Standard Reference Number	Title	Referenced in Code(s):
GA ~~216—2016~~ 216—2018	Application and Finishing of Gypsum Panel Products	IBC®
GA ~~600—2015~~ 600—2018	Fire-resistance and Sound Control Design Manual, ~~21st~~ 22nd Edition	IBC®

NAAMM — National Association of Architectural Metal Manufacturers

Standard Reference Number	Title	Referenced in Code(s):
FP ~~1001—17~~ 1001—18	Guide Specifications for Design of Metal Flag Poles	IBC®

NCMA	National Concrete Masonry Association	
Standard Reference Number	**Title**	**Referenced In Code(s):**
TEK ~~5—84(1996~~ 2005)	Details for Concrete Masonry Fire Walls	IBC®

NFPA	National Fire Protection Association		
Standard Reference Number	**Title**	**Referenced In Code(s):**	
~~10—18~~ 10—21	Standard for Portable Fire Extinguishers	IBC®	IFC®
11—16	Standard for ~~Low~~ Low-, Medium, and High Expansion Foam	IBC®	IFC®
~~12A—15~~ 12A—18	Standard on Halon 1301 Fire Extinguishing Systems	IBC® IPMC®	IFC®
~~13—16~~ 13—19	Standard for Installation of Sprinkler Systems	IBC® IRC®	IFC®
~~13D—16~~ 13D—19	Standard for the Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes	IBC® IRC®	IFC®
~~13R—16~~ 13R—19	Standard for the Installation of Sprinkler Systems in Low-rise Residential Occupancies	IBC® IRC®	IFC®
~~14—16~~ 14—19	Standard for the Installation of Standpipe and Hose System	IBC®	IFC®
~~16—15~~ 16—19	Standard for the Installation of Foam-water Sprinkler and Foam-water Spray Systems	IBC®	IFC®
~~17—17~~ 17—20	Standard for Dry Chemical Extinguishing Systems	IBC® IPMC®	IFC®
~~17A—17~~ 17A—20	Standard for Wet Chemical Extinguishing Systems	IBC® IPMC®	IFC®
~~20—16~~ 20—19	Standard for the Installation of Stationary Pumps for Fire Protection	IBC®	IFC®
~~30—18~~ 30—21	Flammable and Combustible Liquids Code	IBC®	IFC®
~~30A—18~~ 30A—21	Code for Motor Fuel Dispensing Facilities and Repair Garages	IBC® IFGC®	IFC® IMC®
~~31—16~~ 31—20	Standard for the Installation of Oil-burning Equipment	IBC® IMC®	IFC® IRC®
32—16	Standard for ~~Dry Cleaning Plants~~ Drycleaning Facilities	IBC®	IFC®
~~40—16~~ 40—19	Standard for the Storage and Handling of Cellulose Nitrate Film	IBC®	IFC®
~~45—15~~ 45—19	Standard on Fire Protection Laboratories Using Chemicals (2015 Edition)	IBC®	IFC®
~~58—17~~ 58—20	Liquefied Petroleum Gas Code	IBC® IFGC® IRC®	IFC® IMC®
~~61—17~~ 61—20	Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Product Facilities	IBC®	IFC®
~~72—16~~ 72—19	National Fire Alarm and Signaling Code	IBC® IMC® IRC®	IFC® IPMC®
~~80—16~~ 80—19	Standard for Fire Doors and Other Opening Protectives	IBC® IPMC®	IFC®
~~82—14~~ 82—19	Standard on Incinerators and Waste and Linen Handling Systems and Equipment	IBC® IMC®	IFGC®
~~85—15~~ 85—19	Boiler and Combustion System Hazards Code	IBC® IFGC® IRC®	IFC® IMC®
~~92—15~~ 92—18	Standard for Smoke Control Systems	IBC® IMC®	IFC®

~~99—18~~ 99—21	Health Care Facilities Code	IBC® IPC®	IFC®
~~101—18~~ 101—21	Life Safety Code	IBC®	IFC®
~~105—16~~ 105—19	Standard for Smoke Door Assemblies and Other Opening Protectives	IBC® IPMC®	IFC®
~~110—16~~ 110—19	Standard for Emergency and Standby Power Systems	IBC®	IFC®
~~111—13~~ 111—19	Standard on Stored Electrical Energy Emergency and Standby Power Systems	IBC®	IFC®
~~120—15~~ 120—20	Standard for Fire Prevention and Control in Coal Mines	IBC®	IFC®
~~211—16~~ 211—19	Standard for Chimneys, Fireplaces, Vents and Solid Fuel-burning Appliances	IBC® IFGC® IRC®	IFC® IMC®
~~221—18~~ 221—21	Standard for High Challenge Fire Walls, Fire Walls and Fire Barrier Walls	IBC®	
~~253—15~~ 253—19	Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source	IBC®	IFC®
~~265—15~~ 265—19	Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile or Expanded Vinyl Wall Coverings on Full Height Panels and Walls	IBC®	IFC®
~~286—15~~ 286—19	Standard Methods of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth	IBC® IMC®	IFC® IRC®
~~276—15~~ 276—19	Standard Method of Fire Tests for Determining the Heat Release Rate of Roofing Assemblies with Combustible Above-deck Roofing Components	IBC®	
~~289—18~~ 289—19	Standard Method of Fire Test for Individual Fuel Packages	IBC®	IFC®
~~484—18~~ 484—19	Standard for Combustible Metals	IBC®	
~~652—16~~ 652—19	Standard on the Fundamentals of Combustible Dust	IBC®	IFC®
~~654—17~~ 654—20	Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids	IBC®	IFC®
~~664—17~~ 664—20	Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities	IBC®	IFC®
~~701—15~~ 701—19	Standard Methods of Fire Tests for Flame Propagation of Textiles and Films	IBC®	IFC®
~~750—15~~ 750—19	Standard on Water Mist Fire Protection Systems	IBC®	IFC®
~~2001—15~~ 2001—18	Standard on Clean Agent Fire Extinguishing Systems	IBC® IPMC®	IFC®
~~2010—15~~ 2010—20	Standard for Fixed Aerosol Fire-extinguishing Systems	IBC®	IFC®

PCI — Precast Prestressed Concrete Institute

Standard Reference Number	Title	Referenced In Code(s):
~~MNL-124—11~~ PCI 124—18	~~Design~~ Specification for Fire Resistance of Precast / Prestressed Concrete	IBC®
~~MNL-128—01~~ PCI 128—19	~~Recommended Practice~~ Specification for Glass Fiber Reinforced Concrete Panels	IBC®

PTI — Post-Tensioning Institute

Standard Reference Number	Title	Referenced In Code(s):
PTI ~~DC—10.5-12~~ DC—10.5-19	Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive and Stable Soils	IBC®

SBCA — Structural Building Components Association

Standard Reference Number	Title	Referenced in Code(s):
ANSI/FS 100-12(R2018)	Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulating	IBC®

Sheathing Used in Exterior Wall Covering Assemblies

SPRI	Single-Ply Roofing Institute	
Standard Reference Number	**Title**	**Referenced In Code(s):**
ANSI/SPRI/FM ~~4435-ES-1—11~~ 4435 ES-1—17	Wind Test Design Standard for Edge Systems Used with Low Slope Roofing Systems	IBC®
ANSI/SPRI ~~RP-4—13~~ RP-4—18	Wind Design Guide for Ballasted Single-ply Roofing Systems	IBC®
ANSI/SPRI ~~VF-1—10~~ VF-1—17	External Fire Design Standard for Vegetative Roofs	IBC®

TIA	Telecommunications Industry Association	
Standard Reference Number	**Title**	**Referenced In Code(s):**
~~222-H—2016~~ ANSI/TIA 222-H—2017	Structural ~~Standards~~ Standard for Antenna Supporting Structures ~~and Antennas~~ , Antennas and Small Wind Turbine Support Structures	IBC®

TMS	The Masonry Society	
Standard Reference Number	**Title**	**Referenced In Code(s):**
~~302—2012~~ 302—2018	Standard Method for Determining the Sound Transmission Class Rating for Masonry Walls	IBC®

UL	UL LLC		
Standard Reference Number	**Title**	**Referenced in Code(s):**	
10A—2009	Tin Clad Fire Doors—with Revisions through ~~December 2013~~ July 2018	IBC®	
~~10C—2009~~ 10C—2016	Positive Pressure Fire Tests of Door ~~Assemblies—with Revisions through February 2015~~ Assemblies	IBC®	
14B—2008	Sliding Hardware for Standard Horizontally Mounted Tin Clad Fire Doors—with Revisions through ~~May 2013~~ July 2017	IBC®	
~~14C—06~~ 14C—2006	Swinging Hardware for Standard Tin Clad Fire Doors Mounted Singly and in Pairs—with Revisions through ~~May 2013~~ July 2017	IBC®	
~~55A—04~~ 55A—2004	Materials for Built-up Roof Coverings	IBC®	IRC®
103—2010	Factory-built Chimneys, for Residential Type and Building Heating Appliances—with Revisions through ~~July 2012~~ March 2017	IBC® IMC®	IFGC® IRC®
127—2011	Factory-built Fireplaces—with Revisions through ~~May 2015~~ July 2016	IBC® IMC®	IFGC® IRC®
~~199E—04~~ 199E—2004	Outline of Investigation for Fire Testing of Sprinklers and Water Spray Nozzles for Protection of Deep Fat Fryers	IBC®	IFC®
~~217—06~~ 217—2015	Single and Multiple Station Smoke Alarms—with Revisions through ~~October 2015~~ November 2016	IBC® IRC®	IFC®
263—11	Fire Tests of Building Construction and Materials—with Revisions through ~~June 2015~~ March 2018	IBC®	
~~268—09~~ 268—2016	Smoke Detectors for Fire Alarm ~~Systems~~ Systems-with revisions through July 2016	IBC® IPMC®	IFC®
~~294—1999~~ 294—2018	Access Control System Units—with Revisions through ~~February 2015~~ October 2018	IBC®	IFC®
	Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking		

~~300—05~~ 300—2005(R2010)	Equipment—with Revisions through December 2014	IBC®	IFC®
~~300A—06~~ 300A—2006	Outline of Investigation for Extinguishing System Units for Residential Range Top Cooking Surfaces	IBC®	IFC®
305—2012	Panic Hardware—with Revisions through ~~August 2014~~ March 2017	IBC®	IFC®
~~325—02~~ 325—2017	Door, Drapery, Gate, Louver and Window Operations and ~~Systems—with Revisions through May 2015~~ Systems	IBC® IRC®	IFC®
555—2006	Fire Dampers—with Revisions through ~~May 2014~~ October 2016	IBC®	
~~555C—2006~~ 555C—2014	Ceiling Dampers—with Revisions through ~~December 2014~~ May 2017	IBC®	
~~555S—99~~ 555S—2014	Smoke Dampers—with Revisions through ~~February 2014~~ October 2016	IBC®	IMC®
580—2006	Test for Uplift Resistance of Roof Assemblies—with Revisions through October ~~2013~~ 2018	IBC®	
641—2010	Type L Low-temperature Venting Systems—with Revisions through ~~June 2013~~ April 2018	IBC® IMC®	IFGC® IRC®
~~723—2008~~ 723—2018	Test for Surface Burning Characteristics of Building ~~Materials—with Revisions through August 2013~~ Materials	IBC® IWUIC®	IMC®
~~790—04~~ 790—2004	Standard Test Methods for Fire Tests of Roof Coverings—with Revisions through ~~July 2014~~ October 2018	IBC® IFC®	IEBC® IRC®
~~793—08~~ 793—2008	Automatically Operated Roof Vents for Smoke and Heat—with Revisions through ~~September 2011~~ March 2017	IBC®	IFC®
~~864—03~~ 864—2014	Control Units and Accessories for Fire Alarm Systems—with Revisions through ~~December 2014~~ March 2018	IBC®	IFC®
~~924—06~~ 924—2016	Safety Emergency Lighting and Power Equipment—with Revisions through ~~April 2014~~ May 2018	IBC®	IFC®
~~1040—96~~ 1040—1996	Fire Test of Insulated Wall Construction—with Revisions through ~~October 2012~~ April 2017	IBC®	IRC®
1256—02	Fire Test of Roof Deck Construction—with Revisions through ~~July 2013~~ August 2018	IBC®	IRC®
~~1479—03~~ 1479—2015	Fire Tests of Penetration ~~Firestops—with Revisions through June 2015~~ Firestops	IBC® IRC®	IMC®
~~1703—02~~ 1703—2002	Flat-plate Photovoltaic Modules and Panels—with Revisions through ~~October 2015~~ September 2018	IBC®	IRC®
1715—97	Fire Test of Interior Finish Material—with Revisions through ~~January 2013~~ April 2017	IBC®	IRC®
1741—2010	Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources—with Revisions through ~~January 2015~~ February 2018	IBC®	IRC®
1777—2007	Chimney Liners—with Revisions through ~~October 2015~~ April 2014	IBC® IMC®	IFGC®
~~1784—01~~ 1784—2015	Air Leakage Tests of Door ~~Assemblies—with Revisions through February 2015~~ Assemblies	IBC®	IECC
~~1897—12~~ 1897—2015	Uplift Tests for Roof Covering ~~Systems—with Revisions through September 2015~~ Systems	IBC®	IRC®
~~1994—04~~ 1994—2015	Luminous Egress Path Marking ~~Systems—with Revisions through May 2015~~ Systems	IBC®	IFC®
~~2034—2008~~ 2034—2017	Single- and Multiple-station Carbon Monoxide Alarms—with Revisions through ~~March 2015~~ September 2018	IBC®	
2075—2013	Standard for Gas and Vapor Detectors and ~~Sensors~~ Sensors-with revisions through December 2017	IBC® IMC®	IFC® IRC®
~~2079—04~~ 2079—2015	Tests for Fire Resistance of Building Joint ~~Systems—with Revisions through August 2015~~ Systems	IBC®	IFC®
~~2196—2001~~ 2196—2017	~~Tests~~ Standard for Fire ~~Resistive Cables—with Revisions through March 2012~~ Test for Circuit Integrity of Fire- Resistive Power, Instrumentation, Control and Data Cables	IBC®	IFC®
2200—2012	Stationary Engine Generator Assemblies—with Revisions through ~~July~~ October 2015	IBC® IFGC®	IFC® IMC®
2202—2009	Electric Vehicle (EV) Charging System ~~Equipment~~ Equipment-with revisions through February 2018	IBC®	

~~2594—2013~~ 2594—2016	Electric Vehicle Supply Equipment	IBC®
2703—2014	~~Outline of Investigation for~~ Mounting Systems, Mounting Devices, Clamping/Retention Devices and Ground Lugs for Use with Flat-plate Photovoltaic Modules and ~~Panels~~ Panels-with revisions through December 2019	IBC®

ULC	Underwriters Laboratories of Canada		
Standard Reference Number	**Title**	**Referenced in Code(s):**	
CAN/ULC S ~~102.2—2010~~ 102.2—2018	Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and ~~Assemblies—with 2000 Revisions~~ Assemblies	IBC®	IRC®

Reason: THIS IS THE ADMIN STANDARDS UPDATE CODE CHANGE FOR THE IBC.
The CP28 Code Development Policy, Section 4.6 requires the updating of referenced standards to be accomplished administratively, and be processed as a Code Change Proposal for consideration by the Administrative Code Change Committee. In September 2018, a letter was sent to each developer of standards that is referenced in the International Codes, asking them to provide ICC with a list of their standards in order to update to the current edition. Listed are the referenced standards that are to be updated based upon responses received from standard developers.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Not applicable.

Proposal # 5823

ADM47-IBC-19

SP9478/G16-19

11

Date Submitted	3/2/2021	**Section**	101.5	**Proponent**	Mo Madani
Chapter	2707	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Flood Requirements

Comments

General Comments **Yes**

Related Modifications

G101.5 (New), G103.1, G103.2, G103.3, G103.4, G103.5, G103.6, G103.6.1, G103.7, G103.8, G103.9, G104.1, G104.2, G104.3, G104.4, G104.5, G105.2, G105.7

Overlap - This appendix is reserved under the 2020 FBC -B.

Overlap

Summary of Modification

This proposal addresses a concern raised in the last cycle by stating the designation of the floodplain administrator does not alter any duties and responsibilities of the building official.

Rationale

When local jurisdictions join the National Flood Insurance Program they are required to designate the local official responsible for enforcing floodplain management regulations. Some jurisdictions identify an official other than the building official, in part because many responsibilities are not directly related to enforcement of requirements for buildings. In those jurisdictions, the building official and the official designated as the floodplain administrator work together to fulfill the communities commitments to the NFIP.
This proposal addresses a concern raised in the last cycle by stating the designation of the floodplain administrator does not alter any duties and responsibilities of the building official.
Appendix G is scoped to apply to "development," which is defined in Appendix G, and it governs activities other than buildings and structures. The authority under which Appendix G is enforced is the jurisdiction’s agreement with the NFIP and is specified in Appendix G, not the building code. When a local jurisdiction uses IBC Appendix G to regulate development other than buildings it should be able to designate the appropriate official, which may or may not be the building official. The role of the floodplain administrator is limited to the provisions of the appendix. Jurisdictions may choose to designate the building official as the floodplain administrator.

Comment Period History

SP9478-G1

Proponent Rebecca Quinn obo F **Submitted** 6/18/2021 **Attachments** No

Comment:

Do not retain this change. The Commission has not make IBC Appendix G available in recent years and should continue that. Nearly all Florida communities that participate in the NFIP have adopted floodplain management ordinances that rely on the flood provisions of the FBC to satisfy the NFIP.

Approved as Submitted

2018 International Building Code

Add new text as follows:

G101.5 Designation of floodplain administrator.The [INSERT JURISDICTION'S SELECTED POSITION TITLE] is designated as the floodplain administrator and is authorized and directed to enforce the provisions of this appendix. The floodplain administrator is authorized to delegate performance of certain duties to other employees of the jurisdiction. Such designation shall not alter any duties and powers of the building official.

Revise as follows:

G103.1 Permit applications.All applications for permits ~~must~~ shall comply with the following:

1. The ~~*building official*~~ floodplain administrator shall review all permit applications to determine whether proposed development is located in flood hazard areas established in Section G102.2.
2. Where a proposed development site is in a flood hazard area, all development to which this appendix is applicable as specified in Section G102.1 shall be designed and constructed with methods, practices and materials that minimize flood damage and that are in accordance with this code and ASCE 24.

G103.2 Other permits.It shall be the responsibility of the ~~*building official*~~ floodplain administrator to ensure that approval of a proposed development shall not be given until proof that necessary permits have been granted by federal or state agencies having jurisdiction over such development.

G103.3 Determination of design flood elevations.If design flood elevations are not specified, the ~~*building official*~~ floodplain administrator is authorized to require the applicant to meet one of the following:

1. Obtain, review and reasonably utilize data available from a federal, state or other source.
2. Determine the design flood elevation in accordance with accepted hydrologic and hydraulic engineering techniques. Such analyses shall be performed and sealed by a registered design professional. Studies, analyses and computations shall be submitted in sufficient detail to allow review and approval by the ~~*building official.*~~ floodplain administrator. The accuracy of data submitted for such determination shall be the responsibility of the applicant.

G103.4 Activities in riverine flood hazard areas.In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the ~~*building official*~~ floodplain administrator shall not permit any new construction, substantial improvement or other development, including fill, unless the applicant submits an engineering analysis prepared by a registered design professional, demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated flood hazard area encroachment, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the community.

G103.5 Floodway encroachment. Prior to issuing a permit for any floodway encroachment, including fill, new construction, substantial improvements and other development or land-disturbing activity, the ~~*building official*~~ floodplain administrator shall require submission of a certification, prepared by a registered design professional, along with supporting technical data, demonstrating that such development will not cause any increase of the base flood level.

G103.6 Watercourse alteration. Prior to issuing a permit for any alteration or relocation of any watercourse, the ~~*building official*~~ floodplain administrator shall require the applicant to provide notification of the proposal to the appropriate authorities of all adjacent government jurisdictions, as well as appropriate state agencies. A copy of the notification shall be maintained in the permit records and submitted to FEMA.

G103.6.1 Engineering analysis. The ~~*building official*~~ floodplain administrator shall require submission of an engineering analysis, prepared by a registered design professional, demonstrating that the flood-carrying capacity of the altered or relocated portion of the watercourse will not be decreased. Such watercourses shall be maintained in a manner that preserves the channel's flood-carrying capacity.

G103.7 Alterations in coastal areas. Prior to issuing a permit for any alteration of sand dunes and mangrove stands in coastal high-hazard areas and coastal A zones, the ~~*building official*~~ floodplain administrator shall require submission of an engineering analysis, prepared by a registered design professional, demonstrating that the proposed alteration will not increase the potential for flood damage.

G103.8 Records.The ~~*building official*~~ floodplain administrator shall maintain a permanent record of all permits issued in flood hazard areas, including supporting certifications and documentation required by this appendix and copies of inspection reports, design certifications and documentation of elevations required in Section 1612 of this code and Section R322 of the International Residential Code.

G103.9 Inspections.Development for which a permit under this appendix is required shall be subject to inspection. The ~~*building official*~~ floodplain administrator or the ~~*building official's*~~ floodplain administrator's designee shall make, or cause to be made, inspections of all development in flood hazard areas authorized by issuance of a permit under this appendix.

G104.1 Required. Any person, owner or owner's authorized agent who intends to conduct any development in a flood hazard area shall first make application to the ~~*building official*~~ floodplain administrator and shall obtain the required *permit*.

G104.2 Application for permit.The applicant shall file an application in writing on a form furnished by the ~~*building official.*~~ floodplain administrator. Such application shall:

1. Identify and describe the development to be covered by the permit.
2. Describe the land on which the proposed development is to be conducted by legal description, street address or similar description that will readily identify and definitely locate the site.
3. Include a site plan showing the delineation of flood hazard areas, floodway boundaries, flood zones, design flood elevations, ground elevations, proposed fill and excavation and drainage patterns and facilities.
4. Include in subdivision proposals and other proposed developments with more than 50 lots or larger than 5 acres (20 234 m2), base flood elevation data in accordance with Section 1612.3.1 if such data are not identified for the flood hazard areas established in Section G102.2.
5. Indicate the use and occupancy for which the proposed development is intended.
6. Be accompanied by construction documents, grading and filling plans and other information deemed appropriate by the ~~*building official*~~ floodplain administrator.
7. State the valuation of the proposed work.
8. Be signed by the applicant or the applicant's authorized agent.

G104.3 Validity of permit. The issuance of a permit under this appendix shall not be construed to be a permit for, or approval of, any violation of this appendix or any other ordinance of the jurisdiction. The issuance of a permit based on submitted documents and information shall not prevent the ~~*building official*~~ floodplain administrator from requiring the correction of errors. The ~~*building official*~~ floodplain administrator is authorized to prevent occupancy or use of a structure or site that is in violation of this appendix or other ordinances of this jurisdiction.

G104.4 Expiration. A permit shall become invalid if the proposed development is not commenced within 180 days after its issuance, or if the work authorized is suspended or abandoned for a period of 180 days after the work commences. Extensions shall be requested in writing and justifiable cause demonstrated. The ~~*building official*~~

floodplain administrator is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each.

G104.5 Suspension or revocation. The ~~*building official*~~ floodplain administrator is authorized to suspend or revoke a permit issued under this appendix wherever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or code of this jurisdiction.

G105.2 Records. The ~~*building official*~~ floodplain administrator shall maintain a permanent record of all variance actions, including justification for their issuance.

G105.7 Conditions for issuance.Variances shall only be issued by the board of appeals where all of the following criteria are met:

1. A technical showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site renders the elevation standards inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, nor create nuisances, cause fraud on or victimization of the public or conflict with existing local laws or ordinances.
4. A determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
5. Notification to the applicant in writing over the signature of the ~~building official~~ floodplain administrator that the issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as $25 for $100 of insurance coverage, and that such construction below the base flood level increases risks to life and property.

Code Change No: G16-19

Original Proposal

Section(s): G101.5 (New), G103.1, G103.2, G103.3, G103.4, G103.5, G103.6, G103.6.1, G103.7, G103.8, G103.9, G104.1, G104.2, G104.3, G104.4, G104.5, G105.2, G105.7

Proponent: Gregory Wilson, representing Federal Emergency Management Agency (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, on behalf of Federal Emergency Management Agency, representing Federal Emergency Management Agency (rcquinn@earthlink.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

2018 International Building Code

Add new text as follows:

G101.5 Designation of floodplain administrator. The [INSERT JURISDICTION'S SELECTED POSITION TITLE] is designated as the floodplain administrator and is authorized and directed to enforce the provisions of this appendix. The floodplain administrator is authorized to delegate performance of certain duties to other employees of the jurisdiction. Such designation shall not alter any duties and powers of the building official.

Revise as follows:

G103.1 Permit applications. All applications for permits ~~must~~ shall comply with the following:

1. The ~~*building official*~~ floodplain administrator shall review all permit applications to determine whether proposed development is located in flood hazard areas established in Section G102.2.
2. Where a proposed development site is in a flood hazard area, all development to which this appendix is applicable as specified in Section G102.1 shall be designed and constructed with methods, practices and materials that minimize flood damage and that are in accordance with this code and ASCE 24.

G103.2 Other permits. It shall be the responsibility of the ~~*building official*~~ floodplain administrator to ensure that approval of a proposed development shall not be given until proof that necessary permits have been granted by federal or state agencies having jurisdiction over such development.

G103.3 Determination of design flood elevations. If design flood elevations are not specified, the ~~*building official*~~ floodplain administrator is authorized to require the applicant to meet one of the following:

1. Obtain, review and reasonably utilize data available from a federal, state or other source.
2. Determine the design flood elevation in accordance with accepted hydrologic and hydraulic engineering techniques. Such analyses shall be performed and sealed by a registered design professional. Studies, analyses and computations shall be submitted in sufficient detail to allow review and approval by the ~~*building official.*~~ floodplain administrator. The accuracy of data submitted for such determination shall be the responsibility of the applicant.

G103.4 Activities in riverine flood hazard areas. In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the ~~*building official*~~ floodplain administrator shall not permit any new construction, substantial improvement or other development, including fill, unless the applicant submits an engineering analysis prepared by a registered design professional, demonstrating that the cumulative effect of the proposed development, when combined with all other existing and anticipated flood hazard area encroachment, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the community.

G103.5 Floodway encroachment. Prior to issuing a permit for any floodway encroachment, including fill, new construction, substantial improvements and other development or land-disturbing activity, the ~~*building official*~~ floodplain administrator shall require submission of a certification, prepared by a registered design professional, along with supporting technical data, demonstrating that such development will not cause any increase of the base flood level.

G103.6 Watercourse alteration. Prior to issuing a permit for any alteration or relocation of any watercourse, the ~~*building official*~~ floodplain administrator shall require the applicant to provide notification of the proposal to the appropriate authorities of all adjacent government jurisdictions, as well as appropriate state agencies. A copy of the notification shall be maintained in the permit records and submitted to FEMA.

G103.6.1 Engineering analysis. The ~~*building official*~~ floodplain administrator shall require submission of an engineering analysis, prepared by a registered design professional, demonstrating that the flood-carrying capacity of the altered or relocated portion of the watercourse will not be decreased. Such watercourses shall be maintained in a manner that preserves the channel's flood-carrying capacity.

G103.7 Alterations in coastal areas. Prior to issuing a permit for any alteration of sand dunes and mangrove stands in coastal high-hazard areas and coastal A zones, the ~~*building official*~~ floodplain administrator shall require submission of an engineering analysis, prepared by a registered design professional, demonstrating that the proposed alteration will not increase the potential for flood damage.

G103.8 Records. The ~~*building official*~~ floodplain administrator shall maintain a permanent record of all permits issued in flood hazard areas, including supporting certifications and documentation required by this appendix and copies of inspection reports, design certifications and documentation of elevations required in Section 1612 of this code and Section R322 of the International Residential Code.

G103.9 Inspections. Development for which a permit under this appendix is required shall be subject to inspection. The ~~*building official*~~ floodplain administrator or the ~~*building official's*~~ floodplain administrator's designee shall make, or cause to be made, inspections of all development in flood hazard areas authorized by issuance of a permit under this appendix.

G104.1 Required. Any person, owner or owner's authorized agent who intends to conduct any development in a flood hazard area shall first make application to the ~~*building official*~~ floodplain administrator and shall obtain the required *permit*.

G104.2 Application for permit. The applicant shall file an application in writing on a form furnished by the ~~*building official*.~~ floodplain administrator. Such application shall:

1. Identify and describe the development to be covered by the permit.
2. Describe the land on which the proposed development is to be conducted by legal description, street address or similar description that will readily identify and definitely locate the site.
3. Include a site plan showing the delineation of flood hazard areas, floodway boundaries, flood zones, design flood elevations, ground elevations, proposed fill and excavation and drainage patterns and facilities.

4. Include in subdivision proposals and other proposed developments with more than 50 lots or larger than 5 acres (20 234 m2), base flood elevation data in accordance with Section 1612.3.1 if such data are not identified for the flood hazard areas established in Section G102.2.
5. Indicate the use and occupancy for which the proposed development is intended.
6. Be accompanied by construction documents, grading and filling plans and other information deemed appropriate by the ~~*building official*~~ floodplain administrator.
7. State the valuation of the proposed work.
8. Be signed by the applicant or the applicant's authorized agent.

G104.3 Validity of permit. The issuance of a permit under this appendix shall not be construed to be a permit for, or approval of, any violation of this appendix or any other ordinance of the jurisdiction. The issuance of a permit based on submitted documents and information shall not prevent the ~~*building official*~~ floodplain administrator from requiring the correction of errors. The ~~*building official*~~ floodplain administrator is authorized to prevent occupancy or use of a structure or site that is in violation of this appendix or other ordinances of this jurisdiction.

G104.4 Expiration. A permit shall become invalid if the proposed development is not commenced within 180 days after its issuance, or if the work authorized is suspended or abandoned for a period of 180 days after the work commences. Extensions shall be requested in writing and justifiable cause demonstrated. The ~~*building official*~~ floodplain administrator is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each.

G104.5 Suspension or revocation. The ~~*building official*~~ floodplain administrator is authorized to suspend or revoke a permit issued under this appendix wherever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or code of this jurisdiction.

G105.2 Records. The ~~*building official*~~ floodplain administrator shall maintain a permanent record of all variance actions, including justification for their issuance.

G105.7 Conditions for issuance. Variances shall only be issued by the board of appeals where all of the following criteria are met:

1. A technical showing of good and sufficient cause that the unique characteristics of the size, configuration or topography of the site renders the elevation standards inappropriate.
2. A determination that failure to grant the variance would result in exceptional hardship by rendering the lot undevelopable.
3. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, nor create nuisances, cause fraud on or victimization of the public or conflict with existing local laws or ordinances.
4. A determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
5. Notification to the applicant in writing over the signature of the ~~building official~~ floodplain administrator that the issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as $25 for $100 of insurance coverage, and that such construction below the base flood level increases risks to life and property.

Reason: When local jurisdictions join the National Flood Insurance Program they are required to designate the local official responsible for enforcing floodplain management regulations. Some jurisdictions identify an official other than the building official, in part because many responsibilities are not directly related to enforcement of requirements for buildings. In those jurisdictions, the building official and the official designated as the floodplain administrator work together to fulfill the communities commitments to the NFIP.

This proposal addresses a concern raised in the last cycle by stating the designation of the floodplain administrator does not alter any duties and responsibilities of the building official.

Appendix G is scoped to apply to "development," which is defined in Appendix G, and it governs activities other than buildings and structures. The authority under which Appendix G is enforced is the jurisdiction's agreement with the NFIP and is specified in Appendix G, not the building code. When a local jurisdiction uses IBC Appendix G to regulate development other than buildings it should be able to designate the appropriate official, which may or may not be the building official. The role of the floodplain

administrator is limited to the provisions of the appendix. Jurisdictions may choose to designate the building official as the floodplain administrator.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
There is no cost impact because this proposal is related to designation of personnel by individual jurisdictions.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: This clarifies that it is the wall panel/material that is tested per C1629/C1629M and not a full wall assembly. Full wall assembly testing is outside of the scope of C1629/C1629M. Section 1.1.1 of C1629/C1629M states, "panel product performance is not intended to classify the system for abuse resistance." (Vote: 13-1)

Assembly Action: **None**

Final Action

G16-19	**AS**

SP9480/G17-19

12

Date Submitted	3/2/2021	**Section**	103.10	**Proponent**	Mo Madani
Chapter	2707	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Flood Requirements

Comments

General Comments **Yes**

Related Modifications

G103.10

This appendix is reserved under the 2020 FBC-B.

Overlap

Summary of Modification

Adds section G103.10. The building official and the applicant shall not use changed flood hazard area boundaries or base flood elevations for proposed buildings or developments unless the building official or applicant has applied for a conditional Flood Insurance Rate Map and have approval of FEMA.

Rationale

Virtually every community with identified areas subject to flooding adopts the Federal Emergency Management Agency's Flood Insurance Study and Flood Insurance Rate Maps (FIRMs) as the official maps. If a community develops its own flood study or if an applicant provides data or studies that show a change to a FIRM is appropriate, the data must be submitted to FEMA so the official maps are maintained with the best available information.
FEMA has a formal process to amend flood data. Local officials do not have the authority to change FEMA's maps and data, which means the effective FIRMs and data must be used until and unless changed by FEMA. If a flood zone or Base Flood Elevation is changed by a study and that change is not shown on the FIRM, decisions regarding future permit requirements and NFIP flood insurance policies would not be based on the best available information. Also, the current effective FIRMs are used by mortgage lenders to determine which borrowers must have flood insurance. If new studies are not provided to FEMA, some property owners might be forced to buy flood insurance even though a new study shows their locations are “out” of the SFHA. Or if new studies show a lower BFE, policies would not be rated based on those BFEs because the FIRMs weren’t revised.

Comment Period History

SP9480-G1

Proponent Rebecca Quinn obo F **Submitted** 6/18/2021 **Attachments** No

Comment:

Do not retain this change. The Commission has not make IBC Appendix G available in recent years and should continue that. Nearly all Florida communities that participate in the NFIP have adopted floodplain management ordinances that rely on the flood provisions of the FBC to satisfy the NFIP.

Approved as Modified

Original Proposal:

2018 International Building Code

Add new text as follows:

G103.10 Use of changed technical data. The building official and the applicant shall not use changed flood hazard area boundaries or base flood elevations for proposed buildings or developments unless the building official or applicant has applied for a conditional Flood Insurance Rate Map (FIRM) revision and has received the approval of the Federal Emergency Management Agency (FEMA).

Modified Proposal:

G103.10 Use of changed technical data. The ~~building official~~ floodplain administrator and the applicant shall not use changed flood hazard area boundaries or base flood elevations for proposed buildings or developments unless the ~~building official~~ floodplain administrator or applicant has applied for a conditional Flood Insurance Rate Map (FIRM) revision and has received the approval of the Federal Emergency Management Agency (FEMA).

Code Change No: G17-19

Original Proposal

Section(s): G103.10 (New)

Proponent: Gregory Wilson, representing Federal Emergency Management Agency (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, on behalf of Federal Emergency Management Agency, representing Federal Emergency Management Agency (rcquinn@earthlink.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

2018 International Building Code

Add new text as follows:

G103.10 Use of changed technical data. The building official and the applicant shall not use changed flood hazard area boundaries or base flood elevations for proposed buildings or developments unless the building official or applicant has applied for a conditional Flood Insurance Rate Map (FIRM) revision and has received the approval of the Federal Emergency Management Agency (FEMA).

Reason: Virtually every community with identified areas subject to flooding adopts the Federal Emergency Management Agency's Flood Insurance Study and Flood Insurance Rate Maps (FIRMs) as the official maps. If a community develops its own flood study or if an applicant provides data or studies that show a change to a FIRM is appropriate, the data must be submitted to FEMA so the official maps are maintained with the best available information.

FEMA has a formal process to amend flood data. Local officials do not have the authority to change FEMA's maps and data, which means the effective FIRMs and data must be used until and unless changed by FEMA. If a flood zone or Base Flood Elevation is changed by a study and that change is not shown on the FIRM, decisions regarding future permit requirements and NFIP flood insurance policies would not be based on the best available information. Also, the current effective FIRMs are used by mortgage lenders to determine which borrowers must have flood insurance. If new studies are not provided to FEMA, some property owners might be forced to buy flood insurance even though a new study shows their locations are "out" of the SFHA. Or if new studies show a lower BFE, policies would not be rated based on those BFEs because the FIRMs weren't revised.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
There is no cost impact because communities that participate in the NFIP are already required to submit, or require applicants to submit, new data and studies to FEMA.

Report of Committee Action Hearings

Committee Action: **Approved as Modified**

Modify proposal as follows:

G103.10 Use of changed technical data. The ~~building official~~ floodplain administrator and the applicant shall not use changed flood hazard area boundaries or base flood elevations for proposed buildings or developments unless the ~~building official~~ floodplain administrator or applicant has applied for a conditional Flood Insurance Rate Map (FIRM) revision and has received the approval of the Federal Emergency Management Agency (FEMA).

Committee Reason: Virtually every community with identified areas subject to flooding adopts the Federal Emergency Management Agency's Flood Insurance Study and Flood Insurance Rate Maps (FIRMs) as the official maps. If a community develops its own flood study or if an applicant provides data or studies that show a change to a FIRM is appropriate, the data must be submitted to FEMA so the official maps are maintained with the best available information. FEMA has a formal process to amend flood data. Local officials do not have the authority to change FEMA's maps and data, which means the effective FIRMs and data must be used until and unless changed by FEMA. If a flood zone or Base Flood Elevation is changed by a study and that change is not shown on the FIRM, decisions regarding future permit requirements and NFIP flood insurance policies would not be based on the best available information. Also, the current effective FIRMs are used by mortgage lenders to determine which borrowers must

have flood insurance. If new studies are not provided to FEMA, some property owners might be forced to buy flood insurance even though a new study shows their locations are "out" of the SFHA. Or if new studies show a lower BFE, policies would not be rated based on those BFEs because the FIRMs weren't revised. The modification from the committee changed 'building official' to 'floodplain administrator' in two places to clarify the position. (Vote: 13-1)

Assembly Action: **None**

Final Action

G17-19 **AM**

SP9482/G19-19

13

Date Submitted	3/2/2021	**Section**	105.4	**Proponent**	Mo Madani
Chapter	2707	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Flood Requirements

Comments

General Comments **Yes**

Related Modifications

G105.4, G201.2

This appendix is reserved under the 2020 FBC-B.

Overlap

Summary of Modification

This proposal makes the definitions of G201.2 consistent with the definition in the Code of Federal Regulations (44 CFR Section 59.1) used by the National Flood Insurance Program and the NFIP provisions that allow granting of variances for functionally dependent uses (44 CFR Section 60.6(a)(7)).

Rationale

This proposal makes the definition consistent with the definition in the Code of Federal Regulations (44 CFR Section 59.1) used by the National Flood Insurance Program and the NFIP provisions that allow granting of variances for functionally dependent uses (44 CFR Section 60.6(a)(7)).
The CFR definition includes a definitive list of functionally dependent uses, while the current IBC Appendix G definition only offers a list of examples by using the phrase “such as,” which could allow other types of facilities to be issued a variance. Granting a functionally dependent use variance to any facility other than those listed in the CFR definition does not meet the minimum NFIP requirement. This proposal removes that inconsistency so that minimum NFIP requirements are met.

Comment Period History

SP9482-G1

Proponent Rebecca Quinn obo F **Submitted** 6/18/2021 **Attachments** No

Comment:

Do not retain this change. The Commission has not make IBC Appendix G available in recent years and should continue that. Nearly all Florida communities that participate in the NFIP have adopted floodplain management ordinances that rely on the flood provisions of the FBC to satisfy the NFIP.

Approved as Modified

Original Proposal:

2018 International Building Code

Revise as follows:

G105.4 Functionally dependent ~~facilities~~ uses. A variance is authorized to be issued for the construction or substantial improvement of a structure and for other development necessary for the conduct of a functionally dependent ~~facility~~ use provided that the criteria in Section 1612.1 are met and the variance is the minimum necessary to allow the construction or substantial improvement, and that all due consideration has been given to methods and materials that minimize flood damages during the design flood and do not create additional threats to public safety.

G201.2 Definitions.

DEVELOPMENT. Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, temporary structures, temporary or permanent storage of materials, mining, dredging, filling, grading, paving, excavations, operations and other land-disturbing activities.

FUNCTIONALLY DEPENDENT ~~FACILITY~~ USE. A ~~facility~~ use that cannot ~~be used for~~ perform its intended purpose unless it is located or carried out in close proximity to ~~water, such as a docking or port facility~~ water. The term includes only docking facilities, port facilities necessary for the loading or unloading of cargo or passengers, and shipbuilding ~~or~~ and ship repair facilities. The term does not include long-term storage, manufacture, sales or service facilities.

Modified Proposal:

G105.4 Functionally dependent facilities ~~uses~~. A variance is authorized to be issued for the construction or substantial improvement of a ~~structure and for other development necessary for the conduct of a~~ functionally dependent facility ~~use~~ provided that the criteria in Section 1612.1 are met and the variance is the minimum necessary to allow the construction or substantial improvement, and that all due consideration has been given to methods and materials that minimize flood damages during the design flood and do not create additional threats to public safety.

G201.2 Definitions.

DEVELOPMENT. Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, temporary structures, temporary or permanent storage of materials, mining, dredging, filling, grading, paving, excavations, operations and other land-disturbing activities.

FUNCTIONALLY DEPENDENT FACILITY ~~USE~~. A facility ~~use~~ that cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities necessary for the loading or unloading of cargo or passengers, and shipbuilding and ship repair facilities. The term does not include long-term storage, manufacture, sales or service facilities.

Code Change No: G19-19

Original Proposal

Section(s): G105.4, G201.2

Proponent: Gregory Wilson, representing Federal Emergency Management Agency (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, on behalf of Federal Emergency Management Agency, representing Federal Emergency Management Agency (rcquinn@earthlink.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

2018 International Building Code

Revise as follows:

G105.4 Functionally dependent ~~facilities~~ uses. A variance is authorized to be issued for the construction or substantial improvement of a structure and for other development necessary for the conduct of a functionally dependent ~~facility~~ use provided that the criteria in Section 1612.1 are met and the variance is the minimum necessary to allow the construction or substantial improvement, and that all due consideration has been given to methods and materials that minimize flood damages during the design flood and do not create additional threats to public safety.

G201.2 Definitions.

DEVELOPMENT. Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, temporary structures, temporary or permanent storage of materials, mining, dredging, filling, grading, paving, excavations, operations and other land-disturbing activities.

FUNCTIONALLY DEPENDENT ~~FACILITY~~ USE. A ~~facility~~ use that cannot ~~be used for~~ perform its intended purpose unless it is located or carried out in close proximity to ~~water, such as a docking or port facility~~ water. The term includes only docking facilities, port facilities necessary for the loading or unloading of cargo or passengers, and shipbuilding ~~or~~ and ship repair facilities. The term does not include long-term storage, manufacture, sales or service facilities.

Reason: This proposal makes the definition consistent with the definition in the Code of Federal Regulations (44 CFR Section 59.1) used by the National Flood Insurance Program and the NFIP provisions that allow granting of variances for functionally dependent uses (44 CFR Section 60.6(a)(7)).

The CFR definition includes a definitive list of functionally dependent uses, while the current IBC Appendix G definition only offers a list of examples by using the phrase "such as," which could allow other types of facilities to be issued a variance. Granting a functionally dependent use variance to any facility other than those listed in the CFR definition does not meet the minimum NFIP requirement. This proposal removes that inconsistency so that minimum NFIP requirements are met.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The proposal is substantially editorial. No additional cost. This proposal does not increase construction requirements or costs.

Report of Committee Action Hearings

Committee Action: **Approved as Modified**

Modify proposal as follows:

G105.4 Functionally dependent facilities ~~uses~~. A variance is authorized to be issued for the construction or substantial improvement of a ~~structure and for other development necessary for the conduct of a~~ functionally dependent facility ~~use~~ provided that the criteria in Section 1612.1 are met and the variance is the minimum necessary to allow the construction or substantial improvement, and that all due consideration has been given to methods and materials that minimize flood damages during the design flood and do not create additional threats to public safety.

G201.2 Definitions.

DEVELOPMENT. Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, temporary structures, temporary or permanent storage of materials, mining, dredging, filling, grading, paving, excavations, operations and other land-disturbing activities.

FUNCTIONALLY DEPENDENT FACILITY ~~USE~~. A facility ~~use~~ that cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities necessary for the loading or unloading of cargo or passengers, and shipbuilding and ship repair facilities. The term does not include long-term storage, manufacture, sales or service facilities.

Committee Reason: This proposal makes the definition consistent with the definition in the Code of Federal Regulations (44 CFR Section 59.1) used by the National Flood Insurance Program and the NFIP provisions that allow granting of variances for functionally dependent uses (44 CFR Section 60.6(a)(7)). The CFR definition includes a definitive list of functionally dependent uses, while the current IBC Appendix G definition only offers a list of examples by using the phrase "such as," which could allow other types of facilities to be issued a variance. Granting a functionally dependent use variance to any facility other than those listed in the CFR definition does not meet the minimum NFIP requirement. This proposal removes that inconsistency so that minimum NFIP requirements are met. The modification improves the definition. (Vote: 10-4)

Assembly Action: **None**

Final Action

G19-19 **AM**

SP9483/G20-19

14

Date Submitted	3/2/2021	**Section**	201.2	**Proponent**	Mo Madani
Chapter	2707	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Flood Requirements

Comments

General Comments **Yes**

Related Modifications

G201.2, SECTION G1101

This appendix is reserved under the 2020 FBC-B.

Overlap

Summary of Modification

The U.S. Department of Housing and Urban Development (HUD) modified 24 CFR Part 3280 Manufactured Home Construction and Safety Standards. Updated reference standards and definition Manufactured Home.

Rationale

The U.S. Department of Housing and Urban Development (HUD) modified 24 CFR Part 3280 Manufactured Home Construction and Safety Standards a number of times since 2008, most recently in 2018. G201 includes a definition for “Manufactured Home” that refers to units constructed to Federal Manufactured Home Construction and Safety Standards promulgated by HUD.

Comment Period History

SP9483-G1

Proponent Rebecca Quinn obo F **Submitted** 6/18/2021 **Attachments** No

Comment:

Do not retain this change. The Commission has not make IBC Appendix G available in recent years and should continue that. Nearly all Florida communities that participate in the NFIP have adopted floodplain management ordinances that rely on the flood provisions of the FBC to satisfy the NFIP.

Approved as Submitted

2018 International Building Code

Revise as follows:

G201.2 Definitions.

MANUFACTURED HOME. A structure that is transportable in one or more sections, built on a permanent chassis, designed for use with or without a permanent foundation when attached to the required utilities, and constructed to the Federal ~~Mobile~~ Manufactured Home Construction and Safety Standards and rules and regulations promulgated by the U.S. Department of Housing and Urban Development. The term also includes mobile homes, park trailers, travel trailers and similar transportable structures that are placed on a site for 180 consecutive days or longer.

SECTION G1101
REFERENCED STANDARDS

HUD 24 CFR Part 3280 (~~2008~~ 2018)	Manufactured Home Construction and Safety Standards	G201

Code Change No: G20-19

Original Proposal

Section(s): G201.2, SECTION G1101

Proponent: Gregory Wilson, representing Federal Emergency Management Agency (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, on behalf of Federal Emergency Management Agency, representing Federal Emergency Management Agency (rcquinn@earthlink.net)

THIS CODE CHANGE WILL BE HEARD BY THE IBC-STRUCTURAL COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THIS COMMITTEE

2018 International Building Code

Revise as follows:

G201.2 Definitions.

MANUFACTURED HOME. A structure that is transportable in one or more sections, built on a permanent chassis, designed for use with or without a permanent foundation when attached to the required utilities, and constructed to the Federal ~~Mobile~~ Manufactured Home Construction and Safety Standards and rules and regulations promulgated by the U.S. Department of Housing and Urban Development. The term also includes mobile homes, park trailers, travel trailers and similar transportable structures that are placed on a site for 180 consecutive days or longer.

SECTION G1101
REFERENCED STANDARDS

HUD 24 CFR Part 3280 (~~2008~~ 2018)	Manufactured Home Construction and Safety Standards	G201

Reason: The U.S. Department of Housing and Urban Development (HUD) modified 24 CFR Part 3280 Manufactured Home Construction and Safety Standards a number of times since 2008, most recently in 2018. G201 includes a definition for "Manufactured Home" that refers to units constructed to Federal Manufactured Home Construction and Safety Standards promulgated by HUD.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
There is no cost impact because this proposal updates a reference to HUD standards.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: The proposal modifies the definition to match the CFR. The U.S. Department of Housing and Urban Development (HUD) modified 24 CFR Part 3280 Manufactured Home Construction and Safety Standards a number of times since 2008, most recently in 2018. G201 includes a definition for "Manufactured Home" that refers to units constructed to Federal Manufactured Home Construction and Safety Standards promulgated by HUD. (Vote: 14-0)

Assembly Action: **None**

Final Action

G20-19 AS

Sub Code: Existing Building

SP8709/EB11-19

15

Date Submitted 2/9/2021	**Section** 302.3.1	**Proponent** Mo Madani
Chapter 3	**Affects HVHZ** Yes	**Attachments** Yes
TAC Recommendation Pending Review		**Staff Classification** Correlates Directly
Commission Action Pending Review		

Comments

General Comments **Yes**

Related Modifications

302.3.1 (New)

Note: State licensed facilities are not subject to the FBC - Existing Building (see Section 101.2 of the FBC - EB.

Summary of Modification

This change aligns with existing federal requirements for the healthcare industry.

Rationale

NFPA 99 is currently in the IFC for maintenance and repair. NFPA 99 specifies additional requirements for building systems in health care facilities than just NFPA 70. In order to meet federal conditions of participation health care facilities must comply with system and equipment according to the requirements listed in NFPA 99, Health Care Facilities Code (K901, K902, K904, K905, K911, K906, K912, K914, K915 and K916). This change will align the electrical systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities.

Comment Period History

SP8709-G1

Proponent Bryan Holland **Submitted** 6/28/2021 **Attachments** No

Comment:

NEMA fully supports the changes made by EB11 in Chapter 3 of the IEBC and related to NFPA 99 compliance for certain health care facilities.

Approved as Modified (AM)

302.3 Additional codes.*Alterations, repairs, additions* and *changes of occupancy* to, or relocation of, *existing buildings* and structures shall comply with the provisions for *alterations, repairs, additions* and *changes of occupancy* or relocation, respectively, in this code and the International Energy Conservation Code , International Fire Code , International Fuel Gas Code , International Mechanical Code , International Plumbing Code , International Private Sewage Disposal Code , International Property Maintenance Code , International Residential Code and NFPA 70. Where provisions of the other codes conflict with provisions of this code, the provisions of this code shall take precedence.

Add new text as follows:

302.3.1 Additional Codes in Healthcare.In existing Group I-2 occupancies, ambulatory healthcare facilities, outpatient clinics and hyperbaric facilities, alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy in NFPA 99.

Committee Action: Approved as Modified

Modify proposal as follows:

302.3.1 Additional codes in healthcare. In existing Group I-2 occupancies, ambulatory healthcare facilities, outpatient clinics and hyperbaric facilities, alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall also comply with ~~the provisions for alterations, repairs, additions and changes of occupancy in~~ NFPA 99.

Code Change No: EB11-19

Original Proposal

Section(s): 302.3.1 (New)

Proponent: John Williams, representing Healthcare Committee (AHC@iccsafe.org)

2018 International Existing Building Code

Revise as follows:

302.3 Additional codes. *Alterations*, *repairs*, *additions* and *changes of occupancy* to, or relocation of, *existing buildings* and structures shall comply with the provisions for *alterations*, *repairs*, *additions* and *changes of occupancy* or relocation, respectively, in this code and the International Energy Conservation Code , International Fire Code , International Fuel Gas Code , International Mechanical Code , International Plumbing Code , International Private Sewage Disposal Code , International Property Maintenance Code , International Residential Code and NFPA 70. Where provisions of the other codes conflict with provisions of this code, the provisions of this code shall take precedence.

Add new text as follows:

302.3.1 Additional Codes in Healthcare. In existing Group I-2 occupancies, ambulatory healthcare facilities, outpatient clinics and hyperbaric facilities, alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for alterations, repairs, additions and changes of occupancy in NFPA 99.

Reason: NFPA 99 is currently in the IFC for maintenance and repair. NFPA 99 specifies additional requirements for building systems in health care facilities than just NFPA 70. In order to meet federal conditions of participation health care facilities must comply with system and equipment according to the requirements listed in NFPA 99, Health Care Facilities Code (K901, K902, K904, K905, K911, K906, K912, K914, K915 and K916). This change will align the electrical systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities.

NFPA 99 uses a risk based approach to system design, installation and maintenance in healthcare facilities (Group I-2 facilities, ambulatory care facilities and outpatient clinics). Four levels of systems categories are defined in NFPA 99, based on the risks to patients and caregivers in the facilities. The categories are as follows:

(1) Category 1: Systems that are expected to be functional at all times. Failure of these systems is likely to cause major injury or death.
(2) Category 2: Systems are expected to have a high level of reliability. Failures of these systems are likely to cause minor injury to patients or caregivers, however, limited short durations of equipment downtime can be tolerated. Category 2 systems are not critical for life support.
(3) Category 3: Normal building system reliabilities are expected. Such systems support patient needs, but failure of such equipment or systems would not immediately affect patient care and are not critical for life support.
(4) Category 4: Such systems have no impact on patient care and would not be noticeable to patients in the event of failure.

The category definitions apply to equipment and systems operations.

A risk assessment should be conducted to evaluate the risk to the patients, staff, and visitors in all healthcare facilities. These categories are not always aligned to occupancy classification. Potential examples of areas/systems and their categories of risk;

(1) Ambulatory surgical center, where patients undergo general anesthesia, Category 1
(2) Reconstructive surgeon's office with general anesthesia, Category 1
(3) Procedural sedation site for outpatient services, Category 2
(4) Cooling systems in Houston, TX, Category 2
(5) Cooling systems in Seattle, WA, Category 3
(6) Heating systems in Chicago, IL Category 2
(7) Dental office, no general anesthesia, Category 3
(8) Typical doctor's office/exam room, Category 4
(9) Group I-2 Condition 2 facilities most systems would be Category 1

This approach more closely aligns system design, performance and maintenance to the safety risk to the public. It does not create significant additional costs.

This proposal is submitted by the ICC Committee on Healthcare (CHC). The CHC was established by the ICC Board to evaluate and assess contemporary code issues relating to healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. In 2017 and 2018 the CHC held 4 open meetings and numerous conference calls, *which included members of the committees as well as any interested parties, to discuss and debate the proposed changes.* Information on the CHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CHC effort can be downloaded from the CHC website at: https://www.iccsafe.org/codes-tech-support/cs/icc-committee-on-healthcare/.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This change aligns with existing federal requirements for the healthcare industry.

Report of Committee Action Hearings

Committee Action: **Approved as Modified**

Modify proposal as follows:

302.3.1 Additional codes in healthcare. In existing Group I-2 occupancies, ambulatory healthcare facilities, outpatient clinics and hyperbaric facilities, alterations, repairs, additions and changes of occupancy to, or relocation of, existing buildings and structures shall also comply with ~~the provisions for alterations, repairs, additions and changes of occupancy in~~ NFPA 99.

Committee Reason: This the reference to NFPA 99 was seen as slightly redundant but a necessary reference to address compliance with Center for Medicare Services. The modification simply removes the scoping language which is already within NFPA 99. It also clarifies that compliance must be both with the IEBC, IBC and NFPA 99. (Vote: 12-1)

Assembly Action: **None**

Final Action

EB11-19	**AM**

SP9758/EB46-19

16

Date Submitted	3/15/2021	**Section**	406.1.4	**Proponent**	Mo Madani
Chapter	4	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Overlap

Comments

General Comments **Yes**

Related Modifications

406.1.4 (New), 408.3

Original text of this code change is not consistent with that of the 2020 FBC-EB/407.1.4.

Summary of Modification

NFPA 99 specifies broader requirements for existing buildings beyond just hospital grade receptacles. This change will align the electrical and medical gas systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities.

Rationale

NFPA 99 specifies broader requirements for electrical systems in existing buildings beyond just hospital grade receptacles in bed locations. This includes requirements tamperproof receptacles in pediatrics, and additional requirements for surgery. NFPA 99 defines requirements for existing facilities. In order to meet federal conditions of participation health care facilities must comply with the electrical systems and equipment and medical gas systems must be installed according to the requirements listed in NFPA 99, Health Care Facilities Code (K912, and K917). This change will align the electrical and medical gas (K909 and K910) systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities. NFPA 99 defines when repairs are made to these systems requirement for component replacement, means and methods of repairs and safety requirements.
NFPA 99 uses a risk based approach to system design, installation and maintenance in healthcare facilities (Group I-2 facilities, ambulatory care facilities and outpatient clinics). Four levels of systems categories are defined in NFPA 99, based on the risks to patients and caregivers in the facilities. The categories are as follows:

(1) Category 1: Systems that are expected to be functional at all times. Failure of these systems is likely to cause major injury or death.
(2) Category 2: Systems are expected to have a high level of reliability. Failures of these systems are likely to cause minor injury to patients or caregivers, however, limited short durations of equipment downtime can be tolerated. Category 2 systems are not critical for life support.

(Please see the uploaded mod EB46-19 for the complete text)

Comment Period History

SP9758-G1

Proponent Bryan Holland **Submitted** 6/28/2021 **Attachments** No

Comment:

NEMA fully supports replacing 407.1.4 of the 2020 FBC-EB with the new language in 406.1.4 of the 2021 IEBC as this will ensure that all electrical system repairs will comply with the NFPA 99 and NFPA 70 and not just Group I-2 receptacle replacement.

Approved as Submitted

2018 International Existing Building Code

Delete and substitute as follows:

~~**406.1.4 Group I-2 receptacles.Receptacles in patient bed locations of Group I-2 that are not "hospital grade" shall be replaced with "hospital grade" receptacles, as required by NFPA 99 and Article 517 of NFPA 70.**~~

406.1.4 Healthcare facilities.Portions of electrical systems being repaired in Group I-2, ambulatory care facilities and outpatient clinics shall comply with NFPA 99 requirements for repairs.

Add new text as follows:

408.3 Healthcare facilities.Portions of Medical Gas systems being repaired in Group I-2, ambulatory care facilities and outpatient clinics shall comply with NFPA 99 requirements for repairs.

Code Change No: EB46-19

Original Proposal

Section(s): 406.1.4 (New), 408.3 (New)

Proponents: John Williams, representing Healthcare Committee (AHC@iccsafe.org)

2018 International Existing Building Code

Delete and substitute as follows:

~~**406.1.4 Group I-2 receptacles.** Receptacles in patient bed locations of Group I-2 that are not "hospital grade" shall be replaced with "hospital grade" receptacles, as required by NFPA 99 and Article 517 of NFPA 70.~~

406.1.4 Healthcare facilities. Portions of electrical systems being repaired in Group I-2, ambulatory care facilities and outpatient clinics shall comply with NFPA 99 requirements for repairs.

Add new text as follows:

408.3 Healthcare facilities. Portions of Medical Gas systems being repaired in Group I-2, ambulatory care facilities and outpatient clinics shall comply with NFPA 99 requirements for repairs.

Reason: NFPA 99 specifies broader requirements for electrical systems in existing buildings beyond just hospital grade receptacles in bed locations. This includes requirements tamperproof receptacles in pediatrics, and additional requirements for surgery. NFPA 99 defines requirements for existing facilities. In order to meet federal conditions of participation health care facilities must comply with the electrical systems and equipment and medical gas systems must be installed according to the requirements listed in NFPA 99, Health Care Facilities Code (K912, and K917). This change will align the electrical and medical gas (K909 and K910) systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities. NFPA 99 defines when repairs are made to these systems requirement for component replacement, means and methods of repairs and safety requirements.

NFPA 99 uses a risk based approach to system design, installation and maintenance in healthcare facilities (Group I-2 facilities, ambulatory care facilities and outpatient clinics). Four levels of systems categories are defined in NFPA 99, based on the risks to patients and caregivers in the facilities. The categories are as follows:

(1) Category 1: Systems that are expected to be functional at all times. Failure of these systems is likely to cause major injury or death.
(2) Category 2: Systems are expected to have a high level of reliability. Failures of these systems are likely to cause minor injury to patients or caregivers, however, limited short durations of equipment downtime can be tolerated. Category 2 systems are not critical for life support.
(3) Category 3: Normal building system reliabilities are expected. Such systems support patient needs, but failure of such equipment or systems would not immediately affect patient care and are not critical for life support.
(4) Category 4: Such systems have no impact on patient care and would not be noticeable to patients in the event of failure.

The category definitions apply to equipment and systems operations.

A risk assessment should be conducted to evaluate the risk to the patients, staff, and visitors in all healthcare facilities. These categories are not always aligned to occupancy classification. Potential examples of areas/systems and their categories of risk;

(1) Ambulatory surgical center, where patients undergo general anesthesia, Category 1
(2) Reconstructive surgeon's office with general anesthesia, Category 1
(3) Procedural sedation site for outpatient services, Category 2
(4) Cooling systems in Houston, TX, Category 2
(5) Cooling systems in Seattle, WA, Category 3
(6) Heating systems in Chicago, IL Category 2
(7) Dental office, no general anesthesia, Category 3
(8) Typical doctor's office/exam room, Category 4
(9) Group I-2 Condition 2 facilities most systems would be Category 1

This approach more closely aligns system design, performance and maintenance to the safety risk to the public. It does not create significant additional costs.

This proposal is submitted by the ICC Committee on Healthcare (CHC). The CHC was established by the ICC Board to evaluate and assess contemporary code issues relating to healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. In 2017 and 2018 the CHC held 4 open meetings and numerous conference calls, *which included members of the committees as well as any interested parties, to discuss and debate the proposed changes*. Information on the CHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CHC effort can be downloaded from the CHC website at: https://www.iccsafe.org/codes-tech-support/cs/icc-committee-on-healthcare/.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This change aligns with existing federal requirements for the healthcare industry.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: This proposal is necessary to link with the required regulations for healthcare occupancies which requires compliance with NFPA 99 for repairs of electrical and medical gas systems. (Vote: 13-0)

Assembly Action: **None**

Final Action

EB46-19 **AS**

SP9760/EB49-19

17

Date Submitted	3/15/2021	**Section**	501.3	**Proponent**	Mo Madani
Chapter	5	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Correlates Directly

Comments

General Comments **No**

Related Modifications

501.3 (New), SECTION 706 (New), 706.1 (New), 807.3 (New), 809.2

Summary of Modification

This change will align the electrical and medical gas systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities. Adds new Sections 501.3, 706.1, 807.3, 809.2. "Healthcare facilities".

Rationale

In order to meet federal conditions of participation health care facilities must comply with the electrical systems and equipment and medical gas systems and equipment must be installed according to the requirements listed in NFPA 99, Health Care Facilities Code (K 323, K901, K902, K903, K904, K905, K909, K910, K913, K915, K916 K923, K925 and K927). This change will align the electrical and medical gas systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities.
NFPA 99 uses a risk based approach to system design, installation and maintenance in healthcare facilities (Group I-2 facilities, ambulatory care facilities and outpatient clinics). Four levels of systems categories are defined in NFPA 99, based on the risks to patients and caregivers in the facilities. The categories are as follows:

(1) Category 1: Systems that are expected to be functional at all times. Failure of these systems is likely to cause major injury or death.
(2) Category 2: Systems are expected to have a high level of reliability. Failures of these systems are likely to cause minor injury to patients or caregivers, however, limited short durations of equipment downtime can be tolerated. Category 2 systems are not critical for life support.
(Please see the uploaded mod EB49-19 for the complete text)

Approved as Submitted

2018 International Existing Building Code

Add new text as follows:

501.3 Healthcare facilities. In Group I-2 facilities, ambulatory care facilities and outpatient clinics, any altered or added portion of an existing electrical or medical gas systems shall be required to meet installation and equipment requirements in NFPA 99.

SECTION 706
ELECTRICAL

706.1 Healthcare facilities.In Group I-2 facilities, ambulatory care facilities and outpatient clinics, any altered, portion of an existing electrical systems shall be required to meet installation and equipment requirements in NFPA 99

807.3 Healthcare facilities.In Group I-2 facilities, ambulatory care facilities and outpatient clinics, any added portion of an existing electrical systems shall be required to meet installation and equipment requirements in NFPA 99.

809.2 Healthcare facilities.In Group I-2 facilities, ambulatory care facilities and outpatient clinics, any added portion of an existing medical gas systems shall be required to meet installation and equipment requirements in NFPA 99.

Code Change No: EB49-19

Original Proposal

Section(s): 501.3 (New), SECTION 706 (New), 706.1 (New), 807.3 (New), 809.2 (New)

Proponents: John Williams, representing Healthcare Committee (AHC@iccsafe.org)

2018 International Existing Building Code

Add new text as follows:

501.3 Healthcare facilities. In Group I-2 facilities, ambulatory care facilities and outpatient clinics, any altered or added portion of an existing electrical or medical gas systems shall be required to meet installation and equipment requirements in NFPA 99.

SECTION 706
ELECTRICAL

706.1 Healthcare facilities. In Group I-2 facilities, ambulatory care facilities and outpatient clinics, any altered, portion of an existing electrical systems shall be required to meet installation and equipment requirements in NFPA 99

807.3 Healthcare facilities. In Group I-2 facilities, ambulatory care facilities and outpatient clinics, any added portion of an existing electrical systems shall be required to meet installation and equipment requirements in NFPA 99.

809.2 Healthcare facilities. In Group I-2 facilities, ambulatory care facilities and outpatient clinics, any added portion of an existing medical gas systems shall be required to meet installation and equipment requirements in NFPA 99.

Reason: In order to meet federal conditions of participation health care facilities must comply with the electrical systems and equipment and medical gas systems and equipment must be installed according to the requirements listed in NFPA 99, Health Care Facilities Code (K 323, K901, K902, K903, K904, K905, K909, K910, K913, K915, K916 K923, K925 and K927). This change will align the electrical and medical gas systems installation requirements for Outpatient Clinics, Group B Ambulatory Care and Group I-2 facilities.

NFPA 99 uses a risk based approach to system design, installation and maintenance in healthcare facilities (Group I-2 facilities, ambulatory care facilities and outpatient clinics). Four levels of systems categories are defined in NFPA 99, based on the risks to patients and caregivers in the facilities. The categories are as follows:

(1) Category 1: Systems that are expected to be functional at all times. Failure of these systems is likely to cause major injury or death.
(2) Category 2: Systems are expected to have a high level of reliability. Failures of these systems are likely to cause minor injury to patients or caregivers, however, limited short durations of equipment downtime can be tolerated. Category 2 systems are not critical for life support.
(3) Category 3: Normal building system reliabilities are expected. Such systems support patient needs, but failure of such equipment or systems would not immediately affect patient care and are not critical for life support.
(4) Category 4: Such systems have no impact on patient care and would not be noticeable to patients in the event of failure.

The category definitions apply to equipment and systems operations.

A risk assessment should be conducted to evaluate the risk to the patients, staff, and visitors in all healthcare facilities. These categories are not always aligned to occupancy classification. Potential examples of areas/systems and their categories of risk;

(1) Ambulatory surgical center, where patients undergo general anesthesia, Category 1
(2) Reconstructive surgeon's office with general anesthesia, Category 1
(3) Procedural sedation site for outpatient services, Category 2
(4) Cooling systems in Houston, TX, Category 2
(5) Cooling systems in Seattle, WA, Category 3

(6) Heating systems in Chicago, IL Category 2
(7) Dental office, no general anesthesia, Category 3
(8) Typical doctor's office/exam room, Category 4
(9) Group I-2 Condition 2 facilities most systems would be Category 1

This approach more closely aligns system design, performance and maintenance to the safety risk to the public. It does not create significant additional costs.

This proposal is submitted by the ICC Committee on Healthcare (CHC). The CHC was established by the ICC Board to evaluate and assess contemporary code issues relating to healthcare facilities. This is a joint effort between ICC and the American Society for Healthcare Engineering (ASHE), a subsidiary of the American Hospital Association, to eliminate duplication and conflicts in healthcare regulation. In 2017 and 2018 the CHC held 4 open meetings and numerous conference calls, *which included members of the committees as well as any interested parties, to discuss and debate the proposed changes.* Information on the CHC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CHC effort can be downloaded from the CHC website at: https://www.iccsafe.org/codes-tech-support/cs/icc-committee-on-healthcare/.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
This change aligns with existing federal requirements for the healthcare industry.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: This proposal correlates the IEBC alteration requirements with federal requirements for healthcare with regard to medical gases and electrical systems. (Vote: 13-0)

Assembly Action: **None**

Final Action

EB49-19 **AS**

SP9703/EB110-19

18

Date Submitted	3/12/2021	**Section**	1201.3	**Proponent**	Mo Madani
Chapter	12	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Overlap

Comments

General Comments **No**

Related Modifications

1201.3

Original text of this code change is not consistent with that of the 2020 FBC-EB.

Summary of Modification

Proposal to addresses non mandatory language.

Rationale

This addresses non mandatory language.
This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. Since 2017 the BCAC has held 6 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as w ell as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: https://www.iccsafe.org/codes-tech-support/codes/codedevelopment-process/building-code-actioncommittee-bcac.

Approved as Submitted

2018 International Existing Building Code

Revise as follows:

1201.3 Special occupancy exceptions—museums.Where a building in Group R-3 is used for Group A, B or M purposes such as museum tours, exhibits, and other public assembly activities, or for museums less than 3,000 square feet (279 m^2), the *code official* ~~may~~ is authorized to determine that the occupancy is Group B where life safety conditions can be demonstrated in accordance with Section 1201.2. Adequate means of egress in such buildings, which ~~may include~~ includes, but are not limited to a means of maintaining doors in an open position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

Code Change No: EB110-19

Original Proposal

Section(s): 1201.3

Proponents: Ed Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2018 International Existing Building Code

Revise as follows:

1201.3 Special occupancy exceptions—museums. Where a building in Group R-3 is used for Group A, B or M purposes such as museum tours, exhibits, and other public assembly activities, or for museums less than 3,000 square feet (279 m^2), the *code official* ~~may~~ is authorized to determine that the occupancy is Group B where life safety conditions can be demonstrated in accordance with Section 1201.2. Adequate means of egress in such buildings, which ~~may include~~ includes, but are not limited to a means of maintaining doors in an open position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

Reason: This addresses non mandatory language.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. Since 2017 the BCAC has held 6 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as w ell as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: https://www.iccsafe.org/codes-tech-support/codes/codedevelopment-process/building-code-actioncommittee-bcac.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Editorial.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved as it removes non-mandatory language from the section. (Vote: 13-0)

Assembly Action: **None**

Final Action

EB110-19 **AS**

SP9704/EB112-19

19

Date Submitted	3/12/2021	**Section**	1204.9	**Proponent**	Mo Madani
Chapter	12	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Overlap

Comments

General Comments **No**

Related Modifications

1204.9

Original text of this code change is not consistent with that of the 2020 FBC-EB.

Summary of Modification

Modifies text of Section 1204.9 "Finishes". Changes title to "Interior Finish". Deletes "have a flame spread index of Class C or better, when tested in accordance with ASTM E84 or UL 723". Adds pointer to Section 803.1 of the IBC.

Rationale

This code proposal makes two changes:

1. Neither the IBC nor the IFC allow all interior finish materials to be tested to ASTM E84 or UL 723. In fact, although all materials are allowed to be classified by NFPA 286 (a room corner test), some materials are not allowed to be classified by using ASTM E84 or UL 723. Any material that meets the requirements of the IBC code (or IFC code) based on testing to NFPA 286 is considered to comply with a Class A, Class B or Class C requirement, in accordance with ASTM E84 or UL 723. The requirements are contained in Section 803.1 of the IBC (with 803.1.1 dealing with NFPA 286, 803.1.2 dealing with ASTM E84 or UL 723 and 803.1.3 dealing with materials with special requirements). Therefore it is possible that interior finish materials have been shown to meet NFPA 286 requirements and they are (in accordance with the IBC) acceptable as materials with a "Class C or better" in accordance with ASTM E84 or UL 723 and don't need retesting (or may not even be allowed by the IBC to be tested to ASTM E84 or UL 723). The use of a reference exclusively to a Class C, without a reference to the IBC or IFC, prevents the use of materials tested to (or needing testing to) NFPA 286.
2. The typical nomenclature used in the IBC and IFC is fire-retardant coating.

Approved as Modified

Original Proposal:

2018 International Existing Building Code

Revise as follows:

1204.9 ~~Finishes.~~ Interior finish. Where interior finish materials are required to ~~have a flame spread index of Class C or better, when tested in accordance with ASTM E84 or UL 723,~~ comply with the fire test requirements of Section 803.1 of the *International Building Code*, existing nonconforming materials shall be permitted to be surfaced with an *approved* fire-retardant ~~paint or finish.~~ coating to achieve the required fire performance.

Exception: Existing nonconforming materials need not be surfaced with an *approved* fire-retardant ~~paint or finish~~ coating where the building is equipped throughout with an automatic sprinkler system installed in accordance with the *International Building Code* and the nonconforming materials can be substantiated as being historic in character.

Modified Proposal:

1204.9 Interior finish. Where interior finish materials are required to comply with the fire test requirements of Section 803.1 of the *International Building Code*, existing nonconforming materials shall be permitted to be surfaced with an *approved* fire-retardant coating to achieve the required ~~fire performance~~ classification. Compliance with this section shall be demonstrated by testing the fire-retardant coating on the same material and achieving the required fire classification. If the same material is not available, it shall be permitted to test on a similar material.

Code Change No: EB112-19

Original Proposal

Section(s): 1204.9

Proponent: Marcelo Hirschler, representing GBH International (mmh@gbhint.com)

2018 International Existing Building Code

Revise as follows:

1204.9 ~~Finishes.~~ Interior finish. Where interior finish materials are required to ~~have a flame spread index of Class C or better, when tested in accordance with ASTM E84 or UL 723,~~ comply with the fire test requirements of Section 803.1 of the *International Building Code*, existing nonconforming materials shall be permitted to be surfaced with an *approved* fire-retardant ~~paint or finish.~~ coating to achieve the required fire performance.

> **Exception:** Existing nonconforming materials need not be surfaced with an *approved* fire-retardant ~~paint or finish~~ coating where the building is equipped throughout with an automatic sprinkler system installed in accordance with the *International Building Code* and the nonconforming materials can be substantiated as being historic in character.

Reason: This code proposal makes two changes:

1. Neither the IBC nor the IFC allow all interior finish materials to be tested to ASTM E84 or UL 723. In fact, although all materials are allowed to be classified by NFPA 286 (a room corner test), some materials are not allowed to be classified by using ASTM E84 or UL 723. Any material that meets the requirements of the IBC code (or IFC code) based on testing to NFPA 286 is considered to comply with a Class A, Class B or Class C requirement, in accordance with ASTM E84 or UL 723. The requirements are contained in Section 803.1 of the IBC (with 803.1.1 dealing with NFPA 286, 803.1.2 dealing with ASTM E84 or UL 723 and 803.1.3 dealing with materials with special requirements). Therefore it is possible that interior finish materials have been shown to meet NFPA 286 requirements and they are (in accordance with the IBC) acceptable as materials with a "Class C or better" in accordance with ASTM E84 or UL 723 and don't need retesting (or may not even be allowed by the IBC to be tested to ASTM E84 or UL 723). The use of a reference exclusively to a Class C, without a reference to the IBC or IFC, prevents the use of materials tested to (or needing testing to) NFPA 286.
2. The typical nomenclature used in the IBC and IFC is fire-retardant coating.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
The revision simply permits materials already tested to NFPA 286 to be covered.

Report of Committee Action Hearings

Committee Action: **Approved as Modified**

Modify proposal as follows:

1204.9 Interior finish. Where interior finish materials are required to comply with the fire test requirements of Section 803.1 of the *International Building Code*, existing nonconforming materials shall be permitted to be surfaced with an *approved* fire-retardant coating to achieve the required ~~fire performance~~ classification. Compliance with this section shall be demonstrated by testing the fire-retardant coating on the same material and achieving the required fire classification. If the same material is not available, it shall be permitted to test on a similar material.

> **Exception:** Existing nonconforming materials need not be surfaced with an *approved* fire-retardant coating where the building is equipped throughout with an automatic sprinkler system installed in accordance with the *International Building Code* and the nonconforming materials can be substantiated as being historic in character.

Committee Reason: The committee approved the proposal based upon the action taken on EB78-19 and the fact that this correctly

refers back to the IBC for the testing requirements. The modifications are consistent with the modifications on EB78-19 which revise the language to "classification" from "fire performance." (Vote: 13-0)

Assembly Action: **None**

Final Action

EB112-19	**AM**

Sub Code: Residential

SP8510/RB34-19

20

Date Submitted	2/5/2021	**Section**	301	**Proponent**	Mo Madani
Chapter	3	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Flood Requirements

Comments

General Comments **Yes**

Related Modifications

Overlap

Original text of this code change is not consistent with that of the 2020 FBC-R.

Summary of Modification

This proposal brings the establishment of the flood hazard area in line with Section 1612.3 of the IBC, which requires only identification of the title and date of issuance of the FIS.

Rationale

It is sufficient only to identify the title and date of the community's Flood Insurance Study. Flood Insurance Studies are official reports provided by the Federal Emergency Management Agency that include or contain the Flood Insurance Rate Maps (FIRM), the Flood Boundary and Floodway Map (FBFM), the water surface elevation of the base flood and supporting technical data.
The requirement to list the panel numbers and associated dates of all currently effective FIRMs and FBFMs is burdensome, especially in large jurisdictions with multiple panels. Additionally, some states permit communities to automatically adopt updated FISs and accompanying FIRMs. Requiring individual panel numbers and dates of newly updated FIRMs would require those communities to modify the list with issuance of each new FIRM and defeats the purpose of the auto-adopt mechanism.
This proposal brings the establishment of the flood hazard area in line with Section 1612.3 of the IBC, which requires only identification of the title and date of issuance of the FIS.

Comment Period History

SP8510-G1

Proponent Rebecca Quinn obo F **Submitted** 6/18/2021 **Attachments** No

Comment:

Do not retain the modification to the 2021 IRC Table R301.2(1) as shown. The Commission modified the footnote to refer to adoption by local floodplain management ordinance (a defined term). DEM may submit a proposal to remove reference to panel numbers and dates because local ordinances do not include those details.

SP8510 Text Modification

Approved as Submitted

See attached monograph

Code Change No: RB34-19

Original Proposal

Section(s): TABLE R301.2(1)

Proponents: Gregory Wilson, representing Federal Emergency Management Agency (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, on behalf of Federal Emergency Management Agency, representing Federal Emergency Management Agency (rcquinn@earthlink.net)

2018 International Residential Code

Revise as follows:

TABLE R301.2(1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

GROUND SNOW	WIND DESIGN				SEISMIC DESIGN CATEGORY[f]	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP[e]	ICE BARRIER UNDERLAYMENT REQUIRED[h]	FLOOD HAZARDS[g]	AIR FREEZING INDEX[i]	MEANANNUAL TEMP[j]
LOAD[o]	Speed[d] (mph)	Topographic effects[k]	Special wind region[l]	Wind-bornedebris zone[m]		Weath -ering[a]	Frost line depth[b]	Termite[c]					
—	—	—	—	—	—	—	—	—	—	—	—	—	—
MANUAL J DESIGN CRITERIA[n]													
Elevation			Lattitud e	Winter heating	Summer cooling	Altitude correction factor			Indoor design temperature	Design temperature cooling		Heating temperature difference	
—			—	—	—	—			—	—		—	
Cooling temperature difference			Wind velocity heating	Wind velocity cooling	Coincident wet bulb	Daily range			Winter humidity	Summer humidity		—	
—			—	—	—	—			—	—		—	

For SI: 1 pound per square foot = 0.0479 kPa, 1 mile per hour = 0.447 m/s.

a. Where weathering requires a higher strength concrete or grade of masonry than necessary to satisfy the structural requirements of this code, the frost line depth strength required for weathering shall govern. The weathering column shall be filled in with the weathering index, "negligible," "moderate" or "severe" for concrete as determined from Figure R301.2(4). The grade of masonry un

b. Where the frost line depth requires deeper footings than indicated in Figure R403.1(1), the frost line depth strength required for weathering shall govern. The jurisdiction shall fill in the frost line depth column with the minimum depth of footing below finish grade.

c. The jurisdiction shall fill in this part of the table to indicate the need for protection depending on whether there has been a history of local subterranean termite damage.

d. The jurisdiction shall fill in this part of the table with the wind speed from the basic wind speed map [Figure R301.2(5)A]. Wind exposure category shall be determined on a site-specific basis in accordance with Section R301.2.1.4.

e. The outdoor design dry-bulb temperature shall be selected from the columns of 97½-percent values for winter from Appendix D of the International Plumbing Code. Deviations from the Appendix D temperatures shall be permitted to reflect local climates or local weather experience as determined by the building official. [Also see Figure R301.2(1)

f. The jurisdiction shall fill in this part of the table with the seismic design category determined from Section R301.2.2.1.

g. The jurisdiction shall fill in this part of the table with (a) the date of the jurisdiction's entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas)~~,~~and (b) the title and date~~(s)~~ of the currently effective Flood Insurance Study ~~and (c) the panel numbers and dates of the currently effective FIRMs and FBFMs~~ or other flood hazard ~~map~~ study and maps adopted by the authority having jurisdiction, as amended.In accordance with Sections R905.1.2, R905.4.3.1, R905.5.3.1, R905.6.3.1, R905.7.3.1 and R905.8.3.1, where there has been a history of local damage from the effects of ice damming, the jurisdiction shall fill in this part of the table with "YES." Otherwise, the jurisdiction shall fill in this part of the table with "NO."

h. The jurisdiction shall fill in this part of the table with the 100-year return period air freezing index (BF-days) from Figure R403.3(2) or from the 100-year (99 percent) value on the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."

i. The jurisdiction shall fill in this part of the table with the mean annual temperature from the National Climatic Data Center data table "Air Freezing Index-USA Method (Base 32°F)."

j. In accordance with Section R301.2.1.5, where there is local historical data documenting structural damage to buildings due to topographic wind speed-up effects, the jurisdiction shall fill in this part of the table with "YES." Otherwise, the jurisdiction shall indicate "NO" in this part of the table.

k. In accordance with Figure R301.2(5)A, where there is local historical data documenting unusual wind conditions, the jurisdiction shall fill in this part of the table with "YES" and identify any specific requirements. Otherwise, the jurisdiction shall indicate "NO" in this part of the table.

l. In accordance with Section R301.2.1.2 the jurisdiction shall indicate the wind-borne debris wind zone(s). Otherwise, the jurisdiction shall indicate "NO" in this part of the table.

m. The jurisdiction shall fill in these sections of the table to establish the design criteria using Table 1a or 1b from ACCA Manual J or established criteria determined by the jurisdiction.

n. The jurisdiction shall fill in this section of the table using the Ground Snow Loads in Figure R301.2(6).

Reason: It is sufficient only to identify the title and date of the community's Flood Insurance Study. Flood Insurance Studies are official reports provided by the Federal Emergency Management Agency that include or contain the Flood Insurance Rate Maps (FIRM), the Flood Boundary and Floodway Map (FBFM), the water surface elevation of the *base flood* and supporting technical data.

The requirement to list the panel numbers and associated dates of all currently effective FIRMs and FBFMs is burdensome, especially in large jurisdictions with multiple panels. Additionally, some states permit communities to automatically adopt updated FISs and accompanying FIRMs. Requiring individual panel numbers and dates of newly updated FIRMs would require those communities to modify the list with issuance of each new FIRM and defeats the purpose of the auto-adopt mechanism.

This proposal brings the establishment of the flood hazard area in line with Section 1612.3 of the IBC, which requires only identification of the title and date of issuance of the FIS.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
No additional cost. The proposal eliminates an administrative burden on communities.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: This proposal modifies the flood maps to what is currently accepted. (Vote: 11-0)

Assembly Action: **None**

Final Action

RB34-19	**AS**

SP8699/RB141-19

21

Date Submitted	2/9/2021	**Section**	322	**Proponent**	Mo Madani
Chapter	3	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Flood Requirements

Comments

General Comments **Yes**

Related Modifications

309

Correlates Directly

Summary of Modification

The primary aspect of elevated homes in flood hazard areas that contributes to reducing damage is the elevation of the lowest floor (R322.2.1) or lowest horizontal structural member of the lowest floor in Zone V and Coastal A Zones (R322.3.2) relative to the base flood elevation.

Rationale

Reason: The primary aspect of elevated homes in flood hazard areas that contributes to reducing damage is the elevation of the lowest floor (R322.2.1) or lowest horizontal structural member of the lowest floor in Zone V and Coastal A Zones (R322.3.2) relative to the base flood elevation. The higher the floor, the lower the risk (and the lower are NFIP flood insurance premiums). To ensure the same level of protection is applied to all aspects of dwellings, Section R322.1.6 requires mechanical, plumbing and electrical equipment to be located at or above the required elevations, and R322.1.8 requires use of flood damage-resistant materials below the required elevations. This same level of protection should apply to enclosures and walls below the required elevations. Currently, the level of protection for enclosures and walls is at the design flood elevation, which may be lower than the lowest floor elevations required in R322.2.1 and R322.3.2.

Comment Period History

SP8699-G1

Proponent Rebecca Quinn obo F **Submitted** 6/18/2021 **Attachments** No

Comment:

Retain this proposal; it is an important clarification for application of several flood sections.

Comment Period History

SP8699-G2

Proponent Brian Walsh - RCCIW **Submitted** 6/21/2021 **Attachments** No

Comment:

This can have cost implications, but would very widely based on the situation and build. I cannot put a dollar amount at this time.

Comment Period History

SP8699-G3

Proponent Joseph Belcher **Submitted** 6/29/2021 **Attachments** No

Comment:

The Florida Home Builders Association (FHBA) requests denial of this code change. While the provisions are flood requirements, it is unclear whether adoption of the provisions is necessary to maintain eligibility for federal funding and discounts from the National Flood Insurance Program. It appears there could be a considerable cost involved to comply with the changes and we request more time to consider the full impact.

Comment Period History

SP8699-G4

Proponent Joseph Belcher **Submitted** 6/29/2021 **Attachments** No

Comment:

Additional comment from FHBA: Further investigation reveals that the ICC Committee action was AMPC1. The Complete Revision Resource shows a Public Comment 2, but no Public Comment 1. Reviewing the 2021 IRC, First Printing, reveals that the provisions of RB141-19 Public Comment 2 were adopted. Please move denial of this provision to allow interested parties the opportunity to submit in the proper form in Phase II.

ORIGINAL

AS - APPROVED AS SUBMITTED

Revise as follows:

R309.3 Flood hazard areas.

For buildings located in flood hazard areas as established by Table R301.2(1), garage floors shall be one of the following:

1. Elevated to or above the ~~design flood~~ required lowest floor elevation as determined in accordance with Section R322.

2. Located below the ~~design flood~~ required lowest floor elevation provided that the floors are at or above *grade* on not less than one side, are used solely for parking, building access or storage, meet the requirements of Section R322 and are otherwise constructed in accordance with this code.

R322.1.6 Protection of mechanical, plumbing and electrical systems. Electrical systems, *equipment* and components; heating, ventilating, air-conditioning; plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment* shall be located at or above the elevation required in Section R322.2 or R322.3. If replaced as part of a substantial improvement, electrical systems, *equipment* and components; heating, ventilating, air-conditioning and plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment* shall meet the requirements of this section. Systems, fixtures, and *equipment* and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

Exception: Locating electrical systems, *equipment* and components; heating, ventilating, air-conditioning; plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment* is permitted below the elevation required in Section R322.2 or R322.3 provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the ~~design flood~~ required elevation in accordance with ASCE 24. Electrical wiring systems are permitted to be located below the required elevation provided that they conform to the provisions of the electrical part of this code for wet locations.

R322.2.1 Elevation requirements.

1. Buildings and structures in flood hazard areas, including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.

2. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated to a height above the highest adjacent grade of not less than the depth number specified in feet (mm) on the FIRM plus 1 foot (305 mm), or not less than 3 feet (915 mm) if a depth number is not specified.

3. Basement floors that are below grade on all sides shall be elevated to or above base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.

Exception: Enclosed areas below the ~~design flood~~ elevation required in this section, including *basements* with floors that are not below *grade* on all sides, shall meet the requirements of Section R322.2.2.

R322.2.2 Enclosed area below ~~design flood~~ required elevation. Enclosed areas, including crawl spaces, that are below the ~~design flood~~ elevation required in Section R322.2.1 shall:

1. Be used solely for parking of vehicles, building access or storage.

2. Be provided with flood openings that meet the following criteria and are installed in accordance with Section R322.2.2.1:

   2.1. The total net area of nonengineered openings shall be not less than 1 square inch (645 mm2) for each square foot (0.093 m2) of enclosed area where the enclosed area is measured on the exterior of the enclosure walls, or the openings shall be designed as engineered openings and the construction documents shall include a statement by a registered design professional that the design of the openings will provide for equalization of hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwaters as specified in Section 2.7.2.2 of ASCE 24.

   2.2. Openings shall be not less than 3 inches (76 mm) in any direction in the plane of the wall.

   2.3. The presence of louvers, blades, screens and faceplates or other covers and devices shall allow the automatic flow of floodwater into and out of the enclosed areas and shall be accounted for in the determination of the net open area.

R322.2.2.1 Installation of openings. The walls of enclosed areas shall have openings installed such that:

1. There shall be not less than two openings on different sides of each enclosed area; if a building has more than one enclosed area ~~below the design flood elevation~~, each area shall have openings.

2. The bottom of each opening shall be not more than 1 foot (305 mm) above the higher of the final interior grade or floor and the finished exterior grade immediately under each opening.

3. Openings shall be permitted to be installed in doors and windows; doors and windows without installed openings do not meet the requirements of this section.

R322.3.2 Elevation requirements.

1. Buildings and structures erected within coastal high-hazard areas and Coastal A Zones, shall be elevated so that the bottom of the lowest horizontal structural members supporting the lowest floor, with the exception of piling, pile caps, columns, grade beams and bracing, is elevated to or above the base flood elevation plus 1 foot (305 mm) or the design flood elevation, whichever is higher.

2. Basement floors that are below grade on all sides are prohibited.

3. The use of fill for structural support is prohibited.

4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.

5. Walls and partitions enclosing areas below the ~~design flood~~ elevation required in this section shall meet the requirements of Sections R322.3.5 and R322.3.6.

R322.3.5 Walls below ~~design flood~~ required elevation. Walls and partitions are permitted below the ~~elevated floor~~ elevation required in Section R322.3.2, provided that such walls and partitions are not part of the structural support of the building or structure and:

1. Electrical, mechanical and plumbing system components are not to be mounted on or penetrate through walls that are designed to break away under flood loads; and

2. Are constructed with insect screening or open lattice; or

3. Are designed to break away or collapse without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Such walls, framing and connections shall have a resistance of not less than 10 (479 Pa) and not more than 20 pounds per square foot (958 Pa) as determined using allowable stress design; or

4. Where wind loading values of this code exceed 20 pounds per square foot (958 Pa), as determined using allowable stress design, the construction documents shall include documentation prepared and sealed by a registered design professional that:

   4.1. The walls and partitions below the ~~design flood~~ required elevation have been designed to collapse from a water load less than that which would occur during the base flood.

4.2. The elevated portion of the building and supporting foundation system have been designed to withstand the effects of wind and flood loads acting simultaneously on structural and nonstructural building components. Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by this code.

5. Walls intended to break away under flood loads as specified in Item 3 or 4 have flood openings that meet the criteria in Section R322.2.2, Item 2.

R322.3.6 Enclosed areas below ~~design flood~~ required elevation. Enclosed areas below the ~~design flood~~ elevation required in Section R322.3.2 shall be used solely for parking of vehicles, building access or storage.

R322.3.7 Stairways and ramps. Stairways and ramps that are located below the lowest floor elevations specified in Section R322.3.2 shall comply with one or more of the following:

1. Be designed and constructed with open or partially open risers and guards.

2. Stairways and ramps not part of the required means of egress shall be designed and constructed to break away during design flood conditions without causing damage to the building or structure, including foundation.

3. Be retractable, or able to be raised to or above the lowest floor elevation, provided that the ability to be retracted or raised prior to the onset of flooding is not contrary to the means of egress requirements of the code.

4. Be designed and constructed to resist flood loads and minimize transfer of flood loads to the building or structure, including foundation.

Areas below stairways and ramps shall not be enclosed with walls below the ~~design flood~~ elevation required in Section R322.3.2 unless such walls are constructed in accordance with Section R322.3.5.

Code Change No: RB141-19

Original Proposal

Section(s): R309.3, R322.1.6, R322.2.1, R322.2.2, R322.2.2.1, R322.3.2, R322.3.5, R322.3.6, R322.3.7

Proponents: Gregory Wilson, representing Federal Emergency Management Agency (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, on behalf of Federal Emergency Management Agency, representing Federal Emergency Management Agency (rcquinn@earthlink.net)

2018 International Residential Code

Revise as follows:

R309.3 Flood hazard areas.

For buildings located in flood hazard areas as established by Table R301.2(1), garage floors shall be one of the following:

1. Elevated to or above the ~~design flood~~ required lowest floor elevation as determined in accordance with Section R322.
2. Located below the ~~design flood~~ required lowest floor elevation provided that the floors are at or above *grade* on not less than one side, are used solely for parking, building access or storage, meet the requirements of Section R322 and are otherwise constructed in accordance with this code.

R322.1.6 Protection of mechanical, plumbing and electrical systems. Electrical systems, *equipment* and components; heating, ventilating, air-conditioning; plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment* shall be located at or above the elevation required in Section R322.2 or R322.3. If replaced as part of a substantial improvement, electrical systems, *equipment* and components; heating, ventilating, air-conditioning and plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment* shall meet the requirements of this section. Systems, fixtures, and *equipment* and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

> **Exception:** Locating electrical systems, *equipment* and components; heating, ventilating, air-conditioning; plumbing *appliances* and plumbing fixtures; *duct systems*; and other service *equipment* is permitted below the elevation required in Section R322.2 or R322.3 provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the ~~design flood~~ required elevation in accordance with ASCE 24. Electrical wiring systems are permitted to be located below the required elevation provided that they conform to the provisions of the electrical part of this code for wet locations.

R322.2.1 Elevation requirements.

1. Buildings and structures in flood hazard areas, including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.
2. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated to a height above the highest adjacent grade of not less than the

depth number specified in feet (mm) on the FIRM plus 1 foot (305 mm), or not less than 3 feet (915 mm) if a depth number is not specified.

3. Basement floors that are below grade on all sides shall be elevated to or above base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.

Exception: Enclosed areas below the ~~design flood~~ elevation required in this section, including *basements* with floors that are not below *grade* on all sides, shall meet the requirements of Section R322.2.2.

R322.2.2 Enclosed area below ~~design flood~~ required elevation. Enclosed areas, including crawl spaces, that are below the ~~design flood~~ elevation required in Section R322.2.1 shall:

1. Be used solely for parking of vehicles, building access or storage.
2. Be provided with flood openings that meet the following criteria and are installed in accordance with Section R322.2.2.1:
   2.1. The total net area of nonengineered openings shall be not less than 1 square inch (645 mm2) for each square foot (0.093 m2) of enclosed area where the enclosed area is measured on the exterior of the enclosure walls, or the openings shall be designed as engineered openings and the construction documents shall include a statement by a registered design professional that the design of the openings will provide for equalization of hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwaters as specified in Section 2.7.2.2 of ASCE 24.
   2.2. Openings shall be not less than 3 inches (76 mm) in any direction in the plane of the wall.
   2.3. The presence of louvers, blades, screens and faceplates or other covers and devices shall allow the automatic flow of floodwater into and out of the enclosed areas and shall be accounted for in the determination of the net open area.

R322.2.2.1 Installation of openings. The walls of enclosed areas shall have openings installed such that:

1. There shall be not less than two openings on different sides of each enclosed area; if a building has more than one enclosed area ~~below the design flood elevation~~, each area shall have openings.
2. The bottom of each opening shall be not more than 1 foot (305 mm) above the higher of the final interior grade or floor and the finished exterior grade immediately under each opening.
3. Openings shall be permitted to be installed in doors and windows; doors and windows without installed openings do not meet the requirements of this section.

R322.3.2 Elevation requirements.

1. Buildings and structures erected within coastal high-hazard areas and Coastal A Zones, shall be elevated so that the bottom of the lowest horizontal structural members supporting the lowest floor, with the exception of piling, pile caps, columns, grade beams and bracing, is elevated to or above the base flood elevation plus 1 foot (305 mm) or the design flood elevation, whichever is higher.
2. Basement floors that are below grade on all sides are prohibited.
3. The use of fill for structural support is prohibited.
4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.
5. Walls and partitions enclosing areas below the ~~design flood~~ elevation required in this section shall meet the requirements of Sections R322.3.5 and R322.3.6.

R322.3.5 Walls below ~~design flood~~ required elevation. Walls and partitions are permitted below the ~~elevated floor~~ elevation required in Section R322.3.2, provided that such walls and partitions are not part of the structural support of the building or structure and:

1. Electrical, mechanical and plumbing system components are not to be mounted on or penetrate through walls that are designed to break away under flood loads; and
2. Are constructed with insect screening or open lattice; or
3. Are designed to break away or collapse without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Such walls, framing and connections shall have a resistance of not less than 10 (479 Pa) and not more than 20 pounds per square foot (958 Pa) as determined using allowable stress design; or
4. Where wind loading values of this code exceed 20 pounds per square foot (958 Pa), as determined using allowable stress design, the construction documents shall include documentation prepared and sealed by a registered design professional that:
   4.1. The walls and partitions below the ~~design flood~~ required elevation have been designed to collapse from a water load less than that which would occur during the base flood.
   4.2. The elevated portion of the building and supporting foundation system have been designed to withstand the effects of wind and flood loads acting simultaneously on structural and nonstructural building components. Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by this code.
5. Walls intended to break away under flood loads as specified in Item 3 or 4 have flood openings that meet the criteria in Section R322.2.2, Item 2.

R322.3.6 Enclosed areas below ~~design flood~~ required elevation. Enclosed areas below the ~~design flood~~ elevation required in Section R322.3.2 shall be used solely for parking of vehicles, building access or storage.

R322.3.7 Stairways and ramps. Stairways and ramps that are located below the lowest floor elevations specified in Section R322.3.2 shall comply with one or more of the following:

1. Be designed and constructed with open or partially open risers and guards.
2. Stairways and ramps not part of the required means of egress shall be designed and constructed to break away during design flood conditions without causing damage to the building or structure, including foundation.
3. Be retractable, or able to be raised to or above the lowest floor elevation, provided that the ability to be retracted or raised prior to the onset of flooding is not contrary to the means of egress requirements of the code.
4. Be designed and constructed to resist flood loads and minimize transfer of flood loads to the building or structure, including foundation.

Areas below stairways and ramps shall not be enclosed with walls below the ~~design flood~~ elevation required in Section R322.3.2 unless such walls are constructed in accordance with Section R322.3.5.

Reason: The primary aspect of elevated homes in flood hazard areas that contributes to reducing damage is the elevation of the lowest floor (R322.2.1) or lowest horizontal structural member of the lowest floor in Zone V and Coastal A Zones (R322.3.2) relative to the base flood elevation. The higher the floor, the lower the risk (and the lower are NFIP flood insurance premiums). To ensure the same level of protection is applied to all aspects of dwellings, Section R322.1.6 requires mechanical, plumbing and electrical equipment to be located at or above the required elevations, and R322.1.8 requires use of flood damage-resistant materials below the required elevations. This same level of protection should apply to enclosures and walls below the required elevations. Currently, the level of protection for enclosures and walls is at the design flood elevation, which may be lower than the lowest floor elevations required in R322.2.1 and R322.3.2.

This proposal is consistent with ASCE 24, in which each table specifying elevations refers not to the elevation of the flood, but the required elevation of the lowest floor (ow lowest horizontal structural member of the lowest floor). This proposal is consistent with the NFIP regulations which, in Section 60.3(c)(5) specifies…. "fully enclosed areas below the lowest floor…" and Section 60.3(e)(5) which specifies…."space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls …".

Cost Impact: The code change proposal will not increase or decrease the cost of construction
Most enclosures below elevated buildings in flood hazard areas are constructed with all elements required for enclosures applied below the elevated lowest floor, thus no change in cost of construction. There may be a slight increase in cost in those rare situations where someone determines the DFE/BFE and "precisely" applies the regulations up to that elevation rather than up to the actual elevation of the lowest floor.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Modify as follows:

Committee Reason: This takes out "design flood" and puts in "required elevation," but does not change technical requirements. The proposal is consistent with ASCE 24. (Vote: 7-4)

Assembly Action: **None**

Public Comments

Public Comment 2:

Gary Ehrlich, representing National Association of Home Builders (gehrlich@nahb.org) requests As Modified by Public Comment

Modify as follows:

2018 International Residential Code

R309.3 Flood hazard areas. Garages and carports ~~For buildings~~ located in flood hazard areas as established by Table R301.2(1) shall be constructed in accordance with Section R322.~~, garage floors shall be one of the following:~~

~~1. Elevated to or above the required lowest floor elevation as determined in accordance with Section R322.~~
~~2. Located below the required lowest floor elevation provided that the floors are at or above grade on not less than one side, are used solely for parking, building access or storage, meet the requirements of Section R322 and are otherwise constructed in accordance with this code.~~

R322.2.1 Elevation requirements.

1. Buildings and structures in flood hazard areas, including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.
2. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated to a height above the highest adjacent grade of not less than the depth number specified in feet (mm) on the FIRM plus 1 foot (305 mm), or not less than 3 feet (915 mm) if a depth number is not specified.
3. Basement floors that are below grade on all sides shall be elevated to or above base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.
4. Garage and carport floors shall comply with one of the following:
   4.1. They shall be elevated to or above the elevations required in Item 1 or Item 2, as applicable.
   4.2. They shall be at or above grade on not less than one side. Where a garage or carport is enclosed by walls, the garage or carport shall be used solely for parking, building access or storage.

Exception: Enclosed areas below the elevation required in this section, including *basements* with floors that are not below *grade* on all sides, shall meet the requirements of Section R322.2.2.

R322.3.2 Elevation requirements.

1. Buildings and structures erected within coastal high-hazard areas and Coastal A Zones, shall be elevated so that the bottom of the lowest horizontal structural members supporting the lowest floor, with the exception of piling, pile caps, columns, grade beams and bracing, is elevated to or above the base flood elevation plus 1 foot (305 mm) or the design flood elevation, whichever is higher.
2. Basement floors that are below grade on all sides are prohibited.
3. Garages used solely for parking, building access or storage, and carports, shall comply with Item 1, or shall be at or above grade on not less than one side and, if enclosed with walls, such walls shall comply with Item 6.

4~~3~~. The use of fill for structural support is prohibited.

5~~4~~. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.

6~~5~~. Walls and partitions enclosing areas below the elevation required in this section shall meet the requirements of Sections R322.3.5 and R322.3.6.

Commenter's Reason: The purpose of this public comment is to address potential confusion introduced by relating the location of a garage or carport floor to the lowest floor elevation determined in accordance with Section R322.

Garages and carports can be either attached in part or in whole to an adjacent dwelling or detached and completely independent of the dwelling. In all cases, they can be constructed such that the garage or carport floor or slab is at or above the elevation required by R322. The garage or carport floor may be elevated to the same level as the lowest floor of an attached or adjacent dwelling, or to another level that is still above the BFE+1 or DFE.

However, most garages and carports are only used for parking, building access or storage, and thus the floor of the garage or carport - generally a concrete slab on grade - is permitted by the NFIP to be below the BFE or DFE as long as the garage or carport floor is above grade on not less than one side. In this case, the key elevation in question is that of the finished grade around the carport or garage. There is no sense in relating the placement of the carport or garage slab to the lowest floor elevation of the adjacent house, which may be several feet higher and accessed up a set of steps or ramp.

Further, there appears to be no particular reason why flood elevation requirements for garages and carports are "parked" in Section R309, away from the rest of the flood resistant construction requirements. Hence, this comment relocates the elevation requirements to the appropriate sections of R322 (R322.2.1 for Zone A and R322.2.2 for Zone V/Coastal A Zone), leaving a pointer behind in R309. In doing so, this allows for rewriting the elevation requirements to be more clear, using the opportunity to parallel the standard elevation requirement (e.g. R322.2.1 Item 1) and the requirement based on surrounding grade (e.g. R322.2.1 Item 2). This also creates a similar construct to the way ASCE 24 Section 9.2 presents requirements for attached and detached garages and carports.

Cost Impact: The net effect of the public comment and code change proposal will increase the cost of construction
As noted in the proponent's original cost impact statement, the changes in RB141 would increase the cost of construction if a builder is using the DFE or BFE itself in applying enclosure requirements, rather than the actual lowest floor elevation which may be a few feet higher. The public comment could reduce the cost impact slightly by clarifying the requirements of the NFIP and IRC as they relate to where a garage or carport is allowed to be below the DFE or BFE+1.

Final Action

RB141-19 **AMPC1**

SP8700/RB142-19

22

Date Submitted	2/9/2021	**Section**	322	**Proponent**	Mo Madani
Chapter	3	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Flood Requirements

Comments

General Comments **Yes**

Related Modifications

Correlates Directly

Summary of Modification

. This proposal adds the word "not" in the first item, removing confusion by explicitly stating buildings in flood hazard areas designated as Coastal A Zones are not addressed by R322.2.1

Rationale

Two successful changes were approved in the 2015 code development cycle. One change modified the elevation requirement by adding 1 foot (freeboard) uniformly into R322, and one change made buildings in designated Coastal A Zones subject to the requirements of R322.3. The clear intent of the second change is to require buildings in Coastal A Zones to comply with R322.3. This is also clear in both R322.2 and R322.3. However, the combination of the two changes approved for R322.2.1 resulted in misleading phrasing.

Comment Period History

SP8700-G1

Proponent Rebecca Quinn obo F **Submitted** 6/18/2021 **Attachments** No

Comment:

Yes, retain this change. It is an important clarification.

ORIGINAL

AS - APPROVED AS SUBMITTED

Revise as follows:

R322.2.1 Elevation requirements.

1. **Buildings and structures in flood hazard areas, not including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.**
2. **In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated to a height above the highest adjacent grade of not less than the depth number specified in feet (mm) on the FIRM plus 1 foot (305 mm), or not less than 3 feet (915 mm) if a depth number is not specified.**
3. **Basement floors that are below grade on all sides shall be elevated to or above base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.**

Exception: Enclosed areas below the design flood elevation, including *basements* with floors that are not below *grade* on all sides, shall meet the requirements of Section R322.2.2.

Code Change No: RB142-19

Original Proposal

Section(s): R322.2.1

Proponents: Gregory Wilson, representing Federal Emergency Management Agency (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, on behalf of Federal Emergency Management Agency, representing Federal Emergency Management Agency (rcquinn@earthlink.net)

2018 International Residential Code

Revise as follows:

R322.2.1 Elevation requirements.

1. Buildings and structures in flood hazard areas, not including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.
2. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated to a height above the highest adjacent grade of not less than the depth number specified in feet (mm) on the FIRM plus 1 foot (305 mm), or not less than 3 feet (915 mm) if a depth number is not specified.
3. Basement floors that are below grade on all sides shall be elevated to or above base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.

Exception: Enclosed areas below the design flood elevation, including *basements* with floors that are not below *grade* on all sides, shall meet the requirements of Section R322.2.2.

Reason: Two successful changes were approved in the 2015 code development cycle. One change modified the elevation requirement by adding 1 foot (freeboard) uniformly into R322, and one change made buildings in designated Coastal A Zones subject to the requirements of R322.3. The clear intent of the second change is to require buildings in Coastal A Zones to comply with R322.3. This is also clear in both R322.2 and R322.3. However, the combination of the two changes approved for R322.2.1 resulted in misleading phrasing.

As written, buildings in flood hazard areas designated as Coastal A Zones are subject to the elevation requirements of both R322.2.1 (item #1) and R322.3.2. This proposal adds the word "not" in the first item, removing confusion by explicitly stating buildings in flood hazard areas designated as Coastal A Zones are not addressed by R322.2.1.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
No additional cost. This proposal does not change any requirements for buildings in flood hazard areas designated as Coastal A Zones, which must comply with R322.3.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: This proposal was approved based on the proponent's published reason statement (Vote: 11-0)

Assembly Action: **None**

Final Action

RB142-19	**AS**

SP8702/RB145-19

23

Date Submitted	2/9/2021	**Section**	322	**Proponent**	Mo Madani
Chapter	3	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Flood Requirements

Comments

General Comments **Yes**

Related Modifications

Correlates Directly

Summary of Modification

Section R322.3.3 allows the use of pilings or columns, but the way the requirements are phrased makes it appear they apply only to pilings, without equivalent specificity for columns.

Rationale

Section R322.3.3 allows the use of pilings or columns, but the way the requirements are phrased makes it appear they apply only to pilings, without equivalent specificity for columns.
Columns must also be designed to account for wave and wind loads and the effects of scour. The primary object of this proposal is to provide that specificity. Second, the current text is long, so the proposal breaks it into distinct numbered items which makes it easier to read.

Comment Period History

SP8702-G1

Proponent Rebecca Quinn obo F **Submitted** 6/18/2021 **Attachments** No

Comment:

Yes, retain this change. Breaking long text into numbered items and clearly specifying requirements for columns helps readability and enforcement

ORIGINAL

AS - APPROVED AS SUBMITTED

Revise as follows:

R322.3.3 Foundations.Buildings and structures erected in coastal high-hazard areas and Coastal A Zones shall be supported on pilings or columns and shall be adequately anchored to such pilings or columns and shall comply with the following:

1. ~~columns.~~ The space below the elevated building shall be either free of obstruction or, if enclosed with walls, the walls shall meet the requirements of Section R322.3.5.
2. Pilings shall have adequate soil penetrations to resist the combined wave and wind loads (lateral and uplift) ~~. Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by this code. Pile~~ and pile embedment shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the piling.
3. Columns and their supporting foundations shall be designed to resist combined wave and wind loads, lateral and uplift, and shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the columns. ~~Pile systems design and installation shall be certified in accordance with Section R322.3.9.~~ Spread footing, mat, raft or other foundations that support columns shall not be permitted where soil investigations that are required in accordance with Section R401.4 indicate that soil material under the spread footing, mat, raft or other foundation is subject to scour or erosion from wave-velocity flow conditions. If permitted, spread footing, mat, raft or other foundations that support columns shall be designed in accordance with ASCE 24.
4. Flood and wave loads shall be those associated with the design flood. Wind loads shall be those required by this code.
5. Foundation designs and construction documents shall be prepared and sealed in accordance with Section R322.3.9.

Exception: In Coastal A Zones, stem wall foundations supporting a floor system above and backfilled with soil or gravel to the underside of the floor system shall be permitted provided that the foundations are designed to account for wave action, debris impact, erosion and local scour. Where soils are susceptible to erosion and local scour, stem wall foundations shall have deep footings to account for the loss of soil.

Code Change No: RB145-19

Original Proposal

Section(s): R322.3.3

Proponents: Gregory Wilson, representing Federal Emergency Management Agency (gregory.wilson2@fema.dhs.gov); Rebecca Quinn, RCQuinn Consulting, on behalf of Federal Emergency Management Agency, representing Federal Emergency Management Agency (rcquinn@earthlink.net)

2018 International Residential Code

Revise as follows:

R322.3.3 Foundations. Buildings and structures erected in coastal high-hazard areas and Coastal A Zones shall be supported on pilings or columns and shall be adequately anchored to such pilings or columns and shall comply with the following:

1. ~~columns.~~ The space below the elevated building shall be either free of obstruction or, if enclosed with walls, the walls shall meet the requirements of Section R322.3.5.
2. Pilings shall have adequate soil penetrations to resist the combined wave and wind loads (lateral and uplift) ~~. Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by this code. Pile~~ and pile embedment shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the piling.
3. Columns and their supporting foundations shall be designed to resist combined wave and wind loads, lateral and uplift, and shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the columns. ~~Pile systems design and installation shall be certified in accordance with Section R322.3.9.~~ Spread footing, mat, raft or other foundations that support columns shall not be permitted where soil investigations that are required in accordance with Section R401.4 indicate that soil material under the spread footing, mat, raft or other foundation is subject to scour or erosion from wave-velocity flow conditions. If permitted, spread footing, mat, raft or other foundations that support columns shall be designed in accordance with ASCE 24.
4. Flood and wave loads shall be those associated with the design flood. Wind loads shall be those required by this code.
5. Foundation designs and construction documents shall be prepared and sealed in accordance with Section R322.3.9.

Exception: In Coastal A Zones, stem wall foundations supporting a floor system above and backfilled with soil or gravel to the underside of the floor system shall be permitted provided that the foundations are designed to account for wave action, debris impact, erosion and local scour. Where soils are susceptible to erosion and local scour, stem wall foundations shall have deep footings to account for the loss of soil.

Reason: Section R322.3.3 allows the use of pilings or columns, but the way the requirements are phrased makes it appear they apply only to pilings, without equivalent specificity for columns. Columns must also be designed to account for wave and wind loads and the effects of scour. The primary object of this proposal is to provide that specificity. Second, the current text is long, so the proposal breaks it into distinct numbered items which makes it easier to read.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
No cost impact associated with the added text for columns because the text is clarifying only and column foundations already are required to be designed by registered design professionals who should always evaluate whether sites have erodible soils subject to scour as part of the design process.

Report of Committee Action Hearings

Committee Action: **Approved as Submitted**

Committee Reason: This reorganization makes it easier for code officials to interpret the requirements. (Vote: 7-4)

Assembly Action: **None**

Final Action

RB145-19	**AS**

SP9761/RB30-19

24

Date Submitted	3/16/2021	**Section**	202	**Proponent**	Mo Madani
Chapter	3	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review			**Staff Classification**	Correlates Directly

Comments

General Comments **Yes**

Related Modifications

R202, R301.1.4

Summary of Modification

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.

Rationale

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 at 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. For consistency, we are introducing that same definition here.

The reference to the International Building Code has been modeled after Sections R301.1.1 through R301.1.3. The BCAC Shipping Container Working Group chose not to duplicate the newly accepted shipping container structural design language in the International Building Code. This proposal is making a simple reference the new section in the IBC where the provisions for shipping container structural safety are contained. As Section R301.1 applies to structural design only, the other non-structural provisions of the International Residential Code would apply as required (e.g. energy, plumbing, mechanical, electrical, etc.). Also, because Section R301.1.1 deals with primarily alternative sources of structural design (e.g. independent reference standard structural design resources outside the codes), the BCAC shipping container Working Group determined it to be more appropriate to separate this reference to the IBC for clarity.

(Please see the uploaded mod RB30-19 for the complete text)

Comment Period History

SP9761-G2

Proponent Joseph Belcher **Submitted** 6/28/2021 **Attachments** No

Comment:

The Florida Home Builders Association (FHBA) requests denial of this code change.

Comment Period History

SP9761-G3

Proponent Joseph Belcher **Submitted** 6/28/2021 **Attachments** No

Comment:

The Florida Home Builders Association (FHBA) requests denial of this code change.

Approved as Modified by Public Comment 1

Original Proposal:

2018 International Residential Code

Revise as follows:

SECTION R202
DEFINITIONS

Add new text as follows:

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

R301.1.4 Intermodal shipping containers.Intermodal shipping containers shall be designed in accordance with the structural provisions in Section 3114 of the International Building Code.

Modified Proposal:

2018 International Residential Code

R301.1.4 Intermodal shipping containers.Intermodal shipping containers that are repurposed for use as buildings or structures, or as part of buildings or structures, shall be designed in accordance with the structural provisions in Section 3114 of the International Building Code.

Code Change No: RB30-19

Original Proposal

Section(s): SECTION R202, 202, R301.1.4 (New)

Proponents: Ed Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org)

2018 International Residential Code

Revise as follows:

SECTION R202
DEFINITIONS

Add new text as follows:

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

R301.1.4 Intermodal shipping containers. Intermodal shipping containers shall be designed in accordance with the structural provisions in Section 3114 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 at 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. For consistency, we are introducing that same definition here.

The reference to the International Building Code has been modeled after Sections R301.1.1 through R301.1.3. The BCAC Shipping Container Working Group chose not to duplicate the newly accepted shipping container structural design language in the International Building Code. This proposal is making a simple reference the new section in the IBC where the provisions for shipping container structural safety are contained. As Section R301.1 applies to structural design only, the other non-structural provisions of the International Residential Code would apply as required (e.g. energy, plumbing, mechanical, electrical, etc.). Also, because Section R301.1.1 deals with primarily alternative sources of structural design (e.g. independent reference standard structural design resources outside the codes), the BCAC shipping container Working Group determined it to be more appropriate to separate this reference to the IBC for clarity.

This proposal is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. Since 2017 the BCAC has held 6 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on theBCAC website at: https://www.iccsafe.org/codes-tech-support/codes/code-development-process/building-code-action-committee-bcac/.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
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 residential building construction. Current use of repurposed intermodal shipping containers requires the owner or builder to submit through the alternative means and methods administrative provisions.

Report of Committee Action Hearings

Committee Action: **Disapproved**

Committee Reason: This should simply reference the IBC for intermodal shipping containers. These structures need to be engineered and don't belong in the IRC. (Vote: 8-3)

Assembly Action: **None**

Public Comments

Public Comment 1:

Ed Kulik, representing ICC Building Code Action Committee (bcac@iccsafe.org) requests As Modified by Public Comment

Modify as follows:

2018 International Residential Code

R301.1.4 Intermodal shipping containers. Intermodal shipping containers that are repurposed for use as buildings or structures, or as part of buildings or structures, shall be designed in accordance with the structural provisions in Section 3114 of the International Building Code.

Commenter's Reason: The IRC-B code development committee noted that the original proposal as written should be disapproved because:

- Shipping containers belong in the International Building Code.
- Performance based design required therefore does not belong in IRC.
- User can apply through the alternate means and methods provisions.
- The proposed language literally says nothing about utilizing shipping containers for structures and buildings.

We believe the arguments for an only IBC provision fall short as a result of comments brought to the shipping container task group's attention. One most notable finding was that there is still the belief that since the IRC does not address intermodal shipping containers that they are exempt from the IRC. Other comments received by the task group were views that since the containers are already designed and constructed to ISO specifications that there is no further need to design for use as dwellings. Both types of assumptions are not accurate. Therefore, it suggests a need for a direct reference.

Further, the shipping container task group has received compliments for proposing this language as it makes clear that said repurposed containers are in fact subject to the IBC structurally and the IRC for the remainder of the required code required attributes.

In regard to the perception that the proposed language falls short of identifying the utilization of shipping containers, we agree. In response we have modified the provision to address this short fall.

In view of the above, we recommend that this proposal be given consideration "as modified" at the fall ICC code hearings.

This public comment is submitted by the ICC Building Code Action Committee (BCAC). BCAC was established by the ICC Board of Directors in July 2011 to pursue opportunities to improve and enhance assigned International Codes or portions thereof. Since 2017 the BCAC has held 6 open meetings. In addition, there were numerous Working Group meetings and conference calls for the current code development cycle, which included members of the committee as w ell as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: https://www.iccsafe.org/codes-tech-support/codes/codedevelopment-process/building-code-actioncommittee-bcac.

Cost Impact: The net effect of the public comment and code change proposal will not increase or decrease the cost of construction The code change proposal and pubic comment will decrease the cost of construction. This new section will provide clarity on how to consistently design with, permit, and field inspect shipping containers that are repurposed for residential building construction. Current use of repurposed intermodal shipping containers requires the owner or builder to submit through the alternative means and methods administrative process.

Final Action

RB30-19 **AMPC1**