

IBC - Fire Safety



2019 GROUP B PROPOSED CHANGES TO THE I-CODES ALBUQUERQUE COMMITTEE ACTION HEARINGS

April 28 - May 8, 2019
Albuquerque Convention
Center, Albuquerque, NM

2018-2019 Code Development Cycle, Group B (2019) Proposed Changes to the 2019 *International Codes*

First Printing

Publication Date: March 2019

Copyright © 2019

by

International Code Council, Inc.

ALL RIGHTS RESERVED. This 2018-2019 Code Development Cycle, Group B (2019) Proposed Changes to the 2019 *International Codes* is a copyrighted work owned by the International Code Council, Inc. (“ICC”). Without advance written permission from the ICC, no part of this book may be reproduced, distributed, or transmitted in any form or by any means, including, without limitations, electronic, optical or mechanical means (by way of example and not limitation, photocopying, or recording by or in an information storage retrieval system). For information on use rights and permissions, please contact: ICC Publications, 4051 Flossmoor Road, Country Club Hills IL, 60478. Phone 1-888-ICC-SAFE (422-7233).

Trademarks: “International Code Council,” the “International Code Council” logo, “ICC,” the “ICC” logo and other names and trademarks appearing in this book are registered trademarks of the International Code Council, Inc., and/or its licensors (as applicable), and may not be used without permission.

PRINTED IN THE U.S.A.

IBC Fire Safety Code Change Proposals

The following code change proposals are labeled as Fire Safety code change proposals because they are proposals for changes to sections in chapters of the International Building Code that are designated as the responsibility of the IBC-Fire Safety Code Development Committee (see page x of the Introductory pages of this monograph). However the changes included in this Group B code development cycle are to sections of the code that have been prefaced with a [S], meaning that they are the responsibility of a different IBC Code Development Committee—IBC-Structural Committee [S].

The committee assigned for each code change proposal is indicated in a banner statement near the beginning of the proposal.

FS1-19

IBC®: [BS] 202, TABLE 1404.2, [BS] 1404.10.2, ANSI Chapter 35 (New)

Proponent: Bill Griese, Tile Council of North America, representing Tile Council of North America (bgriese@tileusa.com); Brian Trimble, International Masonry Institute, representing International Masonry Institute (btrimble@imiweb.org)

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:

[BS] PORCELAIN TILE. ~~Tile that conforms to the requirements of ANSI A137.1.3, Section 3.0 for ceramic~~ Ceramic tile having an absorption of 0.5 percent or less in accordance with ANSI A137.1, ~~Section 4.1 and Section 6.1 Table 10.~~ Table 10 or ANSI A137.3, Tables 4 or 5.

**TABLE 1404.2
MINIMUM THICKNESS OF WEATHER COVERINGS**

Portions of table not shown remain unchanged.

COVERING TYPE	MINIMUM THICKNESS (inches)
Porcelain tile	0.25 0.125 nominal

For SI: 1 inch = 25.4 mm, 1 ounce = 28.35 g, 1 square foot = 0.093 m².

- Wood siding of thicknesses less than 0.5 inch shall be placed over sheathing that conforms to Section 2304.6.
- Exclusive of texture.
- As measured at the bottom of decorative grooves.
- 16 ounces per square foot for cold-rolled copper and lead-coated copper, 12 ounces per square foot for copper shingles, high-yield copper and lead-coated high-yield copper.

[BS] 1404.10.2 Exterior adhered masonry veneers—porcelain tile. Adhered units weighing more than 3.5 pounds per square foot (0.17 kN/m²) shall not exceed ~~5/8 inch (15.8 mm) thickness and 24 48 inches (610 1219 mm)~~ in any face dimension nor more than ~~3 9 square feet (0.28 0.8 m²)~~ in total face area and shall not weigh more than ~~9 6 pounds psf per square foot (0.43 0.29 kN/m²)~~. Adhered units weighing less than or equal to 3.5 pounds per square foot (0.17 kN/m²) shall not exceed 72 inches (1829 mm) in any face dimension nor more than 17.5 square feet (1.6 m²) in total face area. Porcelain tile shall be adhered to an approved backing system.

Add new standard(s) as follows:

ANSI

American National Standards Institute
25 West 43rd Street, Fourth Floor
New York NY 10036

A137.3-17: American National Standard Specifications for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs

Reason: This proposal is being submitted jointly by the Tile Council of North America (TCNA) and the International Masonry Institute (IMI). It has the support of their members and members of ANSI ASC A108 on ceramic tile.

The proposed Code change decreases the maximum allowable weight per square foot and increases the allowable facial size of porcelain tile adhered to building exteriors. It also updates the definition of porcelain tile, which today is standardized per industry specifications ANSI A137.1 and ANSI A137.3, as this more accurately depicts current recommendations from manufacturers and specifiers. The proposal not only acknowledges safer, lighter weight products, it also eliminates heavy products covering a small footprint by reducing the maximum allowable weight per square foot from 9 lbs to 6 lbs.

Currently, Section 1404.10.2 does not accurately reflect the most common porcelain tiles suitable for adhered exterior applications. Typical porcelain tile sizes today are larger than those limited by Code and, in some cases, thinner and lighter. Additionally, adhesives today are stronger and more flexible and have increased open time to facilitate full coverage across larger areas for installation.

In the past, porcelain tiles in the marketplace ranged in thickness from 5/16 inch to 3/8 inch and few were produced larger than 12 inches x 24 inches. Today, however, porcelain tiles are manufactured using conventional pressing technology as large as 48 x 48 inches. Additionally, newer press and extrusion technologies allow for lighter weight products, some as thin as 1/8 inch (which is the basis for the proposed revision to Table 1404.2 that reduces the minimum porcelain tile thickness from 0.25 inch to 0.125 inch) while still maintaining or exceeding material strength properties of porcelain tiles twice their thickness. Currently, porcelain tiles may be manufactured as large as 6 ft x 12 ft.

This proposal defines two distinct classes of porcelain tile commonly used in exterior adhered applications: those weighing less than or equal to 3.5

psf and those weighing more than 3.5 psf. For porcelain tiles weighing less than 3.5 psf, a limit of 17.5 square feet and 6 ft edge length is being proposed. This allows porcelain tiles manufactured as large as 6 ft x 12 ft to be cut modularly to meet the proposed Code criteria and to be installed within existing industry expansion joint spacing criteria.

For porcelain tiles weighing between 3.5 and 6.0 psf, the proposed limitation of 9 square feet and 4 ft edge length is being proposed to accommodate sizes which are commonly produced at conventional thicknesses and weights and still be safely adhered to building exteriors. Some common porcelain tile sizes today which are currently restricted by Code include 2 ft x 2 ft squares, 2 ft x 4 ft rectangles, and 6 in x 48 in planks.

While larger porcelain tile unit sizes are available than those in the criteria being proposed (e.g. tiles below 3.5 psf are available as large as 6 ft x 12 ft, and tiles above 3.5 psf are available as large as 4 ft x 4 ft), the goal of this proposal is to maintain a limit such that individual unit sizes do not exceed approximately 60 lbs. With this in mind, it is proposed that the maximum allowable weight per square foot be reduced by 33%.

The following are examples of common tile thickness, associated weight, and maximum possible unit weight based on proposed edge length, area, and weight per square foot limits.

Estimated Weight Based On Tile Thickness:		
Thickness	Weight/Area	Total Weight for Maximum Tile Size as Proposed
1/8 in (3.2 mm)	1.6 psf (0.08 kN/m ²)	28 lb (13 kg)
3/16 in (4.8 mm)	2.4 psf (0.12 kN/m ²)	43 lb (19 kg)
1/4 in (6.4 mm)	3.3 psf (0.16 kN/m ²)	57 lb (26 kg)
5/16 in (7.9 mm)	4.1 psf (0.19 kN/m ²)	37 lb (17 kg)
3/8 in (9.5 mm)	4.9 psf (0.23 kN/m ²)	44 lb (20 kg)
7/16 in (11.1 mm)	5.7 psf (0.27 kN/m ²)	51 lb (23 kg)

Cost Impact: The code change proposal will not increase or decrease the cost of construction. Porcelain tiles addressed by this proposal are already standardized and used in practice.

Proposal # 4160

FS1-19

FS2-19

IBC®: 202 (New), [BS] 1404.14.1

Proponent: Matthew Dobson, Vinyl Siding Institute, representing Vinyl Siding Institute (mdobson@vinylsiding.org)

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 definition as follows:

Nailable Substrate. A product or material such as framing, sheathing, or furring, composed of wood or wood-based materials or other materials providing fastener withdrawal resistance.

Revise as follows:

[BS] 1404.14.1 Application. The siding shall be applied over sheathing or materials listed in Section 2304.6. Siding shall be applied to conform to the *water-resistive barrier* requirements in Section 1402. Siding and accessories shall be installed in accordance with *approved* manufacturer's instructions. Unless otherwise specified in the *approved* manufacturer's instructions, nails used to fasten the siding and accessories shall have a minimum 0.313-inch (7.9 mm) head diameter and $\frac{1}{8}$ -inch (3.18 mm) shank diameter. The nails shall be corrosion resistant and shall be long enough to penetrate ~~the studs or nailing strip~~ a *nailable substrate* not less than $\frac{3}{4}$ inch (19 mm). For cold-formed steel light-frame construction, corrosion-resistant fasteners shall be used. Screw fasteners shall penetrate the cold-formed steel framing not fewer than three exposed threads. Other fasteners shall be installed in accordance with the *approved* construction documents and manufacturer's instructions. Where the siding is installed horizontally, the fastener spacing shall not exceed 16 inches (406 mm) horizontally and 12 inches (305 mm) vertically. Where the siding is installed vertically, the fastener spacing shall not exceed 12 inches (305 mm) horizontally and 12 inches (305 mm) vertically.

Reason: This change simply broadens how nailing strips and other nailable wood substrates are referenced. It offers a performance approach, by offering the potential for innovative nailing equivilencies, and creates a more generic term "nailable" substrate. This change will also make the IBC consistant with the IRC.

Cost Impact: The code change proposal will not increase or decrease the cost of construction
It is a change in concept.

Proposal # 5112

FS2-19

FS3-19

IBC®: [BS] 1404.14, [BS] 1404.14.1, 1404.14.1.1 (New), 1404.14.1.2 (New), 1404.14.2 (New)

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

Proponent: Matthew Dobson, representing Vinyl Siding Institute (mdobson@vinylsiding.org)

2018 International Building Code

Revise as follows:

[BS] 1404.14 Vinyl siding. Vinyl siding conforming to the requirements of this section and complying with ASTM D3679 shall be permitted on ~~exterior walls of buildings located in areas where V_{design} as~~ where the design wind pressure determined in accordance with Section 1609.3.1 does not exceed 100 miles per hour (45 m/s) and the ~~building height is less than or equal to 40 feet (12 192 mm) in Exposure C. Where construction is~~ located in areas where ~~V_{design} as determined in accordance with Section 1609.3.1 exceeds 100 miles per hour (45 m/s), or building heights are in~~ excess of 40 feet (12 192 mm) 30 psf. Where the design wind pressure exceeds 30 psf, tests or calculations indicating compliance with Chapter 16 shall be submitted. Vinyl siding shall be secured to the building so as to provide weather protection for the *exterior walls* of the building.

[BS] 1404.14.1 Application. The siding shall be applied over sheathing or materials listed in Section 2304.6. Siding shall be applied to conform to the *water-resistive barrier* requirements in Section 1402. Siding and accessories shall be installed in accordance with ~~approved manufacturer's~~ instructions. ~~Unless otherwise specified in the approved manufacturer's instructions, nails used to fasten the siding and accessories shall have a~~ minimum 0.313-inch (7.9 mm) head diameter and ~~$1/8$ -inch (3.18 mm) shank diameter. The nails shall be corrosion resistant and shall be long enough~~ to penetrate the studs or nailing strip not less than ~~$3/4$ -inch (19 mm).~~ For cold-formed steel light-frame construction, ~~corrosion-resistant fasteners~~ shall be used. Screw fasteners shall penetrate the cold-formed steel framing not fewer than three exposed threads. Other fasteners shall be installed in accordance with the ~~approved construction documents and manufacturer's instructions. Where the siding is installed horizontally, the~~ fastener spacing shall not exceed 16 inches (406 mm) horizontally and 12 inches (305 mm) vertically. ~~Where the siding is installed vertically, the~~ fastener spacing shall not exceed 12 inches (305 mm) horizontally and 12 inches (305 mm) vertically. ~~the approved manufacturer's instructions.~~

Add new text as follows:

1404.14.1.1 Fasteners and fastener penetration for wood construction. Unless otherwise specified in the approved manufacturer's instructions, nails used to fasten the siding and accessories shall be corrosion resistant and have a minimum 0.313-inch (7.9 mm) head diameter and $1/8$ -inch (3.18 mm) shank diameter. The total penetrative into nailable substrate shall be not less than 1 1/4 inch " inches (32 mm).

1404.14.1.2 Fastener spacing Unless specified otherwise by the manufacturer's instructions, fasteners shall be installed in the center of the slots of the nail hem and maximum spacing between fasteners shall be 16 inches (406 mm) for horizontal siding and 12 inches (305 mm) for vertical siding.

1404.14.2 Fasteners and fastener penetration for cold-formed steel light frame construction. For cold-formed steel light-frame light-framed construction, corrosion resistant fastener shall be used. Screw fasteners shall penetrate the cold-formed steel framing at least three exposed threads. Other fasteners shall be installed in accordance with the approved construction documents and manufacturer's instructions.

Reason: This change is mainly editorially. It cleans up and updates references to how to determine the suitability of siding in normal wind areas and high wind areas, by referencing the 30 psf threshold.

We break a part of the large complicated paragraph into several more simple paragraphs relating to installation over wood construction vs. metal construction.

Two changes that are important are the increased penetration requirement into the nailable substrate of the fasteners for wood construction from 3/4" to 1 1/4", this is an important and necessary change based on study and research over the last few years. This change will make the IBC consistent with the IRC. We also added a pointer to install the product in the middle of the nail hem for optimal performance relating to thermal expansion and contraction.

Cost Impact: The code change proposal will increase the cost of construction. There will be minor costs relating to larger fastener size for the increased penetration depth.

Proposal # 5297

FS3-19

FS4-19

IBC: 202 (New), 1404.19 (New), 1404.19.1 (New), 1404.19.1.1 (New), 1404.19.1.2 (New), 1404.19.2 (New), ASTM Chapter 35 (New)

Proponent: Matthew Dobson, Vinyl Siding Institute, representing Vinyl Siding Institute (mdobson@vinylsiding.org)

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 definition as follows:

Insulated Vinyl Siding. A cladding product, with manufacturer-installed foam plastic insulated material as an integral part of the cladding product, having a thermal resistance of not less than R-2.

Add new text as follows:

1404.19 Insulated Vinyl Siding. Insulated Vinyl Siding complying with ASTM D7793 shall be permitted on exterior walls where the design wind pressure determined in accordance with 1609 does not exceed 30 psf. Where the design wind pressure exceeds 30 psf, tests or calculations indicating compliance with Chapter 16 shall be submitted. Siding shall be secured to the building so as to provide weather protection for the exterior walls of the building.

1404.19.1 Application. The siding shall be applied over sheathing or materials listed in Section 2304.6. Siding shall be applied to conform to the water-resistive barrier requirements in Section 1403.

1404.19.1.1 Fasteners and fastener penetration for wood construction. Unless otherwise specified in the approved manufacturer's instructions, nails used to fasten the siding and accessories shall be corrosion resistant and have a minimum 0.313-inch (7.9 mm) head diameter and 1/8-inch (3.18 mm) shank diameter. The total penetrative into nailable substrate shall be not less than 1 1/4" inches (32 mm).

1404.19.1.2 Fastener spacing. Unless specified otherwise by the manufacturer's instructions, fasteners shall be installed in the center of the slots of the nail hem and maximum spacing between fasteners shall be 16 inches (406 mm) for horizontal siding and 12 inches (305 mm) for vertical siding.

1404.19.2 Fasteners and fastener penetration for cold-formed steel light frame construction. For cold-formed steel light-framed construction, corrosion resistant fastener shall be used. Screw fasteners shall penetrate the cold-formed steel framing at least three exposed threads. Other fasteners shall be installed in accordance with the approved construction documents and manufacturer's instructions.

Add new standard(s) as follows:

ASTM

ASTM International
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken PA 19428-2959

ASTM D7793-17: Standard Specification for Insulated Vinyl Siding

Reason: Insulated vinyl siding has been commercially available for almost 25 year and is being used in many low-rise apartments, hotels, and other light commercial applications. Published code compliance reports (ES reports) make it clear how insulated vinyl siding complies with the the IBC. By adding in these installation provisions it will help code officials to be able recognized both the proper standard for the product category and ensure proper installation of the product.

In the past, arguments have been made that the flame spread test be conducted on both the vinyl and foam together. This issue was well hashed out in the ASTM world. And the standard reflects the concensus of ASTM where these types of issues are typically decided. Vinyl has great fire properties including low flame spread and a low oxygen index. So adding this requirement that the product be tested as an assembly does not seem necessary. We don't require testing of cladding over foam sheathing for flame spread. It is not necessary to test insulated vinyl siding as an assembly.

The code does have certain additional requirements that are currently applicable to insulated vinyl siding when it is used in certain high density applications. Including being required to pass an NFPA 268 test and an ASTM E119 test. The product can and has passed both of these tests, as has been submitted previously.

The built environment would benefit from stronger recognition of this product catetory in the code, now that it has been in use for 25 years.

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

This is a simple recognition of product being used in the commercial market.

Proposal # 5214

FS4-19