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State relaxations of IBC 2015 requirements for NFPA 285 testing of combustible components of exterior walls: MN, DC, MA, IN - June 2017 update

An update of state building codes referenced in the April 2015 FSNA white paper *“Building Exterior Wall Assembly Flammability: Have we forgotten the Past 40 years?”*, by John Valiulis

In May of 2015, Firesafe North America made available the white paper on building exterior wall flammability titled *“Building exterior wall Assembly Flammability: Have we forgotten the Past 40 years?”*. This white paper was posted online in November of 2015 by FireEngineering.com, at the following link: <http://www.fireengineering.com/articles/2015/11/building-exterior-wall-assembly-flammability-have-we-forgotten-the-past-40-years.html>

As building codes adopted in states change with time, the information below provides an update on the state codes mentioned in the May 2015 white paper. The states are listed below starting with those jurisdictions having the fewest current state amendments to the IBC 2015 requirements for fire testing to NFPA 285, going on to those with the most amendments.

For purposes of providing evidence that these code amendments do exist, since some people in the affected states have denied that they exist, they have been copied by “print screen” copy from the source documents into this document.

Summary

As compared to the situation reported in May 2015:

- Minnesota’s issued 2015 building code ended up with one fewer relaxation of the IBC requirement for NFPA 285 testing that had been in consideration in May 2015.
- District of Columbia 2013 Building Code has all the NFPA 285 exemptions that had been first reported.
- Massachusetts 9th Edition Building Code is not yet published, but the last draft that could be found online, dated 2-17-2017, shows even more exemptions for NFPA 285 testing than had been under consideration in April 2015.
- Indiana 2014 Building Code has all the NFPA 285 exemptions that had been first reported.

“Cladding” containing foam insulation

Note that IBC section 2603.5.5 would apply to any exterior wall panel of any thickness if it includes foamed plastic insulation, as dictated by the following IBC article:

1404.13 Foam plastic insulation. Foam plastic insulation used in *exterior wall covering* assemblies shall comply with Chapter 26.

For anyone wishing to do a word-for-word comparison with the 2015 IBC, it is available for free online viewing at <https://codes.iccsafe.org/public/collections/i-codes> (may require creation of a free account).

State building code waivers of fire protection requirements in the 2015 IBC

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2015 Minnesota Building Code

Section 1403.5, combustible water resistive barriers:

Completely deleted. NFPA 285 testing, as could be required by 2015 IBC, is waived regardless of type, quantity, combustibility or configuration of WRB material used.



1403.5 Vertical and lateral flame propagation.
Deleted.

2013 District of Columbia Building Code

Section 1403.5, combustible water resistive barriers:

Completely deleted. NFPA 285 testing, as could be required by 2015 IBC, is waived regardless of type, quantity, combustibility or configuration of WRB material used.

SECTION 1403 PERFORMANCE REQUIREMENTS

1403.1 General. The provisions of this section shall apply to exterior walls, wall coverings and components thereof.

1403.2 Weather protection. Exterior walls shall provide the building with a weather-resistant *exterior wall envelope*. The *exterior wall envelope* shall include flashing, as described in Section 1405.4. The *exterior wall envelope* shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a water-

plying with Section 1408.4.1.

1403.3 Structural. *Exterior walls*, and the associated openings, shall be designed and constructed to resist safely the superimposed loads required by Chapter 16.

1403.4 Fire resistance. *Exterior walls* shall be fire-resistance rated as required by other sections of this code with opening protection as required by Chapter 7.

1403.5 Vertical and lateral flame propagation. [Deleted]

1403.6 Flood resistance. For buildings in flood hazard areas as established in Section 1612.3, *exterior walls* extending

2013 DISTRICT OF COLUMBIA BUILDING CODE

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Section 2603.5.5, Foam Plastic insulation

Passing the NFPA 285 fire test, as would be required by 2015 IBC in section 2603.5.5 as a precondition for acceptable use of foam plastic insulation, is waived if building is sprinklered with either NFPA 13 or NFPA 13 R system. An NFPA 13R system is simpler system with decreased capabilities that is permitted by IBC for multi-unit residential buildings under certain conditions.

2013 District of Columbia Building Code

CHAPTER 26 - PLASTIC

2603.4.1.14 Floors. The thermal barrier specified in Section 2603.4 is not required to be installed on the walking surface of a structural floor system that contains foam plastic insulation when the foam plastic is covered by a minimum nominal 1/2-inch-thick (12.7 mm) wood structural panel or approved equivalent. The thermal barrier specified in Section 2603.4 is required on the underside of the structural floor system that contains foam plastic insulation when the underside of the structural floor system is exposed to the interior of the building.

Exception: Foam plastic used as part of an interior floor finish.

2603.5 Exterior walls of buildings of any height. *Exterior walls* of buildings of Type I, II, III or IV construction of any height shall comply with Sections 2603.5.1 through 2603.5.7. *Exterior walls* of cold storage buildings required to be constructed of noncombustible materials, where the building is more than one *story* in height, shall also comply with the provisions of Sections 2603.5.1 through 2603.5.7. *Exterior walls* of buildings of Type V construction shall comply with Sections 2603.2, 2603.3 and 2603.4.

2603.5.1 Fire-resistance-rated walls. Where the wall is required to have a fire-resistance rating, data based on tests conducted in accordance with ASTM E 119 or UL 263 shall be provided to substantiate that the fire-resistance rating is maintained.

2603.5.2 Thermal barrier. Any foam plastic insulation

foam plastic core is not exposed in the course of construction.

2603.5.5 Vertical and lateral fire propagation. *Exterior wall assemblies* containing foam plastic insulation shall provide protection against vertical and lateral flame propagation in accordance with Section 2603.5.5.1, 2603.5.5.2, or 2603.5.5.3.

Exceptions:

1. One-story buildings.
2. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

2603.5.5.1 Testing to NFPA 285. *Exterior wall assemblies* shall be tested in accordance with NFPA 285 and comply with the acceptance criteria of NFPA 285.

2603.5.5.2 Noncombustible covering. *Walls assemblies* where the foam plastic insulation is covered on each face by a minimum of 1-inch (25 mm) thickness of masonry or concrete and meeting one of the following:

1. There is no air space between the insulation and the concrete or masonry.
2. The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723, and the maximum air space between the insulation and the concrete or masonry is not more than 1 inch (25 mm).

Massachusetts Building Code, Draft of 9th Edition (9th Edition to be published ~July 2017)

Proposed amendments to IBC 2015 as extracted from most recent document found online June 2017, available at <http://www.mass.gov/eopss/docs/dps/agendas/building-division/board-of-building-regulations-and-standards/bbrs-base-code-amendments-revised-2-14-17.pdf>

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Section 1403.5, combustible water resistive barriers:

NFPA 285 testing, as could be required by 2015 IBC, is waived if building meets one of two new MA exceptions (#1 and #4) that do not exist in the 2015 IBC. #1: building is sprinklered #4: concealed spaces in wall include fireblocking.

CHAPTER 14: EXTERIOR WALLS

1403.5 Revise section as follows:

1403.5 Vertical and lateral flame propagation. Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet (12 192 mm) in height above grade plane and contain a combustible *water-resistive barrier* shall be tested in accordance with and comply with the acceptance criteria of NFPA 285. For the purposes of this section, fenestration products, and flashing of fenestration products, and flashing of other openings and penetrations shall not be considered part of the *water resistive barrier*.

Exceptions:

1. In other than high rise buildings, walls in buildings equipped throughout with an *automatic sprinkler system*, with the following conditions: 1) only where a NFPA 13 sprinkler system is provided and 2) where fire flow analysis has been performed without sprinkler decrease allowance that shows adequate water is available.
2. Walls in which the *water-resistive barrier* is the only combustible component and the *exterior wall* has a wall covering of brick, concrete, stone, terra cotta, stucco or steel with minimum thicknesses in accordance with Table 1405.2.
3. Walls in which the *water-resistive barrier* is the only combustible component and the *water-resistive barrier* has a peak heat release rate of less than 150 kW/m², a total heat release of less than 20 MJ/m² and an effective heat of combustion of less than 18 MJ/kg as determined in accordance with ASTM E 1354 and has a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E 84 or UL 723. The ASTM E 1354 test shall be conducted on specimens at the thickness intended for use, in the horizontal orientation and at an incident radiant heat flux of 50 kW/m².
4. Wall assemblies in noncombustible construction that have concealed spaces fireblocked in such a manner so as to interrupt and cut-off the concealed air spaces (both vertical and horizontal).
 - a. Fireblocking shall be installed within concealed spaces of exterior wall assemblies at every floor level or at maximum vertical intervals not exceeding 20 feet. Fireblocking shall be installed at horizontal intervals not exceeding 40 feet in exterior walls of noncombustible construction
 - b. Materials used for fireblocking in exterior wall assemblies shall comply with Section 7.18.2.1.

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Section 1407.10.4, Metal Composite Materials (MCM):

NFPA 285 testing, as could be required by 2015 IBC, is waived if building meets one of two new MA blanket exceptions (#1 and #2) that do not exist in the 2015 IBC. #1: building is sprinklered #2: concealed spaces inside wall include fireblocking.

1407.10.4 add two (2) exceptions, as follows:

1. In other than high rise buildings, walls in buildings equipped throughout with an automatic sprinkler system, with the following conditions: 1) only where a NFPA 13 sprinkler system is provided and 2) where fire flow analysis has been performed without sprinkler decrease allowance that shows adequate water is available.

Proposed 9th Edition of 780 CMR (Base Volume & Special Regulations) 2 14 17 Version

2. Wall assemblies in noncombustible construction that have concealed spaces fireblocked in such a manner so as to interrupt cut off the concealed air spaces (both vertical and horizontal).
 - a. Fireblocking shall be installed within concealed spaces of exterior wall assemblies at every floor level or at maximum vertical intervals not exceeding 20 feet. Fireblocking shall be installed at horizontal intervals not exceeding 40 feet in exterior walls of noncombustible construction.
 - b. Materials used for fireblocking in exterior wall assemblies shall comply with Section 7.18.2.1.

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Section 2603.5.5, Foam plastic insulation

NFPA 285 testing, as is required by 2015 IBC, is waived by new MA Exceptions #3 and #4.

MA Exception #3: if building is sprinklered, and is not a high-rise. IBC defines high-rise as a building with occupied floor >75ft above lowest level of fire department vehicle access.

MA Exception #4: concealed spaces inside wall include fireblocking. This exception would apply even to high-rises.

CHAPTER 26: PLASTIC

2603.5.5 Revise subsection as follows:

2603.5.5 Vertical and lateral fire propagation.

The exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.

Exceptions:

1. One-story buildings complying with Section 2603.4.1.4.
2. Wall assemblies where the foam plastic insulation is covered on each face by not less than 1-inch (25 mm) thickness of masonry, ~~or~~ concrete, terracotta, stucco or ½ inch thick Type X gypsum board and meeting one of the following:
 - 2.1 There is no airspace between the insulation and the ~~concrete or~~ masonry, concrete, terracotta, stucco, or ½-inch thick type X gypsum board.
 - 2.2 The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E 84 or UL 723 and the maximum airspace between the insulation and the concrete or masonry is not more than 1 inch (25 mm).
3. In other than high rise buildings, walls in buildings equipped throughout with an *automatic sprinkler system*, with the following conditions: 1) only where a NFPA 13 sprinkler system is provided and 2) where fire flow analysis has been performed without sprinkler decrease allowance that shows adequate water is available.
4. Wall assemblies in noncombustible construction that have concealed spaces fireblocked in such a manner so as to interrupt the foam plastic insulation and cut off the concealed air spaces (both vertical and horizontal).
 - a. Fireblocking shall be installed within concealed spaces of exterior wall assemblies at every floor level or at maximum vertical intervals not exceeding 20 feet. Fireblocking shall be installed at horizontal intervals not exceeding 40 feet in exterior walls of noncombustible construction. Fireblocking shall extend through any concealed air space and through any foam plastic material.
 - b. Materials used for fireblocking in exterior wall assemblies shall comply with Section 7.18.2.1.

2014 Indiana Building Code

2012 IBC with amendments as published in the Indiana register, available at <http://www.in.gov/legislative/iac/20140827-IR-675130339FRA.xml.pdf>

Extracts from Indiana Register

Adoption of 2012 IBC with amendments:

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Indiana Register

TITLE 675 FIRE PREVENTION AND BUILDING SAFETY COMMISSION

Final Rule

LSA Document #13-339(F)

DIGEST

Amends [675 IAC 12-4-11](#) and [675 IAC 12-4-12](#) concerning development and application of rules. Amends [675 IAC 12-6-2](#) concerning design releases. Adds [675 IAC 13-2.6](#) to adopt the 2012 International Building Code, first printing dated May 2011, with Indiana amendments to create the 2014 Indiana Building Code. Amends [675 IAC 14-4.3-3](#). Repeals [675 IAC 13-2.5](#). Effective December 1, 2014.

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Section 1403.5, combustible water resistive barriers:

NFPA 285 testing, as could be required by 2015 (or 2012) IBC, is waived if building is sprinklered with either NFPA 13 or NFPA 13 R system:

Sec. 16. Chapter 14 is amended as follows: (a) Amend Section 1403.5, Vertical and lateral flame propagation, by adding an exception to read as follows: Exception: Buildings with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

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Section 1407.10.4, Metal Composite Materials (MCM)

NFPA 285 testing, as could be required by 2015 (or 2012) IBC, is waived if building is sprinklered with either NFPA 13 or NFPA 13 R system:

(d) Amend Section 1407.10.4, Full-scale tests, by adding an exception to read as follows: Exception: Buildings with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

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Section 1409.10.4, High-pressure decorative Exterior-Grade Compact Laminates (HPL)

NFPA 285 testing, as is required by 2015 (and 2012) IBC, is waived if building is sprinklered with either NFPA 13 or NFPA 13 R system.

(f) Amend Section 1409.10.4, Full-scale tests, by adding an exception to read as follows: Exception: Buildings with automatic sprinkler systems installed in accordance with Section 903.3.1.1 or 903.3.1.2.

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Section 2603.5.5, Foam plastic insulation

NFPA 285 testing, as is required by 2015 (and 2012) IBC, is waived if building is sprinklered with either NFPA 13 or NFPA 13 R system.

(b) Amend Section 2603.5.5, Vertical and lateral fire propagation, by renumbering the exception as Exception 1, and adding Exception 2 to read as follows: 2. Buildings with automatic sprinkler systems installed in accordance with Section 903.3.1.1 or 903.3.1.2.