# FS157-18

**IBC: 2603.5, 2603.5.1, 2603.5.2, 2603.5.3, 2603.5.4, 2603.5.5, 2603.5.6, 2603.5.7, 2603.5 (New), 2603.5.1 (New), 2603.5.2 (New), 2603.5.2.1 (New), 2603.5.3 (New), 2603.5.4 (New), 2603.5.4.1 (New), 2603.5.4.2 (New), 2603.5.4.3 (New), 2603.5.5 (New), 2603.5.5.1 (New), 2603.5.5.2 (New), 2603.5.5.3 (New), 2603.5.5.4 (New)**

**Proponent:** John Woestman, Kellen Co., representing Extruded Polystyrene Foam Association (XPSA) (jwoestman@kellencompany.com)

**2018 International Building Code**

**Delete and substitute as follows:**

~~**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 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. Fireblocking shall be in accordance with Section 718.2.~~

**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 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. Fireblocking shall be in accordance with Section 718.2.

**Delete without substitution:**

~~**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 E119 or UL 263 shall be provided to substantiate that the fire-resistance rating is maintained.~~

~~**2603.5.2 Thermal barrier.** Any foam plastic insulation shall be separated from the building interior by a thermal barrier meeting the provisions of Section 2603.4, unless special approval is obtained on the basis of Section 2603.9.~~

~~**Exception:** One-story buildings complying with Section 2603.4.1.4.~~

~~**2603.5.3 Potential heat.** The potential heat of foam plastic insulation in any portion of the wall or panel shall not exceed the potential heat expressed in Btu per square feet (mJ/m$^2$) of the foam plastic insulation contained in the wall assembly tested in accordance with Section 2603.5.5. The potential heat of the foam plastic insulation shall be determined by tests conducted in accordance with NFPA 259 and the results shall be expressed in Btu per square feet (mJ/m$^2$).~~

~~**Exception:** One-story buildings complying with Section 2603.4.1.4.~~

~~**2603.5.4 Flame spread and smoke-developed indices.** Foam plastic insulation, exterior coatings and facings shall be tested separately in the thickness intended for use, but not to exceed 4 inches (102 mm), and shall each have a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723.~~

~~**Exception:** Prefabricated or factory-manufactured panels having minimum 0.020-inch (0.51 mm) aluminum facings and a total thickness of 1/4 inch (6.4 mm) or less are permitted to be tested as an assembly where the foam plastic core is not exposed in the course of construction.~~

~~**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 and meeting one of the following:~~
   - 2.1. ~~There is no airspace between the insulation and the concrete or masonry.~~
   - 2.2. ~~The insulation has a flame spread index of not more than 25 as determined in accordance with ASTM E84 or UL 723 and the maximum airspace between the insulation~~

~~and the concrete or masonry is not more than 1 inch (25 mm).~~

~~**2603.5.6 Label required.** The edge or face of each piece, package or container of foam plastic insulation shall bear the *label* of an *approved agency*. The *label* shall contain the manufacturer's or distributor's identification, model number, serial number or definitive information describing the product or materials' performance characteristics and *approved agency*'s identification.~~

~~**2603.5.7 Ignition.** *Exterior walls* shall not exhibit sustained flaming where tested in accordance with NFPA 268. Where a material is intended to be installed in more than one thickness, tests of the minimum and maximum thickness intended for use shall be performed.~~

~~**Exception:** Assemblies protected on the outside with one of the following:~~

1. ~~A thermal barrier complying with Section 2603.4.~~
2. ~~A minimum 1 inch (25 mm) thickness of concrete or masonry.~~
3. ~~Glass fiber reinforced concrete panels of a minimum thickness of $^{3}/_{8}$ inch (9.5 mm).~~
4. ~~Metal faced panels having minimum 0.019 inch thick (0.48 mm) aluminum or 0.016 inch thick (0.41 mm) corrosion resistant steel outer facings.~~
5. ~~A minimum $^{7}/_{8}$ inch (22.2 mm) thickness of stucco complying with Section 2510.~~
6. ~~A minimum $^{1}/_{4}$ inch (6.4 mm) thickness of fiber cement lap, panel or shingle siding complying with Section 1404.16 and Section 1404.16.1 or 1404.16.2.~~

**Add new text as follows:**

**2603.5 Exterior walls containing foam plastic insulation.** Exterior walls containing foam plastic insulation shall comply with Section 2603.5.1, or Section 2603.5.2 or Section 2603.5.3. Fireblocking shall be in accordance with Section 718.2.

**2603.5.1 Buildings of Type I, II, III or IV construction of any height.** Exterior wall assemblies with foam plastic insulation of buildings of Type I, II, III or IV construction of any height shall comply with Section 2603.5.4. The foam plastic insulation component shall comply with Section 2603.5.5.

**2603.5.2 Exterior walls of buildings of Type V construction of any height.** Foam plastic insulation used in exterior walls of buildings of Type V construction shall comply with Sections 2603.2, 2603.3 and 2603.4.

**2603.5.2.1 Fire-resistance-rated walls.** Where the exterior wall is required to have a fire-resistance rating, data based on tests conducted in accordance with ASTM E119 or UL 263 shall be provided to substantiate that the fire-resistance rating is maintained.

**2603.5.3 Cold storage buildings of noncombustible materials more than one story in height.** Exterior wall assemblies containing foam plastic insulation on cold storage buildings required to be constructed of noncombustible materials, where the building is more than one story in height, shall comply with Section 2603.5.4. The foam plastic insulation component shall comply with Section 2603.5.5.

**2603.5.4 Exterior wall test requirements.** Where exterior walls of buildings are required to comply with Sections 2603.5.1 or 2603.5.3, the wall assembly shall comply with Sections 2603.5.4.1 through 2603.5.4.3.

**2603.5.4.1 Fire-resistance-rated walls.** Where the exterior wall is required to have a fire-resistance rating, data based on tests conducted in accordance with ASTM E119 or UL 263 shall be provided to substantiate that the fire-resistance rating is maintained.

**2603.5.4.2 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 and meeting one of the following:
   - 2.1. There is no airspace between the insulation and the concrete or masonry.
   - 2.2. The foam plastic insulation has a flame spread index of not more than 25 as determined

in accordance with ASTM E84 or UL 723 and the maximum airspace between the insulation and the concrete or masonry is not more than 1 inch (25 mm).

**2603.5.4.3 Ignition.** The exterior wall assembly shall not exhibit sustained flaming where tested in accordance with NFPA 268. Where the foam plastic insulation is intended to be installed in more than one thickness, tests of the minimum and maximum thickness intended for use shall be performed.

**Exceptions:**

1. A thermal barrier complying with Section 2603.4.
2. A minimum 1-inch (25 mm) thickness of concrete or masonry.
3. Glass-fiber-reinforced concrete panels of a minimum thickness of 3/8 inch (9.5 mm).
4. Metal-faced panels having minimum 0.019-inch-thick (0.48 mm) aluminum or 0.016-inch-thick (0.41 mm) corrosion-resistant steel outer facings.
5. A minimum 7/8-inch (22.2 mm) thickness of stucco complying with Section 2510.
6. A minimum 1/4-inch (6.4 mm) thickness of fiber- cement lap, panel or shingle siding complying with Section 1404.16 and Section 1404.16.1 or 1404.16.2.

**2603.5.5 Foam plastic insulation used in exterior walls.** Where exterior walls of buildings are required to comply with Sections 2603.5.1 or 2603.5.3, the foam plastic insulation component shall comply with Sections 2603.5.5.1 through 2603.5.5.4.

**2603.5.5.1 Thermal barrier.** Any foam plastic insulation shall be separated from the building interior by a thermal barrier meeting the provisions of Section 2603.4, unless special approval is obtained on the basis of Section 2603.9.

**Exception:** One-story buildings complying with Section 2603.4.1.4...

**2603.5.5.2 Potential heat.** The potential heat of foam plastic insulation in any portion of the wall or panel shall not exceed the potential heat expressed in Btu per square feet (mJ/m$^2$) of the foam plastic insulation contained in the wall assembly tested in accordance with Section 2603.5.4.2. The potential heat of the foam plastic insulation shall be determined by tests conducted in accordance with NFPA 259 and the results shall be expressed in Btu per square feet (mJ/m$^2$).
Exception: One-story buildings complying with Section 2603.4.1.4.

**2603.5.5.3 Flame spread and smoke-developed indices.** Foam plastic insulation, and exterior coatings and facings shall be tested separately in the thickness intended for use, but not to exceed 4 inches (102 mm), and each shall have a flame spread index of 25 or less and a smoke-developed index of 450 or less as determined in accordance with ASTM E84 or UL 723.

**Exception:** Prefabricated or factory-manufactured panels having minimum 0.020-inch (0.51 mm) aluminum facings and a total thickness of 1/4 inch (6.4 mm) or less are permitted to be tested as an assembly where the foam plastic core is not exposed in the course of construction.

**2603.5.5.4 Label required.** The edge or face of each piece, package or container of foam plastic insulation shall bear the label of an approved agency. The label shall contain the manufacturer's or distributor's identification, model number, serial number or definitive information describing the product or materials' performance characteristics and approved agency's identification.

**Reason:**
With recent fire incidents, there has been increased attention on the fire performance of exterior walls containing combustible materials, such as foam plastic insulation. The 2018 IBC charging section, Section 2603.5, contains 3 different exterior walls, each with separate requirements, causing misunderstanding. Furthermore, sections related to requirements for the foam plastic component of the exterior wall are sprinkled throughout the section, causing additional confusion. This code change is a reorganization of the exterior wall section. No technical changes are included.

Separate sections are provided for

1. Exterior walls of Type I, II, III, IV construction of buildings of **any** height; (Note that the exception for one story buildings **applies only to those specifically described in Section 2603.4.1.4** )

2. Exterior walls of  buildings of Type V construction has the appropriate pointers to the foam insulation requirements.

3. Exterior walls of cold storage buildings of noncombustible construction and more than one story in height;

Exterior wall assembly tests for exterior walls of Type I, II, III, IV construction of buildings of **any** height and exterior walls of cold storage buildings of noncombustible construction and more than one story in height are consolidated in Section 2603.5.4. Similarly, all testing requirements for the foam plastic insulation components for these building types are listed in Section 2603.5.5.

**Cost Impact**

The code change proposal will not increase or decrease the cost of construction .

No technical changes are intended to be included in this proposal.

Internal ID: 2341