

Madani, Mo

From: Belcher, Joe <Joe@jdbcodeservices.com>
Sent: Monday, July 29, 2019 9:48 AM
To: Madani, Mo
Cc: Gascon Jaime; Mike Goolsby; John Knezevich; Lisa VonGuten
Subject: Request to Pull Mod 8357 from the Consent Agenda
Attachments: Mod_8357_Alt-4_Ext_Elev_Floor_Sys_HVHZ.docx; Mod_8357_Alt-4_Ext_Elev_Floor_Sys_HVHZ.pdf

Mo,

Thank you for your call, Mo. You are right, I had forgotten about the A-3 comment to upload the standards and support files that I forgot to include with A-2.

Please consider this a formal request to pull Mod 8357 from the consent agenda for the Commission meeting at Hutchinson Island in August 2019. I am requesting approval of A-4 - Commission (attached) with the standards listed in A-3.

I have modified the proposal to address concerns expressed by Jaime Gascon at the meeting of the Structural TAC (Section 3115.4.1). Jaime and Mike Goolsby reviewed the change and have indicated their concerns have been addressed and they can support the Mod. I am attaching a copy of the email correspondence between Mike Goolsby and myself.

Again, Mo, thanks for all your assistance in this matter. If you need anything else please let me know at your earliest convenience.



Thank you,

Joe Belcher

Joseph D. Belcher, Code Consultant

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Proposed Modification to the Florida Building Code

Modification #: 8357 A-4 - Commission

Section 553.73, Fla Stat

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Code: FBC-Building

Section #: 202, 3101.1, and 3115

Text of Modification [additions underlined; deletions ~~stricken~~]:

202

Exterior Elevated Flooring System. ~~An elevated flooring system installed over roofing systems or other supporting structures.~~ An assembly installed over a roof assembly and / or other exterior supporting structure consisting of a walking surface of pedestrian deck panels / or pavers mounted on pedestals using other accessory components, and mechanical fasteners and / or adhesives as required by the manufacturer's installation instructions for attaching pedestrian deck panels / or pavers to pedestals and other accessory components. Exterior elevated flooring systems may have pedestals attached to the roof or other supporting structure or pedestals installed independently of the roof or supporting structure with the restraint of the pavers at the perimeter and or discontinuous edges. Exterior elevated flooring systems are not part of the roof assembly.

Attached systems. Attached systems are those where pedestals are attached to the roof or other supporting structure by mechanical fasteners, adhesives, or both.

Independent systems. Independent systems are those where pedestals are not attached to the roof but rest on the roof or other supporting structure.

Pedestrian Deck Panels/ and or Pavers. Pedestrian deck panels / or pavers for the purpose of this section are manufactured from materials such as naturally durable wood, ceramic, stone, or concrete suitable for exterior applications.

Pedestal. A fixed or adjustable-height support column composed of a plastic support base, plastic vertical structural element, and a plastic load bearing top cap / surface.

Accessory Components. ~~These~~ Components are used in the installation of pedestals and pedestrian deck panels / or pavers of the exterior elevated flooring system. These Accessory components are made of either plastic, or metal, or other approved materials. These Accessory components may be used to provide lateral bracing of the pedestals, to provide vertical support, for leveling the pedestal, and to restrain the pedestrian deck panels / or pavers to the top of the

pedestal, or for other system requirements.

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, and towers and antennas, and exterior elevated flooring systems.

Section 3115 **Exterior Elevated Flooring Systems.**

3115.1 Scope. This section is applicable applies to exterior elevated flooring systems installed over roof assemblies or other exterior supporting structures such as an exterior deck. Each exterior elevated flooring system consists of pedestrian deck panels / or pavers supported by pedestals placed directly on roof assemblies or other exterior supporting structures, to provide a level walking surface. Pedestals can may be adjusted adjustable to various heights or installed at or a fixed height. The pedestals need not be mechanically or adhesively attached to the supporting structure. The exterior elevated flooring system comprised of the pedestrian deck panels / or pavers and pedestals must shall be restrained on all sides and along any ramps and /or walkway areas against horizontal and vertical movement using a perimeter-restraining system.

3115.1.1 Attached exterior elevated flooring systems. Attached systems shall be designed and constructed as a roofing system in accordance with Chapter 15 of this code.

3115.1.2 Independent exterior elevated flooring systems. Independent systems shall comply with the provisions of Section 3115.

3115.2 Materials Information Submitted with Permit Application. In addition to other information required to accompany the permit application, product-specific information shall be provided as follows:

3115.2.1 Pedestrian Deck panels / or pavers. Documentation describing the weight, dimensions, specifications, and the manufacturing process of the materials. Specifications for cementitious materials such as concrete pavers shall include required material strength properties used in analysis or reference to appropriate tests used to determine paver load capacity.

3115.2.2 Pedestals. Documentation describing materials, dimensions, specifications, compression strength, and manufacturer's installation instructions. Specifications shall include the allowable axial compression capacity of the pedestal.

3115.2.3 Fasteners. Documentation describing mechanical fasteners and adhesives as applicable. A statement shall be provided regarding whether

or not the fasteners are commonly available or are proprietary.

3115.2.4 Plastics for outdoor exposure HVHZ. Plastics for outdoor exposure in the HVHZ shall comply with Florida Building Code-Building Section 2615.2.

3115.2.5 Packaging and Identification. A description of the method of packaging and identification of pedestrian deck panels / or pavers, pedestals, and accessory components. Identification provisions shall include the manufacturer's name, the product name, and copy of the installation instructions, as packaged with the product.

3115.3 Product Approval and Manufacturer's Installation Instructions.

3115.3.1 Product approval. Exterior elevated flooring systems shall have Florida P product -A- approval or local product approval.

3115.3.2 Manufacturer's installation instructions. Manufacturer's installation instructions shall include information on the protection of the roof surface during installation, procedures for removing pavers to facilitate reroofing, roofing repairs, and roofing maintenance. In addition to the copy of the manufacturer's installation instructions submitted with the permit application, the manufacturer's installation instructions shall be kept on the job site and made available to inspection personnel.

3115.4 Structural Requirements for Exterior Elevated Flooring Systems.

3115.4.1 General. Exterior elevated flooring systems shall withstand the applicable uniform loads of Florida Building Code-Building Table 1607.1, the applicable load combinations, and other applicable loads contained in ~~FBC-B~~ the Florida Building Code-Building, Chapter 16. Independent systems shall not be permitted in the HVHZ

3115.4.2 Pedestrian Deck panels / or pavers. Where analysis of panels or pavers is not consistent with codified material design procedures, testing for uniform load and concentrated load capacities shall be performed in accordance with ASTM E2322 and CISCA Recommended Test Procedures for Access Floors achieving a load capacity three (3) times the uniform load capacity designated in the specifications.

3115.4.3 Pedestals. Where analysis of pedestals is not consistent with codified material design procedures, testing for axial load capacity shall be performed in accordance with CISCA Recommended Test Procedures for Access Floors, 2016, Section 5 achieving a load capacity three (3) times the axial load capacity designated in the specifications.

3115.4.4 Wind resistance. Wind resistance of independent exterior elevated flooring systems shall be determined by wind tunnel testing in accordance with ASCE 7 Chapter 31 and Section 30.1.5 where applicable. Testing shall be conducted, and the data analyzed by a registered design

professional. Exterior elevated flooring systems shall be evaluated by a registered design professional to withstand applicable wind loads as specified in ASCE 7 Chapters 26 through 30, as applicable, as well as combined load effects of other applicable gravity loads in FBC-B the Florida Building Code-Building, Chapter 16, such as live and dead loads.

3115.4.5 Deflection. Pedestrian deck panels or pavers shall meet the deflection requirement of floor members in Table 1604.3 and Section 1616.3.1 in the HVHZ.

3115.5 Substrate Requirements for Exterior Elevated Flooring Systems.

3115.5.1 Bearing Capacity. Pedestal support surface or roofing membrane shall be able to support a concentrated surface load of 40 psi under the pedestal base.

3115.5.2 Drainage. The substrate immediately below the pedestals shall provide positive drainage.

3115.5.3 Analysis. Load effects on structural members and their connections that provide support for independent exterior elevated flooring systems shall be determined by methods of structural analysis that take into account equilibrium, general stability, geometric compatibility and both short- and long-term material properties. Roof structures that provide support for exterior elevated flooring systems shall be checked for deflection in accordance with Section 1604.3.6 or Section 1616 for buildings sited in the HVHZ. Roof structures shall be checked in accordance with Section 1611 for ponding. The design shall account for concentrated loads of the pedestals.

3115.6 Accessibility. Accessibility shall comply with the Florida Building Code-Accessibility.

Chapter 35:

ASTM:

E2322-03 (Reapproved 2015) Standard Test Method for Conducting Transverse and Concentrated Load Tests on Panels used in Floor and Roof Construction.....3115.4.2

CCIS Ceilings and Interior Systems Construction Association
1010 Jorie Blvd., Suite 30
Oak Brook, IL 60523

Recommended Test Procedures for Access Floors.....3115.4.2, 3115.4.3

ASCE/SEI: (Add to existing code section references)

7-163115.2.3, 3115.4.4

Rationale [Provide an explanation of why you would like this Proposed Modification to the Florida Building Code.]: The proposed code change is not intended to provide instructions on the specific design of exterior elevated flooring systems but to provide guidance for the design and installation of the systems. There is no guidance in the code for designers or code enforcers. There is considerable research available on the systems and ASCE 7 permits the use of wind tunnel studies, test data or recognized literature for the design of air permeable systems in Chapter 30 (ASCE 7-16 §30.1.5). (See uploaded file.) The proposed change requires the use of wind tunnel testing per ASCE 7 Chapter 31 and §30.1 where applicable.

Alternate Language A-1 expands the section on structural requirements, adds a section on substrate requirements, expands the requirements to be included in the manufacturer's instructions, adds two reference standards for testing of pedestrian deck panels or pavers, and adds deflection criteria. The change is also modified to address the comments of the Structural TAC members and members of the public.

1. The definition was corrected to a single definition at §202.
2. Concentrated loads on the roofing material are addressed at §3115.5.3.
3. Protection of the roofing membrane during installation is addressed at §3115.3.2.
4. The provisions for limiting pedestals to plastic were removed at. §202 - Pedestal.
5. The provisions have been made as material neutral as possible throughout the proposed change.
6. Plastic weathering requirements for the HVHZ were added at §3115.2.4.
7. Reference to the ADA requirements of the code were added at §3115.6.
8. Provisions addressing interaction between the system and the roofing membrane were added at §3115.5.
9. Provisions related to reroofing, repair, and maintenance of the roofing membrane were added to §3115.3.2.
10. HVHZ specific references are provided. Generally, references to Chapter 16 are intended to invoke the Scope of Chapter 16 to direct users to either the non-HVHZ sections or the HVHZ sections as appropriate.
11. Provisions prohibiting the use of independent systems in the HVHZ are added.

Fiscal Impact Statement [Provide documentation of the costs and benefits of the proposed modifications to the code for each of the following entities. Cost data should be accompanied by a list of assumptions and supporting documentation. Explain expected benefits.]:

- A. **Impact to local entity relative to enforcement of code:** No impact on the cost of enforcement of the code.

- B. **Impact to building and property owners relative to cost of compliance**

with code: The provisions will likely result in savings to property owners desiring to turn rooftops and other exterior spaces into a useable area.

- C. Impact to industry relative to cost of compliance with code:** The provisions will economically allow the conversion of heretofore unusable spaces into attractive useable spaces. The provisions will likely result in savings to industry constructing exterior elevated flooring system to turn rooftops and other spaces into a useable area.
- D. Impact to small business:** The provisions will economically allow the conversion of heretofore unusable spaces into attractive useable spaces. The provisions will likely result in savings to small businesses constructing exterior elevated flooring system to turn rooftops and other spaces into a useable area.

Please explain how the proposed modification meets the following requirements:

- 1. Has a reasonable and substantial connection with the health, safety, and welfare of the general public:** Occupied roofs using elevated flooring systems are becoming more common, and the code does not address the systems. This proposal will help to assure the health, safety, and welfare of members of the public using such facilities by providing guidelines to designers, contractors, and code enforcers.
- 2. Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction:** The change to the code will improve the code by addressing a popular system not addressed by the code and helping to assure the safety of the public.
- 3. Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities:** The change does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.
- 4. Does not degrade the effectiveness of the code:** The proposed change does not degrade the effectiveness of the code.