ROOFING TAC
WITHOUT COMMENTS

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

TAC: Roofing

Total Mods for **Roofing** in **Approved as Submitted: 66**

Total Mods for report: 76

Sub Code: Building

R7161

1

Date Submitted	11/2/2018	**Section**	1501.1	**Proponent**	John Hall
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation Approved as Submitted

Commission Action Pending Review

Comments

General Comments **No**

Alternate Language **No**

Related Modifications

No related modifications have been identified.

Summary of Modification

The modification provides for inclusion of Florida Building Code, Building Section 1507.18.1 in the High Velocity Hurricane Zone.

Rationale

Inclusion of Section 1507.18.1 in the High Velocity Hurricane Zone will provide pathways on roofs for firefighter access consistent with the requirements throughout the rest of the State of Florida. This will increase firefighter safety on roofs with photovoltaic panels. These provisions are currently not included in the High Velocity Hurricane Zone.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

There is no impact to local enforcement entities in enforcement of the code. The time and expense required for inspection will not be affected. This modification increases firefighter safety and enhances firefighting operations.

Impact to building and property owners relative to cost of compliance with code

There is no cost impact to business and property owners. The only additional requirements not already included in NFPA 70 (NEC) are provisions for pathways and spacing around photovoltaic modules on roofs, allowing access and roof ventilation spaces for firefighter operations.

Impact to industry relative to the cost of compliance with code

There is no code compliance cost impact to industry. The only additional requirements not alreadi included in NFPA 70 (NEC) are provisions for pathways and spacing around photovoltaic modules on roofs, allowing access and roof ventilation spaces for firefighter operations.

Impact to small business relative to the cost of compliance with code

There is no code compliance cost impact to small business. The only additional requirements not alreadi included in NFPA 70 (NEC) are provisions for pathways and spacing around photovoltaic modules on roofs, allowing access and roof ventilation spaces for firefighter operations.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The modification is specifically aimed at improving the health, safety, and welfare of firefighters. A safe means of accessing the roof and ready egress from the roof during firefighting operations increases firefighter safety. Firefighter effectiveness will increase safety to the general public.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This strengthens the code in the HVHZ by applying standards already in force for the state as a whole.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

The proposed modification does not discriminate against materials, products, methods, or systems of construction because none are specified in the proposed modification.

Does not degrade the effectiveness of the code

The proposed does not degrade the effectiveness of the code. To the contrary, the code is strengthened by this modification.

SECTION1501
GENERAL

1501.1 Scope.

The provisions of this chapter shall govern the design, materials, construction and quality of roof assemblies, and rooftop structures.

Exception: Buildings and structures located within the high-velocity hurricane zone shall comply with the provisions of Section 1503.7, Section 1507.18.1 and Sections 1512 through 1525.

Fiscal Impact Assumptions

1. This proposed modification is already in effect in all areas of the State of Florida except the High Velocity Hurricane Zone.
2. The code enforcement entity will already be sending inspection personnel to the roof to inspect the installation of the photovoltaic modules.
3. This modification simply specifies the location of photovoltaic modules and the location and dimensions of access pathways. These items can be verified while inspecting other items on the roof.
4. There are no new items required to be installed by this proposed modification. Only the location of the modules is specified.
5. The other requirements in the section of the Florida Fire Prevention Code proposed to be included in the HVHZ are already contained in Article 690 of NFPA 70 (National Electrical Code). These items include disconnecting means, marking of photovoltaic system raceways and components.
6. Because these requirements are already included in the Florida Fire Prevention Code, their inclusion in the HVHZ will provide coordination between building and fire requirements. This coordination will lower costs to the industry by not having to attempt to satisfy conflicting requirements.
7. This proposed modification will enhance the safety of fire fighters by providing access and safe egress from roofs during firefighting operations. Reducing potential injury to firefighters reduces costs to all entities involved.
8. By increasing the ease of access to the roof during firefighting operations, this proposed modification will enhance the effectiveness of firefighting operations. This enhanced effectiveness is likely to result in the quicker extinguishing of the fire, which will reduce losses to building and property owners.

R7185

Date Submitted	11/5/2018	**Section**	1523.6.4	**Proponent**	Michael Goolsby
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Clarify required uplift test procedure.

Rationale

This code modification provides consistency with TAS 124 regarding uplift testing of mechanically attached roof systems. Additionally, by specifying the code section in RAS 124, the modification makes clear which of the two test methods are applicable when quality control testing of new roof systems are required.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Removes confusion by providing accurate direction regarding which uplift test is required.

Impact to building and property owners relative to cost of compliance with code

Will economize costs by eliminating confusion regarding which uplift test is required.

Impact to industry relative to the cost of compliance with code

Will economize costs by eliminating confusion regarding which uplift test is required.

Impact to small business relative to the cost of compliance with code

Will economize costs by eliminating confusion regarding which uplift test is required.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes, by providing guidance necessary to achieve compliance with the wind load requirements for new roof systems.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes, by providing guidance necessary to achieve compliance with the wind load requirements for new roof systems.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

The modification does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

The proposal increases the effectiveness of the code and the protection of the public by providing clear guidance regarding the appropriate uplift test.

1523.6.4 The building official may request that a quality control field uplift test be carried out on a continuous roofing system in compliance with test procedure TAS 124. Single-ply systems are not required to meet the deflection requirements established in the test protocol if mechanically attached. The roofing system shall resist the design pressures as calculated in compliance with Chapter 16 (High-Velocity Hurricane Zones), and as established in TAS 124, Section 4.

R7186

Date Submitted	11/7/2018	**Section**	1525	**Proponent**	Michael Goolsby
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Establish consistency with ASCE 7-16.

Rationale

Modify the HVHZ Uniform Permit Application necessary to update formulas and elevated pressure zones for roof systems to coincide with ASCE 7-16.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None, merely updates the permit application as needed to coincide with ASCE 7-16.

Impact to building and property owners relative to cost of compliance with code

None, merely updates the permit application as needed to coincide with ASCE 7-16.

Impact to industry relative to the cost of compliance with code

None, merely updates the permit application as needed to coincide with ASCE 7-16.

Impact to small business relative to the cost of compliance with code

None, merely updates the permit application as needed to coincide with ASCE 7-16.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes, by providing formulas necessary to determine wind load requirements for roof systems.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes, by providing formulas necessary to determine wind load requirements for roof systems.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

The modification does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

Enhances the effectiveness of the code by ensuring adequate roof system wind performance.

1525
HIGH-VELOCITY HURRICANE ZONES—UNIFORM PERMIT APPLICATION

Florida Building Code ~~6~~ 7th Edition (~~2017~~20)
High-Velocity Hurricane Zone Uniform Permit Application Form

Section C (Low Slope Application)

Design Wind Pressures, From RAS 128 or Calculations:

~~P1~~ Zone 1':_____ ~~P2~~ Zone 1:_____ ~~P3~~ Zone 2:_____ Zone 3:_____

Fastener Spacing for Anchor/Base Sheet Attachment:

~~Field~~ Zone 1': ____" oc @ Lap, # Rows ____ @ ____" oc

Zone 1: ____" oc @ Lap, # Rows ____ @ ____" oc

~~Perimeter~~ Zone 2: ____" oc @ Lap, # Rows ___ @ ____" oc

~~Corner~~ Zone 3: ____" oc @ Lap, # Rows ____ @ ____" oc

Number of Fasteners Per Insulation Board:

~~Field~~ Zone 1' _____Zone 1 _____~~Perimeter~~ Zone 2 _____ ~~Corner~~ Zone 3 _____

Section D (Steep Sloped Roof System)

Minimum Design Wind Pressures, If Applicable (From RAS 127 or Calculations):

~~P1~~ Zone 1':_____ ~~P1~~ Zone 1:_____ ~~P1~~ Zone 2:_____ Zone 3:_____

Section E (Tile Calculations)

For Moment based tile systems, choose either Method 1 or 2. Compare the values for M_r with the values from M_f. If the M_f values are greater than or equal to the M_r values, for each area of the roof, then the tile attachment method is acceptable.

Method 1 "Moment Based Tile Calculations Per RAS 127"

(~~P1~~ Zone 1:____ × ? ____ = ____) – Mg: ____ = M_{r1} ____ Product Approval M_f _____

(~~P2~~ Zone 2e:____ × ? ____ = ____) – Mg: ____ = M_{r2} ____ Product Approval M_f _____

(~~P3~~ Zone 2n:____ × ? ____ = ____) – Mg: ____ = M_{r3} ____ Product Approval M_f _____

(Zone 2r: x λ =) – Mg = M_{r1} NOA M_f

(Zone 3e: x λ =) – Mg: = M_{r2} NOA M_f

(Zone 3r: x λ =) – Mg: = M_{r3} NOA M_f

For Uplift based tile systems use Method 3. Compared the values for F' with the values for Fr. If the F' values are greater than or equal to the Fr values, for each area of the roof, then the tile attachment method is acceptable.

Method 3 "Uplift Based Tile Calculations Per RAS 127"

(~~P1~~ Zone 1:____ x L ____ = ____ x w: = ____) – W: ____ x cos? ____ = F_{r1} ____ Product Approval F' _____

(~~P2~~ Zone 2e: ____ x L ____ = ____ x w: = ____) – W: ____ x cos? ____ = F_{r2} ____ Product Approval F' _____

(~~P3~~ Zone 2n:____ x L ____ = ____ x w: = ____) – W: ____ x cos? ____ = F_{r3} ____ Product Approval F' _____

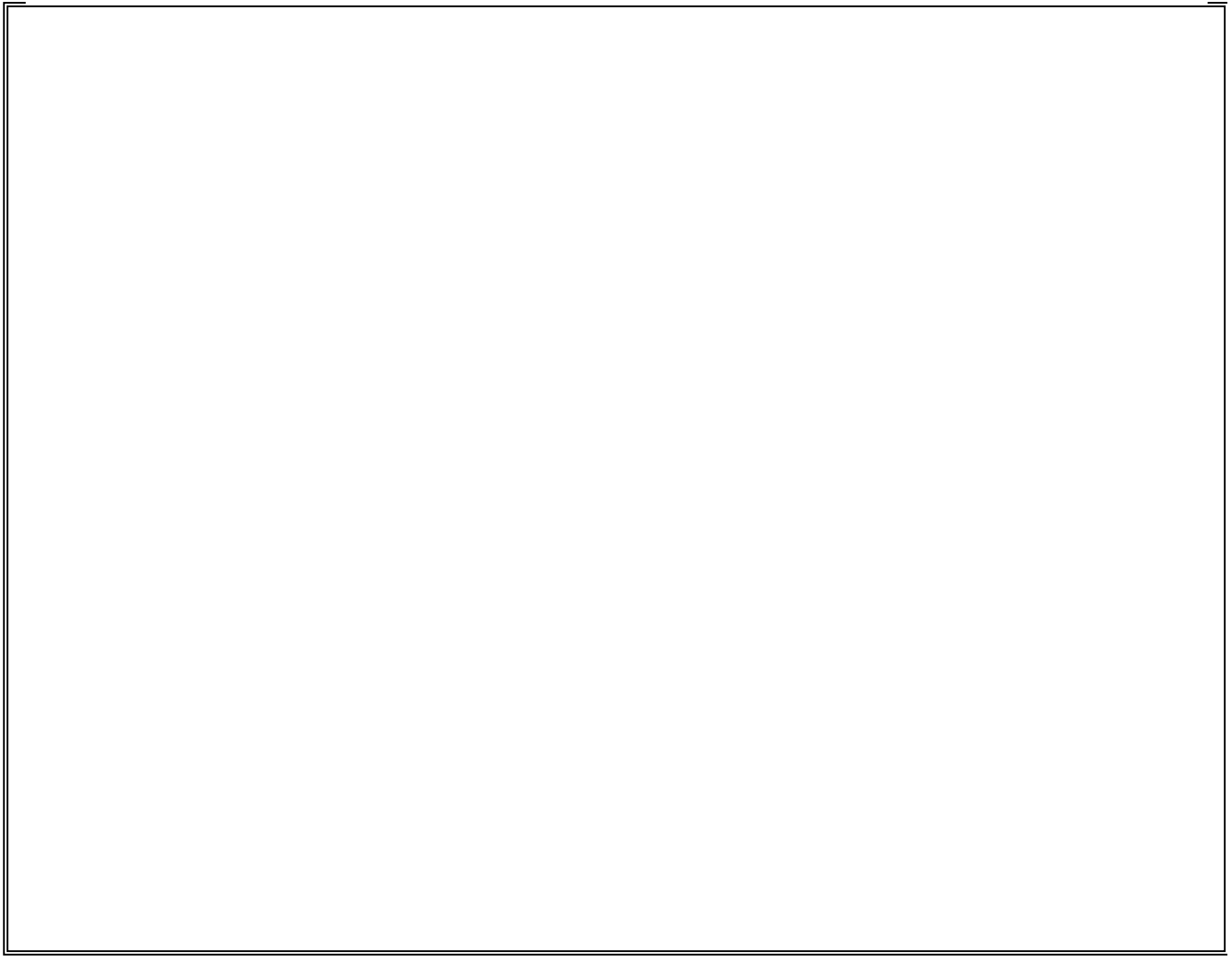
(Zone 2r: x L = x w: =) – W: x cos? = F_{r1} Product Approval F'

(Zone 3e: x L = x w: =) – W: x cos? = F_{r2} Product Approval F'

(Zone 3r: x L = x w: =) – W: x cos? = F_{r3} Product Approval F'

Where to Obtain Information

Description	Symbol	Where to find
Design Pressure	~~P1 or P2 or P3~~ Zones 1, 2e, 2n, 2r, 3e, 3r	From applicable Table in RAS 127 ~~Table 1~~ or by an engineering analysis prepared by PE based on ASCE 7



SECTION 1525
HIGH-VELOCITY HURRICANE ZONES—UNIFORM PERMIT APPLICATION

Florida Building Code 6th Edition (201~~7~~20)
High-Velocity Hurricane Zone Uniform Permit Application Form

INSTRUCTION PAGE

COMPLETE THE NECESSARY SECTIONS OF THE UNIFORM ROOFING PERMIT APPLICATION FORM AND ATTACH THE REQUIRED DOCUMENTS AS NOTED BELOW:

Roof System	Required Sections of the Permit Application Form	Attachments Required See List Below
Low Slope Application	A,B,C	1,2,3,4,5,6,7
Prescriptive BUR-RAS 150	A,B,C	4,5,6,7
Asphaltic Shingles	A,C,D	1,2,4,5,6,7
Concrete or Clay Tile	A,B,D,E	1,2,3,4,5,6,7
Metal Roofs	A,B,D	1,2,3,4,5,6,7
Wood Shingles and Shakes	A,B,D	1,2,4,5,6,7
Other	As Applicable	1,2,3,4,5,6,7

ATTACHMENTS REQUIRED:

1.	Fire Directory Listing Page
2.	From Notice of Acceptance: Front Page Specific System Description Specific System Limitations General Limitations Applicable Detail Drawings
3.	Design Calculations per Chapter 16, or If Applicable, RAS 127 or RAS 128
4.	Other Component Notice of Acceptances
5.	Municipal Permit Application
6.	Owners Notification for Roofing Considerations (Re-Roofing Only)
7.	Any Required Roof Testing/Calculation Documentation

Florida Building Code 6th Edition (20~~17~~20)
High-Velocity Hurricane Zone Uniform Permit Application Form

Section A (General Information)

Master Permit No. _____ **Process No.** _____

Contractor's Name _____

Job Address _____

ROOF CATEGORY

☐ Low Slope ☐ Mechanically Fastened Tile ☐ Mortar/Adhesive Set Tile
☐ Asphaltic Shingles ☐ Metal Panel/Shingles ☐ Wood Shingles/Shakes
☐ Prescriptive BUR-RAS 150 (Broward County only.)

ROOF TYPE

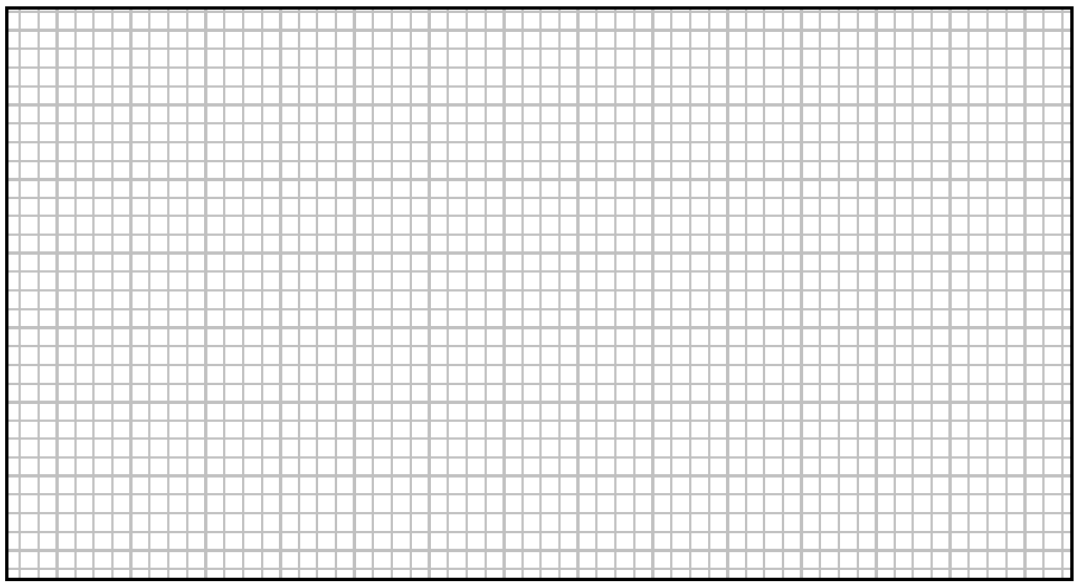
☐ New Roof ☐ Re-Roofing ☐ Recovering ☐ Repair ☐ Maintenance

ROOF SYSTEM INFORMATION

Low Slope Roof Area (SF)	Steep Sloped Roof Area (SF)	Total (SF)

Section B (Roof Plan)

Sketch Roof Plan: Illustrate all levels and sections, roof drains, scuppers, overflow scuppers and overflow drains. Include dimensions of sections and levels, clearly identify dimensions of elevated pressure zones and location of parapets.



Florida Building Code 6th Edition (2017~~17~~20)
High-Velocity Hurricane Zone Uniform Permit Application Form

Section C (Low Slope Application)
Fill in specific roof assembly components and identify manufacturer
(If a component is not used, identify as "NA")

System Manufacturer:_____

Product Approval No.:_____
Design Wind Pressures, From RAS 128 or Calculations:
~~P1~~ Zone 1':_____ ~~P2~~ Zone 1:_____ ~~P3~~ Zone 2:_____

Zone 3:____

Max. Design Pressure, from the specific product approval system:_____

Deck:
Type:_____

Gauge/Thickness:_____

Slope:_____

Anchor/Base Sheet & No. of Ply(s): _____

Anchor/Base Sheet Fastener/Bonding Material:
_____

Insulation Base Layer: _____

Base Insulation Size and Thickness: _____

Base Insulation Fastener/Bonding Material:
_____

Top Insulation Layer: _____

Top Insulation Size and Thickness: _____

Top Insulation Fastener/Bonding Material:
_____

Base Sheet(s) & No. of Ply(s): _____

Base Sheet Fastener/Bonding Material:
_____

Ply Sheet(s) & No. of Ply(s): _____

Ply Sheet Fastener/Bonding Material:
_____

Top Ply: _____

Fastener Spacing for Anchor/Base Sheet Attachment

~~Field~~ Zone 1': ____" oc @ Lap, # Rows ____ @ ____" oc

Zone 1: ____" oc @ Lap, # Rows ____ @ ____" oc

~~Perimeter~~ Zone 2: ____" oc @ Lap, # Rows ___ @ ___" oc

~~Corner~~ Zone 3: ____" oc @ Lap, # Rows ____ @ ____" oc

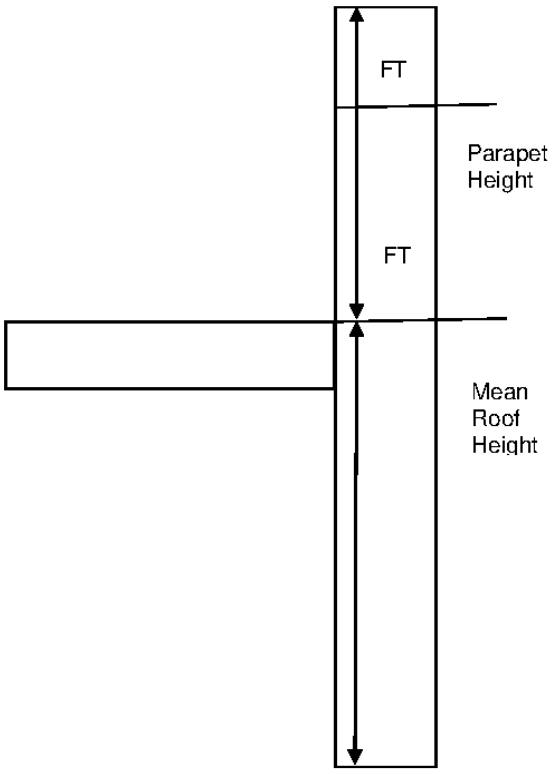
Number of Fasteners Per Insulation Board

~~Field~~ Zone 1' _____ Zone 1 _____ ~~Perimeter~~ Zone 2 _____
~~Corner~~ Zone 3 _____

Illustrate Components Noted and Details as Applicable:

Woodblocking, Edge Termination, Stripping, Flashing, Continuous Cleat, Cant Strip, Base Flashing, Counter-Flashing, Coping, Etc.

Indicate: Mean Roof Height, Parapet Height, Height of Base Flashing, Component Material, Material Thickness, Fastener Type, Fastener Spacing or Submit Manufacturers Details that Comply with RAS 111 and Chapter 16.



Florida Building Code 6th Edition (20~~17~~20)

High-Velocity Hurricane Zone Uniform Permit Application Form

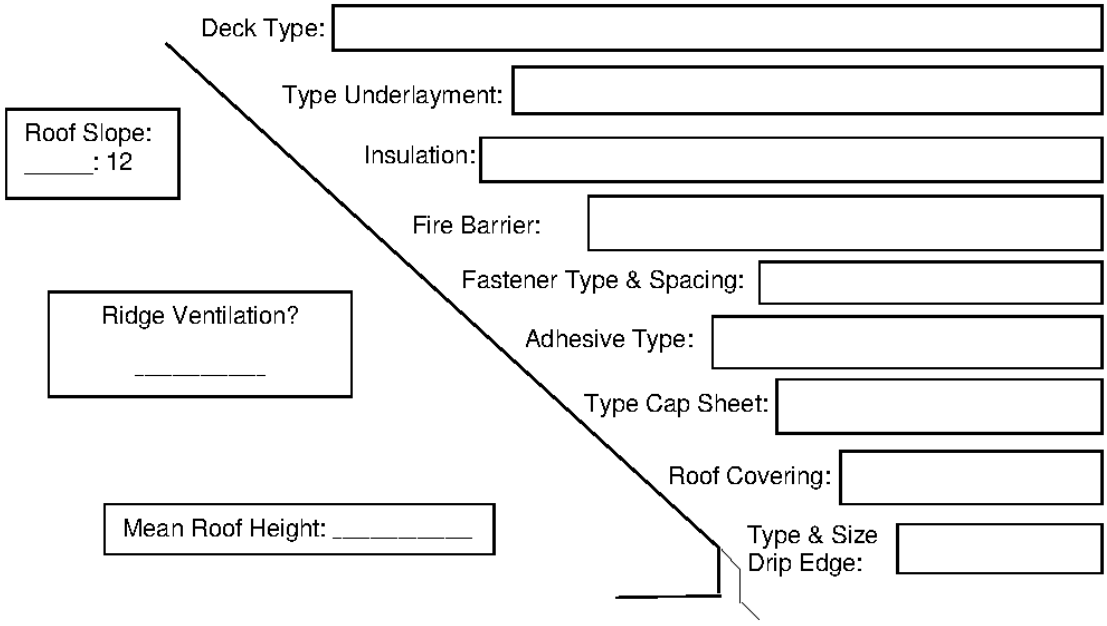
Section D (Steep Sloped Roof System)

Roof System Manufacturer: _____

Notice of Acceptance Number: _____

Minimum Design Wind Pressures, If Applicable (From RAS 127 or Calculations):

~~P1~~Zone 1: _____ ~~P1~~ Zone 2e: _____ ~~P1~~Zone 2n: _____ Zone 2r: _____ Zone 3e: _____ Zone 3r: _____



Florida Building Code 6th Edition (2017~~2~~0)
High-Velocity Hurricane Zone Uniform Permit Application Form

Section E (Tile Calculations)

For Moment based tile systems, choose either Method 1 or 2. Compared the values for M_r with the values from M_f. If the M_f values are greater or equal to the Mr values, for each area of the roof, then the tile attachment method is acceptable.

Method 1 "Moment Based Tile Calculations Per RAS 127"

(~~P1~~ Zone 1:_____ x λ _____= _____) – Mg: _____ = M_{r1} _____	NOA M_f _____
(~~P2~~ Zone 2e:_____ x λ _____= _____) – Mg: _____ = M_{r2}_____	NOA M_f _____
(~~P3~~ Zone 2n:_____ x λ _____= _____) – Mg: _____ = M_{r3}_____	NOA M_f _____
(Zone 2r: x λ =) – Mg: = M_{r1}	NOA M_f
(Zone 3e: x λ =) – Mg: = M_{r2}	NOA M_f
(Zone 3r: x λ =) – Mg: = M_{r3}	NOA M_f

Method 2 "Simplified Tile Calculation Per Table Below"

Required Moment of Resistance (M_r) From Table Below _____ **NOA M_f** _____

M_r Required Moment Resistance*					
Mean Roof Height → / Roof Slope ↓	15'	20'	25'	30'	40'
2:12	30.7	33.4	35.7	37.7	40.7
3:12	28.7	31.3	33.4	35.2	38.1
4:12	26.6	28.9	30.9	32.6	35.2
5:12	24.5	26.7	28.5	30.0	32.5
6:12	22.5	24.5	26.2	27.6	29.8
7:12	20.8	22.6	24.1	25.4	27.5

***Must be used in conjunction with a list of moment based tile systems endorsed by the Broward County Board of Rules and Appeals.**

For Uplift based tile systems use Method 3. Compared the values for F' with the values for F_r. If the F' values are greater or equal to the F_r values, for each area of the roof, then the tile attachment method is acceptable.

Method 3 "Uplift Based Tile Calculations Per RAS 127"

(~~P1~~ Zone 1: ____ x l: ____ = ____ x w: = ____) – W: ____ x cos θ: ____ = F_{r1}: ____	NOA F'____
(~~P2~~ Zone 2e: ____ x l: ____ = ____ x w: = ____) – W: ____ x cos θ: ____ = F_{r2e}: ____	NOA F'____
(~~P3~~ Zone 2n: ____ x l: ____ = ____ x w: = ____) – W: ____ x cos θ: ____ = $F_{r3}$$_{2n}$: ____	NOA F'____
(Zone 2r: x l: = x w: =) – W: x cos θ: ____ = F_{r2r}:	NOA F'
(Zone 3e: x l: = x w: =) – W: x cos θ: ____ = F_{r3e}:	NOA F'
(Zone 3r: x l: = x w: =) – W: x cos θ: ____ = F_{r3r}:	NOA F'

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***Florida Building Code* 6th Edition (2020)**
High-Velocity Hurricane Zone Uniform Permit Application Form

Where to Obtain Information		
Description	**Symbol**	**Where to find**
Design Pressure	~~P1 or P2 or P3~~ Zones 1, 2e, 2n, 2r, 3e, 3r	From applicable Table in RAS 127 ~~Table 1~~ or by an engineering analysis prepared by PE based on ASCE 7
Mean Roof Height	H	Job Site
Roof Slope	θ	Job Site
Aerodynamic Multiplier	λ	NOA
Restoring Moment due to Gravity	M_g	NOA
Attachment Resistance	M_f	NOA
Required Moment Resistance	M_r	Calculated
Minimum Characteristic Resistance	F'	NOA
Minimum Characteristic Force	F_r	Calculated
Average Tile Weight	W	NOA
Tile Dimensions	l= length w= width	NOA

All calculations must be submitted to the Building Official at the time of permit application.

R7316

Date Submitted	11/19/2018	**Section**	1511	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Existing Building Section 706 Existing Roofing

Summary of Modification

This modification adds language to clarify that salvaged slate, clay and concrete roof tile of like kind can be used in certain applications

Rationale

There are several sections of the code that indicate that some reuse of these materials are permitted: 104.9., 602.1 and 1506.2.1 all at least suggest acceptance. Section 1511.5 states that existing material may be reinstalled. It is not clear on when existing material quantities can be augmented. FS 553.842 allows reuse if the product approval requirements haven't changed. But it's not clear if the particular material never had product approval or the approval has changed if it can be used. The proposed change clarifies when the reuse of slate, clay and concrete roof tile may be acceptable when current product approvals or notice of acceptance are not available.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification does not impact cost associated with enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Impact to industry relative to the cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Impact to small business relative to the cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This modification will allow use of salvaged material that matches existing material. This will make maintenance and repair of existing tile roofs a good alternative to complete replacement.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This modification will allow use of salvaged material that matches existing material. This will make maintenance and repair of existing tile roofs a good alternative to complete replacement.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This modification does not discriminate against any materials, products, methods or systems of construction.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code.

1511.5 Reinstallation/Reuse of materials.

Existing or salvaged slate, clay or ~~cement~~ concrete tile shall be permitted for reinstallation or reuse, to repair an existing slate or tile roof, except that salvaged slate or tile shall be of like kind in both material and profile. D~~d~~amaged, cracked or broken slate or tile shall not be reinstalled. The building official may permit salvaged slate, clay and concrete tile to be installed on additions and new construction, when the tile is tested in compliance with the provisions of Section 1507 and installed in accordance with Section 1507. Existing vent flashing, metal edgings, drain outlets, collars and metal counterflashings shall not be reinstalled where rusted, damaged or deteriorated. Aggregate surfacing materials shall not be reinstalled.

R7338

Date Submitted	11/20/2018	**Section**	1521.13	**Proponent**	Gaspar Rodriguez
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Eliminate a reference in the code to a section that has been removed from the code.

Rationale

The reference being removed has been reserved from the notification for roofing considerations, in the standard roofing application form.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None. Eliminates reference to a reserved section of the code.

Impact to building and property owners relative to cost of compliance with code

No change to code requirements. Eliminates reference to a reserved section of the code.

Impact to industry relative to the cost of compliance with code

No change to code requirements. Eliminates reference to a reserved section of the code.

Impact to small business relative to the cost of compliance with code

No change to code requirements. Eliminates reference to a reserved section of the code.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Allows for a more accurate understanding of the existing code requirement.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Allows for a more accurate understanding of the existing code requirement.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

The modification is not adding a new code requirement. The modification is intended to clarify the current base code provision as applicable in the HVHZ.

Does not degrade the effectiveness of the code

The modification does not degrade the code, instead, the modification is intended to clarify the current base code provision as applicable in the HVHZ.

1521.13 Prior to starting the work the contractor has the responsibility of notifying the owner~~, by means of the roofing permit and required owners notification for roofing considerations herein,~~ of any possibility of ponding water and recommend a structural review if ponding water is a possibility.

R7342

Date Submitted	11/20/2018	**Section**	1523.6.5.2.8	**Proponent**	Gaspar Rodriguez
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Correct a typo error.

Rationale

Correct the Section 7 reference to the correct Section 8 reference.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None. Correct a typo error.

Impact to building and property owners relative to cost of compliance with code

None. Correct a typo error.

Impact to industry relative to the cost of compliance with code

None. Correct a typo error.

Impact to small business relative to the cost of compliance with code

None. Correct a typo error.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Corrects a typo error, which, allows for a more understandable code.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Corrects a typo error, which, allows for a more understandable code.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Corrects a typo error, which, allows for a more understandable code.

Does not degrade the effectiveness of the code

Corrects a typo error, which, allows for a more understandable code.

1523.6.5.2.8 Roof board insulation. All roof board insulation shall be tested for physical properties as set forth in Section ~~7~~ 8 of TAS 110.

R7356

Date Submitted	11/20/2018	**Section**	1507.3	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Building Code Chapter 35
Residential Code Sections 905.3
Residential Code Chapter 46

Summary of Modification

This modification updates Referenced Standard: FRSA/TRI High Wind Concrete and Clay Roof Tile Manual from the Fifth to the Sixth Edition

Rationale

Updates Referenced Standard: FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual from the Fifth to the Sixth Edition.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification does not impact cost associated with enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

This modification does not impact cost associated with enforcement of the code.

Impact to industry relative to the cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Impact to small business relative to the cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The manuals use as a referenced standard has led to improvement with the application of roof tile in Florida. The latest edition is has been updated with better information and illustrations.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

The manuals use as a referenced standard has led to improvement with the application of roof tile in Florida. The latest edition is has been updated with better information and illustrations.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This change modification does not discriminate any materials, products, methods or systems of construction.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code.

1507.3.2 Deck slope.

Clay and concrete roof tile shall be installed in accordance with the recommendations of FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, ~~Fifth~~ Sixth Edition where the V_{asd} as determined in accordance with Section 1609.3.1 or the recommendations of RAS 118, 119 or 120.

1507.3.3 Underlayment.

Unless otherwise noted, underlayment shall be applied according to the underlayment manufacturer's installation instructions or the recommendations of the FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual, ~~Fifth~~ Sixth Edition where the basic wind speed, V_{asd}, is determined in accordance with Section 1609.3.1 or the recommendations of RAS 118, 119 or 120.

1507.3.3.1 Slope and underlayment requirements.

Refer to FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, ~~Fifth~~ Sixth Edition (2012) where the basic wind speed V_{asd} is determined in accordance with Section 1609.3.1 for underlayment and slope requirements for specific roof tile systems or the recommendations of RAS 111, 118, 119 or 120.

1507.3.7 Attachment.

Clay and concrete roof tiles shall be fastened in accordance with Section 1609 or in accordance with *FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual,* ~~Fifth~~ Sixth Edition where the basic wind speed, V_{asd}, is determined in accordance with Section 1609.3.1.

1507.3.8 Application.

Tile shall be applied according to the manufacturer's installation instructions or recommendations of the *FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual,* ~~Fifth~~ Sixth Edition where the basic wind speed, V_{asd}, is determined in accordance with Section 1609.3.1 or the recommendation of RAS 118, 119 or 120.

1507.3.9 Flashing.

At the juncture of the roof vertical surfaces, flashing and counterflashing shall be provided in accordance with the manufacturer's installation instructions or the recommendations of the *FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual,* ~~Fifth~~ Sixth Edition where the basic wind speed, V_{asd}, is determined in accordance with Section 1609.3.1or the recommendation of RAS 118, 119 or 120.

R7380

Date Submitted	11/21/2018	**Section**	1507.9.6	**Proponent**	Joseph Crum
Chapter	15	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

S40-16
1807.1.4, 2303.1.9

Summary of Modification

Revise out dated code language

Rationale

Reason: The existing text was outdated, requiring clarification and updates to current AWPA section numbering.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Clarifies code due to updated language

Impact to building and property owners relative to cost of compliance with code

Will not increase the cost of construction
These changes merely clarify and update the existing text without any impact on the required specifications for materials used.

Impact to industry relative to the cost of compliance with code

Will not increase the cost of construction
These changes merely clarify and update the existing text without any impact on the required specifications for materials used.

Impact to small business relative to the cost of compliance with code

Will not increase the cost of construction
These changes merely clarify and update the existing text without any impact on the required specifications for materials used.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Updates the code with proper language

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Revises outdated language for clarification only.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Revises outdated language for clarification only.

Does not degrade the effectiveness of the code

Revises outdated language for clarification only.

2017 Florida Building Code Building

Section: 1507.9.6, 1807.1.4, 2303.1.9

Revise as follows:

TABLE 1507.9.6

WOOD SHAKE MATERIAL REQUIREMENTS

MATERIAL	MINIMUM GRADES	APPLICABLE GRADING RULES
Wood shakes of naturally durable wood	1	CSSB
Taper sawn shakes of naturally durable wood	1 or 2	CSSB
Preservative-treated shakes and shingles of naturally durable wood	1	CSSB
Fire-retardant-treated shakes and shingles of naturally durable wood	1	CSSB
Preservative-treated taper sawn shakes of Southern pine treated in accordance with AWPA U1 (Commodity Specification A, Special Requirement 4.6 ~~Use Category 3B and Section 5.6~~)	1 or 2	TFS

CSSB = Cedar Shake and Shingle Bureau

TFS = Forest Products Laboratory of the Texas Forest Services.

R7427

Date Submitted	11/25/2018	**Section**	1510.7.1	**Proponent**	T Stafford
Chapter	15	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Correlates the wind loading requirements in the code for rooftop PV with ASCE 7-16.

Rationale

This proposal correlates the wind loading requirements on roof mounted photovoltaic systems with the newly referenced ASCE 7-16. During Phase I of the 2020 update of the FBC, the Commission voted to update ASCE 7 from the 2010 edition to the 2016 edition (ASCE 7-16). ASCE 7-16 contains two new methods for wind loads on photovoltaic systems. One method is based on the component and cladding loads applicable to the roof. The other method is based on entirely different criteria and research. Therefore, for clarification, this proposal simply references ASCE 7 for wind loads on rooftop PV systems.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact to local entities relative to enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

No impact to building and property owners relative to the cost of compliance with the code. This code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Impact to industry relative to the cost of compliance with code

No impact to building and property owners relative to the cost of compliance with the code. This code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Impact to small business relative to the cost of compliance with code

No impact to small business relative to the cost of compliance with the code. This code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This code change correlates the code with the previous action by the Commission to update reference standard ASCE 7 to the 2016 edition (ASCE 7-16).

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This code change improves the code by providing correlation with the previous action by the Commission to update reference standard ASCE 7 to the 2016 edition (ASCE 7-16).

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This code change dos not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

This code change does not degrade the effectiveness of the code.

1510.7.1 Wind resistance. Rooftop-mounted *photovoltaic* systems shall be designed for wind loads in accordance with ASCE 7 ~~for component and cladding in accordance with Chapter 16 using an effective wind area based on the dimensions of a single unit frame~~.

R7437

Date Submitted	11/26/2018	**Section**	1515.2	**Proponent**	Gaspar Rodriguez
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

7437; 7438; 7439. These three mods need to be considered concurrently.

Summary of Modification

Will allow for standing seam metal roof systems to be install to a minimum 1:12 slope.

Rationale

Many property owners have requested metal panel roof on low-slope roofs. This modification will allow the option for the property owner to install metal roof panels to a minimum 1:12 slope roofs.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None, it will require the same amount of enforcement.

Impact to building and property owners relative to cost of compliance with code

This modification is an option (not a requirement) that many property owners have requested in the HVHZ.

Impact to industry relative to the cost of compliance with code

This modification is an option (not a requirement) that many property owners have requested in the HVHZ.

Impact to small business relative to the cost of compliance with code

This modification is an option (not a requirement) that many property owners have requested in the HVHZ.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The general public is asking for this option. This modification is an option (not a requirement) that many property owners have requested in the HVHZ.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Allows for greater options for low slope roofing, while maintaining product standards.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade the code, allows optional systems for certain low slope roofs.

TABLE 1515.2
MINIMUM SLOPE

SYSTEM TYPE	SLOPE
Fibrous Cement Shingles	4:12
Metal Panels	
Architectural	2:12[1]
Metal Shingles	4:12
Mortar or Adhesive Tile	2:12
Mechanically Fastened Tile	4:12
Asphalt Shingles	
Laminated	2:12
3-Tab	2:12
Quarry Slate	3-1/2:12
Wood	
Shakes	4:12
Shingles	3-1/2:12

1 Standing seam metal roof panel systems that pass the requirements of the Static Water Leakage Test criteria of FM 4471 Appendix G or ASTM E2140-01, shall be permitted to be installed to a minimum slope of 1:12.

R7438

Date Submitted	11/26/2018	**Section**	1523.6.5.2.4.1	**Proponent**	Gaspar Rodriguez
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

7437; 7438; 7439. These three mods need to be considered concurrently.

Summary of Modification

Will allow for standing seam metal roof systems to be install to a minimum 1:12 slope.

Rationale

Many property owners have requested metal panel roof on low-slope roofs. This modification will allow the option for the property owner to install metal roof panels to a minimum 1:12 slope roofs.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None, it will require the same amount of enforcement.

Impact to building and property owners relative to cost of compliance with code

This modification is an option (not a requirement) that many property owners have requested in the HVHZ.

Impact to industry relative to the cost of compliance with code

This modification is an option (not a requirement) that many property owners have requested in the HVHZ.

Impact to small business relative to the cost of compliance with code

It is an option that many manufacturers will use to expand their product line.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The general public is asking for this option. This modification is an option (not a requirement) that many property owners have requested in the HVHZ.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Allows for greater options for low slope roofing, while maintaining product standards.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade the code, allows optional systems for certain low slope roofs.

1523.6.5.2.4.1 All metal roofing shall be tested in compliance with requirements set forth in TAS 110 and TAS 125, and shall be tested for wind-driven rain infiltration resistance in compliance with TAS 100.

1523.6.5.2.4.1.1 Standing seam metal roof panel systems that pass the requirements of the Static Water Leakage Test criteria of FM 4471 Appendix G or ASTM E2140-01, shall be permitted to be installed to a minimum slope of 1:12.

R7580

Date Submitted	11/29/2018	**Section**	1507.1.1	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Residential 905.1.1

Summary of Modification

This modification adds an exception to underlayment attachment that provides for an existing self-adhering membrane to act as a secondary water barrier similar to the 4" wide strip in the current exception.

Rationale

Self-adhering membranes applied to the entire deck are being encountered during roof replacement more often. They usually cannot be removed. A new self-adhering membrane cannot be adhered to an existing membrane. This change provides a clear method to properly incorporate the membrane into the new roof system. It uses a similar approach to one that already is in code. It recognizes that the existing membrane provides similar protection to a 4” strip over the joints in the roof decking.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification will not impact enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

This modification will reduce the cost of roof replacement when a self-adhering membrane has been previously applied to the entire roof deck.

Impact to industry relative to the cost of compliance with code

This modification will not add to cost of compliance.

Impact to small business relative to the cost of compliance with code

This modification will not add to cost of compliance.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Self-adhering membranes applied to the entire deck are being encountered during roof replacement more often. They cannot be removed. This provides a clear method to properly incorporate the membrane into the new roof system.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Self-adhering membranes applied to the entire deck are being encountered during roof replacement more often. They cannot be removed. This provides a clear method to properly incorporate the membrane into the new roof system.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This modification does not discriminate against materials, methods, or systems of construction.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code.

TABLE 1507.1.1

UNDERLAYMENT TABLE

Underlayment Attachment

3. Roof slopes from two units vertical in 12 units horizontal (17-percent slope), and greater. The entire roof deck shall be covered with an approved self-adhering polymer modified bitumen underlayment complying with ASTM D1970 installed in accordance with both the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed.

Exceptions:

1. A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table 1507.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.
2. An existing self-adhering modified bitumen underlayment complying with Underlayment Attachment 3. above has been previously installed over the roof decking and where it is required, re-nailing off the roof sheathing in accordance with 706.7.1 of the Florida Building Code, Existing Building can be confirmed or verified. An approved underlayment in accordance with Table 1507.1.1 for the applicable roof covering shall be applied over the entire roof over the existing self-adhered modified bitumen underlayment.

R7703

Date Submitted	12/10/2018	**Section**	1505	**Proponent**	Jon Roberts
Chapter	15	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Chapter 35

Summary of Modification

The testing for photovoltaic panel systems are covered in both UL 1703 and UL 2703. This proposal adds two new UL standards to this section, UL 1703 and 2703, which are ANSI consensus standards. These standard provide the test method for testing panels and mounting systems.

Rationale

UL 1703 includes partial fire testing of the photovoltaic panel, which is one of the components of the photovoltaic panel system. UL 2703 uses the results of that component testing, and includes further evaluation and testing of the photovoltaic panel system (i.e. the photovoltaic panel and the rack support system) to establish the Fire Classification for the system. UL 1703 is referenced within UL 2703.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Fire classification of these systems are determined in accordance with UL 2703 currently so there is no significant impact on enforcement.

Impact to building and property owners relative to cost of compliance with code

Fire classification of these systems are determined in accordance with UL 2703 currently so there is no cost impact for compliance.

Impact to industry relative to the cost of compliance with code

Fire classification of these systems are determined in accordance with UL 2703 currently so there is no cost impact for compliance.

Impact to small business relative to the cost of compliance with code

Fire classification of these systems are determined in accordance with UL 2703 currently so there is no cost impact for compliance.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Fire classification of these systems are determined in accordance with UL 2703 currently and adding this to the code will ensure a greater level of safety.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Since fire classification of these systems are determined in accordance with UL 2703 currently adding this to the code will improve the code.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This uses current practices and does not discriminate against other methods.

Does not degrade the effectiveness of the code

This improves the code it does not degrade it.

1505.9 ~~Photovoltaic panels and modules.~~ Rooftop mounted photovoltaic panel systems.

Rooftopmounted *photovoltaic panel systems* shall be tested, *listed* and identified with a fire classification in accordance with UL 1703 or UL2073. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.

Chapter 35

Add new standard(s) as follows:

UL 2703-14, Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with FlatPlate Photovoltaic Modules and Panel

R7872

Date Submitted	12/11/2018	**Section**	1505	**Proponent**	Jon Roberts
Chapter	15	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Adds guidance by referencing table 501 for building integrated photovoltaic products to ensure that they have the proper fire classification.

Rationale

This assists the code official by providing guidance related to the fire classification of these types of products.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

These products are already in use. This will assist the code official and make enforcement easier.

Impact to building and property owners relative to cost of compliance with code

There is no cost impact related to this as these products are already in use today.

Impact to industry relative to the cost of compliance with code

There is no cost impact related to this as these products are already in use today.

Impact to small business relative to the cost of compliance with code

There is no cost impact related to this as these products are already in use today.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This ensures the proper fire classification of these integrated products and that can increase safety.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This improves the code by putting this information where it can readily be accessed by the code official.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This does not discriminate against other products.

Does not degrade the effectiveness of the code

This does not degrade the code.

1505.8 Building-integrated photovoltaic products.

Building-integrated photovoltaic products **installed as the roof covering shall be tested, *listed* and *labeled* for fire classification in accordance with Section 1505.1.**

R8061

Date Submitted	12/13/2018	**Section**	1507.1.1	**Proponent**	Greg Keeler
Chapter	15	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Revision of requirements related to synthetic underlayment.

Rationale

ASTM D4533 is the most appropriate tear testing protocol for this category of products, and specifying two different protocols with the same minimum requirement doesn't make sense as the two protocols yield vastly different results. Additionally, testing indicates that synthetic underlayments are more resistant to fastener pull-through than D226 Type II felt. Thus, they should not be held to a more stringent requirement.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None

Impact to building and property owners relative to cost of compliance with code

None

Impact to industry relative to the cost of compliance with code

None

Impact to small business relative to the cost of compliance with code

None

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Yes

Does not degrade the effectiveness of the code

Yes

1507.1.1 Underlayment. Unless otherwise noted underlayment for asphalt shingles, metal roof shingles, mineral surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes and metal roof panels shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D226, D1970, D4869 and D6757 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated in Table 1507.1.1. Underlayment shall be applied and attached in accordance with Table 1507.1.1.

Exception: A ~~reinforced~~ synthetic underlayment that is approved as an alternate to underlayment complying with ASTM D226 Type II and having a minimum tear strength in accordance with ASTM ~~D1970 or~~ ASTM D4533 of 20 pounds shall be permitted. This underlayment shall be installed and attached in accordance with the underlayment attachment methods of Table R905.1.1 for the applicable roof covering and slope and the underlayment manufacturer's installation instructions~~, except metal cap nails shall be required where the ultimate design wind speed, V*ult*, equals or exceeds 150 mph~~.

R8273

Date Submitted	12/14/2018	**Section**	1510.2.5	**Proponent**	Paul Coats
Chapter	15	**Affects HVHZ**	No	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

7522, 7553, 7826, 8265, 8267, 8269, 8270, 8271

Summary of Modification

This is a correlation change with other modifications that reorganize the heavy timber provisions. It does not change requirements but improves terminology to distinguish between the use of the terms "heavy timber" and "Type IV construction."

Rationale

This modification was approved by the ICC committee and membership and appears in the 2018 edition of the International Building Code. This code change is related a reorganization of Type IV provisions in Section 602.4 and the heavy timber provisions in section 2304.11. The goal of this change (and similar changes to heavy timber terminology in other chapters) is to use the term "Type IV" or "Section 602.4" when the provisions are referring to the type of construction for the building, and "heavy timber complying with Section 2304.11" when the provisions are referring to a heavy timber element located in a building of any construction type. This and related changes are not intended to make technical changes to the code but rather to make the current requirements easier to apply.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Will make code application easier.

Impact to building and property owners relative to cost of compliance with code

No cost-related impact.

Impact to industry relative to the cost of compliance with code

No cost-related impact.

Impact to small business relative to the cost of compliance with code

No cost-related impact.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Will make code application easier.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Improves the code by making its application easier.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

1. [BG] **1510.2.5 Type of construction.**

Penthouses shall be constructed with walls, floors and roofs as required for the type of construction of the building on which such penthouses are built.

Exceptions:

1. 1.On buildings of Type I construction, the exterior walls and roofs of penthouses with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating. The exterior walls and roofs of penthouses with a fire separation distance of 20 feet (6096 mm) or greater shall not be required to have a fire-resistance rating.
2. 2.On buildings of Type I construction two stories or less in height above grade plane or of Type II construction, the exterior walls and roofs of penthouses with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating or a lesser fire-resistance rating as required by Table 602 and be constructed of fire-retardant-treated wood. The exterior walls and roofs of penthouses with a *fire separation distance* of 20 feet (6096 mm) or greater shall be permitted to be constructed of fire-retardant-treated wood and shall not be required to have a fire-resistance rating. Interior framing and walls shall be permitted to be constructed of fire-retardant-treated wood.
3. 3.On buildings of Type III, IV or V construction, the exterior walls of penthouses with a fire separation distance greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating or a lesser fire-resistance rating as required by Table 602. On buildings of Type III, IV or VA construction, the exterior walls of penthouses with a fire separation distance of 20 feet (6096 mm) or greater shall be permitted to be of ~~Type IV~~ heavy timber construction complying with Sections 602.4 and 2304.11 or noncombustible construction or fire-retardant-treated wood and shall not be required to have a fire-resistance rating.

[BG] 1510.3Tanks.

Tanks having a capacity of more than 500 gallons (1893 L) located on the roof deck of a building shall be supported on masonry, reinforced concrete, steel or ~~Type IV~~ heavy timber construction complying with Section 2304.11 provided that, where such supports are located in the building above the lowest *story*, the support shall be fire-resistance rated as required for Type IA construction.

G 180-15

406.7.2, TABLE 601, 603.1, 705.2.3, 803.3, 803.13.3, 1406.3, [BG] 1510.2.5, [BG] 1510.3, 3105.3, D102.2.8, 803.1

Proponent: Dennis Richardson, American Wood Council, representing American Wood Council (drichardson@awc.org)

2015 International Building Code

Revise as follows:

406.7.2 Canopies. Canopies under which fuels are dispensed shall have a clear, unobstructed height of not less than 13 feet 6 inches (4115 mm) to the lowest projecting element in the vehicle drive-through area. Canopies and their supports over pumps shall be of noncombustible materials, *fire-retardant-treated wood* complying with Chapter 23, ~~wood of Type IV sizes~~heavy timber complying with Section 2304.11 or of construction providing 1-hour *fire resistance*. Combustible materials used in or on a *canopy* shall comply with one of the following:

1. Shielded from the pumps by a noncombustible element of the *canopy*, or ~~wood of Type IV sizes~~heavy timber complying with Section 2304.11;
2. Plastics covered by aluminum facing having a thickness of not less than 0.010 inch (0.30 mm) or corrosion-resistant steel having a base metal thickness of not less than 0.016 inch (0.41 mm). The plastic shall have a *flame spread index* of 25 or less and a smokedeveloped index of 450 or less when tested in the form intended for use in accordance with ASTM E 84 or UL 723 and a self-ignition temperature of 650°F (343°C) or greater when tested in accordance with ASTM D 1929; or
3. Panels constructed of light-transmitting plastic materials shall be permitted to be installed in *canopies* erected over motor vehicle fuel-dispensing station fuel dispensers, provided the panels are located not less than 10 feet (3048 mm) from any building on the same *lot* and face *yards* or streets not less than 40 feet (12 192 mm) in width on the other sides. The aggregate areas of plastics shall be not greater than 1,000 square feet (93 m^2). The maximum area of any individual panel shall be not greater than 100 square feet (9.3 m^2).

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[f] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[e, f] Interior	3 3[a]	2 2[a]	1 1	0 0	2 1	2 0	2 1/HT	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[d]	0	0	0	0	0	0	See Section ~~602.4.6~~2304.11.2	0	0
Floor construction and associated secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and associated secondary members (see Section 202)	1 1/2[a]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

c. In all occupancies, heavy timber complying with Section 2304.11 shall be allowed where a 1-hour or less fire-resistance rating is required.

d. Not less than the fire-resistance rating required by other sections of this code.

e. Not less than the fire-resistance rating based on fire separation distance (see Table 602).

f. Not less than the fire-resistance rating as referenced in Section 704.10.

603.1 Allowable materials. Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. *Fire-retardant-treated wood* shall be permitted in:
   1.1. Nonbearing partitions where the required *fire-resistance rating* is 2 hours or less.
   1.2. Nonbearing *exterior walls* where fire-resistance-rated construction is not required.
   1.3. Roof construction, including girders, trusses, framing and decking.
   Exception: In buildings of Type IA construction exceeding two *stories abovegrade plane*, *fire-retardant-treated wood* is not permitted in roof construction where the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).
2. Thermal and acoustical insulation, other than foam plastics, having a *flame spread index* of not more than 25.
   Exceptions:
   1. Insulation placed between two layers of noncombustible materials without an intervening airspace shall be allowed to have a *flame spread index* of not more than 100.
   2. Insulation installed between a finished floor and solid decking without intervening airspace shall be allowed to have a *flame spread index* of not more than 200.
3. Foam plastics in accordance with Chapter 26.
4. Roof coverings that have an A, B or C classification.
5. *Interior floor finish* and floor covering materials installed in accordance with Section 804.
6. Millwork such as doors, door frames, window sashes and frames.
7. *Interior wall and ceiling finishes* installed in accordance with Sections 801 and 803.
8. *Trim* installed in accordance with Section 806.
9. Where not installed greater than 15 feet (4572 mm) above grade, show windows, nailing or furring strips and wooden bulkheads below show windows, including their frames, aprons and show cases.
10. Finish flooring installed in accordance with Section 805.
11. Partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a *corridor* serving an *occupant load* of 30 or more shall be permitted to be constructed of *fire-retardant-treated wood*, 1-hour fire-resistance-rated construction or of wood panels or similar light construction up to 6 feet (1829 mm) in height.
12. Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.
13. Combustible *exterior wallcoverings*, balconies and similar projections and bay or oriel windows in accordance with Chapter 14.
14. Blocking such as for handrails, millwork, cabinets and window and door frames.
15. Light-transmitting plastics as permitted by Chapter 26.
16. Mastics and caulking materials applied to provide flexible seals between components of *exterior wall* construction.
17. Exterior plastic veneer installed in accordance with Section 2605.2.
18. Nailing or furring strips as permitted by Section 803.11.
19. Heavy timber as permitted by Note c to Table 601 and Sections ~~602.4.7~~602.4.3 and 1406.3.
20. Aggregates, component materials and admixtures as permitted by Section 703.2.2.
21. Sprayed fire-resistant materials and intumescent and mastic fire-resistant coatings, determined on the basis of *fire resistance* tests in accordance with Section 703.2 and installed in accordance with Sections 1705.14 and 1705.15, respectively.
22. Materials used to protect penetrations in fire-resistance-rated assemblies in accordance with Section 714.
23. Materials used to protect joints in fire-resistance-rated assemblies in accordance with Section 715.
24. Materials allowed in the concealed spaces of buildings of Types I and II construction in accordance with Section 718.5.
25. Materials exposed within plenums complying with Section 602 of the *International Mechanical Code*.
26. Wall construction of freezers and coolers of less than 1,000 square feet (92.9 m^2), in size, lined on both sides with noncombustible materials and the building is protected throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1.

705.2.3 Combustible projections. Combustible projections extending to within 5 feet (1524 mm) of the line used to determine the *fire separation distance* shall be of not less than 1-hour fire-resistance-rated construction, ~~Type IV~~heavy timber construction complying with Section 2304.11, fire-retardant-treated wood or as required by Section 1406.3.

Exception: Type VB construction shall be allowed for combustible projections in Group R-3 and U occupancies with a fire separation distance greater than or equal to 5 feet (1524 mm).

803.3 Heavy timber exemption. Exposed portions of building elements complying with the requirements for buildings of ~~Type IV~~heavy timber construction in Section 602.4 or Section 2304.11 shall not be subject to *interior finish* requirements.

803.13.3 Heavy timber construction. Wall and ceiling finishes of all classes as permitted in this chapter that are installed directly against the wood decking or planking of ~~Type IV~~heavy timber construction in Sections 602.4.2 or 2304.11 or to wood furring strips applied directly to the wood decking or planking shall be fireblocked as specified in Section 803.13.1.1.

1406.3 Balconies and similar projections. Balconies and similar projections of combustible construction other than fire-retardant-treated wood shall be fire-resistance rated where required by Table 601 for floor construction or shall be of ~~Type IV~~heavy timber construction in accordance with Section ~~602.4~~2304.11. The aggregate length of the projections shall not exceed 50 percent of the building's perimeter on each floor.

Exceptions:
1. On buildings of Type I and II construction, three stories or less above *grade plane*, *fire-retardant-treated wood* shall be permitted for balconies, porches, decks and exterior stairways not used as required exits.
2. Untreated wood is permitted for pickets and rails or similar guardrail devices that are limited to 42 inches (1067 mm) in height.
3. Balconies and similar projections on buildings of Type III, IV and V construction shall be permitted to be of Type V construction, and shall not be required to have a *fire-resistance rating* where sprinkler protection is extended to these areas.
4. Where sprinkler protection is extended to the balcony areas, the aggregate length of the balcony on each floor shall not be limited.

[BG] 1510.2.5 Type of construction. Penthouses shall be constructed with walls, floors and roofs as required for the type of construction of the building on which such penthouses are built.

Exceptions:

1. On buildings of Type I construction, the exterior walls and roofs of penthouses with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating. The exterior walls and roofs of penthouses with a fire separation distance of 20 feet (6096 mm) or greater shall not be required to have a fire-resistance rating.
2. On buildings of Type I construction two stories or less in height above grade plane or of Type II construction, the exterior walls and roofs of penthouses with a *fire separation distance* greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating or a lesser fire-resistance rating as required by Table 602 and be constructed of fire-retardant-treated wood. The exterior walls and roofs of penthouses with a *fire separation distance* of 20 feet (6096 mm) or greater shall be permitted to be constructed of fire-retardant-treated wood and shall not be required to have a fire-resistance rating. Interior framing and walls shall be permitted to be constructed of fire-retardant-treated wood.
3. On buildings of Type III, IV or V construction, the exterior walls of penthouses with a fire separation distance greater than 5 feet (1524 mm) and less than 20 feet (6096 mm) shall be permitted to have not less than a 1-hour fire-resistance rating or a lesser fire-resistance rating as required by Table 602. On buildings of Type III, IV or VA construction, the exterior walls of penthouses with a fire separation distance of 20 feet (6096 mm) or greater shall be permitted to be of ~~Type IV~~heavy timber construction complying with Sections 602.4 and 2304.11 or noncombustible construction or fire-retardant-treated wood and shall not be required to have a fire-resistance rating.

[BG] 1510.3 Tanks. Tanks having a capacity of more than 500 gallons (1893 L) located on the roof deck of a building shall be supported on masonry, reinforced concrete, steel or ~~Type IV~~heavy timber construction complying with Section 2304.11 provided that, where such supports are located in the building above the lowest *story*, the support shall be fire-resistance rated as required for Type IA construction.

3105.3 Design and construction. *Awnings* and *canopies* shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Chapter 16 with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration. *Awnings* shall have frames of noncombustible material, *fire-retardant-treated wood*, ~~wood of Type IV size~~heavy timber complying with Section 2304.11, or 1-hour construction with combustible or noncombustible covers and shall be either fixed, retractable, folding or collapsible.

D102.2.8 Permanent canopies. Permanent canopies are permitted to extend over adjacent open spaces provided all of the following are met:

1. The canopy and its supports shall be of noncombustible material, *fire-retardant-treated wood*, ~~Type IV construction~~heavy timber complying with Section 2304.11 or of 1-hour fire-resistance-rated construction.
   Exception: Any textile covering for the canopy shall be flame resistant as determined by tests conducted in accordance with NFPA 701 after both accelerated water leaching and accelerated weathering.
2. Any canopy covering, other than textiles, shall have a *flame spread index* not greater than 25 when tested in accordance with ASTM E 84 or UL 723 in the form intended for use.
3. The canopy shall have at least one long side open.
4. The maximum horizontal width of the canopy shall not exceed 15 feet (4572 mm).
5. The *fire resistance* of *exterior walls* shall not be reduced.

2015 International Fire Code

803.1 General. The provisions of this section shall limit the allowable fire performance and smoke development of interior wall and ceiling finishes and interior wall and ceiling trim in existing buildings based on location and occupancy classification. Interior wall and ceiling finishes shall be classified in accordance with Section 803 of the *International Building Code*. Such materials shall be grouped in accordance with ASTM E 84, as indicated in Section 803.1.1, or in accordance with NFPA 286, as indicated in Section 803.1.2.

Exceptions:

1. Materials having a thickness less than 0.036 inch (0.9 mm) applied directly to the surface of walls and ceilings.
2. Exposed portions of structural members complying with the requirements of ~~buildings of Type IV construction~~heavy timber in accordance with the *International Building Code* shall not be subject to interior finish requirements.

Reason: This code change is part 2 of a proposal to reorganize Type IV Section 602.4 and heavy timber section 2304.11. This part of the change includes references found throughout the IBC to either: Type IV construciton, Section 602.4, Section 2304.11, or "heavy timber". This change should follow directly after the 602.4 change and the reason for the change is included in that reason statement.
The references found in this part are generally changed to Type IV or Section 602.4 when the section of the code is referring to the type of construction associated with a structure. The references are generally changed to "heavy timber complying with Section 2304.11" when the code is referring to a heavy timber element found in a building of another type of construction. This change is a reorganization of two sections and is not intended to change the intent of the code.

Cost Impact: Will not increase the cost of construction
Since this is a reorganization of existing requirements, not the creation of new requirements, this code change will not increase the cost of construction.

G 180-15 : 406.7.2-RICHARDSON5276

G 180-15

Committee Action: Approved as Submitted

Committee Reason: This is a companion piece to G179-15. G179 reorganizes the heavy timber provisions. This change provides corrections to the various new section numbers resulting from G179-15.

R8291

Date Submitted	12/15/2018	**Section**	1504	**Proponent**	Chadwick Collins
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Updating to match currently applicable standards and references

Rationale

Updates language to reflect currently applicable standards and reflect referenced sections in revised referenced standards.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Update to current standards

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Requires compliance with most current applicable standards

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Consensus document standards remain in the text for reference.

Does not degrade the effectiveness of the code

Requires compliance with the currently applicable standards.

See attached file.

1504.7 Impact resistance. Roof coverings installed on low slope roofs (roof slope < 2:12) in accordance with Section 1507 shall resist impact damage based on the results of tests conducted in accordance with ASTM D3746, ASTM D4272, ~~CGSB 37-GP-52M~~ or the "Resistance to Foot Traffic Test" in Section ~~5.5~~ 4.6 of FM 4470. All structural metal roofing systems having a thickness equal to or greater than 22 gage and all nonstructural metal roof systems having a thickness equal to or greater than 26 gage shall be exempt from the tests listed above.

R8292

Date Submitted	12/15/2018	**Section**	1505	**Proponent**	Chadwick Collins
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Address inconsistency between FBC and FBC-R fire requirements.

Rationale

It stands to reason that the fire classification requirements in the FBC should not be less stringent than those in the FBC-R. All buildings permitted under the FBC-R require a Class A, B, or C classification. The above table, if left as written, would permit unclassified roof coverings on buildings of Use Group R-3, which can include two-family dwellings with up to 16 occupants.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Addresses possible risk to occupants as currently written.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Improves the code in regard to the systems called for in relation to possible occupancy.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Proposed change addresses a level of performance in regard to welfare of occupants and not any specific product or system.

Does not degrade the effectiveness of the code

Strengthens the intent of the code.

See attached file.

TABLE 1505.1[a, b]
MINIMUM ROOF COVERING CLASSIFICATION
FOR TYPES OF CONSTRUCTION

IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
B	B	B	C[c]	B	C[c]	B	B	C[c]

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m2.

a. Unless otherwise required in accordance with the International Wildland- Urban Interface Code or due to the location of the building within a fire district in accordance with Appendix D.

b. Nonclassified roof coverings shall be permitted on buildings of ~~Group R-3 and~~ Group U occupancies, where there is a minimum fire-separation distance of 6 feet measured from the leading edge of the roof.

c. Buildings that are not more than two stories above grade plane and having not more than 6,000 square feet of projected roof area and where there is a minimum 10-foot fire-separation distance from the leading edge of the roof to a lot line on all sides of the building, except for street fronts or public ways, shall be permitted to have roofs of No. 1 cedar or redwood
shakes and No. 1 shingles constructed in accordance with Section 1505.7.

R8293

Date Submitted	12/15/2018	**Section**	1507	**Proponent**	Chadwick Collins
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Updating language of section to reflect Chapter 2 definition

Rationale

Requiring labeling per the definition in Chapter 2 will provide a more stringent validation that the asphalt shingles meet the required wind resistance classification.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Aligned labeling with intent of Chapter 2 to communicate the ability of the product to perform

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Brings code in more agreement with Chapter 2 definition

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

All asphalt shingles would have to meet this proposed modification.

Does not degrade the effectiveness of the code

Strengthens the code via agreement between proposed language and Chapter 2 definition

See attached file.

1507.2.7.1 Wind resistance of asphalt shingles. Asphalt shingles shall be classified in accordance with ASTM D3161, ASTM D7158 or TAS 107. Shingles classified as ASTM D3161 Class D or ASTM D7158 Class G are acceptable for use where V_{asd} is equal to or
less than 100 mph. Shingles classified as ASTM D3161 Class F, ASTM D7158 Class H or TAS 107 are acceptable for use for all wind speeds. Asphalt shingle wrappers shall be *labeled* to indicate compliance with one of the required classifications, as shown in Table 1507.2.7.1.

R8294

Date Submitted	12/15/2018	**Section**	1507	**Proponent**	Chadwick Collins
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Clarifies practice and prescriptive requirements

Rationale

This proposal clarifies the long-standing practice and prescriptive requirements from the IRC that drip edge on gables be installed over the underlayment.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Addresses a condition that if not installed as proposed could lead to an inability of the roofing system to perform as expected in regard to the public

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Provides clarity of a long-standing practice of construction

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Applies equally to currently referenced components in the section

Does not degrade the effectiveness of the code

Clarifies and strengthens the intent of the code in providing guidance for expected installation minimums.

See attached file.

1507.2.9.3 Drip edge. Provide drip edge at eaves and gables of shingle roofs. Overlap to be a minimum of 3 inches (76 mm). Eave drip edges shall extend 1/2 inch (13 mm) below sheathing and extend back on the roof a minimum of 2 inches (51 mm). Drip edge at gables shall be installed over the underlayment. Drip edge at eaves shall be permitted to be installed either over or under the underlayment. If installed over the underlayment, there shall be a minimum 4 inches (51 mm) width of roof cement installed over the drip edge flange. Drip edge shall be mechanically fastened a maximum of 12 inches (305 mm) on center. Where the V_{asd}, as determined in accordance with Section 1609.3.1, is 110 mph (177 km/h) or greater or the mean roof height exceeds 33 feet (10 058 mm), drip edges shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

R8397

Date Submitted	12/15/2018	**Section**	1503.1	**Proponent**	Michael Fischer
Chapter	15	**Affects HVHZ**	No	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Editorial Change to general requirements

Rationale

This editorial proposal corrects scoping language.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

0

Impact to building and property owners relative to cost of compliance with code

0

Impact to industry relative to the cost of compliance with code

0

Impact to small business relative to the cost of compliance with code

0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

yes

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

yes

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Yes

Does not degrade the effectiveness of the code

Yes

1503.1 General.

Roof decks shall be covered with approved roof coverings secured to the building or structure in accordance with the provisions of this chapter. Roof coverings shall be designed in accordance with this code, and installed in accordance with this code and the ~~approved~~ manufacturer's approved instructions such that the roof covering shall serve to protect the building or structure.

FBC ARMA Code Proposals

1503.1 General.
Roof decks shall be covered with approved roof coverings secured to the building or structure in accordance with the provisions of this chapter. Roof coverings shall be designed in accordance with this code, and installed in accordance with this code and the ~~approved~~ manufacturer's approved instructions such that the roof covering shall serve to protect the building or structure.

Reason: The proposal corrects design language and manufacturer's instructions reference. It is editorial.

R8399

Date Submitted	12/15/2018	**Section**	1504.7	**Proponent**	Michael Fischer
Chapter	15	**Affects HVHZ**	No	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Also proposed for FBC-R

Summary of Modification

Removes withdrawn referenced standards.

Rationale

Removes withdrawn standards.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

0

Impact to building and property owners relative to cost of compliance with code

0

Impact to industry relative to the cost of compliance with code

0

Impact to small business relative to the cost of compliance with code

0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Yes

Does not degrade the effectiveness of the code

Yes

1504.7 Impact resistance.
Roof coverings installed on low-slope roofs (roof slope < 2:12) in accordance with Section 1507 shall resist impact damage based on the results of tests conducted in accordance with ASTM D3746, ASTM D4272, ~~CGSB 37-GP-52M~~ or the "Resistance to Foot Traffic Test" in Section 5.5 of FM 4470. All structural metal roofing systems having a thickness equal to or greater than 22 gage and all nonstructural metal roof systems having a thickness equal to or greater than 26 gage shall be exempt from the tests listed above.

1507.11.2 Material standards.
Modified bitumen roof coverings shall comply with ~~CGSB 37-GP-56M,~~ ASTM D6162, ASTM D6163, ASTM D6164, ASTM D6222, ASTM D6223, ASTM D6298 or ASTM D6509.

1507.12.2 Material standards.
Thermoset single-ply roof coverings shall comply with ASTM D4637, or ASTM D5019 ~~or CGSB 37-GP-52M~~.

1507.13.2 Material standards.
Thermoplastic single-ply roof coverings shall comply with ASTM D4434, ASTM D6754, or ASTM D6878 ~~or CGSB CAN/CGSB 37-54~~.

FBC ARMA Code Proposals

CGSB Standards

1504.7 Impact resistance.
Roof coverings installed on low-slope roofs (roof slope < 2:12) in accordance with Section 1507 shall resist impact damage based on the results of tests conducted in accordance with ASTM D3746, ASTM D4272, ~~CGSB 37-GP-52M~~ or the "Resistance to Foot Traffic Test" in Section 5.5 of FM 4470. All structural metal roofing systems having a thickness equal to or greater than 22 gage and all nonstructural metal roof systems having a thickness equal to or greater than 26 gage shall be exempt from the tests listed above.

1507.11.2 Material standards.
Modified bitumen roof coverings shall comply with ~~CGSB 37-GP-56M,~~ ASTM D6162, ASTM D6163, ASTM D6164, ASTM D6222, ASTM D6223, ASTM D6298 or ASTM D6509.

1507.12.2 Material standards.
Thermoset single-ply roof coverings shall comply with ASTM D4637, or ASTM D5019 ~~or CGSB 37-GP-52M~~.

1507.13.2 Material standards.
Thermoplastic single-ply roof coverings shall comply with ASTM D4434, ASTM D6754, or ASTM D6878 ~~or CGSB CAN/CGSB 37-54~~.

Reason: Proposal removes withdrawn Canadian Standards

R7366

Date Submitted	11/20/2018	**Section**	35	**Proponent**	Michael Silvers (FRSA)
Chapter	35	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Building Section 1507.3
Residential Section 905.3
Residential Chapter 46

Summary of Modification

This modification updates Referenced Standards: FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual from the Fifth to the Sixth Edition.

Rationale

Updates Referenced Standard: FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual from the Fifth to the Sixth Edition.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification does not impact cost associated with enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Impact to industry relative to the cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Impact to small business relative to the cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The manuals use as a referenced standard has led to improvement with the application of roof tile in Florida. The latest edition is has been updated with better information and illustrations.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

The manuals use as a referenced standard has led to improvement with the application of roof tile in Florida. The latest edition is has been updated with better information and illustrations.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This modification does not discriminate against any materials, products, methods or systems of construction.

Does not degrade the effectiveness of the code

This change does not degrade the effectiveness of the code.

FRSA

Florida Roofing Sheet Metal and Air Conditioning Contractors Association

~~4111 Metric Drive~~

P.O. Box 4850

Winter Park, FL3279~~2~~3

Standard reference number

FRSA/TRI

~~April 2012 (02-12)~~

September 2018(09–18)

-

Title

FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual, ~~Fifth~~ Sixth Edition Revised

Referenced in code section number

1507.3.2, 1507.3.3, 1507.3.3.1, 1507.3.7, 1507.3.8, 1507.3.9

R7843

Date Submitted	12/10/2018	**Section**	35	**Proponent**	Gaspar Rodriguez
Chapter	35	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

This proposal references a new standard indicated on Mod 7437; 7438; 7439.

Summary of Modification

Add ASTM E2140-01, Standard Test Method for Water Penetration of Metal Roof Panel Systems by Static Water Pressure Head.

Rationale

This a new optional test standard that allows manufacturers to test their metal roof panel systems, to allow installation to a minimum 1:12 slope.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact, allows for optional roof systems to be installed on low-slope roofs.

Impact to building and property owners relative to cost of compliance with code

No impact, this is an optional roof system which many owners have requested.

Impact to industry relative to the cost of compliance with code

None, this is an optional roof system. The cost to industry will be absorbed by higher sales.

Impact to small business relative to the cost of compliance with code

None, this is an optional roof system. The cost to small business will be absorbed by higher sales.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This is an option the General Public is requesting.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Provides for proper testing for new roof systems which are being requested by the General Public.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate against any products.

Does not degrade the effectiveness of the code

Does not degrade code, just adds an option for certain low-slope roofs.

ASTM Standard Reference Number Title Referenced in Code Section Number

E2072—10

Standard Specification for Photoluminescent (Phosphorescent) Safety Markings

1025.3

E2140-01

Standard Test Method for Water Penetration of Metal Roof Panel Systems by Static Water Pressure Head

Table 1515.2, 1523.6.5.2.4.1.1, TAS 110 Table 15.

E2174—10AE1

Standard Practice for On-Site Inspection of Installed Fire Stops

R8301

Date Submitted	12/15/2018	**Section**	1	**Proponent**	Chadwick Collins
Chapter	35	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Update referenced standard

Rationale

Update D6083 to most current version.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Updates referenced standard

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Requires compliance with most current version of standard

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Standard is an ASTM consensus document

Does not degrade the effectiveness of the code

Requires compliance with most current version of standard

D6083—~~05e01~~18 Specification for Liquid Applied Acrylic Coating Used in Roofing

R8303

Date Submitted	12/15/2018	**Section**	1	**Proponent**	Chadwick Collins
Chapter	35	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Update referenced standard

Rationale

Update D7158/D7158M to most current version

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Updates referenced standard

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Requires compliance with most current version of standard.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Standard is ASTM consensus document

Does not degrade the effectiveness of the code

Requires compliance with the most current version of standard.

D7158/D7158M—~~11~~19 Standard Test Method for Wind Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method)

Sub Code: Existing Building

R7312

27

Date Submitted	11/19/2018	**Section**	202	**Proponent**	Michael Silvers (FRSA)
Chapter	2	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

The modification adds the definition of "Positive Roof Drainage" to the Existing Sub Code Chapter 2 which is currently only in the Building Code Chapter 2. The term only applies to existing buildings.

Rationale

The Existing Building Code in SECTION 706 EXISTING ROOFING, 706.1 General, Exception: deals specifically with roof slope that may or may not be required during re-roofing of existing buildings. Without the definition a user of this Sub Code has to access the Building Sub Code to fully understand the exception. This definition is an important part of this requirement. New construction is required to meet minimum slope requirements

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

There is no cost impact for enforcement. Definition is currently in Building Chapter 2.

Impact to building and property owners relative to cost of compliance with code

There is no cost impact for compliance. Definition is currently in Building Chapter 2.

Impact to industry relative to the cost of compliance with code

There is no cost impact for compliance. Definition is currently in Building Chapter 2.

Impact to small business relative to the cost of compliance with code

There is no cost impact for compliance. Definition is currently in Building Chapter 2.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The modification will make it easier for those using the Existing Sub Code, to comply with the requirement to achieve positive drainage that applies only to existing buildings.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

The modification will make it easier for those using the Existing Sub Code, to comply with the requirement to achieve positive drainage that applies only to existing buildings.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This modification does not discriminate any materials, products, methods or systems of construction.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code.

POSITIVE ROOF DRAINAGE. The drainage condition in which consideration has been made for all loading deflections of the roof deck, and additional slope has been provided to ensure drainage of the roof within 48 hours of precipitation.

R7314

Date Submitted	11/19/2018	**Section**	706	**Proponent**	Michael Silvers (FRSA)
Chapter	7	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Building Code Section 1511 Existing Roofing

Summary of Modification

This modification adds language to clarify that salvaged slate, clay and concrete roof tile of a like kind can be used in certain applications.

Rationale

There are several sections of the code that indicate that some reuse of these materials are permitted: 104.9., 602.1 and 1506.2.1 all at least suggest acceptance. Section 1511.5 states that existing material may be reinstalled. It is not clear on when existing material quantities can be augmented. FS 553.842 allows reuse if the product approval requirements haven't changed. But it's not clear if the particular material never had product approval or the approval has changed if it can be used. The proposed change clarifies when the reuse of slate, clay and concrete roof tile may be acceptable when current product approvals or notice of acceptance are not available.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification does not impact cost associated with enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

This modification does not impact cost associated with enforcement of the code.

Impact to industry relative to the cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Impact to small business relative to the cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This modification will allow use of salvaged material that matches existing material. This will make maintenance and repair of existing tile roofs a good alternative to complete replacement.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This modification will allow use of salvaged material that matches existing material. This will make maintenance and repair of existing tile roofs a good alternative to complete replacement.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This modification does not discriminate against any materials, products, methods or systems of construction.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code.

706.5 Reinstallation/Reuse of materials.

Existing or salvaged slate, clay or ~~cement~~ concrete tile shall be permitted for reinstallation or reuse, to repair an existing slate or tile roof, except that salvaged slate or tile shall be of like kind in both material and profile. D~~d~~amaged, cracked or broken slate or tile shall not be reinstalled. The building official may permit salvaged slate, clay and concrete tile to be installed on additions and new construction, when the tile is tested in compliance with the provisions of Section 1507 or 1523 (HVH shall comply with Section 1523) and installed in accordance with Section 1507 or 1518 (HVHZ shall comply with Section 1518). Existing vent flashing, metal edgings, drain outlets, collars and metal counterflashings shall not be reinstalled where rusted, damaged or deteriorated. Aggregate surfacing materials shall not be reinstalled. (High-Velocity Hurricane Zones shall comply with Sections 1512 through 1525 of the Florida Building Code, Building).

R7960

Date Submitted	12/13/2018	**Section**	707.3.2	**Proponent**	Gaspar Rodriguez
Chapter	7	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Section 403.8 also modified.

Summary of Modification

Resolves the issue of a routine maintenance activity (i.e. reroofing) establishing a burdensome requirement that is contemplated in Chapter 9 of the Florida Building Code Existing Building, when an Alteration Level Three is reached.

Rationale

Resolves the issue of a routine maintenance activity (i.e. reroofing) establishing a burdensome requirement that is contemplated in Chapter 9 of the Florida Building Code Existing Building, when an Alteration Level Three is reached. Realizes that quite often removal of roof covering does not expose the structural attachment of all existing elements of the lateral force-resisting system.

Section 907.4, FBCEB, indicates the requirements for an engineering evaluation and analysis when more than 30 percent of the roof area is involved in a structural alteration. Removal of roof covering should be considered non-structural alteration.

Provide clarity that it is the structural alteration that initiates when an engineering evaluation and analysis is required.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Reduces the burden of enforcement, by properly placing the condition of this requirement at the more proper level of alteration.

Impact to building and property owners relative to cost of compliance with code

Will save cost by eliminating the excessive cost of evaluating a structure during a routine reroof. The evaluation should occur during a more extensive alteration.

Impact to industry relative to the cost of compliance with code

Will save cost by eliminating the excessive cost of evaluating a structure during a routine reroof. The evaluation should occur during a more extensive alteration.

Impact to small business relative to the cost of compliance with code

Will save cost by eliminating the excessive cost of evaluating a structure during a routine reroof. The evaluation should occur during a more extensive alteration.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The welfare of the public will benefit with the cost savings from eliminating the excessive cost of evaluating a structure during a routine reroof. The evaluation should occur during a more extensive alteration.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Provides equivalent protection by focusing the enforcement of the code on buildings that are being altered at an alteration level where the evaluation is warranted.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This modification does not discriminate against any materials, products, methods, or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code. Could be argued that it makes the code more effective by focusing the enforcement of the code on buildings that are being altered at an alteration level where the evaluation is warranted.

707.3.2 Roof diaphragms resisting wind loads in high-wind regions.

Where ~~roofing materials are~~the structural roof deck is removed from more than ~~50~~30 percent of the ~~roof~~structural diaphragm of a building or section of a building located where the ultimate design wind speed, V_{ult}, determined in accordance with Figure 1609.3(1) of the Florida Building Code, Building, is greater than 115 mph (51 m/s), as defined in Section 1609(the High-Velocity Hurricane Zone shall comply with Section 1620) of the Florida Building Code, Building, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in the Florida Building Code, Building, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting at least 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the Florida Building Code, Building.

~~Exceptions:~~

1. ~~This section does not apply to buildings permitted subject to the Florida Building Code.~~
2. ~~This section does not apply to buildings permitted subject to the 1991 Standard Building Code, or later edition, or designed to the wind loading requirements of the ASCE 7-88 or later editions, where an evaluation is performed by a registered design professional to confirm the roof diaphragm, connections of the roof diaphragm to roof framing members, and roof-to-wall connections are in compliance with the wind loading requirements of either of these standards or later editions.~~
3. ~~Buildings with steel or concrete moment resisting frames shall only be required to have the roof diaphragm panels and diaphragm connections to framing members evaluated for wind uplift.~~
4. ~~This section does not apply to site-built singlefamily dwellings. Site-built single-family dwellings shall comply with Sections 706.7 and 706.8.~~
5. ~~This section does not apply to buildings permitted within the HVHZ after January 1, 1994 subject to the 1994 South Florida Building Code, or later editions, or where the building's wind design is based on the wind loading requirements of ASCE 7-88 or later editions.~~

403.8 Roof diaphragms resisting wind loads in high-wind regions.

Where the ~~intended alteration requires a permit for reroofing and involves removal of roofing materials~~structural roof deck is removedfrom more than~~50~~30 percent of the~~roof~~structural diaphragm of a building or section of a building located where the ultimate design wind speed is greater than 115 mph (51 m/s) in accordance with Figure 1609.3(1) of theFlorida Building Code, Building as defined in Section 1609 (the HVHZ shall comply with Section 1620) of the Florida Building Code, Building, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in Section 1609 of the Florida Building Code, Building, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting at least 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the Florida Building Code, Building.

~~Exceptions:~~

~~1. This section does not apply to buildings permitted subject to the Florida Building Code.~~

~~2. This section does not apply to buildings permitted subject to the 1991 Standard Building Code, or later edition, or designed to the wind loading requirements of the ASCE 7-88 or later editions, where an evaluation is performed by a registered design professional to confirm the roof diaphragm, connections of the roof diaphragm to roof framing members, and roof-to-wall connections are in compliance with the wind loading requirements of either of these standards or later editions.~~

~~3. Buildings with steel or concrete moment resisting frames shall only be required to have the roof diaphragm panels and diaphragm connections to framing members evaluated for wind uplift.~~

~~4. This section does not apply to site-built single-family dwellings. Site-built single-family dwellings shall comply with Sections 706.7 and 706.8.~~

5. ~~This section does not apply to buildings permitted within the HVHZ after January 1, 1994 subject to the 1994 South Florida Building Code, or later editions, or where the building's wind design is based on the wind loading requirements of ASCE 7-88 or later editions.~~

Sub Code: Residential

R8177

30

Date Submitted	12/14/2018	**Section**	202	**Proponent**	Ann Russo1
Chapter	2	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments **No** **Alternate Language** **No**

Related Modifications

Summary of Modification

Add definition to the building-integrated photovoltaic roof panel

Rationale

This proposal adds definition and will provide clarity to the application of this type of roof covering.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This proposal adds another type of roof covering and will provide clarity to the enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

Will not increase the cost of construction.

Impact to industry relative to the cost of compliance with code

Will not increase the cost of construction.

Impact to small business relative to the cost of compliance with code

Will not increase the cost of construction.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This proposal has reasonable and substantial connection with the health, safety and welfare of the general public.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This proposal will improve the application of the code and will provide equivalent or better products, methods and systems of construction.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This proposal will not discriminate against materials, products, methods or systems of construction.

Does not degrade the effectiveness of the code

This proposal will not degrade the effectiveness of the code.

Add text as follows:

SECTION 202

DEFINITIONS

BUILDING-INTEGRATED PHOTOVOLTAIC ROOF PANEL. A photovoltaic panel that functions as a component of the building envelope.

R7347

Date Submitted	11/20/2018	**Section**	907	**Proponent**	Bryan Holland
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

7345

Summary of Modification

This proposed modification deletes unneeded "reserved" sections and adds pointers to other applicable rules or standards related to solar energy systems.

Rationale

This proposed modification simply adds pointers to the R324 (Mod 7345), the NFPA 70, and the FFPC for rules related to rooftop solar energy systems. The proposal also deletes unneeded sections placed in a "reserve" status in the current code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This proposed modification will not impact the local entity relative to code enforcement.

Impact to building and property owners relative to cost of compliance with code

This proposed modification will not change the cost of compliance to building and property owners.

Impact to industry relative to the cost of compliance with code

This proposed modification will not change the cost of compliance or impact industry.

Impact to small business relative to the cost of compliance with code

This proposed modification will not change the cost of compliance or impact small business.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This proposed modification is directly connected to the health, safety, and welfare of the general public.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This proposed modification improves and strengthens the code.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This proposed modification does not discriminate against materials, products, methods, or systems of construction.

Does not degrade the effectiveness of the code

This proposed modification enhances the effectiveness of the code.

SECTION R907

ROOFTOP-MOUNTED PHOTOVOLTAIC SYSTEMS

R907.1 Rooftop-mounted photovoltaic systems. Rooftop-mounted photovoltaic panel systems shall be designed and installed in accordance with Section R324, NFPA 70 and the Florida Fire Prevention Code.

~~Reserved.~~

~~R907.2 Wind resistance.~~

~~Reserved.~~

~~R907.3 Fire classification.~~

~~Reserved.~~

~~R907.4 Installation.~~

~~Reserved.~~

~~R907.5 Photovoltaic panels and modules.~~

~~Reserved.~~

R7348

Date Submitted	11/20/2018	**Section**	909	**Proponent**	Bryan Holland
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

7345, 7347

Summary of Modification

This proposed modification deletes R909 as it is no longer needed with the updated information in R324 (Mod 7345) and R907 (Mod 7347).

Rationale

This proposed modification completely deletes all of Section 909 as these requirements are found in R907 and R324. There is no need to keep a section of "reserved" rules in the updated code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This proposed modification will not impact the local entity relative to code enforcement.

Impact to building and property owners relative to cost of compliance with code

This proposed modification will not change the cost of compliance to building and property owners.

Impact to industry relative to the cost of compliance with code

This proposed modification will not change the cost of compliance or impact industry.

Impact to small business relative to the cost of compliance with code

This proposed modification will not change the cost of compliance or impact small business.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This proposed modification is directly connected to the health, safety, and welfare of the general public.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This proposed modification improves and strengthens the code.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This proposed modification does not discriminate against materials, products, methods, or systems of construction.

Does not degrade the effectiveness of the code

This proposed modification enhances the effectiveness of the code.

~~SECTIONR 909~~

~~ROOFTOP-MOUNTED PHOTOVOLTAIC PANEL SYSTEMS~~

~~R909.1 General.~~

~~Reserved.~~

~~R909.2 Structural requirements.~~

~~Reserved.~~

~~R909.3 Installation.~~

~~Reserved.~~

R7353

Date Submitted	11/20/2018	**Section**	905.3	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Building Code Sections 1507.3

Summary of Modification

This modification updates Referenced Standard: FRSA/TRI High Wind Concrete and Clay Roof Tile Manual from the Fifth to the Sixth Edition

Rationale

Updates Referenced Standard: FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual from the Fifth to the Sixth Edition.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification does not impact cost associated with enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

This modification does not impact cost associated with enforcement of the code.

Impact to industry relative to the cost of compliance with code

This modification does not impact cost associated with enforcement of the code.

Impact to small business relative to the cost of compliance with code

This modification does not impact cost associated with enforcement of the code.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The manuals use as a referenced standard has led to improvement with the application of roof tile in Florida. The latest edition is has been updated with better information and illustrations.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

The manuals use as a referenced standard has led to improvement with the application of roof tile in Florida. The latest edition is has been updated with better information and illustrations.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This change modification does not discriminate any materials, products, methods or systems of construction.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code.

905.3.2 Clay and concrete roof tile shall be installed on roof slopes in accordance with the recommendations of FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, ~~Fifth~~ Sixth Edition where the V_{asd} is determined in accordance with Section R301.2.1.3 or the recommendations of RAS 118, 119 or 120.

905.3.3 Underlayment.

Required underlayment shall comply with the underlayment manufacturer's installation instructions in accordance with the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* ~~Fifth~~ Sixth Edition where the V_{asd} is determined in accordance with Section R301.2.1.3 or

905.3.3.1 Slope and underlayment requirements.

Refer to manufacturer's installation instructions, FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, ~~Fifth~~ Sixth Edition where the V_{asd} is determined in accordance with Section R301.2.1.3 or RAS 118, 119 or 120 for underlayment and slope requirements for specific roof tile systems.

905.3.6 Fasteners.

Nails shall be corrosion resistant and not less than 11 gage, $^{5}/_{16}$-inch (11 mm) head, and of sufficient length to penetrate the deck not less than $^{3}/_{4}$inch (19 mm) or through the thickness of the deck, whichever is less or in accordance with the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* ~~Fifth~~ Sixth Edition where the V_{asd} is determined in accordance with Section R301.2.1.3 or in accordance with the recommendations of RAS 118, 119 or 120. Attaching wire for clay or concrete tile shall not be smaller than 0.083 inch (2.1 mm).

905.3.7 Application.

Tile shall be applied in accordance with this chapter and the manufacturer's installation instructions, recommendations of the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* ~~Fifth~~ Sixth Edition or the recommendations of RAS 118, 119 or 120.

905.3.7.1 Hip and ridge tiles.

Hip and ridge tiles shall be installed in accordance with FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* ~~Fifth~~ Sixth Edition where the V_{asd} is determined in accordance with Section R301.2.1.3 or the recommendations of RAS 118, 119 or 120.

905.3.8 Flashing.

At the juncture of roof vertical surfaces, flashing and counterflashing shall be provided in accordance with this chapter and the manufacturer's installation instructions, recommendations of the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* ~~Fifth~~ Sixth Edition where the V_{asd} is determined in accordance with Section R301.2.1.3 or the recommendations of RAS 111, 118, 119 or 120.

R7426

Date Submitted	11/25/2018	**Section**	905.17.1	**Proponent**	T Stafford
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Correlates the wind loading requirements in the code for rooftop PV with ASCE 7-16.

Rationale

This proposal correlates the wind loading requirements on roof mounted photovoltaic systems with the newly referenced ASCE 7-16. During Phase I of the 2020 update of the FBC, the Commission voted to update ASCE 7 from the 2010 edition to the 2016 edition (ASCE 7-16). ASCE 7-16 contains two new methods for wind loads on photovoltaic systems. One method is based on the component and cladding loads applicable to the roof. The other method is based on entirely different criteria and research. Therefore, for clarification, this proposal simply references ASCE 7 for wind loads on rooftop PV systems.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact to local entities relative to enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

No impact to building and property owners relative to the cost of compliance with the code. This code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Impact to industry relative to the cost of compliance with code

No impact to building and property owners relative to the cost of compliance with the code. This code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Impact to small business relative to the cost of compliance with code

No impact to building and property owners relative to the cost of compliance with the code. This code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This code change correlates the code with the previous action by the Commission to update reference standard ASCE 7 to the 2016 edition (ASCE 7-16).

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This code change improves the code by providing correlation with the previous action by the Commission to update reference standard ASCE 7 to the 2016 edition (ASCE 7-16).

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This code change dos not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

This code change does not degrade the effectiveness of the code.

R905.17.1 Wind resistance. Rooftop mounted photovoltaic systems shall be designed for wind loads in accordance with ASCE 7 ~~for component and cladding in accordance with Chapter 16 of the *Florida Building Code, Building* using an effective wind area based on the dimensions of a single unit frame~~.

R7571

Date Submitted	11/29/2018	**Section**	905	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Building 1507.1.1

Summary of Modification

This modification adds an exception to underlayment attachment that provides for an existing self-adhering membrane to act as a secondary water barrier similar to the 4" wide strip in the current exception.

Rationale

Self-adhering membranes applied to the entire deck are being encountered during roof replacement more often. They usually cannot be removed. A new self-adhering membrane cannot be adhered to an existing membrane. This change provides a clear method to properly incorporate the membrane into the new roof system. It uses a similar approach to one that already is in code. It recognizes that the existing membrane provides similar protection to a 4” strip over the joints in the roof decking.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification will not impact enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

This modification will reduce the cost of roof replacement when a self-adhering membrane has been previously applied to the entire roof deck.

Impact to industry relative to the cost of compliance with code

This modification will not add to cost of compliance.

Impact to small business relative to the cost of compliance with code

This modification will not add to cost of compliance.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Self-adhering membranes applied to the entire deck are being encountered during roof replacement more often. They cannot be removed. This provides a clear method to properly incorporate the membrane into the new roof system.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Self-adhering membranes applied to the entire deck are being encountered during roof replacement more often. They cannot be removed. This provides a clear method to properly incorporate the membrane into the new roof system.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This modification does not discriminate against materials, methods, or systems of construction.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code.

TABLE R905.1.1

UNDERLAYMENT TABLE

Underlayment Attachment

3. Roof slopes from two units vertical in 12 units horizontal (17-percent slope), and greater. The entire roof deck shall be covered with an approved self-adhering polymer modified bitumen underlayment complying with ASTM D1970 installed in accordance with both the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed.

Exceptions:

1. A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table 1507.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.
2. An existing self-adhering modified bitumen underlayment complying with Underlayment Attachment 3. above has been previously installed over the roof decking and where it is required, re-nailing off the roof sheathing in accordance with 706.7.1 of the Florida Building Code, Existing Building can be confirmed or verified.An approved underlayment in accordance with Table R905.1.1 for the applicable roof covering shall be applied over the entire roof over the existing self-adhered modified bitumen underlayment.

R7665

Date Submitted	12/4/2018	**Section**	905.1.1	**Proponent**	Greg Keeler
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Residential R905.1.1 Unknown This is a back-up proposal in the event the proposal related to the new ASTM Polymeric Underlayment Standard is not approved.

Summary of Modification

This proposal clarifies requirements related to use of synthetic underlayment.

Rationale

ASTM D4533 is the most appropriate tear testing protocol for this category of products, and specifying two different protocols with the same minimum requirement doesn't make sense as the two protocols yield vastly different results. Additionally, testing indicates that synthetic underlayments are more resistant to fastener pull-through than D226 Type II felt. Thus, they should not be held to a more stringent requirement.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None

Impact to building and property owners relative to cost of compliance with code

None

Impact to industry relative to the cost of compliance with code

None

Impact to small business relative to the cost of compliance with code

None

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Yes

Does not degrade the effectiveness of the code

Yes

R905.1.1 Underlayment. Unless otherwise noted underlayment for asphalt shingles, metal roof shingles, mineral surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes and metal roof panels shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D226, D1970, D4869 and D6757 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated in Table R905.1.1. Underlayment shall be applied and attached in accordance with Table R905.1.1.

Exception: A ~~reinforced~~ synthetic underlayment that is approved as an alternate to underlayment complying with ASTM D226 Type II and having a minimum tear strength in accordance with ASTM ~~D1970 or~~ ASTM D4533 of 20 pounds shall be permitted. This underlayment shall be installed and attached in accordance with the underlayment attachment methods of Table R905.1.1 for the applicable roof covering and slope and the underlayment manufacturer's installation instructions~~, except metal cap nails shall be required where the ultimate design wind speed, V*ult*, equals or exceeds 150 mph~~.

R7730

Date Submitted	12/6/2018	**Section**	905.15.3	**Proponent**	Ann Russo1
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Add necessary language for the application of roof coatings.

Rationale

This proposal adds necessary language so that the application of roof coatings follows manufacturer's approved installation instructions. This proposal adds clarity and does not change code requirements.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This proposal adds clarity and does not change code requirements.

Impact to building and property owners relative to cost of compliance with code

Will not increase the cost of construction.

Impact to industry relative to the cost of compliance with code

Will not increase the cost of construction.

Impact to small business relative to the cost of compliance with code

Will not increase the cost of construction.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This proposal adds necessary language so that the application of roof coatings follows manufacturer's approved installation instructions.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This proposal adds clarity and improves the application of the code.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This proposal does not discriminate against materials, products, methods or systems of construction.

Does not degrade the effectiveness of the code

This proposal will improve the effectiveness of the code.

Revise as follows:

R905.15.3 Application.

Liquid-applied roofing shall be installed in accordance with this chapter and the manufacturer's approved installation instructions. The approved allowable uplift resistance for the liquid-applied coatings shall be equal to or greater than the uplift resistance for the roof based on Table R301.2(2).

R7782

Date Submitted	12/8/2018	**Section**	905.8.5	**Proponent**	Scott McAdam
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

RB154-16 New Mod 7737
Table R905.8.5

Summary of Modification

The existing text was outdated, requiring clarification and updates to current AWPA section numbering.

Rationale

The existing text was outdated, requiring clarification and updates to current AWPA section numbering.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

clarification with wording of standard no impact

Impact to building and property owners relative to cost of compliance with code

Will not increase the cost of construction
These changes merely clarify and update the existing text without any impact on the required specifications for materials used.

Impact to industry relative to the cost of compliance with code

Will not increase the cost of construction
These changes merely clarify and update the existing text without any impact on the required specifications for materials used.

Impact to small business relative to the cost of compliance with code

Will not increase the cost of construction
These changes merely clarify and update the existing text without any impact on the required specifications for materials used.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

clarification

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

clarifies

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

does not discriminate

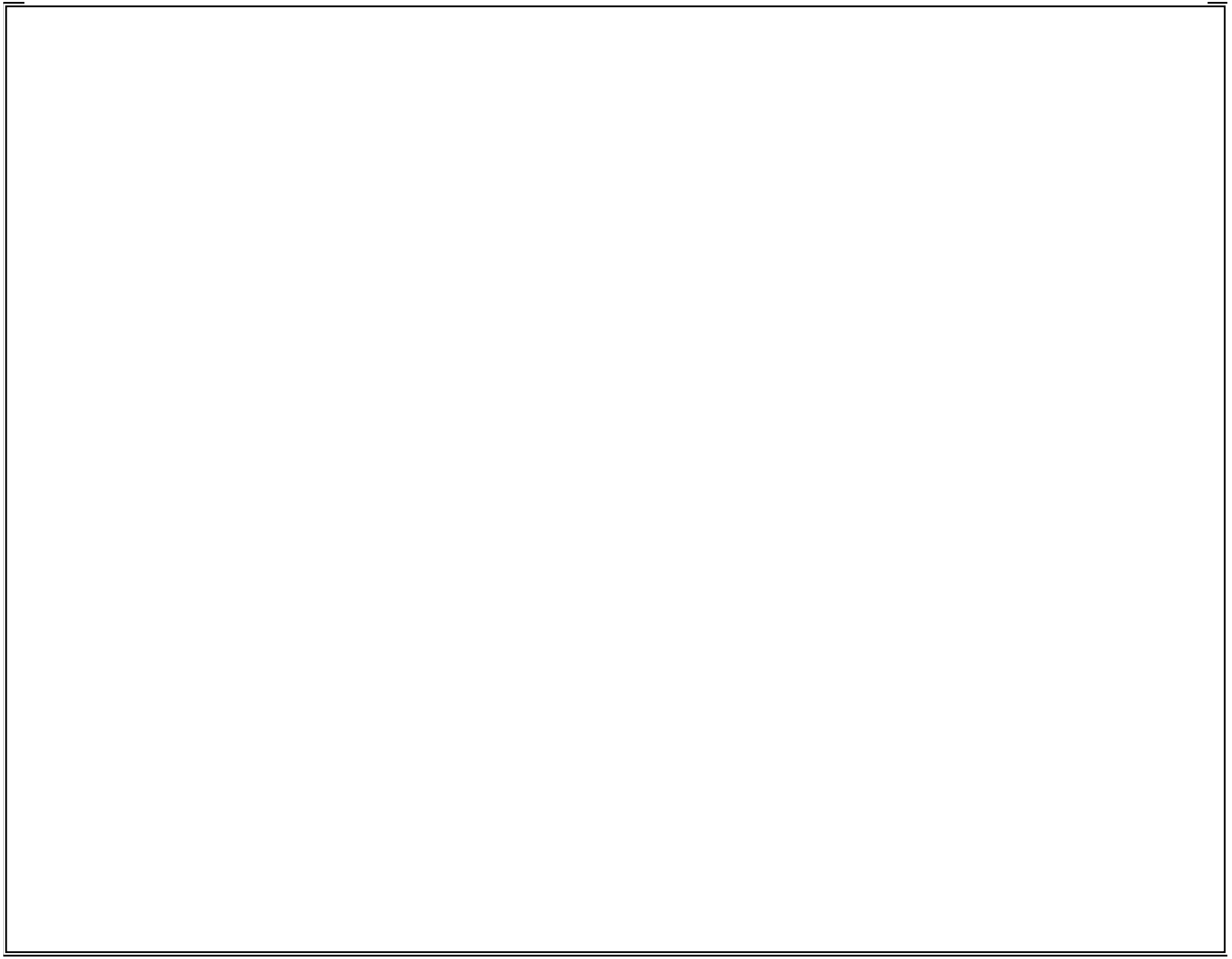
Does not degrade the effectiveness of the code

no effect

TABLE R905.8.5

WOOD SHAKE MATERIAL REQUIREMENTS

MATERIAL	MINIMUM GRADES	APPLICABLE GRADING RULES
Wood shakes of naturally durable wood	1	Cedar Shake and Shingle Bureau
Tapersawn shakes of naturally durable wood	1 or 2	Cedar Shake and Shingle Bureau
Preservative-treated shakes and shingles of naturally durable wood	1	Cedar Shake and Shingle Bureau
Fire-retardant-treated shakes and shingles of naturally durable wood	1	Cedar Shake and Shingle Bureau
Preservative-treated tapersawn shakes of Southern pine treated in accordance with AWPA Standard U1 (Commodity Specification A, Special Requirement 4.6 ~~Use Category 3B and Section 5.6~~)	1 or 2	Forest Products Laboratory of the Texas Forest Services



R7806

Date Submitted	12/9/2018	**Section**	906.2	**Proponent**	Scott McAdam
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

RB352-16
add appropriate standard for mineral wool roof insulation board and add to Table 906.2

Summary of Modification

This proposal will add reference to the appropriate ASTM Standard specification for mineral wool roof insulation and make Table R906.2 consistent with IBC Table 1508.2.

Rationale

ASTM C726-12 Standard Specification for Mineral Wool Roof Insulation Board

Reason: This proposal will add reference to the appropriate ASTM Standard specification for mineral wool roof insulation and make Table R906.2 consistent with IBC Table 1508.2. This will help to ensure that roofing systems designed using mineral wool roof insulation will perform as intended by the IRC. This standard has been referenced in the IBC since the 2012 edition.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
no impact provide additional information

Impact to building and property owners relative to cost of compliance with code
No cost impact adds standard which will provide consistent regulation

Impact to industry relative to the cost of compliance with code
No cost impact adds standard which will provide consistent regulation

Impact to small business relative to the cost of compliance with code
No cost impact adds standard which will provide consistent regulation

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
provides consistency with added standard helping the public

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
strengthens and improves the code

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
will not discriminate

Does not degrade the effectiveness of the code
enhances the effectiveness of the code

Revise as follows:

TABLE R906.2

MATERIAL STANDARDS FOR ROOF INSULATION

Cellular glass board	ASTM C 552
Mineral wool board	ASTM C 726
Composite boards	ASTM C 1289, Type III, IV, V or VI
Expanded polystyrene	ASTM C 578
Extruded polystyrene board	ASTM C 578
Perlite board	ASTM C 728
Polyisocyanurate board	ASTM C 1289, Type I or II
Wood fiberboard	ASTM C 208
Fiber-reinforced gypsum board	ASTM C 1278
Glass-faced gypsum board	ASTM C 1177

R7865

Date Submitted	12/10/2018	**Section**	902	**Proponent**	Jon Roberts
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

This proposal adds a section to the code related to rooftop mounted photovoltaic panel systems. It requires rooftop mounted panel systems to be listed and identified with a fire classification in accordance with UL 1703 and UL 2703.

Rationale

This code change simply provides the appropriate method for testing photovoltaic panel systems for fire classification, as required by the ANSI standards. This method is already in use within the industry.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This method is already in use within the industry therefore there is no impact to the enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

This method is already in use within the industry therefore there is no additional cost to construction.

Impact to industry relative to the cost of compliance with code

This method is already in use within the industry therefore there is no additional cost to construction.

Impact to small business relative to the cost of compliance with code

This method is already in use within the industry therefore there is no additional cost to construction.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This method is already in use and helps to maintain the safety of these systems.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This improves the code by adding additional language for use by the building official relative to roof top mounted solar panel systems.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This does not discriminate against other equivalent methods.

Does not degrade the effectiveness of the code

This method is already in use within the industry therefore there is no degradation of the code.

R902.4 Rooftop-mounted photovoltaic ~~panels and modules~~ panel systems.

Rooftop-mounted *photovoltaic panel systems* installed on or above the roof covering shall be tested, listed and identified with a fire classification in accordance with UL 1703 and UL 2703. Class A, B or C *photovoltaic panel systems* and modules shall be installed in jurisdictions designated by law as requiring their use or where the edge of the roof is less than 3 feet (914 mm) from a lot line.

R8288

Date Submitted	12/15/2018	**Section**	905	**Proponent**	Chadwick Collins
Chapter	9	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Update to meet intent of code definition

Rationale

Requiring labeling per the definition in Chapter 2 will provide a more stringent validation that the asphalt shingles meet the required wind resistance classification.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Updates requirement with intent of the code

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Removes any ambiguity between this section and the chapter 2 definition

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Places requirement on all products.

Does not degrade the effectiveness of the code

Brings section into compliance with Chapter 2.

See attached file

R905.2.6.1 Classification of asphalt shingles. Asphalt shingles shall be classified in accordance with ASTM D3161, TAS 107 or ASTM D7158 to resist the basic wind speed per Figure R301.2(4). Shingles classified as ASTM D3161 Class D or classified as ASTM D7158 Class G are acceptable for use where V_{asd} is equal to or less than 100 mph. Shingles classified as ASTM D3161 Class F, TAS 107 or ASTM D7158 Class H are acceptable for use for all wind speeds. Asphalt shingle wrappers shall be *labeled* to indicate compliance with one of the required classifications, as shown in Table R905.2.6.1.

R8290

Date Submitted	12/15/2018	**Section**	905	**Proponent**	Chadwick Collins
Chapter	9	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Clarifies practice and prescriptive requirements

Rationale

This proposal clarifies the long-standing practice and prescriptive requirements from the IRC that drip edge on gables be installed over the underlayment.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Addresses a condition that if not installed as proposed could lead to an inability of the roofing system to perform as expected in regard to the public

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Provides clarity of a long-standing practice of construction

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Applies equally to currently referenced components in the section

Does not degrade the effectiveness of the code

Clarifies and strengthens the intent of the code in providing guidance for expected installation minimums.

See attached file

R905.2.8.5 Drip edge. Provide drip edge at eaves and gables of shingle roofs. Overlap to be a minimum of 3 inches (76 mm). Eave drip edges shall extend 1/2 inch (13 mm) below sheathing and extend back on the roof a minimum of 2 inches (51 mm). Drip edge at gables shall be installed over the underlayment. Drip edge at eaves shall be permitted to be installed either over or under the underlayment. If installed over the underlayment, there shall be a minimum 4 inch (51 mm) width of roof cement installed over the drip edge flange. Drip edge shall be mechanically fastened a maximum of 12 inches (305 mm) on center. Where the V_{asd} as determined in accordance with Section R301.2.1.3 is 110 mph (177 km/h) or greater or the mean roof height exceeds 33 feet (10 058 mm), drip edges shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

R8400

Date Submitted	12/15/2018	**Section**	905.11.2	**Proponent**	Michael Fischer
Chapter	9	**Affects HVHZ**	No	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

8399

Summary of Modification

Removes withdrawn standards

Rationale

Remove withdrawn standards

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

0

Impact to building and property owners relative to cost of compliance with code

0

Impact to industry relative to the cost of compliance with code

0

Impact to small business relative to the cost of compliance with code

0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Yes

Does not degrade the effectiveness of the code

Yes

Table R905.11.2
Remove Standard CGSB 37-GP-56M from Modified Bitumen Roof Membrane Standards

R905.12.2 Material standards.
Thermoset single-ply roof coverings shall comply with ASTM D4637, or ASTM D5019 ~~or CGSB 37-GP-52M~~.

R905.13.2 Material standards.
Thermoplastic single-ply roof coverings shall comply with ASTM D4434, ASTM D6754, or ASTM D6878 ~~or CGSB CAN/CGSB 37.54~~.

FBC ARMA Code Proposals

CGSB Standards

Table R905.11.2
Remove Standard CGSB 37-GP-56M from Modified Bitumen Roof Membrane Standards

R905.12.2 Material standards.
Thermoset single-ply roof coverings shall comply with ASTM D4637, or ASTM D5019 ~~or CGSB 37-GP-52M~~.

R905.13.2 Material standards.
Thermoplastic single-ply roof coverings shall comply with ASTM D4434, ASTM D6754, or ASTM D6878 ~~or CGSB CAN/CGSB 37.54~~.

Reason: Proposal removes withdrawn Canadian Standards

R7367

Date Submitted	11/20/2018	**Section**	46	**Proponent**	Michael Silvers (FRSA)
Chapter	2712	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Residential Section 905.3
Building Section 1507.3
Building Chapter 35

Summary of Modification

This modification updates Referenced Standards: FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual from the Fifth to the Sixth Edition.

Rationale

Updates Referenced Standard: FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual from the Fifth to the Sixth Edition.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification does not impact cost associated with enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Impact to industry relative to the cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Impact to small business relative to the cost of compliance with code

This modification does not impact cost associated with compliance with the code.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The manuals use as a referenced standard has led to improvement with the application of roof tile in Florida. The latest edition is has been updated with better information and illustrations.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

The manuals use as a referenced standard has led to improvement with the application of roof tile in Florida. The latest edition is has been updated with better information and illustrations.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This modification does not discriminate against any materials, products, methods or systems of construction.

Does not degrade the effectiveness of the code

This change does not degrade the effectiveness of the code.

Updates Referenced Standard: FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual from the ~~Fifth~~ to the Sixth Edition.

FRSA

Florida Roofing Sheet Metal and Air Conditioning Contractors Association

~~4111 Metric Drive~~

P.O. Box 4850

Winter Park, FL3279~~2~~3

Standard reference number

FRSA/TRI

~~April 2012 (02-12)~~

September 2018(09–18)

-

Title

FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual, ~~Fifth~~ Sixth Edition Revised

Referenced in code section number

905.3.2, 905.3.3, 905.3.3.1, 905.3.6, 905.3.7, 905.3.7.1, 905.3.8

R7808

Date Submitted	12/9/2018	**Section**	906.2	**Proponent**	Scott McAdam
Chapter	2712	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

RB352-16
add appropriate standard for mineral wool roof insulation board and add to Table 906.2

Summary of Modification

This proposal will add reference to the appropriate ASTM C726 Standard specification for mineral wool roof insulation and make Table R906.2 consistent with IBC Table 1508.2.

Rationale

ASTM C726-12 Standard Specification for Mineral Wool Roof Insulation Board

Reason: This proposal will add reference to the appropriate ASTM Standard specification for mineral wool roof insulation and make Table R906.2 consistent with IBC Table 1508.2. This will help to ensure that roofing systems designed using mineral wool roof insulation will perform as intended by the IRC. This standard has been referenced in the IBC since the 2012 edition.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
no impact provide additional information

Impact to building and property owners relative to cost of compliance with code
No cost impact adds standard which will provide consistent regulation

Impact to industry relative to the cost of compliance with code
No cost impact adds standard which will provide consistent regulation

Impact to small business relative to the cost of compliance with code
No cost impact adds standard which will provide consistent regulation

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
provides consistency with added standard helping the public

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
strengthens and improves the code

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
will not discriminate

Does not degrade the effectiveness of the code
enhances the effectiveness of the code

Add Standard:

ASTM

ASTM International100 Barr Harbor DriveWest Conshohocken PA19428

Standard reference number	Title	Refer ir section n
C726—12	Standard Specification for Mineral Roof Insulation Board	TR906.2

Table included for reference only

TABLE R906.2

MATERIAL STANDARDS FOR ROOF INSULATION

Mineral wool board	ASTM C 726

R8302

Date Submitted	12/15/2018	**Section**	1	**Proponent**	Chadwick Collins
Chapter	2712	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Update referenced standard

Rationale

Update D6083 to most current version.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Updates referenced standard

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Requires compliance with most current version of standard

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Standard is an ASTM consensus document

Does not degrade the effectiveness of the code

Requires compliance with most current version of standard

D6083—~~05e01~~18 Specification for Liquid Applied Acrylic Coating Used in Roofing

R8305

Date Submitted	12/15/2018	**Section**	1	**Proponent**	Chadwick Collins
Chapter	2712	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Update referenced standard

Rationale

Update D7158/D7158M to most current version

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Updates referenced standard

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Requires compliance with most current version of standard.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Standard is ASTM consensus document

Does not degrade the effectiveness of the code

Requires compliance with the most current version of standard.

D7158/D7158M—~~11~~19 Standard Test Method for Wind Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method)

Sub Code: Test Protocols

R7191

48

Date Submitted	11/6/2018	**Section**	RAS 111	**Proponent**	Michael Goolsby
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments **No**

Alternate Language **No**

Related Modifications

Summary of Modification

Establish consistency with ASCE 7-16, update preservative standard and clarify Table 2 requirements.

Rationale

The RAS 111 modification is needed to align the rooftop elevated pressure zones with ASCE 7-16. Also, to revise the wood preservative standard which has been updated. The note in Table 2 has been improved to eliminate confusion regarding when a hook strip/cleat is required. Finally, a scrivener's error has been corrected.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Improves enforcement by providing proper guidance the relevant standard and clarifies eave metal requirements.

Impact to building and property owners relative to cost of compliance with code

No cost impact, merely provides proper guidance the relevant standard and clarifies eave metal requirements.

Impact to industry relative to the cost of compliance with code

No cost impact, merely provides proper guidance the relevant standard and clarifies eave metal requirements.

Impact to small business relative to the cost of compliance with code

No cost impact, merely provides proper guidance the relevant standard and clarifies eave metal requirements.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The modifications reinforces path to compliance.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

The code is strengthened by clarification of the correct standard providing more clear explanatory language in Table 2.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate against materials, products, methods or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

The modification improves the effectiveness of the code by providing a more clear path for achieving compliance.

ROOFING APPLICATION STANDARD (RAS) No. 111-20

STANDARD REQUIREMENTS FOR ATTACHMENT OF PERIMETER WOODBLOCKING AND METAL LASHING

3.3 Woodblocking Fastener Spacing

3.3.1 The attachment criteria for woodblocking shall be 250 plf for Zone 2 ~~perimeter~~ areas and 300 plf for Zone 3 ~~corner~~ areas.

3.4.5 All woodblocking, shall be only ~~salt pressure~~ preservative treatedinaccordancewiththe American Wood Preservers Association, AWPA U-1, Use Category 2 or higher ~~C-2orC-9~~,oranydecayresistant species.

TABLE 2
HOOK STRIP/CONTINUOUS CLEAT THICKNESS REQUIREMENTS FOR EDGE METAL AND COPINGS FACE DIMENSIONS

GALVANIZED METAL OR STAINLESS STEEL						
Min. Component Gage		26 ga	24 ga	22 ga	20 ga	18 ga
Max. Vertical (Face) Flange		4 in.	6 in.	8 in.	10 in.	12 in.
Min. Hook Strip/Cleat Gage[1]		24 ga	22 ga	20 ga	18 ga	16 ga
ALUMINUM						
Min. Component Gage	0.032 in.	0.032 in.	0.040 in.	0.050 in.	0.060 in.	0.070 in.
Max. Vertical (Face) Flange	< 3 in.	3 in.	4 in.	6 in.	8 in.	10 in.
Min. Hook Strip/Cleat Gage	Not Required	0.040 in.	0.050 in.	0.060 in.	0.070 in.	0.080 in.
COPPER						
Min. Component Gage			16 oz	20 oz.	24 oz.	32 oz
Max. Vertical (Face) Flange			3.5 in.	6 in.	8 in.	10 in.
Min. Hook Strip/Cleat Weight[1]			20 oz.	24 oz.	32 oz	48 oz

For SI: 1 inch = 25.4 mm.

[1]When utilizing the maximum vertical (face) flange a hook strip/cleat is required. The h~~H~~ook strip/cleat shall be one thickness greater than that of the metal profile material, as commercially available.

5.2.3 When a continuous cleat (hook strip) is required and the vertical flange exceeds 7 in. the "butt-joint" method shall be utilized and a cover plate shall be installed.

NOTE: All metal surfaces receiving hot bitumen or approved flashing cement shall be fully primed with ASTM D41 or ASTM D43, as required, primer. Primer which is in a quick dry formulation is acceptable. All fasteners shall be covered with either:

R7349

Date Submitted	11/20/2018	**Section**	RAS 115	**Proponent**	Gaspar Rodriguez
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Add language to more correctly reflect code requirements for recently approved products.

Rationale

Some new underlayments come in widths wider than 36 inches. Current code language contemplates a 36 inch wide sheet of underlayment. Proposed language takes in account the wider underlayments currently available.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None. Adds language to more precisely define current code requirements.

Impact to building and property owners relative to cost of compliance with code

None. Adds language to more precisely define current code requirements.

Impact to industry relative to the cost of compliance with code

None. Adds language to more precisely define current code requirements.

Impact to small business relative to the cost of compliance with code

None. Adds language to more precisely define current code requirements.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes. Adds language to more precisely define current code requirements.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes. Adds language to more precisely define current code requirements.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate. Adds language to more precisely define current code requirements.

Does not degrade the effectiveness of the code

Correct. Adds language to more precisely define current code requirements.

4.2 All underlayments shall be fastened with approved minimum 12 gage by 11/4 in. corrosion-resistant annular ring shank roofing nails fastened through minimum 32 gage by 1 5/8 in. diameter approved tin caps. ~~Maximum fastener spacing shall be 6 in. o.c. at the laps with two additional rows in the field at a maximum spacing of 12 in. o.c.~~Underlayment shall be attached to a nailable deck in a grid pattern of 12 inches (305 mm) between the overlaps, with 6-inch (152 mm) spacing at the overlaps.Nails shall be of sufficient length to penetrate through the sheathing or wood plank a minimum of 3/16 in. or penetrate 1 inch (25 mm) or greater thickness of lumber a minimum of 1 in., except where architectural appearance is to be preserved, in which case a minimum of 3/4 in. nail may be used.

R7297

Date Submitted	11/16/2018	**Section**	RAS 117	**Proponent**	Jorge Acebo
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Clarifies how tapered insulation should be used when substituting standard insulation.

Rationale

Clarifies the use of tapered insulation and specifies minimum thickness.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Correlates to HVHZ requirements to improve building performance

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Clarified existing requirements

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Incorporates current understanding of component use.

Does not degrade the effectiveness of the code

Improves code effectiveness by clarifying current requirements

RAS 117 Section 3.10

Tapered insulation may be substitutedfor any flat stock type listed in the Roof SystemAssemblyProductApproval.The fastening requirements shall remain the sameand have a minimum thickness as specified in the Roof System Assembly Product Approval. ~~Polyisocyanurate tapered insulation systems shall have a minimum aver- age thickness per panel of 1 in.~~

R7198

Date Submitted	11/6/2018	**Section**	RAS 118	**Proponent**	Michael Goolsby
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Update standard for treated wood and clarify coastal building zone.

Rationale

The RAS 118 modification is needed to revise the wood preservative standard which has been updated and to provide geographic guidance where the definition of “coastal building zone” no longer is provided in Chapter 16.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Improves enforcement by providing proper guidance to the relevant standard and clarifies location of zone no longer defined.

Impact to building and property owners relative to cost of compliance with code

No cost impact, merely provides proper guidance to the relevant standard and clarifies location of zone no longer defined.

Impact to industry relative to the cost of compliance with code

No cost impact, merely provides proper guidance to the relevant standard and clarifies location of zone no longer defined.

Impact to small business relative to the cost of compliance with code

No cost impact, merely provides proper guidance to the relevant standard and clarifies location of zone no longer defined.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The modification strengthens the code by providing a clearer path to compliance.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

The code is strengthened by clarification of the correct standard and providing a more clear location of a zone no longer defined.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate against materials, products, methods or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

The modification improves the effectiveness of the code by providing clarification of the correct standard and providing a more clear location of a zone no longer defined.

ROOFING APPLICATION STANDARD (RAS) No. 118-20 INSTALLATION OF MECHANICALLY FASTENED ROOF TILE SYSTEMS

Direct Deck & Counter Battens Only

2.01 Fasteners:

A. Tile Fasteners

1. All roof tile nails or fasteners, except those made of copper, monel, aluminum, or stainless steel, shall be tested for corrosion in compliance with TAS 114, Appendix E, Section 2 (ASTM G85), for salt spray for 1,000 hours. Tile fasteners used within 1500 feet landward of the reach of the mean high tide ~~in coastal building zones, as define in Chapter 16 (High-Velocity Hurricane Zones)~~, shall be copper, monel, aluminum or stainless steel.

2.07 Sheathing material shall conform to APA-rated sheathing, in compliance with Chapter 23 (High-Velocity Hurricane Zones) of the Florida Building Code, Building.

A. Battens – material to be decay resistant species or ~~pressure~~ preservative treated in compliance with American Wood Preservers Association, AWPA U-1, Use Category 2 or higher, or any decay resistant species ~~C2~~.

1. Battens shall not be bowed or twisted.

2. Vertical battens shall be a minimum of nominal 1 in. by 4 in., horizontal battens shall be a minimum of nominal 1 in. by 2 in.

R7351

Date Submitted	11/20/2018	**Section**	RAS 118	**Proponent**	Gaspar Rodriguez
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Indicate the minimum requirements for height vent pipes, need to extend above roof.

Rationale

The minimum height vent pipes need to extend above roof tiles is not indicated in the code. This proposed change indicates to the user of the code the minimum requirements.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None. Adds language to more precisely define current code requirements.

Impact to building and property owners relative to cost of compliance with code

None. Adds language to more precisely define current code requirements.

Impact to industry relative to the cost of compliance with code

None. Adds language to more precisely define current code requirements.

Impact to small business relative to the cost of compliance with code

None. Adds language to more precisely define current code requirements.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes. Adds language to more precisely define current code requirements.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes. Adds language to more precisely define current code requirements.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate. Adds language to more precisely define current code requirements.

Does not degrade the effectiveness of the code

Correct. Adds language to more precisely define current code requirements.

3.06 Pipes, Stacks, Vents, etc., (see Drawings 8 & 9).

A. Apply approved plastic roof cement around base of protrusion and on the bottom side of metal flanges sealing unit base flashing to the underlayment.

B. Nail all sides within 1 in. of outside edge of base flashing 6 in. on center. Make certain base is flush to deck.

C. Pipes, vents, stacks shall terminate a minimum 2 in. above upper most adjacent finished tile surface.

R7200

Date Submitted	11/6/2018	**Section**	RAS 119	**Proponent**	Michael Goolsby
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Update standard for treated wood and clarify coastal building zone.

Rationale

The RAS 119 modification is needed to revise the wood preservative standard which has been updated and to provide geographic guidance where the definition of “coastal building zone” no longer is provided in Chapter 16.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Improves enforcement by providing proper guidance to the relevant standard and clarifies location of zone no longer defined.

Impact to building and property owners relative to cost of compliance with code

No cost impact, merely provides proper guidance to the relevant standard and clarifies location of zone no longer defined.

Impact to industry relative to the cost of compliance with code

No cost impact, merely provides proper guidance to the relevant standard and clarifies location of zone no longer defined.

Impact to small business relative to the cost of compliance with code

No cost impact, merely provides proper guidance to the relevant standard and clarifies location of zone no longer defined.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The modification strengthens the code by providing a clearer path to compliance.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

The code is strengthened by clarification of the correct standard and providing a more clear location of a zone no longer defined.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate against materials, products, methods or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

The modification improves the effectiveness of the code by providing clarification of the correct standard and providing a more clear location of a zone no longer defined.

ROOFING APPLICATION STANDARD (RAS) No. 119-20 INSTALLATION OF MECHANICALLY FASTENED ROOF TILE SYSTEMS

Direct Deck & Horizontal Battens Only

(Preformed Metals With Edge Returns)

2.01 Fasteners:

A. TileFasteners

1. All roof tile nails or fasteners, except those made of copper, monel, aluminum, or stainless steel, shall be tested for corrosion in compliance with TAS 114, Appendix E, Section 2 (ASTM G85), for salt spray for 1,000 hours. Tile fasteners used within 1500 feet landward of the reach of the mean high tide ~~in coastal building zones, as define in Chapter 16 (High-Velocity Hurricane Zones)~~, shall be copper, monel,aluminumorstainlesssteel.

2.07 Sheathing material shall conform to APA-rated sheathing, in compliance with Chapter 23 (High-Velocity Hurricane Zones) of the Florida Building Code, Building.

A. Battens – material to be decay resistant species or ~~pressure~~ preservative treated in compliance with American Wood Preservers Association,AWPA U-1, Use Category 2 or higher, or any decay resistant species ~~C2~~.

1. Battensshallnotbebowed or twisted.

2. Vertical battens shall be a minimum of nominal 1in. by4in.,horizontal battens shall be a minimum of nominal 1 in. by 2 in.

R7201

Date Submitted	11/6/2018	**Section**	RAS 120	**Proponent**	Michael Goolsby
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Update standard for treated wood and clarify coastal building zone.

Rationale

The RAS 120 modification is needed to revise the wood preservative standard which has been updated and to provide geographic guidance where the definition of “coastal building zone” no longer is provided in Chapter 16.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Improves enforcement by providing proper guidance to the relevant standard and clarifies location of zone no longer defined.

Impact to building and property owners relative to cost of compliance with code

No cost impact, merely provides proper guidance to the relevant standard and clarifies location of zone no longer defined.

Impact to industry relative to the cost of compliance with code

No cost impact, merely provides proper guidance to the relevant standard and clarifies location of zone no longer defined.

Impact to small business relative to the cost of compliance with code

No cost impact, merely provides proper guidance to the relevant standard and clarifies location of zone no longer defined.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The modifications reinforces path to compliance.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

No cost impact, merely provides proper guidance to the relevant standard and clarifies location of zone no longer defined.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate against materials, products, methods or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

The modification improves the effectiveness of the code by providing clarification of the correct standard and providing a more clear location of a zone no longer defined.

ROOFING APPLICATION STANDARD (RAS) No. 120-20 MORTAR AND ADHESIVE SET TILE APPLICATION

2.01 Fasteners:

A. TileFasteners

1. All roof tile nails or fasteners, except those made of copper, monel, aluminum, or stainless steel, shall be tested for corrosion in compliance with TAS 114, Appendix E, Section 2 (ASTM G85), for salt spray for 1,000 hours. Tile fasteners used within 1500 feet landward of the reach of the mean high tide ~~in coastal building zones, as define in Chapter 16 (High-Velocity Hurricane Zones)~~, shall be copper, monel,aluminumorstainlesssteel.

2.07 Sheathing material shall conform to APA-rated sheathing, in compliance with Chapter 23 (High-Velocity Hurricane Zones) of the Florida Building Code, Building.

A. Battens – material to be decay resistant species or ~~pressure~~ preservative treated in compliance with American Wood Preservers Association,AWPA U-1, Use Category 2 or higher, or any decay resistant species ~~C2~~.

1. Battensshallnotbebowed or twisted.

2. Vertical battens shall be a minimum of nominal 1in. by4in.,horizontal battens shall be a minimum of nominal 1 in. by 2 in.

R7592

Date Submitted	11/30/2018	**Section**	RAS 120	**Proponent**	Gaspar Rodriguez
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Clearly indicate current code requirements, specifically back-nailing of underlayment and minimum height of vent pipes.

Rationale

These two current code requirements are not clearly indicated in the code. This addition language will allow for easier code interpretation.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Allows for easier interpretation of current code.

Impact to building and property owners relative to cost of compliance with code

Allows for easier interpretation of current code.

Impact to industry relative to the cost of compliance with code

Allows for easier interpretation of current code.

Impact to small business relative to the cost of compliance with code

Should allow for less cost to comply with code, due to easier interpretation of code.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Makes current code requirements easier to understand.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Makes current code requirements easier to understand.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate.

Does not degrade the effectiveness of the code

Does not change or degrade current code requirements.

3.01Underlayment Applications - CHOOSE ONE of the following:

D.Product Approved Anchor/Base Sheet/Self - Adhered Underlayment System. The roof cover is terminated at approved metal flashings. Any approved anchor/base sheet as listed in the Product Approval shall be mechanically attached to the wood deck with approved fasteners spaced in a 12 in. grid staggered in two~~0ws~~ rows in the field and 6 in. on center at the laps or as specified in the underlayment manufacturers Product Approval. Anchor/base sheet end laps shall be a minimum of 6 in. and head laps shall be a minimum of 4 in. Over anchor/base sheet, apply one layer of any Product approved, self-adhered underlayment in compliance with the self-adhered underlayment manufacturers' Approval/Requirements. Head laps shall be backnailed 12 in. on center with approved nails through tincaps or by prefrabricated fasteners in accordance with Section 1517.5.1 and 1517.5.2 Florida Building Code, Building.

3.06 Pipes, Stacks, Vents, etc., (see Drawings 8 & 9).

A. Apply approved plastic roof cement around base of protrusion and on the bottom side of metal flanges sealing unit base flashing to the underlayment.

B. Nail all sides within 1 in. of outside edge of base flashing 6 in. on center. Make certain base is flush to deck.

C. Pipes, vents, stacks shall terminate a minimum 2 in. above upper most adjacent finished tile surface.

R7384

Date Submitted	11/21/2018	**Section**	RAS 130	**Proponent**	Michael Goolsby
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Establish consistency with industry standard for installation of wood shingles and wood shakes.

Rationale

The modification clarifies underlayment and interlayment requirements for wood shingle and wood shake installations.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None. Clarification only.

Impact to building and property owners relative to cost of compliance with code

May decrease the cost of installations by removing the necessity for interlayment installations for wood shingles.

Impact to industry relative to the cost of compliance with code

May decrease the cost of installations by removing the necessity for interlayment installations for wood shingles.

Impact to small business relative to the cost of compliance with code

None. Clarification only.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Ensures a more durable roof system by eliminating interlayments for wood shingles, which otherwise encourages decay and deformation of shingles and subsequent premature roof failure and by specifying the minimum interlayment for wood shakes.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Ensures a more durable roof system by eliminating interlayments for wood shingles, which otherwise encourages decay and deformation of shingles and subsequent premature roof failure and by specifying the minimum interlayment for wood shakes.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate against product of demonstrated capabilities.

Does not degrade the effectiveness of the code

Improves the effectiveness of the building code by enhancing installation requirements for wood shingles and wood shakes.

ROOFING APPLICATION STANDARD (RAS) No.130-20
INSTALLATION CRITERIA FOR ROOF SHINGLES AND SHAKES APPLICATION

4. Wood Shingles

4.1 Underlayment

Solid Sheathing:	Two plies of ASTM D226, Type 1 felt overlapped 19 in., or a single layer of ASTM D226 Type II felt overlapped a minimum of 4 in. on side laps, and 6 in. on the end laps. Fastened with corrosion resistant 12 ga. roofing nails through tin caps. Fasten with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 in. o.c., and one row at the laps fastened 6 in. o.c.
Spaced Sheathing:	Underlayment shall be installed at a minimum of 36 in. wide sheet at the eave line~~, and shall be a minimum of two plies of ASTM D226, Type I felt overlapped 19 in., or a single layer of ASTM D226 Type II felt overlapped a minimum of 4 in. on side laps, and 6 in. on the end laps~~. Fastened with corrosion resistant 12 ga. roofing nails through tin caps. Fasten with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 in. o.c.~~, and one row at the laps fastened 6 in. o.c., at a minimum of 36 in. from the eave of the roof~~.
	Roofing nails shall be of sufficient length to penetrate through the plywood panel or wood plank decking not less than $^{3}/_{16}$ in., or to penetrate into a 1 in., or greater, thickness of lumber not less than 1 in.

4.3 Valleys may be installed open or closed. A 36 in. wide sheet of minimum ASTM D226 Type II organic felt shall be installed ~~over the underlayment and~~ centered in the valley, fastened 6 in. o.c. through tin-caps at each edge of the sheet. Minimum end laps shall be 12 in. and fully adhered with approved flashing cement.

4.7 Reserved. ~~An optional interlayment sheet may be installed between wood shingles in solid sheathing applications. Interlayment shall be required in all spaced sheathing applications. Interlayment shall be a minimum of ASTM D226, Type I felt with a minimum width of 18 in. and shall be applied between each succeeding course of wood shingles. Interlayment shall be fastened on the upper edge of the sheet. The bottom edge of the interlayment shall be positioned above the butt edge of each course of wood shingles, a distance equal to triple the weather exposure of the wood shingles. Extend interlayment up vertical surfaces a minimum of 4 in. No felt shall be exposed.~~

4.8 The beginning or starter course of wood shingles at the eave line shall be doubled as a minimum. The wood shingles shall ~~be~~ project a minimum $^{3}/_{4}$ in. to a maximum of 2 in. beyond the drip edge at both eaves and rakes. Spacing between shingles (joints or key ways) shall be a minimum of $^{1}/_{4}$ in. and a maximum of $^{3}/_{8}$ in. Shingles shall be positioned so that they cover the joints in the preceding course and adjacent courses shall be offset a minimum of $1^{1}/_{2}$ in. In any three courses (adjacent), no two joints should be directly aligned (see Detail B).

4.10 Hip and ridges may be installed from pre-manufactured units or field assembled units from manufacturer's shingles. The exposed juncture of the roof hip and ridge areas shall be covered with a minimum 6 in. wide strip of ASTM D226 Type II organic felt, prior to installing the hip and ridge units. No felt shall be left exposed. Lay alternate overlapping hip and ridge units, starting with a double starter course. The weather exposure of the hip and ridge units shall be the same exposure as the field shingles. Each side of the hip and ridge units shall be a minimum of 4 in. wide. Each hip and ridge unit shall be fastened to the roof with two fasteners of the same type as that used for the field shingles. Fasteners shall be of sufficient length to penetrate the plywood panel or wood plank decking not less than $^{3}/_{16}$ in.; or to penetrate into a 1 in., or greater, thickness of lumber not less than 1 in. Nails shall be driven straight and flush. Nails shall not be overdriven (see Detail C).

5. Wood Shakes

5.1 Underlayments:

Solid Sheathing:	Underlayment shall be installed at a minimum of 36 in. wide sheet at the eave line ~~Two plies of ASTM D226, Type I felt overlapped 19 in., or a single layer of ASTM D226 Type II felt overlapped a minimum of 4 in. on side laps and 6 in. on the end laps.~~ Fasten with corrosion resistant 12 ga. roofing nails through tin caps. Fasten with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 in. o.c.~~, and one row at the laps fastened 6 in. o.c., at a minimum of 36 in. from the eave of the roof~~.
Spaced Sheathing:	Underlayment shall be installed at a minimum of 36 in. wide sheet at the eave line~~, and shall be a minimum of two plies of ASTM D226, Type I felt overlapped 19 in., or a single layer of ASTM D226 Type II felt overlapped a minimum of 4 in. on side laps, and 6 in. on the end laps~~. Fastened with corrosion resistant 12 ga. roofing nails through tin caps. Fasten with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 in. o.c.~~, and one row at the laps fastened 6 in. o.c., at a minimum of 36 in. from the eave of the roof~~.
	Roofing nails shall be of sufficient length to penetrate through the plywood panel or wood plank decking not less than $^{3}/_{16}$ in., or to penetrate into a 1 in., or greater, thickness of

lumber not less than 1 in.

5.8 Spacing between shakes (joints or key ways) shall be a minimum $^{1}/_{4}$ 3/8 in. and a maximum of $^{5}/_{8}$ in. Shakes shall be positioned so that they cover the joints in the preceding course. Adjacent courses shall be offset a minimum of $1^{1}/_{2}$ in. In any three courses (adjacent), no two joints should be directly aligned (see Detail D).

5.10 Hip and ridges may be installed from pre-manufactured units or field assembled units from manufacturer's shakes. The exposed juncture of the roof hip and ridge areas shall be covered with a minimum 6 in. wide strip of ASTM D226 Type II organic felt, prior to installing the hip and ridge units. No felt shall be left exposed. Lay alternate overlapping hip and ridge units, starting with a double starter course. The weather exposure of the hip and ridge units shall be the same exposure as the field shingles. Each side of the hip and ridge units shall be a minimum of 4 in. wide. Each hip and ridge unit shall be fastened to the roof with two fasteners of the same type as that used for the field shakes. Fasteners shall be of sufficient length to penetrate the plywood panel or wood plank decking not less than $^{3}/_{16}$ in.; or to penetrate into a 1 in., or greater, thickness of lumber not less than 1 in. Nails shall be driven straight and flush. Nails shall not be overdriven. (see Detail C).

R8283

Date Submitted	12/15/2018	**Section**	TAS 104	**Proponent**	Chadwick Collins
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

RAS TAS

Summary of Modification

HVHZ roofing updates

Rationale

The Asphalt Roofing Manufacturers Association staff and volunteers and the Miami-Dade roofing product staff team worked together over the past year to perform a thorough review of the HVHZ requirements for asphalt roofing, and underlayment materials, as well as related RAS and TAS protocols. Many of these requirements have not been updated in decades; this review is an attempt to correlate the FBC with other changes that have occurred within the FBC, at ASCE, and with other standards developers including ASTM International. ARMA has submitted a series of code modifications that reflect that effort.

These proposed modifications include:

- Removal of references to withdrawn standards.
- Removal of references to legacy documents, including ICBO acceptance criteria.
- Updates to referenced standards, including name changes.
- Updates to performance criteria to reflect changes in referenced standards.
- Modifications to certain initial and aged performance values for test requirements to more accurately reflect the intent of the code.
- Removal of redundant or unnecessary requirements.
- Editorial changes and grammatical corrections.

ARMA would like to thank the staff at Miami-Dade for their efforts in working through this very tedious process.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

Reduced product approval expense

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Updates important roofing requirements for HVHZ use.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Removes outdated references.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not require use of any specific type of product.

Does not degrade the effectiveness of the code

Ensures that the code is up to date with available research and referenced standards.

See attached file.

TESTING APPLICATION STANDARD (TAS) No. 104-~~95~~20
TEST PROCEDURE FOR NAIL-ON UNDERLAYMENT FOR USE IN ~~DISCONTINUOUS~~ TILE ROOF SYSTEMS

1. Scope

1.1 This Protocol covers procedures for testing mechanically attached, prefabricated, ~~reinforced,~~ polymer modified bituminous, and solid thermoplastic sheet roofing materials intended for use as underlayment in ~~Discontinuous~~ Tile Roof Systems to assist in the waterproofing to function in combination with a Prepared Roof Covering. These products may employ fine or granular surfacing materials on one side in which case the "Granular Adhesion" test, as specified herein, shall also be conducted. The Granular Adhesion test shall be required for all granular surfaced materials used as a bonding surface for mortar or adhesive set tile.

1.2 The test procedures outlined in this Protocol cover the determination of the Thickness; the Dimensional Stability; the Tear Resistance; the Breaking Strength; the Elongation; ~~the Water Absorption;~~ the Low Temperature Flexibility; the Ultraviolet Resistance; the Accelerated Aging Performance; the Cyclic Elongation Performance; the Water Vapor Transmission; the Puncture Resistance; and the Tile Slippage Resistance of an underlayment material; the Accelerated Weathering Performance of an underlayment material; the Tensile Adhesion properties of the exposed surface of the underlayment; and Granular Adhesion ~~of a mineral~~ for granular surfaced ~~roll roofing material, for use as an~~ underlayment.

1.3 These test methods appear in the following order:

	Section
Conditioning	5
Thickness	6
Dimensional Stability	7
Tear Resistance	8
Breaking Strength and Elongation	9
Reserved	10
Low Temperature Flexibility	11
Ultraviolet Resistance	12
Accelerated Aging	13
Cyclic Elongation	14
Water Vapor Transmission	15
Puncture Resistance	16
Tile Slippage Resistance	17
Granule Adhesion	18
Tensile Adhesion	19
Accelerated Weathering	20

2. Referenced Documents

2.1 *ASTM Test Standards*

~~D 570 Water Absorption of Plastics~~
D 1079 Standard Definitions and Terms Relating to Roofing, Waterproofing and Bituminous Materials
~~D 1938 Tear Propagation Resistance of Plastic Film and Thin Sheeting by a Single Tear Method~~

D 4073	Standard Test Method For Tensile Tear Strength of Bituminous Roofing Membranes
D 1970	Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection ~~(Low Temperature Flexibility)~~
D 2523	Testing Load-Strain Properties of Roofing Membranes
D 1623	Standard Test Method For Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
D 5147	Sampling and Testing Modified Bituminous Sheet Materials
E 96	Water Vapor Transmission of Materials
E 380	Excerpts from the Standard Practice for Use of the International System of Units (SI) (the Modernized Metric System)

2.2 *The Florida Building Code, Building*

3. Terminology & Units

3.1 Definitions - For definitions of terms used in this Protocol, refer to ASTM D 1079; Chapters 2 and 15 (High-Velocity Hurricane Zones) of the *Florida Building Code, Building*. The definitions from the *Florida Building Code, Building* shall take precedence.

3.2 Units - For conversion of U.S. customary units to SI units, refer to ASTM E 380.

4. Significance and Use

4.1 The test procedures outlined in this Protocol provide a means of determining whether a mechanically attached roofing material, intended for use as an underlayment in a Discontinuous Roof System, for use in the High-Velocity Hurricane Zones, meets the requirements of the *Florida Building Code, Building*.

5. Conditioning

5.1 Specimens shall be selected in accordance with ASTM D5147. Unless otherwise specified, condition test specimens for a minimum of four (4) hours at 73.4 ± 3.6°F and 50 ± 5 % relative humidity prior to testing. Note separate conditioning requirements for ~~cold bend~~ low temperature flexibility testing in Section 11.1.

6. Thickness

6.1 Materials shall be checked at five points across the roll width. Measurements shall be made at two points, each being 6 ± 0.5 inches from each edge, and at three points equally spaced between these two points.

6.2 Compute the average thickness and the standard deviation of the thicknesses, in mils, based on the total number of point measurements from all of the rolls taken.

6.3 Report the individual point measurements, average, and standard deviation in mils.

6.4 Any modified bitumen ~~and~~ or bituminous test specimen which exhibits an average thickness less than sixty (60) mils shall be considered as failing the thickness test. For granular surfaced products, ~~T~~thickness measurements shall be at the selvage edge, not at a granular surface.

6.5 Non-bituminous membranes shall not nave a thickness minimum. Performance shall be based on physical property testing.

7. Dimensional Stability

7.1 Prepare five (5) 2 foot wide x 6 foot long specimens with a 4 inch overlap seam across the center of the 6 foot length. Prepare the specimens: one from each edge of the roll and three from random places in the roll. The length of each specimen should be in the 'machine direction' of the roll.

7.2 The substrate shall be $^{32}/_{16}$ APA span rated plywood sheathing of a $^{15}/_{32}$ in. thickness that has been reinforced on the back side with two angle irons.

7.3 Place the underlayment specimen on the substrate and install a $1^1/_2$ in. x $1^1/_2$ in. x 2' wood termination batten to one "free" end of the underlayment using three (3) equally spaced #12 wood screws to secure the batten through the underlayment and the sheathing. Mechanically attach the other "free" end of the underlayment using three (3) equally spaced ~~10d~~ roofing nails, located two (2) inches from the "free" end, with one nail at one inch from each edge, penetrating the sheathing a minimum of $^1/_2$ inch.

7.4 Condition each specimen in an oven or under heat lamps maintained at 180 ± 5°F for a minimum of six (6) hours.

7.5 Report any tears or "tear drop" conditions which arise at fastener penetrations during and/or after conditioning is complete. Report any shrinking or wrinkling which appears to have compromised the lapped area of underlayment.

7.6 Any test specimen which exhibits conditions noted in Section 7.5 of this Protocol shall be considered as failing the dimensional stability test.

7.7 Provide before and after photographs of each specimen in the final test report.

8. Tear Resistance

8.1 This test covers the determination of the tear propagation resistance of materials specified in Section 1 of this Protocol in accordance with ASTM Test Method D 4073, except as noted below.

8.1.1 The prescribed Test Method shall be run in both the machine and the cross-machine direction of the roll material.

8.1.2 The final test report shall include average tear propagation force values and standard deviations of these value for both the machine and the cross-machine direction of the material.

8.1.3 Any test specimen which exhibits a tear propagation value less than 20 lbf (88.5 N) in either the machine or cross-machine directions shall be considered as failing the tear strength test.

9. Breaking Strength and Elongation

9.1 This test covers the determination of the breaking strength and elongation of materials specified in Section 1 of this Protocol in accordance with ASTM Test Method D 2523, except as noted below.

9.1.1 Sampling

9.1.1.1 Ten specimens; five in the machine direction and five in the cross-machine direction of the roll, shall be cut to dimensions of 1 in. x 6 in.

9.1.2 Conditioning

9.1.2.1 Heat Aging~~,~~ shall consist of seven (7) days in an air circulating oven at a controlled temperature of 149 ± 5°F.

9.1.2.2 UV Exposure~~,~~ shall consist of 460 hours of continuous ultraviolet light exposure per Section 12.1.2.2.

9.1.3 Procedure

9.1.3.1 Each set of samples, as specified in 9.1.1.1 herein, shall be tested "as received," after heat aging, and after UV exposure, as specified in 9.1.2.1 and 9.1.2.2 herein.

9.1.3.2 Grip separation rate shall be 20 ± 0.2 inches per minute for all tests conducted.

9.1.3.3 Testing shall be performed at 73.4 ± 3.6°F for all tests.

9.1.3.4 Specimens and testing grips shall be conditioned at 73.4 ± 3.6°F 77°F for a minimum of one (1) hour prior to testing~~.~~

9.1.4 Report

9.1.4.1 Report the grip separation rate used.

9.1.4.2 Breaking strength shall be reported, in lbf/inch of width, for all test specimens and shall be itemized in grouping of "as received," after heat conditioning, and UV exposure as specified in 9.1.2.1 and 9.1.2.2 herein. The~~se grouping~~ test specimens shall be itemized in subgroups of machine direction and cross-machine direction. Any test specimen which exhibits a breaking strength value less than those listed in Table 1 shall be considered as failing the breaking strength test.

TABLE 1 MINIMUM BREAKING STRENGTH VALUES (%)

SPECIMEN	BREAKING STRENGTH (Machine Direction or Cross-Machine Direction)
As Received	25 lbf/inch of width (35 N/cm of width)
After Heat Aging	25 lbf/inch of width (35 N/cm of width)
After QUV Exposure	25 lbf/inch of width (35 N/cm of width)

9.1.4.3 Elongation shall be reported, in (%), for all test specimens and shall be itemized in grouping of "as received," after heat conditioning, and after UV exposure. These grouping shall be itemized in subgroups of machine direction and cross-machine direction. Any test specimen which exhibits elongation values less than those listed in Table 2 shall be considered as failing the elongation test.

10. Reserved

11. Low Temperature Flexibility

11.1 This test covers the determination of the low temperature flexibility of materials specified in Section 1 of this Protocol in accordance with ASTM Test Method D 1970 except as noted below. Membranes shall be test at a maximum of 10°F.

11.1.1 Procedure

11.1.1.1 Each set of specimens shall be tested “as received” and after conditioning, as specified in ASTM D 1970.

11.1.2 Report

11.1.2.1 Low temperature flexibility results shall be reported on a pass/fail basis, for all test specimens and shall be itemized in grouping of “as received” and after conditioning. No cracking at -10°F shall be considered as passing the low temperature flexibility test.

TABLE 2 MINIMUM ELONGATION VALUES (%)

SPECIMEN	ORGANIC REINFORCEMENT	FIBERGLASS REINFORCED	POLYESTER OR POLYPROPYLENE REINFORCED	SOLID THERMOPLASTIC ~~SHEATHING~~SHEETS
As Received	6%	3%	25%	225%
After Heat Aging	5%	2.5%	21%	191%
After QUV Exposure	5%	2.5%	21%	191%

12. Ultraviolet Resistance

12.1 This test covers the determination of the ultraviolet resistance performance of materials specified in Section 1.

12.1.1 Sampling - Two 18 in. x ~~18~~ 48 in. specimens are to be cut.

12.1.2 Conditioning

12.1.2.2 Ultraviolet light shall be produced by four ~~300~~ 275 W~~watt~~ UV lamps in an enclosure in accordance with Figure 1. Recommended lamps are: Ultra-Vitalux, ~~300~~ 275 W, 220-230 V, #E27; ~~or~~ Os~~h~~ram ~~300~~ 275 W lamps, or; equivalent bulbs providing UV characteristics of 5.0 W/m2/nm irradiance at a wavelength of 315 to 400 nm at one meter.~~.~~

12.1.2.3 Specimens to be exposed for ~~200~~ 460 (± 2) continuous hours ~~(10 hours per day for 20 days)~~.

12.1.2.4 Specimen temperature to be maintained at 135-140°F throughout the ~~UV exposure portion of the~~ test period. ~~Specimens shall be maintained between 70°F +/- 15°F when not exposed to UV during the test period.~~

12.1.3 Report & Conditions of Acceptance

12.1.3.1 Report any visible peeling, chipping, cracking, flaking, pitting or other damage, under 5x magnification, which resulted from the ultraviolet conditioning. Report the type and location of the damage (if any).

12.1.3.2 Report the type of UV lamps used to condition the samples.

12.1.3.3 Any test specimen which exhibits damage as defined in Section 12.1.3.1 of this Protocol shall be considered as failing the ultraviolet resistance test.

13. Accelerated Aging

13.1 This test covers the determination of the accelerated aging performance of materials specified in Section 1 of this protocol.

13.2 ~~Sampling~~ Specimen Preparation - Six (6) 12 in. x 12 in. specimens shall be prepared with three (3) in the machine direction and three (3) in the cross-machine direction of the roll. Specimens shall be marked to indicate machine direction.

13.2.1 Accelerated Aging – The specimens prepared per Section 14.1 are aged by the following cyclic process. Twenty-five cycles cycles are required, with each cycle consisting of the following:

1. Oven dry at 120°F (48.9°C) for three hours with all surfaces exposed.
2. Immerse in water maintained at room temperature for three hours, with all surfaces exposed.
3. Remove from water and blot dry, then air dry for 18 hours at room temperature for eighteen hours with all surfaces exposed.

Samples shall be in the air dry period over weekends and holidays, which shall be confirmed in the test log. The room temperature shall be maintained at 73.4 ± ~~5~~3.6°F (2~~3~~2.8 ± ~~2.8~~°C).

13.2.2 Conditions of Acceptance – No visible damage to the specimens, such as chipping, cracking, or delamination.

13.2.3 Breaking strength and elongation tests of aged specimens shall be conducted in accordance with Section 9 of this Protocol, except as noted below.

13.2.3.1 Sampling - After the six (6) 12 in. x 12 in. aged specimens have been examined for visible damage, prepare ten (10) 1 in. x 6 in. specimens from the aged material; five in the machine direction and five in the cross-machine direction of the roll. In addition to these ten aged specimens, prepare ten “as received” specimens of the same dimensions; five in the machine direction and five in the cross-machine direction of the roll.

13.2.3.2 Conditioning - No further conditioning is to be incurred on the aged specimens.

13.2.3.3 Procedure - Each set of samples, as specified in 13.2.3.1 herein, shall be tested “as received” and after accelerated aging.

13.2.3.4 Report

13.2.3.4.1 Breaking strength shall be reported, in lbf/inch of width, for all test specimens and shall be itemized in grouping of “as received” and after accelerated aging. These ~~grouping~~ specimens shall be itemized in subgroups of machine direction and cross-machine direction. Any aged specimen which exhibits a breaking strength less than the value listed in Table 2 shall be considered as failing the accelerated aging test.

13.2.3.4.2 Elongation shall be reported, in (%), for all test specimens and shall be itemized in grouping of ‘as received’ and after accelerated aging. These ~~grouping~~ specimens shall be itemized in subgroups of machine direction and cross-machine direction. Any aged specimen which exhibits an elongation value less than the applicable value listed in Table 2 shall be considered as failing the accelerated aging test.

14. Cyclic Elongation

14.1 This test covers the determination of the cyclic elongation performance of materials specified in Section 1 of this Protocol.

14.1.1 Three specimens are prepared with $^{15}/_{32}$-inch-thick (12.7 mm), 3-inch-by-6-inch (76 mm by 152 mm) APA Rated A-C plywood. Each specimen includes two plywood pieces aligned so that the 6-inch (152 mm) edges are parallel and separated by 1/8 inch (3.2 mm). Once piece of underlayment, ~~5-1/2~~ inches by ~~5-1/2~~ inches, is attached to the plywood pieces across the joint using four (4) ~~10d~~ roofing nails, one at each outside corner of the underlayment. See Figure 2. The specimens are then conditioned at 73 ± 4°F (22.8 ± 2.2°C) for seven days. After conditioning, specimens are placed in a cold box, which is maintained at –20°F (–28.9°C) for ~~48~~ 24 hours ± 1 hour. Specimens are then cycled between a 1/8-inch (3.2 mm) and 1/4-inch (6.4 mm) plywood edge separation for 100 cycles while maintaining the temperature at –20°F (–28.9°C). The rate of movement shall be 1/8 inch (3.2 mm) per hour.

14.1.2 Conditions of Acceptance - Any test specimen which exhibits cracking of material shall be considered as failing the cyclic elongation test.

15. Water Vapor Transmission

15.1 This test covers the determination of the water vapor transmission of materials specified in Section 1 of this Protocol in accordance with ASTM Test Method E 96, Procedure B.

15.2 The water vapor transmission of the membrane shall not be greater than 1.0 g/m2 in 24 hours.

16. Puncture Resistance

16.1 This test covers the determination of the puncture resistance of materials specified in Section 1 of this Protocol as noted below.

16.1.1 Two 12 in. x 25 in. specimens shall be prepared; one ultraviolet light conditioned and one accelerated aging conditioned, as specified in Sections 13 and 14 of this Protocol, respectively.

16.1.2 The puncture point shall be affixed to any shaft and have a right angle triangular pyramid shape that is 1 inch in height with rounded leading edges of 0.062 ± .002 inch radius. The point should be honed to a 0.062 inch radius and the base edges left sharp. The weight of the puncture point and shaft shall be 1.0lb ± 0.1lb.

16.1.2.1 Attach each specimen to a frame consisting of nominal wood members spaced 24 inches on center.

16.1.2.2 The test specimens shall have a maximum sag of 1 inch measured from the top of the framing member.

16.1.2.3 Drop the puncture point from a height of 30 inches above the top of the framing in five different locations.

16.1.3~~2~~ Any test specimen which exhibits any sign of puncture shall be considered as failing the puncture test.

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17. Tile Slippage Resistance

17.1 Prepare three (3) 4 foot ~~wide~~ x 8 foot ~~long~~ test frames using min. 2 inch by 4 inch nominal lumber spaced at 24 inches on center. ~~specimens with a 4 inch overlap seam across the center of the 8 foot length. Prepare the specimens: one from one edge of the roll and one from the center of the roll. The length of each specimen should be in the "machine direction" of the roll.~~

17.2 ~~The substrate shall be~~ Install ~~32/16~~ $^{15}/_{32}$ in. APA 32/16 span rated sheathing on the test frames ~~that has been reinforced on the back side with two angle irons~~.

17.3 Nail the underlayment to the substrate through "tin caps," not less than $1^{5}/_{8}$ in. and not more than 2 in. in diameter and of not less than 32 gage (0.010 in.) sheet metal, using ~~10d~~ roofing nails, in a grid pattern of 12 in. with 6 in. spacing at the lap, penetrating the sheathing a minimum of $^{1}/_{2}$ inch, with a side lap per the manufacturer's installation instructions. The side lap width shall be included in the final test report.

17.4 Condition each test deck in a~~n oven or under heat lamps~~ conditioning cell or room maintained at 165-± 5°F for a minimum of four (4) hours. Thereafter, the deck shall be cooled for minimum three hours at 75° ± 5°F.

17.5 After conditioning, position one test deck at a slope of 4 in:12 in.; one at 5 in:12 in. and the third at a slope of 6 in:12 in.. A 5 in:12 in. test deck may be omitted if requested by the client.

17.6 Onto each sloped test deck, place one (1) stack of 10 flat concrete tiles and one (1) stack of 10 profiled ~~clay~~ tiles manufactured ~~equipped~~ with "lugs" on the underside of each tile ~~at the center of each underlayment piece, equidistant from the edge and the seam~~, to simulate actual loading conditions. Allow the tile stacks to sit on the underlayment surface for ~~72~~ minimum 36 hours while maintaining a controlled surface temperature of 165° ± 5°F. Temperature to be maintained by a ~~surface mounted~~ thermocouple mounted on the surface of the underlayment.

17.7 Report any of the following: ~~tears, slippage, or "tear drop" condition which arise at fastener penterations during the test. Report any tile sliding which has damaged any portion of the top surface of the underlayment.~~

- Any tile slippage on any portion of the underlayment
- Any tears in the underlayment
- Any tears in the underlayment surfacing
- Any delamination of the underlayment facing from the adhesive layer
- Any "tear drop" conditions at fastener penetrations

17.8 Any test specimen which exhibits conditions noted in Section 17.7 of this Protocol shall be considered as failing the tile slippage resistance test.

17.9 Provide before and after photographs of each specimen in the final test report.

17.10 Alternate ~~slippage resistance testing and~~ stacking configurations shall be permitted to be approved as part of a Product Approval. Details of such stacking configurations shall be included in the final test report.

FOR MINERAL SURFACED ~~ROLL~~ MATERIALS TO BE USED AS A MORTAR OR ADHESIVE SET TILE UNDERLAYMENT

18. Granule Adhesion

18.1 This test covers the determination of granule loss of materials specified in Section 1 of this Protocol, which employ a fine or granular surfacing on one side, in accordance with ASTM Test Method D 5147, except as noted below.

18.1.1 Any test specimen which exhibits an average granule loss greater than 0.75 grams shall be considered as failing the granule adhesion test.

FOR UNDERLAYMENTS TO BE USED WITH ADHESIVE SET TILE SYSTEMS

19. Tensile Adhesion of Tile Adhesives

19.1This test covers the determination of the tensile adhesion bond between a tile adhesive and the underlayment surface.

19.2 This test is required to be performed on all adhesives for which approval is sought.

19.3 Sample Preparation and Testing

19.3.1 Prepare 20 (5 each) specimens for testing at 0 days (control), 14 days, 60 days, and 120 days:

19.3.1.1 Bond a 2 inch wide by 24 inch long piece of underlayment to a 2 inch wide by 24 inch long piece of 23/32" B-C APA rated plywood. Take care that the method of bonding does not interfere with or otherwise alter the surface of the underlayment to which the tile adhesive is to be applied. Prepare (6) underlayment/plywood strips in this fashion.

19.3.1.2 Place 2 prepared specimens with the long edge horizontal in a jig such that there is a max. ¾ inches between specimens and the specimens are braced to prevent expansion. The exposed surface of the specimens should be facing each other.

19.3.1.3 Apply foam adhesive in void between the specimens in the manner specified by the adhesive manufacturer's instructions.

19.3.1.4 Allow the adhesive to cure for min. two hours.

19.3.1.5 Remove the adhered specimens from the jig and trim excess adhesive from all edges.

19.3.1.6 Cut each adhered specimen into 2 inch by 2 inch squares.

19.3.2 Condition the 2 inch by 2 inch specimens as follows:

19.3.2.1 Control specimens shall be conditioned at 77 ± 2.5°F and 50% relative humidity for 4 hours.

19.3.2.2 All remaining specimens shall be conditioned at 180 ± 2°F and 65% relative humidity. Six specimens each shall be conditioned for 14, 60, and 120 days.

19.3.3 Test samples in accordance with ASTM D1623. Testing shall be performed after a stabilization at 77 ± 2.5°F and 50% relative humidity.

19.4 The average tensile adhesion of (5) specimens after 0, 14, 60, and 120 days shall be min. 15 psi. Any set of specimens with an average tensile adhesion below 15 psi will be considered as having failed this test.

20. Accelerated Weathering

20.1 Underlayments for which an outdoor exposure greater than 30 days is desired must comply with the requirements of this section.

20.2 Underlayments shall be exposed to accelerated weathering in accordance with ASTM D4798, Cycle A-1.

20.2.1 Exposure Limitations shall be established per Table 20.1.

20.2.2 At the conclusion of the required accelerated weathering, the weathered underlayment shall be tested per Table 20.2. Any product not achieving the values therein will be considered as having failed the test.

20.3 Report the results of testing per Table 20.2 and the duration of Accelerated Weathering exposure.

TABLE 20.1

Days of Allowable Outdoor Exposure	Accelerated Weathering Duration (Hours)
45	250
60	333
90	500
120	666
150	833
180	1,000

TABLE 20.2

Property Tested	Section Number	Minimum Requirement (MD & CD)			
Breaking Strength	10	25 lbf/in			
Elongation	10	Organic Reinforcement	Fiberglass Reinforcement	Polyester or Polypropylene Reinforced	Solid Thermoplastic Sheeting
		6%	3%	25%	225%
Low Temperature Flexibilty	12	No Cracking			

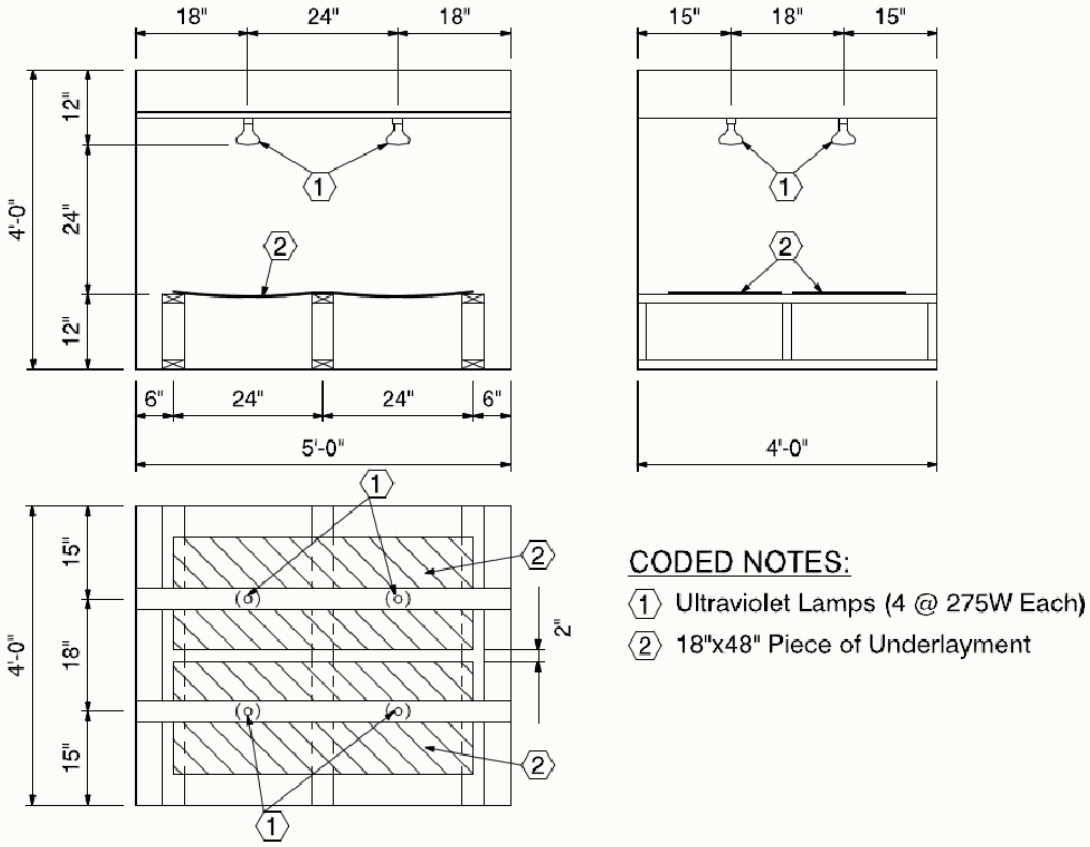

FIGURE 1

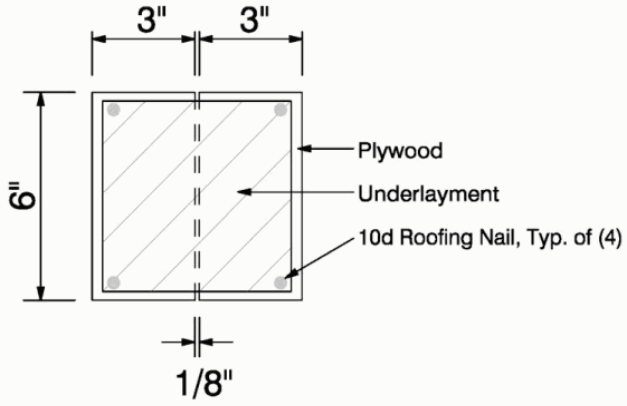

FIGURE 2

R7184

Date Submitted	11/5/2018	**Section**	TAS 105	**Proponent**	Michael Goolsby
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Establish consistency with ASCE 7-16.

Rationale

Revisions necessary to reflect consistency with ASCE 7-16.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None, merely reflects revisions necessary to reflect ASCE 7-16 terminology.

Impact to building and property owners relative to cost of compliance with code

None, merely reflects revisions necessary to reflect ASCE 7-16 terminology.

Impact to industry relative to the cost of compliance with code

None, merely reflects revisions necessary to reflect ASCE 7-16 terminology.

Impact to small business relative to the cost of compliance with code

None, merely reflects revisions necessary to reflect ASCE 7-16 terminology.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes, by identifying elevated pressure zones.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes, by identifying elevated pressure zones.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

TESTING APPLICATION STANDARD (TAS) No. 105-~~11~~20
TEST PROCEDURE FOR FIELD WITHDRAWAL RESISTANCE TESTING

8. Test Procedure for Anchor or Base Sheet, Insulation, and Membrane Attachment testing

8.1 On roof decks of 100 squares or less, ten (10) withdrawal resistance tests shall be conducted, not less than three (3) of which shall be in Zone 2 ~~the perimeter areas (2)~~, three (3) in Zone 3 ~~corner areas (3)~~, the remainders in Zone 1' and Zone 1 ~~the field areas (1)~~ as defined in ASCE7.

8.6 Stair towers, mechanical penthouses and mechanical rooms shall have a minimum of four (4) withdrawal resistance tests, two of which shall be taken ~~at perimeter areas~~ in Zones 2 & 3, as defined in ASCE 7.

10.1.10 Field fastener withdrawal testing shall be performed in the preceding three (3) months, unless otherwise authorized by the *building official.*

TESTING APPLICATION STANDARD (TAS) 105-~~98~~20
APPENDIX A
FIELD WITHDRAWAL RESISTANCE TEST RESULTS REPORT

FIELD WITHDRAWAL RESISTANCE TEST RECORDING SHEET

See Section 8 to determine number of tests (If drill bit is high tolerance, include range in 1/1000" tolerances)

SAMPLE NO.	PLAN IDENTIFIER	INITIAL FAILURE LOAD (lbf)	Zone 1', Zone 1, Zone 2 or Zone 3 (Circle one) FIELD PERIMETER OR CORNER AREA (circle one)			
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3
			Z-1'~~F~~	Z-1~~P~~	~~C~~ Z-2	Z-3

			Z-1’F	Z-1P	C Z-2	Z-3
			Z-1’F	Z-1P	C Z-2	Z-3
			Z-1’F	Z-1P	C Z-2	Z-3
			Z-1’F	Z-1P	C Z-2	Z-3
			Z-1’F	Z-1P	C Z-2	Z-3
			Z-1’F	Z-1P	C Z-2	Z-3
			Z-1’F	Z-1P	C Z-2	Z-3
			Z-1’F	Z-1P	C Z-2	Z-3
			Z-1’F	Z-1P	C Z-2	Z-3

R7299

Date Submitted	11/16/2018	**Section**	TAS 110	**Proponent**	Jorge Acebo
Chapter	1	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Specifies Testing Labs must verify manufacturing location of tested products.

Rationale

Clarifies requirement for Test Labs to verify manufacturing location of samples submitted for testing.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Traceability of approved components for the purpose of insuring product approved components perform as tested and certified.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Removes any obstacles to quality assurance of product approval components.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

applies equally to all products seeking approval.

Does not degrade the effectiveness of the code

Improves code effectiveness by specifying requirement to document product traceability.

TAS 110 Section 1

Add Section 1.2

1.2 Manufacturing location of tested products shall be verified by the testing laboratory and be included in the report.

R7303

Date Submitted	11/16/2018	**Section**	TAS 110	**Proponent**	Jorge Acebo
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Modifies Table 9 footnote in Section 9 to exclude requirements for TAS 103 and TAS 104 membranes which are being modified to include the additional testing specified in the footnote.

Rationale

Excludes requirement for TAS 103 and TAS 104 membranes to perform the additional testing requirements listed within the footnote because the requirement is being included into TAS 103 and TAS 104 protocols.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Correlates updates for HVHZ requirements to improve building performance.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Removes outdated requirements.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Incorporates latest versions of referenced standards and removes obstacles to product approval.

Does not degrade the effectiveness of the code

Improves code effectiveness by specifying testing requirement specified and used by other certification bodies.

TAS 110 Section 9

Modify Table 9 footnote only

TABLE 9

Product	Test	Test Standard
Fiber Cement Roof Assembly	Wind Driven Rain Resistance	TAS 100
Fiber Cement Roofing Products	Physical Properties	TAS 135
Mechanical Attached Fiber Cement Tile or Shake Roof Assemblies (Uplift Based System)	Static Uplift Resistance	TAS 102(A) (See TAS 135 for details)
Mechanically Attached, Clipped Fiber Cement Tile or Shake Roof Assemblies (Uplift Based System)	Static Uplift Resistance	TAS 102(A) (See TAS 135 for details)
Fiber Cement Panel Roof Assemblies	Uplift Pressure Resistance	E 330 (See TAS 135 for details)
Underlayment		
Self-Adhered Underlayments	Physical Properties	TAS 103
Nail-On Underlayments	Physical Properties	TAS 104
Asphalt Based Underlayments	Physical Properties	See Section 2 of this Protocol
Attachment Components		
Nails, Screws, Clips, etc.	Corrosion Resistance	Appendix E of TAS 114

All Underlayments (with the exception of TAS 103 or TAS 104 underlayments) with exposure limitation in excess of 30 days must submit enhanced Accelerated Weathering testing in conjunction with applicable Physical Properties testing. Exposure limitations up to a maximum of 180 days will be established through ASTM D4798 ~~as outlined in ASTM D5147~~ for 1000 hours (cycle A-1); pass/fail established by physical properties testing of the weathered samples. Physical property testing where specimen size will not fit into the accelerated weathering device may beomitted.

R7304

Date Submitted	11/16/2018	**Section**	TAS 110	**Proponent**	Jorge Acebo
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Modifies Table 10 footnote in Section 10 to exclude requirements for TAS 103 and TAS 104 membranes which are being modified to include the additional testing specified in the footnote.

Rationale

Excludes requirement for TAS 103 and TAS 104 membranes to perform the additional testing requirements listed within the footnote because the requirement is being included into TAS 103 and TAS 104 protocols.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Correlates updates for HVHZ requirements to improve building performance.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Removes outdated requirements.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Incorporates latest versions of referenced standards and removes obstacles to product approval.

Does not degrade the effectiveness of the code

Improves code effectiveness by specifying testing requirement specified and used by other certification bodies.

TAS 110 Section 10

Modify Table 10 footnote only

TABLE 10

Product	Test	Test Standard
Non-Rigid, Discontinuous Roof Assembly	Wind Driven Rain Resistance	TAS 100
Non-Rigid, Discontinuous Roof Assembly	Wind Resistance	TAS 107
Non-Rigid, Discontinuous Roof Assembly	Fire Resistance min . Class 'B'	E 108 min. Class 'B'
Granule Surfaced, Glass Felt Asphalt Shingles	Physical Properties	D3462
Granule Surfaced, Class 'A' Asphalt Shingles Fiberglass Reinforced	Physical Properties	D3018 TAS 135
Composite Shingles Fiber Cement Shingles	Physical Properties	TAS 135
Metal Shingles	Salt Spray and Accelerated Weathering	B117 and G23
Underlayment		
Self-Adhered Underlayments	Physical Properties	TAS 103 or ASTM D1970
Nail-On Underlayments	Physical Properties	TAS 104
Asphalt Based Underlayments	Physical Properties	See Section 2 of this Protocol
Attachment Components		
Nails, Screws, Clips, etc	Corrosion Resistance	Appendix E of TAS 114

AllUnderlayments (with the exception of TAS 103 or TAS 104 underlayments) withexposurelimitationinexcessof30daysmust submit enhanced Accelerated Weathering testing in conjunction with applicable Physical Properties testing. Exposure limitations up to a maximum of 180 days will be established through ASTM D4798 ~~as outlinedinASTMD5147~~for1000hours(cycleA-1);pass/failestablished by physical properties testing of the weathered samples. Physical property testing where specimen size will not fit into the accelerated weathering device may beomitted.

R7305

Date Submitted	11/16/2018	**Section**	TAS 110	**Proponent**	Jorge Acebo
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Modifies Table 11(A) and 11(B) footnote 3 in Section 11 to exclude requirements for TAS 103 and TAS 104 membranes which are being modified to include the additional testing specified in the footnote.

Rationale

Excludes requirement for TAS 103 and TAS 104 membranes to perform the additional testing requirements listed within the footnote because the requirement is being included into TAS 103 and TAS 104 protocols.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Correlates updates for HVHZ requirements to improve building performance.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Removes outdated requirements.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Incorporates latest versions of referenced standards and removes obstacles to product approval.

Does not degrade the effectiveness of the code

Improves code effectiveness by specifying testing requirement specified and used by other certification bodies.

TAS 110 Section 11

Modify Table 11(A) and 11(B) footnote 3 only

TABLE 11(A)

Product	Test	Test Standard
Mechanically Attached Rigid, Discontinuous Roof Assembly	Wind Driven Resistance	TAS 100
Mechanically Attached Rigid, Discontinuous Roof Assembly	Static Uplift Resistance	TAS 102
Mechanically Attached Clipped, Rigid, Discontinuous Roof Assembly	Static Uplift Resistance	TAS 102(A)
Mortar or Adhesive Set Tile Roof Assembly	Static Uplift Resistance	TAS 101
Rigid, Discontinuous Roof Assembly	Wind Tunnel Performance	TAS 108
Rigid, Discontinuous Roof Assembly	Air Permeability	TAS 116
Concrete Roof Tile	Physical Properties	TAS 112
Clay Roof Tile	Physical Properties	C 1167
Fiberglass Reinforced Composite Tile	Physical Properties	TAS 135
Underlayment		
Self-Adhered Underlayments	Physical Properties	TAS 103
Nail-On Underlayments	Physical Properties	TAS 104
Asphalt Based Underlayments	Physical Properties	See Section 2 of this Protocol
Attachment Components		
Nails, Screws, Clips, etc.	Corrosion Resistance	Appendix E of TAS 114
Mortar (for use in mortar set tile Roof System Assemblies)	Physical Properties	TAS 123
Adhesive (for use as a repair or supplemental attachment component)	Physical Properties	TAS 123(A)

TABLE 11(B)

Product	Test	Test Standard
Slate	Physical Properties	C406
Underlayment		
Self-Adhered Underlayments	Physical Properties	TAS 103 or ASTM D1970
Nail-On Underlayments	Physical Properties	TAS 104
Asphalt Based Underlayments	Physical Properties	See Section 2 of this Protocol

Attachment Components		
Nails, Screws, Clips, etc.	Corrosion Resistance	Appendix E of TAS 114

Notes:

1. Wind tunnel testing of rigid, discontinuous roof assemblies is op- tional and is only applicable to systems having rigid components which meet the size constraints set forth in TAS108.
2. Air permeability testing of rigid, discontinuous roof assemblies is onlyapplicabletothosesystemswhicharetobetestedincompliance withTAS108andisnotrequiredforthosesystemsgenerallyconsid- ered to be air permeable. This is a test to confirm the roofassembly would apply to wind tunneltesting.
3. All Underlayments (with the exception of TAS 103 or TAS 104 underlayments) with exposure limitation in excess of 30 days must submit enhanced Accelerated Weathering testing in conjunction with applicable Physical Properties testing. Exposure limitations up to a maximum of 180 days will be established through ASTM D4798 as outlined in ASTM D5147 for 1000 hours (cycle A-1); pass /fail established by physical properties testing of the weathered samples. Physical property testing where specimen size will not fit into the accelerated weathering device may be omitted.

R7306

Date Submitted	11/16/2018	**Section**	TAS 110	**Proponent**	Jorge Acebo
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Modifies Table 17 footnote in Section 17 to exclude requirements for TAS 103 and TAS 104 membranes which are being modified to include the additional testing specified in the footnote.

Rationale

Excludes requirement for TAS 103 and TAS 104 membranes to perform the additional testing requirements listed within the footnote because the requirement is being included into TAS 103 and TAS 104 protocols.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Correlates updates for HVHZ requirements to improve building performance.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Removes outdated requirements.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Incorporates latest versions of referenced standards and removes obstacles to product approval.

Does not degrade the effectiveness of the code

Improves code effectiveness by specifying testing requirement specified and used by other certification bodies.

TAS 110 Section 17

Modify Table 17 and footnote

TABLE 17

Product	Test	Test Standard
Non-Rigid, Discontinuous Roof Assembly	Wind Driven Rain Resistance	TAS 100
Plastic Tile/Shake/Slate Systems	Uplift Performance	TAS 125
Plastic Tile/Shake/Slate	Outdoor Exposure Xenon Arc	G26 (6500 watts) Test Method 1 or G155 (4500 hours)
	Tensile Test	D638 (+/- 10% allowable difference between exposed and non-exposed samples)
	Flexural Test	C158 (+/- 10% allowable difference between exposed and non-exposed samples)
Plastic Tile/Shake/Slate	Self Ignition	D1929 (greater than 650°F)
Plastic Tile/Shake/Slate	Smoke Density Rating	E84 (rating less than 450) or D2843 (rating less than 75)
Plastic Tile/Shake/Slate	Rate of Burning	D635 (Class ~~C1~~ CC-1 or ~~C2~~ CC-2)
Underlayment		
Self-Adhered Underlayments	Physical Properties	TAS 103 or ASTM D1970
Nail-On Underlayments	Physical Properties	TAS 104
Asphalt Based Underlayments	Physical Properties	See Section 2 of this Protocol
Attachment Components		
Nails, Screws, Clips, etc.	Corrosion Resistance	Appendix E of TAS 114

All Underlayments (with the exception of TAS 103 or TAS 104 underlayments) with exposure limitation in excess of 30 days must submit enhanced Accelerated Weathering testing in conjunction with applicable Physical Properties testing. Exposure limitations up to a maximum of 180 days will be established through ASTM D4798 ~~as outlined in ASTM D5147~~ for 1000 hours (cycleA-1); pass/fail established by physical properties testing of the weathered samples. Physical property testing where specimen size will not fit into the accelerated weathering device may beomitted.

R7439

Date Submitted	11/26/2018	**Section**	TAS 110	**Proponent**	Gaspar Rodriguez
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

7437; 7438; 7439. These three mods need to be considered concurrently.

Summary of Modification

Will allow for standing seam metal roof systems to be install to a minimum 1:12 slope.

Rationale

Many property owners have requested metal panel roof on low-slope roofs. This modification will allow the option for the property owner to install metal roof panels to a minimum 1:12 slope roofs.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None, it will require the same amount of enforcement.

Impact to building and property owners relative to cost of compliance with code

This modification is an option (not a requirement) that many property owners have requested in the HVHZ.

Impact to industry relative to the cost of compliance with code

This modification is an option (not a requirement) that many property owners have requested in the HVHZ.

Impact to small business relative to the cost of compliance with code

Many small business will perform the required testing to expand their product line.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

The general public is asking for this option. This modification is an option (not a requirement) that many property owners have requested in the HVHZ.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Allows for greater options for low slope roofing, while maintaining product standards.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade the code, allows optional systems for certain low slope roofs.

Table 15

Product	Test	Test Standard
Structural, Nonstructural Metal Panels and Metal Shingle Roof Assemblies	Uplift Resistance	TAS 125
Structural, Nonstructural Metal Panels and Metal Shingle Roof Assemblies	Wind and Wind Driven Rain Resistance	TAS 100
Structural, Nonstructural Metal Panels and Metal Shingle Roof Assemblies	Fire Resistance	E108 (min. Class "B")
Structural, Nonstructural Metal Panels and Metal Shingle Roof Assemblies	Accelerated Weathering	G152 or G155 (2000 hours)
Structural, Nonstructural Metal Panels and Metal Shingle Roof Assemblies	Salt Spray	B117 (1000 hours)
Insulated Metal Panels	Thermal Value	C518 (report)
Nonstructural Standing Seam Metal Panels	Static Water Leakage Test [1]	FM 4471 Appendix G or ASTM E2140-01 [2]

1 Optional test to allow minimum slope of 1:12.

2 Standing seam metal roof panel systems that pass the requirements of FM 4471 Appendix G or ASTM E2140-01, shall be permitted to be installed to a minimum slope of 1:12

R7308

Date Submitted	11/16/2018	**Section**	TAS 114	**Proponent**	Jorge Acebo
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Modifies TAS 114 Appendix D uplift test over steel substrates.

Rationale

Modifies TAS 114 Appendix D uplift test because the testing is for fully adhered roof systems. The size of the 2' x 2' specimens over steel substrates does not allow for deck attachment or deflection considerations of the substrate which leads to higher uplift results which are not applicable in real life conditions.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Allows improvement of building performance expectations based on properly tested and evaluated roof system requirements.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Adds clarification language that eliminates testing that achieves results not consistent with real jobsite expectations.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Applies to all Roof system assembly testing over steel substrates.

Does not degrade the effectiveness of the code

Improves code effectiveness by specifying testing requirement specified and used by other certification bodies.

TAS 114 Appendix D Section 1

Add Section 1.2

1.2 This procedure is not applicable to roofing assemblies applied onto a steel deck substrate.

R7183

Date Submitted	11/5/2018	**Section**	TAS 124	**Proponent**	Michael Goolsby
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Clarification of uplift testing requirements and reporting.

Rationale

The purpose of this modification is to eliminate confusion and additional cost of testing by clarifying and bringing into alignment requirements contained in the base code with TAS 124. The modification also brings consistency with the industry standard regarding testing for mechanically fastened roof systems. Additionally, the report has been modified to be consistent with ASCE 7-16.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Clarifies necessary path to compliance.

Impact to building and property owners relative to cost of compliance with code

Will economize costs by eliminating confusion related to field test compliance.

Impact to industry relative to the cost of compliance with code

No additional cost associated with this modification.

Impact to small business relative to the cost of compliance with code

Will economize costs by eliminating confusion related to field test compliance.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Improves the effectiveness of the code by providing a less confusing path to compliance.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Strengthens the code by providing a less confusing path to compliance.

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.

Does not degrade the effectiveness of the code

Does not degrade the code, instead the modification increases the effectiveness of the code and the protection of the public by eliminating confusion regarding compliance.

TESTING APPLICATION STANDARD (TAS) 124-~~11~~20

TEST PROCEDURE FOR FIELD UPLIFT RESISTANCE OF EXISTING MEMBRANE ROOF SYSTEMS AND IN SITU TESTING FOR REROOF ANDNEW CONSTRUCTIONAPPLICATIONS

1.1 This protocol covers the determination of the resistance to uplift pressure of newly installed, adhered, single-ply, built-up, bituminous roofing systems over mechanically attached or adhered rigid board insulation over various deck types.

1.2 The test procedures outlined herein are intended as quality control to ~~determine~~ confirm the performance of a new roof system assembly or when determining the wind resistance of ~~installed over~~ an existing roof system assembly where a bonded recover roof system is to be installed ~~or directly over a roofing substrate~~.

4.1 The field test procedures specified herein provide a means for determining the uplift resistance of a new, adhered, single-ply, built-up, bituminous roof systems ~~assembly~~, ~~as stated in applicable specification bid documents,~~ installed on a building within the high-velocity hurricane zone. The test procedures are intended to confirm and supplement the uplift resistance performance of roofing systems as determined under laboratory conditions and confirm that a given installation meets the design pressure requirements under ASCE 7, as required in the Florida Building Code, Building.

6.2.4 Testing under this protocol shall be conducted on mechanicallyattached roof systemassemblies, with fastener spacing of no more than two (2) feet in any direction or may be conducted on fully adhered system assemblies. When testing mechanically attached roof system assemblies, deflection measurement shall not be required.

7.1 The total number of tests to be conducted when testing over an existing roof assembly is listed in Table 1, on the following page. Of these tests, half shall be conducted at selected locations within the Zone 2 and Zone 3 ~~perimeter~~ areas of the roof and half shall be conducted at selected locations within the Zone 1 ~~field~~ area of the roof.

~~7.2 Three test samples are required for all assemblies tested on any size roof deck when the test assembly is applied directly to the substrate for confirmation of design pressure performance. (See Section 4.1.1.)~~

9. Procedure:

9.1 Bell chamber tests over an existing roof system assembly:

9.1.1 The test area's membrane surface shall be clean, smooth and dry to provide a continuous contact surface for the edges of the pressure chamber. For roof surfaces which contain surfacing such as gravel, slag or granules, the test areas shall be prepared as follows:

- Remove the loose gravel surfacing; sweeping a 12 inch (300 mm) wide square in which the chamber perimeter will be placed.
- Apply a heavy pouring of hot asphalt over the swept area and allow to completely cool. The use of other approved compatible sealants or adhesives shall not be prohibited.
- This test area preparation is intended to provide a continuous, smooth surface to which the edges of the test chamber make contact such that accurate pressure measurements are taken.
- Deflection measurement shall not be required when testing mechanically attached roof system assemblies.

9.1.8 At the end of the first one minute interval, increase the pressure within the chamber in increments of 15 + 0.5 lbf/ft2 (720 + 20 Pa), holding each pressure level for a period of one minute, until:

- the roof system assembly fails, as noted in Section 10.1; or,
- the pressure within the chamber is held at the design pressure for the particular roof area (i.e., Zone 1, Zone 2 or Zone 3 ~~field, perimeter or corner~~ areas) for a period of one minute. These design pressures are determined in compliance with ASCE 7, as specified in the *Florida Building Code, Building* and are listed on Section II of the Uniform Building Permit.

9.3.4 Apply a flood coat of hot steep asphaltcoal tar pitch over the marked test area at an application rate of 4 lb/ft2 and float the test panel into place. Allow a curing time of 24 hours for hot asphalt and 48 hours for coal tar pitch applications. Curing time may vary due to atmospheric conditions. The use of other approved compatible sealants shall not be prohibited.

11.2.8 Field uplift resistance testing shall be performed in the preceding three (3) months, unless otherwise authorized by the *building official.*

TESTING APPLICATION STANDARD (TAS) 124-~~11~~20
BELL CHAMBER TEST RESULTS

Design Pressures:	**Level #1:**
~~Field Area~~ Zone 1:	P_{fl} =_____ psf
~~Perimeter Area~~ Zone 2:	P_{pl} =_____ psf
~~Corner Areas~~ Zone 3:	P_{cl} =_____ psf
~~Extended Corner:~~	P_{eel} =_____ psf
Design Pressures:	**Level #2:**
~~Field Area~~ Zone 1:	P_{f2}=_____ psf

~~Perimeter Area~~ Zone 2: P_{p2}=_____ psf

~~Corner Areas~~ Zone 3: P_{c12} =_____ psf

~~Extended Corner:~~ P_{ec2} =_____ psf

Design Pressures: **Level #3:**

~~Field Area~~ Zone 1: P_{ff3}=_____ psf

~~Perimeter Area~~ Zone 2: P_{p3} =_____ psf

~~Corner Areas~~ Zone 3: P_{c3} =_____ psf

~~Extended Corner:~~ P_{ec2} =_____ psf

TESTING APPLICATION STANDARD (TAS) 124-~~11~~20 BONDED PULL TEST REPORT

Design Pressures: **Level #1:**

~~Field Area~~ Zone 1: P_{fl} =_____ psf

~~Perimeter Area~~ Zone 2: P_{pl} =_____ psf

~~Corner Areas~~ Zone 3: P_{cl} =_____ psf

~~Extended Corner:~~ P_{ecl} =_____ psf

Design Pressures: **Level #2:**

~~Field Area~~ Zone 1: P_{f2}=_____ psf

~~Perimeter Area~~ Zone 2: P_{p2}=_____ psf

~~Corner Areas~~ Zone 3: P_{c12} =_____ psf

~~Extended Corner:~~ P_{ec2} =_____ ~~psf~~

Design Pressures: **Level #3:**

~~Field Area~~ Zone 1: P_{ff3}=_____ psf

~~Perimeter Area~~ Zone 2: P_{p3} =_____ psf

~~Corner Areas~~ Zone 3: P_{e3} =_____ psf

~~Extended Corner:~~ P_{ec2} =_____ ~~psf~~

TAC: Roofing

Total Mods for **Roofing** in **No Affirmative Recommendation: 8**

Total Mods for report: 76

Sub Code: Building

R7830 67

Date Submitted	12/10/2018	**Section**	1504	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	Yes

TAC Recommendation No Affirmative Recommendation
Commission Action Pending Review

Comments

General Comments **No** **Alternate Language** **No**

Related Modifications

Changes to 1502, 1609.5 and Chapter 35 are included in this modification.

Summary of Modification

This modification moves ASCE 7 as it applies to roof coverings from Chapter 16 to Chapter 15

Rationale

This modification will maintain the current familiar and proven provisions of ASCE 7-10 as it pertains to roof coverings and roof systems by moving applicable portions of Chapter 16 to Chapter 15.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification will help with enforcement by maintaining the current familiar and proven provisions of ASCE 7-10 as it pertains to roof coverings and roof systems.

Impact to building and property owners relative to cost of compliance with code

This modification will not increase cost of compliance. It maintains the current familiar and proven provisions of ASCE 7-10 as it pertains to roof coverings and roof systems.

Impact to industry relative to the cost of compliance with code

This modification will not increase the cost of compliance. It maintains the current familiar and proven provisions of ASCE 7-10 as it pertains to roof coverings and roof systems. It will reduce the cost of training and implementing the extremely complex provisions of ASCE 7-16 for roof coverings.

Impact to small business relative to the cost of compliance with code

Will not increase cost of compliance. It maintains the current familiar and proven provisions of ASCE 7-10 as it pertains to roof coverings and roof systems. It will reduce the cost of complying with the complex and burdensome provisions of ASCE 7-16 as it applies to roof coverings.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This modification will maintain the current familiar and proven provisions of ASCE 7-10 as it pertains to roof coverings and roof systems.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This modification provides equivalence by maintaining the current familiar and proven provisions of ASCE 7-10 as it pertains to roof coverings and roof systems.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This modification does not discriminate against materials, methods, or systems of construction.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code. It remains effective by maintaining the codes familiar and proven provisions of ASCE 7-10 as it pertains to roof coverings and roof systems.

CHAPTER 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

SECTION1502
DEFINITIONS AND NOTATIONS

NOTATIONS

V_{asd}
= Nominal design wind speed (3-second gust), miles per hour (mph) (km/hr) where applicable.

V_{ult}
= Ultimate design wind speeds (3-second gust), miles per hour (mph) (km/hr) determined from Figure 16509.3(1), 16509.3(2), 16509.3(3) or ASCE 7.

SECTION 1504
PERFORMANCE REQUIREMENTS

1504.1 Wind resistance of roofs.

Roof ~~decks and roof~~ coverings shall be designed for wind loads in accordance with Chapter 15 Sections 1504.1, 1504.2, 1504.3 and 1504.4.

1504.1.1 Wind resistance of asphalt shingles.

Asphalt shingles shall be designed for wind speeds in accordance with Section 1507.2.7.

1504.2 Wind resistance of clay and concrete tile.

Wind loads on clay and concrete tile roof coverings shall be in accordance with –Section ~~1609.5~~.

(Equation 15-34)

For SI:

where:

***b* = Exposed width, feet (mm) of the roof tile.**

C_L = Lift coefficient. The lift coefficient for concrete and clay tile shall be 0.2 or shall be determined by test in accordance with Section 1504.2.1.

GC_p = Roof pressure coefficient for each applicable roof zone determined from Chapter 30 of ASCE 7. Roof coefficients shall not be adjusted for internal pressure.

***L* = Length, feet (mm) of the roof tile.**

L_a = Moment arm, feet (mm) from the axis of rotation to the point of uplift on the roof tile. The point of uplift shall be taken at 0.76*L* from the head of the tile and the middle of the exposed width. For roof tiles with nails

or screws (with or without a tail clip), the axis of rotation shall be taken as the head of the tile for direct deck application or as the top edge of the batten for battened applications. For roof tiles fastened only by a nail or screw along the side of the tile, the axis of rotation shall be determined by testing. For roof tiles installed with battens and fastened only by a clip near the tail of the tile, the moment arm shall be determined about the top edge of the batten with consideration given for the point of rotation of the tiles based on straight bond or broken bond and the tile profile.

M_a = Aerodynamic uplift moment, feet-pounds (N-mm) acting to raise the tail of the tile.

q_h = Wind velocity pressure, psf (kN/m^2) determined from Section 27.3.2 of ASCE 7.

Concrete and clay roof tiles complying with the following limitations shall be designed to withstand the aerodynamic uplift moment as determined by this section.

1. The roof tiles shall be ~~either loose laid on battens~~, mechanically fastened, mortar set or adhesive set.

The roof tiles shall be installed on solid sheathing that has been designed as components and cladding.

3. An underlayment shall be installed in accordance with Chapter 15.
4. The tile shall be single lapped interlocking with a minimum head lap of not less than 2 inches (51 mm).
5. The length of the tile shall be between 1.0 and 1.75 feet (305 mm and 533 mm).
6. The exposed width of the tile shall be between 0.67 and 1.25 feet (204 mm and 381 mm).
7. The maximum thickness of the tail of the tile shall not exceed 1.3 inches (33 mm).
8. Roof tiles using mortar set or adhesive set systems shall have at least two-thirds of the tile's area free of mortar or adhesive contact.

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1504.2.1 Testing.

Testing of concrete and clay roof tiles shall be in accordance with Sections 1504.2.1.1 and 1504.2.1.2.

1504.2.1.1 Overturning resistance.

Concrete and clay roof tiles shall be tested to determine their resistance to overturning due to wind in accordance with SBCCI SSTD 11 and Chapter 15.

1504.2.1.2 Wind tunnel testing.

Where concrete and clay roof tiles do not satisfy the limitations in 1504.2 ~~Chapter 16~~ for rigid tile, a wind tunnel test shall be used to determine the wind characteristics of the concrete or clay tile roof covering in accordance with SBCCI SSTD 11 and Chapter 15.

1504.3 Wind resistance of nonballasted roofs.

Roof coverings installed on roofs in accordance with Section 1507 that are mechanically attached or adhered to the roof deck shall be designed to resist the design wind load pressures for components and cladding in accordance with Section 1504.

1504.3.1 Other roof systems.

Built-up, modified bitumen, fully adhered or mechanically attached single-ply roof systems, metal panel roof systems applied to a solid or closely fitted deck and other types of membrane roof coverings shall be tested in accordance with FM 4474, UL 580 or UL 1897.

1504.3.2 Metal panel roof systems.

Metal panel roof system through fastened or standing seam shall be tested in accordance with UL 580 or ASTM E1592 or TAS 125.

Exceptions: Metal roofs constructed of cold-formed steel, where the roof deck acts as the roof covering and provides both weather protection and support for structural loads, shall be permitted to be designed and tested in accordance with the applicable referenced structural design standard in Section 2210.1.

1504.4 Ballasted low-slope roof systems.

Ballasted low-slope (roof slope < 2:12) single-ply roof system coverings installed in accordance with Sections 1507.12 and 1507.13 shall be designed in accordance with Section 1504.8 and ANSI/SPRI RP-4.

1504.5 Edge securement for low-slope roofs.

Low-slope built-up, modified bitumen and single-ply roof system metal edge securement, except gutters, shall be designed and installed for wind loads in accordance with Chapter 15 ~~16~~ and tested for resistance in accordance with Test Methods RE-1, RE-2 and RE-3 of ANSI/SPRI ES-1, or RAS 111 except V_{ult} wind speed shall be determined from Figure Wind Maps in Chapter 15 1504.6(1), 1504.6 (2) or 1504.6 (3) as applicable.

1504.6 Wind Load Applications.

Buildings, structures and parts thereof shall be designed to withstand the minimum wind loads prescribed herein. Decreases in wind loads shall not be made for the effect of shielding by other structures.

1504.6.1 Determination of wind loads.

Wind loads on every building or structure shall be determined in accordance with Chapters 26 to 30 of ASCE 7 or provisions of the alternate all-heights method in Chapter 16. Wind shall be assumed to come from any horizontal direction and wind pressures shall be assumed to act normal to the surface considered.

Exceptions:

1. 1.Subject to the limitations of Section 1504.6.2 the provisions of ICC 600 shall be permitted for applicable Group R-2 and R-3 buildings.
2. 2.Subject to the limitations of Section 1504.6.2 residential structures using the provisions of AWC WFCM.
3. 3.Subject to the limitations of Section 1504.6.2 residential structures using the provisions of AISI S230.
4. 4.Designs using NAAMM FP 1001.
5. Wind tunnel tests in accordance with ASCE 49 and Sections 31.4 and 31.5 of ASCE 7.
6. 8.Exposed mechanical equipment or appliances fastened to a roof or installed on the ground in compliance with the code using rated stands, platforms, curbs, slabs, walls, or other means are deemed to comply with the wind resistance requirements of the 2007 Florida Building Code, as amended. Further support or enclosure of such mechanical equipment or appliances is not required by a state or local official having authority to enforce the *Florida Building Code.*

The wind speeds in Figures 1504.6(1),1504.6(2), and 1504.6 (3) are ultimate design wind speeds, V_{ult}, and shall be converted in accordance with Section 1609.3.1 to nominal design wind speeds, V_{asd}, when the provisions of the standards referenced in Exceptions 4 and 5 are used.

1504.6.2 Applicability.

The provisions of ICC 600 are applicable only to buildings located within Exposure B or C as defined in Section 1504.7. The provisions of ICC 600, AWC WFCM and AISI S230 shall not apply to buildings sited on the upper half of an isolated hill, ridge or escarpment meeting the following conditions:

1. 1. The hill, ridge or escarpment is 60 feet (18 288 mm) or higher if located in Exposure B or 30 feet (9144 mm) or higher if located in Exposure C;

2. 2. The maximum average slope of the hill exceeds 10 percent; and

3. The hill, ridge or escarpment is unobstructed upwind by other such topographic features for a distance from the high point of 50 times the height of the hill or 1 mile (1.61 km), whichever is greater.

1504.6.2 Ultimate design wind speed.

The ultimate design wind speed, V_{ult}, in mph, for the determination of the wind loads shall be determined by Figures 1609.3(1), 1609.3(2) and 1609.3(3). The ultimate design wind speed, V_{ult}, for use in the design of Risk Category II buildings and structures shall be obtained from Figure 1609.3(1). The ultimate design wind speed, V_{ult}, for use in the design of Risk Category III and IV buildings and structures shall be obtained from Figure 1609.3(2). The ultimate design wind speed, V_{ult}, for use in the design of Risk Category I buildings and structures shall be obtained from Figure 1609.3(3). The ultimate design wind speed, V_{ult}, for the special wind regions indicated near mountainous terrain and near gorges shall be in accordance with local jurisdiction requirements. The ultimate design wind speeds, V_{ult}, determined by the local jurisdiction shall be in accordance with Section 26.5.1 of ASCE 7. The exact location of wind speed lines shall be established by local ordinance using recognized physical landmarks such as major roads, canals, rivers and lake shores wherever possible.

In nonhurricane-prone regions, when the ultimate design wind speed, V_{ult}, is estimated from regional climatic data, the ultimate design wind speed, V_{ult}, shall be determined in accordance with Section 26.5.3 of ASCE 7.

FIGURE 1504.6(1)

ULTIMATE DESIGN WIND SPEEDS, V_{ULT}, FOR RISK CATEGORY II BUILDINGS AND OTHER STRUCTURES

FIGURE 1504.6(2)

ULTIMATE DESIGN WIND SPEEDS, V_{ULT}, FOR RISK CATEGORY III AND IV BUILDINGS AND OTHER STRUCTURES

FIGURE 1504.6(3)

ULTIMATE DESIGN WIND SPEEDS, V_{ULT}, FOR RISK CATEGORY I BUILDINGS AND OTHER STRUCTURES

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1504.6.3 Wind speed conversion.

When required, the ultimate design wind speeds of Figures ~~16~~1509.3(1), ~~16~~1509.3(2) and ~~16~~1509.3(3) shall be converted to nominal design wind speeds, V_{asd}, using Table ~~16~~1509.3.1 or Equation 16-33.

(Equation 15-01)

where:

V_{asd} = Nominal design wind speed applicable to methods specified in Exceptions 4 and 5 of Section 1504.6.1

V_{ult} = Ultimate design wind speeds determined from Figures 1504.6.3(1), 1504.6.3(2) or 1504.6.3(3).

TABLE 1504.6.3

WIND SPEED CONVERSIONS [a, b, c]

V_{ult}	100	110	120	130	140	150	160	170	180	190	200
V_{asd}	78	85	93	101	108	116	124	132	139	147	155

For SI: 1 mile per hour = 0.44 m/s.

1. a. Linear interpolation is permitted.
2. b. V_{asd} = nominal design wind speed applicable to method specified in Exceptions 1 through 4 of Section 1504.6.1
3. c. V_{ult} = ultimate design wind speeds determined from Figure 1609.3(1), 1609.3(2) or 1609.3(3).

1504.6.4 Exposure category.

For each wind direction considered, an exposure category that adequately reflects the characteristics of ground surface irregularities shall be determined for the site at which the building or structure is to be constructed. Account shall be taken of variations in ground surface roughness that arise from natural topography and vegetation as well as from constructed features.

1504.6.5 Wind directions and sectors.

For each selected wind direction at which the wind loads are to be evaluated, the exposure of the building or structure shall be determined for the two upwind sectors extending 45 degrees (0.79 rad) either side of the selected wind direction. The exposures in these two sectors shall be determined in accordance with Sections 1609.4.2 and 1609.4.3 and the exposure resulting in the highest wind loads shall be used to represent winds from that direction.

1504.6.6 Surface roughness categories.

A ground surface roughness within each 45-degree (0.79 rad) sector shall be determined for a distance upwind of the site as defined in Section 1504.6.7 from the categories defined below, for the purpose of assigning an exposure category as defined in Section 1504.6.7.

1. **Surface Roughness B.** Urban and suburban areas, wooded areas or other terrain with numerous closely spaced obstructions having the size of single-family dwellings or larger.

2. **Surface Roughness C.** Open terrain with scattered obstructions having heights generally less than 30 feet (9144 mm). This category includes flat open country, and grasslands.
3. **Surface Roughness D.** Flat, unobstructed areas and water surfaces. This category includes smooth mud flats, salt flats and unbroken ice.

1504.6.7 Exposure categories.

An exposure category shall be determined in accordance with the following:

1. **Exposure B.** For buildings with a mean roof height of less than or equal to 30 feet (9144 mm), Exposure B shall apply where the ground surface roughness, as defined by Surface Roughness B, prevails in the upwind direction for a distance of at least 1,500 feet (457 m). For buildings with a mean roof height greater than 30 feet (9144 mm), Exposure B shall apply where Surface Roughness B prevails in the upwind direction for a distance of at least 2,600 feet (792 m) or 20 times the height of the building, whichever is greater.
2. **Exposure C.** Exposure C shall apply for all cases where Exposure B or D does not apply.
3. **Exposure D.** Exposure D shall apply where the ground surface roughness, as defined by Surface Roughness D, prevails in the upwind direction for a distance of at least 5,000 feet (1524 m) or 20 times the height of the building, whichever is greater. Exposure D shall also apply where the ground surface roughness immediately upwind of the site is B or C, and the site is within a distance of 600 feet (183 m) or 20 times the building height, whichever is greater, from an Exposure D condition as defined in the previous sentence.

1504.~~6~~ 7 Physical properties.

Roof coverings installed on low-slope roofs (roof slope < 2:12) in accordance with Section 1507 shall demonstrate physical integrity over the working life of the roof based upon 2,000 hours of exposure to accelerated weathering tests conducted in accordance with ASTM G152, ASTM G153, ASTM G154 or ASTM G155. Those roof coverings that are subject to cyclical flexural response due to wind loads shall not demonstrate any significant loss of tensile strength for unreinforced membranes or breaking strength for reinforced membranes when tested as herein required.

Remaining numbers to progress. Balance of text unchanged.

CHAPTER 16 STRUCTURAL DESIGN

1609.5 Roof systems.

Roof systems shall be designed and constructed in accordance with ~~Sections~~ Chapter 15 ~~1609.5.1 through 1609.5.3, as applicable~~.

1609.5.1 Roof deck.

The roof deck shall be designed to withstand the wind pressures determined in accordance with ASCE 7.

1609.5.2 Roof coverings.

Roof coverings shall comply with Section 1504. ~~1609.5.1.~~

Exception: Rigid tile roof coverings that are air permeable and installed over a roof deck complying with Section 1609.5.1 are permitted to be designed in accordance with Section 1609.5.3.

Asphalt shingles installed over a roof deck complying with Section 1609.5.1 shall comply with the wind-resistance requirements of Section 1504.1.1.

1609.5.3Rigid tile.

Rigid tile installed over a roof deck complying with Section 1609.5.1 shall comply with the wind-resistance requirements of Section 1504.2

Wind loads on rigid tile roof coverings shall be determined in accordance with the following equation:

(Equation 16-34)

For SI:

where:

b **= Exposed width, feet (mm) of the roof tile.**

C_L **= Lift coefficient. The lift coefficient for concrete and clay tile shall be 0.2 or shall be determined by test in accordance with Section 1504.2.1.**

GC_p **= Roof pressure coefficient for each applicable roof zone determined from Chapter 30 of ASCE 7. Roof coefficients shall not be adjusted for internal pressure.**

L **= Length, feet (mm) of the roof tile.**

L_a **= Moment arm, feet (mm) from the axis of rotation to the point of uplift on the roof tile. The point of uplift shall be taken at 0.76*L* from the head of the tile and the middle of the exposed width. For roof tiles with nails or screws (with or without a tail clip), the axis of rotation shall be taken as the head of the tile for direct deck application or as the top edge of the batten for battened applications. For roof tiles fastened only by a nail or screw along the side of the tile, the axis of rotation shall be determined by testing. For roof tiles installed with battens and fastened only by a clip near the tail of the tile, the moment arm shall be determined about the top edge of the batten with consideration given for the point of rotation of the tiles based on straight bond or broken bond and the tile profile.**

M_a **= Aerodynamic uplift moment, feet-pounds (N-mm) acting to raise the tail of the tile.**

q_h **= Wind velocity pressure, psf (kN/m^2) determined from Section 27.3.2 of ASCE 7.**

Concrete and clay roof tiles complying with the following limitations shall be designed to withstand the aerodynamic uplift moment as determined by this section.

The roof tiles shall be either loose laid on battens, mechanically fastened, mortar set or adhesive set.

The roof tiles shall be installed on solid sheathing that has been designed as components and cladding.

3. An underlayment shall be installed in accordance with Chapter 15.
4. The tile shall be single lapped interlocking with a minimum head lap of not less than 2 inches (51 mm).

5. ~~The length of the tile shall be between 1.0 and 1.75 feet (305 mm and 533 mm).~~
6. ~~The exposed width of the tile shall be between 0.67 and 1.25 feet (204 mm and 381 mm).~~
7. ~~The maximum thickness of the tail of the tile shall not exceed 1.3 inches (33 mm).~~
8. ~~Roof tiles using mortar set or adhesive set systems shall have at least two-thirds of the tile's area free of mortar or adhesive contact.~~

Remaining text unchanged.

CHAPTER 35 REFERENCED STANDARDS

ASCE/SEI

American Society of Civil Engineers Structural Engineering Institute 1801 Alexander Bell Drive Reston, VA 20191-4400

Standard reference number	Title	Referenced in code section number
5—13	Building Code Requirements for Masonry Structures	1405.61405.6.11405.6.21405.101604.3.41807.1.6.31807.1.6.3.21808.92101.22105.12106.12107.12107.22107.32107.42107.62108.12108.22108.32108.42109.12109.1.12109.22109.2.12109.32110.12114.22122.12122.42122.52122.72122.8.22122.8.42122.10
6—13	Specification for Masonry Structures1405.6.11807.1.6.32103.12103.2.12103.32103.42104.12105.12107.12108.12121.62122.12122.2.32122.2.32122.42122.7.42122.8.12122.8.22122.8.32122.8.42122.8.62122.8.8	
7—<u>10</u>	Minimum Design Loads for Buildings and Other Structures (with Errata dated January 11. 2011)	1504~~.8~~ 1514.4 1525
7—<u>16</u>	MinimumDesignLoadsforBuildingsandOtherStructures202449.4.2.2.6450.4.2.2.6453.4.7453.9.1453.25.4Table~~1504.81514.41525~~1602.11604.3Table 1604.51604.8.21604.101605.11605.2.11605.3.11605.3.1.21605.3.21605.3.2.11607.8.11607.8.1.11607.8.1.21607.8.31607.12.11608.11608.21608.31609.1.11609.1.21609.1.2.4.11609.1.2.4.21609.31609.5.11609.5.31609.61609.6.11609.6.1.11609.6.2Table 1609.6.21609.6.31609.6.4.11609.6.4.21609.6.4.4.11609.81611.21612.41613.11613.3.2Table 1613.3.3(1)Table 1613.3.3(2)1613.3.51613.3.5.11613.3.5.21613.41613.4.11613.5.11613.61614.11616.51620.11620.31620.61621.11621.21622.1.1Table1625.4 1626.1 Table 16261709.8.31803.5.121808.3.11810.3.6.11810.3.9.41810.3.11.21810.3.121905.1.11905.1.21905.1.82205.2.1.12205.2.1.22205.2.22206.2.12209.12210.22304.6.12404.12505.12505.22506.2.13109.3.1	

Remaining text unchanged.

Moving ASCE 7 as it applies roof coverings from Chapter 16 to Chapter 15 Rationale

This modification will maintain the current familiar and proven provisions of ASCE 7-10 as it pertains to roof coverings and roof systems by moving applicable portions of Chapter 16 to Chapter 15.

The increased pressure coefficients and complexities of ASCE 7-16 will have a disproportional effect on Florida. This standard was heavily debated and was passed by a narrow majority by the International Code Council (ICC). It faced strong opposition from jurisdictions throughout the country even though none of these areas will be impacted by the standard to the degree that Florida will. A majority of the Florida Building Commissioners voted to give its adoption further consideration, but the failure to reach a 75% threshold to allow further consideration thwarted this opportunity even though it was widely supported by the roofing industry.

Florida's roofing industry like many other construction disciplines is experiencing severe workforce shortages. Also like many other construction disciplines, much of Florida's required roofing skills are learned by experience in the field (this is in addition to classroom training that is a foundation but not the only knowledge that is needed). As described by engineers and others, ASCE 7-16 is exceptionally complex and implementation calls for more than a minor amount of training and added experience for construction contractors, construction workers and, importantly building code administrators and inspectors.

ASCE 7-10 has proven to be very effective and meaningfully compliant with Florida's strengthening and mitigation needs. A recent report titled "Rating the States" published by the Insurance Institute for Business & Home Safety (IBHS) states that Florida has the highest score of 18 states included in the report. Florida's score is also higher in 2018 than in 2015. Numerous other reports have touted how well buildings built in compliance with our current Florida Building Code – which includes ASCE 7-10 – performed. From our research and review as well as our observations of the ICC hearings on this subject, we are very concerned that the only reason for adopting ASCE 7-16 is change for the sake of change with very little real benefit, but some measurable, tangible and very real detrimental effects on roofing standards and fiscal impacts for building owners

R8063

Date Submitted	12/13/2018	**Section**	1507.1.1	**Proponent**	Greg Keeler
Chapter	15	**Affects HVHZ**	No	**Attachments**	Yes

TAC Recommendation No Affirmative Recommendation

Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

8061

Summary of Modification

Modifies table to include placeholder for proposed ASTM Polymeeric Underlayment Standard. This proposed standard is under ASTM Work Item #WK51913.

Rationale

This table corresponds with revised Section 1507.1.1 to include a placeholder for the proposed ASTM Polymeric Underlayment Standard. This proposed standard is under ASTM Work Item #WK51913. This proposal adds an ASTM standard that is currently under development. This would be the first ASTM Standard that applies specifically to synthetic underlayment. This proposed standard is under ASTM Work Item #WK51913. It is critical to reference a standard that applies exclusively to synthetic underlayment as many are currently qualified under standards that were intended for use only for asphaltic felt underlayment.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None

Impact to building and property owners relative to cost of compliance with code

None

Impact to industry relative to the cost of compliance with code

None

Impact to small business relative to the cost of compliance with code

None

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Yes

Does not degrade the effectiveness of the code

Yes

Please see attached PDF.

TABLE 1507.1.1
UNDERLAYMENT TABLE

Roof Covering Section	Roof Slope 2:12 and Less Than 4:12 Underlayment	Underlayment Attachment[1]	Roof Slope 4:12 and Greater Underlayment	Underlayment Attachment[1]
Asphalt Shingles R1507.2	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757		ASTM D6757	
	ASTM WK51913		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3
Concrete and Clay Tile 1507.3	See Section 1507.3.3			
Metal Roof Panels 1507.4	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757			
	ASTM WK51913		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3
Metal roof shingles 1507.5	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757			
	ASTM WK51913		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3
Mineral-surfaced roll roofing 1507.6	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757			
	ASTM DXXXX		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3
Slate Shingles 1507.7	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757			
	ASTM WK51913		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3
Wood Shingles 1507.8	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM WK51913		ASTM WK51913	
Wood Shakes 1507.9	Not Permitted	Limited to roof slopes 4:12 and greater	ASTM D226 Type II	2
			ASTM D4869 Type IV	
			ASTM WK51913	
Photovoltaic Shingles 1507.17	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757			
	ASTM WK51913		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3

[a]Underlayment Attachment

1. Roof slopes from two units vertical in 12 units horizontal (17-percent slope), and less than four units vertical in 12 units horizontal (33-percent slope). Apply a 19-inch (483 mm) strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inchwide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with corrosion-resistant fasteners with one row centered in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using metal or plastic cap nails with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.
2. Roof slopes of four units vertical in 12 units horizontal (33-percent slope) or greater. Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 4 inches (51 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using metal or plastic cap nails with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.
3. Roof slopes from two units vertical in 12 units horizontal (17-percent slope) and greater. The entire roof deck shall be covered with an approved self-adhering polymer modified bitumen underlayment complying with ASTM D1970 installed in accordance with both the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed.
Exception: A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table R905.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.

R8080

Date Submitted	12/13/2018	**Section**	1507.3	**Proponent**	T Stafford
Chapter	15	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation No Affirmative Recommendation
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Revises the roof tile section to clarify that wind loads on tile have to comply with ASCE 7-16.

Rationale

This proposal is primarily a correlation. During Phase I of the 2020 update of the FBC, the Commission voted to update ASCE 7 from the 2010 edition to the 2016 edition (ASCE 7-16). In ASCE 7-16, the component and cladding loads and roof zones for roofs with a MRH of 60 feet and less have changed. The code currently refers to the FRSA/TRI manual for tile. However Table 1A (uplift loads for underlayment and hip/ridge tiles) and Tables 2A and 2B (aerodynamic uplift moment) are still based on ASCE 7-10. This proposal simply clarifies that these loads have to be determined in accordance with ASCE 7-16. Clarifying language has also been added with regards to the manufacturer's product approval installation instructions.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact to local entities relative to enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

No impact to building and property owners. While there may be cost impacts for certain buildings due to the adoption of ASCE 7-16, this code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Impact to industry relative to the cost of compliance with code

No impact to industry. While there may be cost impacts for certain buildings due to the adoption of ASCE 7-16, this code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Impact to small business relative to the cost of compliance with code

No impact to small business. While there may be cost impacts for certain buildings due to the adoption of ASCE 7-16, this code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This code change correlates the code with the previous action by the Commission to update reference standard ASCE 7 to the 2016 edition (ASCE 7-16).

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This code change improves the code by providing correlation with the previous action by the Commission to update reference standard ASCE 7 to the 2016 edition (ASCE 7-16).

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This code change dos not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

This code change does not degrade the effectiveness of the code.

Revise as follows:

1507.3.2 Deck slope. Clay and concrete roof tile shall be installed in ~~accordance~~ compliance with the manufacturer's product approval installation instructions in accordance with the recommendations of FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual, Fifth Edition where the Vasd as determined in accordance with Section 1609.3.1 or the recommendations of RAS 118, 119 or 120.

1507.3.3 Underlayment. Unless otherwise noted, underlayment shall be applied according to the underlayment manufacturer's product approval installation instructions in accordance with ~~or~~ the recommendations of the FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual, Fifth Edition, except as modified in Section 1507.3.3.1, where the basic wind speed, V_{asd}, is determined in accordance with Section 1609.3.1 or the recommendations of RAS 118, 119 or 120.

1507.3.3.1 FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition. Delete Table 1A in the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition. Required design pressures for underlayments for tile systems shall be determined in accordance with ASCE 7.

~~**1507.3.3.1 Slope and underlayment requirements.** Refer to FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual, Fifth Edition (2012) where the basic wind speed Vasd is determined in accordance with Section 1609.3.1 for underlayment and slope requirements for specific roof tile systems or the recommendations of RAS 118, 119 or 120.*~~

Revise as follows:

1507.3.7 Attachment. Clay and concrete roof tiles shall be fastened in compliance ~~accordance~~ with Section 1609 or the manufacturer's product approval installation instructions ~~or~~ in accordance with *FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition, except as modified in Section 1507.3.7.1, where the basic wind speed, *Vasd,* is determined in accordance with Section 1609.3.1.

1507.3.7.1 FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition. Delete Tables 2A and 2B in the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition. The required aerodynamic uplift moment shall be determined in accordance with Section 1504.2. Required design pressures for hip and ridge tiles shall be determined in accordance with ASCE 7.

R8295

Date Submitted	12/15/2018	**Section**	1516	**Proponent**	Chadwick Collins
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation No Affirmative Recommendation
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Alignment of fire classification between HVHZ and non-HVHZ (Section 1505)

Rationale

This proposal aligns the HVHZ fire classification requirements with those in the Non-HVHZ Section 1505 .

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Clarifies Class A assemblies for use

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Provides equivalency in fire classification between HVHZ and non-HVHZ

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Proposed language lists more systems than prior language

Does not degrade the effectiveness of the code

Aligns HVHZ to non-HVHZ while not lowering the threshold of Class A performance.

See attached file.

1516.2.1 Class A. Zero feet to 20 feet (0 to 6.1 m) distance separation measured horizontally from the closest point of any building edge to the nearest point to an adjoining structure, and all buildings with occupation greater than 300 persons.

~~**Exception:** Brick, masonry, slate, clay or concrete roof tile and exposed concrete roof deck are considered to meet Class A roof covering provisions without testing.~~

Exceptions:

1. Class A roof assemblies include those with coverings of brick, masonry or an exposed concrete roof deck.
2. Class A roof assemblies also include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile or slate installed on noncombustible decks or ferrous, copper or metal sheets installed without a roof deck on noncombustible framing.
3. Class A roof assemblies include minimum 16 ounce per square foot (0.0416 kg/m2) copper sheets installed over combustible decks.

Sub Code: Existing Building

R7581

71

Date Submitted	11/29/2018	**Section**	707	**Proponent**	Michael Silvers (FRSA)
Chapter	7	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation No Affirmative Recommendation

Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Changes to Sections 403.8 and 202 Definitions are also included.

Summary of Modification

This modification changes the trigger from "where roofing materials are removed from more than 50% of the roof diaphragm" to a recognized trigger using a specific accumulated value of proposed work as a ratio of the value of the structure.

Rationale

Engineers who can perform an evaluation can't agree when it applies, or what it requires. It states: "When roofing materials are removed from more than 50 percent of the roof diaphragm" which when you consider the 25% rule (Existing Building, 706.1.1) makes the 50% threshold actually 25%. It can be interpreted that during any roof replacement the structural The existing language in 707.2.3 is ambiguous as it pertains to the "roof diaphragm". Engineers who can perform an evaluation can't agree when it applies, or what it requires. It states: "When roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building" which when you consider the 25% rule (Existing Building, 706.11) makes the 50% threshold actually 25%. It can be interpreted that during any roof replacement the structural evaluation and mitigation is required. The building owner must commit to an open ended contract with absolutely no idea of the potential cost, what the scope of work might be or how many trades may be involved. Some older deck types that proceed uplift testing are deemed unacceptable for use as a substrate for roof replacement. This would necessitate complete deck replacement as well as reworking or replacement of the roof to wall connections. If the building is occupied there is additional cost. The cost of this work could very well make continued use of the building unviable. This could easily apply to a building that conforms to the building code that was applicable when it was built. Using a trigger of "30 percent of the assessed value of the structure" as a cost threshold before requiring this work to be done aligns with other sections of the code. This basic method is currently used for energy and envelope improvements as well as certain improvements in coastal flood zones.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This modification provides cost savings by reducing enforcement of requirements of 707.3.2 on all applicable roof replacement projects and replacing them with prescriptive methods currently in the code.

Impact to building and property owners relative to cost of compliance with code

This modification provides cost savings. See Support File.

Impact to industry relative to the cost of compliance with code

This modification provides cost savings. See Support File

Impact to small business relative to the cost of compliance with code

This modification provides cost savings. See Support File

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Eliminates the burdensome requirements and excessive cost of 707.3.2. The change clarifies when the required evaluation needs to be done. It removes the current roof replacement trigger and uses an existing definition that triggers certain work to be done when a project reaches the 30% threshold.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Improves the requirements for a roof diaphragm evaluation. This change will allow roof covering replacement without the burdensome engineering evaluation currently required. The current ambiguous requirements creates confusion for contractors, engineers and code enforcement officials.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This modification does not discriminate against any materials, products, methods or systems of construction.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code. Current requirements of 707.3.2 are ambiguous and are typically ignored. The modification replaces the confusing and unenforced requirements with prescriptive requirements currently in the code for applicable structures

SECTION 707
STRUCTURAL

707.3.2 Roof diaphragms resisting wind loads in high-wind regions.

Where a renovated building alteration includes roof replacement ~~roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building located~~ where the ultimate design wind speed, V_{ult}, determined in accordance with Figure 1609.3(1) of the Florida Building Code, Building, is greater than 115 mph (51 m/s), as defined in Section 1609 (the High-Velocity Hurricane Zone be evaluated for the wind loads specified in the Florida Building Code, Building, including shall comply with Section 1620) of the Florida Building Code, Building, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall wind uplift. If the diaphragms and connections in their current condition are not capable of resisting at least 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in the Florida Building Code, Building

Remaining text unchanged.

403.8 Roof diaphragms resisting wind loads in highwind regions.

Where ~~the intended~~ a renovated building alteration requires a permit for reroofing ~~and involves removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building located~~ where the ultimate design wind speed is greater than 115 mph (51 m/s) in accordance with Figure 1609.3(1) of the Florida Building Code, Building as defined in Section 1609 (the HVHZ shall comply with Section 1620) of the Florida Building Code, Building, roof diaphragms, connections of the roof diaphragm to roof framing members, and roof-to-wall connections shall be evaluated for the wind loads specified in Section 1609 of the Florida Building Code, Building, including wind uplift. If the diaphragms and connections in their current condition are not capable of resisting at least 75 percent of those wind loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the Florida Building Code, Building.

Remaining text unchanged.

CHAPTER 2

DEFINITIONS

SECTION 202
GENERAL DEFINITIONS

RENOVATED BUILDING. A residential or nonresidential building undergoing alteration that varies or changes insulation, HVAC systems, water heating systems or exterior envelope conditions, provided the estimated cost of renovation exceeds 30 percent of the assessed value of the structure

Cost Impact of 2017 FBC-EB § 707.3.2 Roof Diaphragm Reroofing Requirements

RINKER-CR-2018-105

Final Report

1 June 2018

Submitted to

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Table 7. Bid Prices for A-F Roof type and A-C Repair Scenarios[+*]

Repair	LWC on Bar Joists	Wood Deck System	Metal on Steel Bar Joists	Gypsum on Spaced Joists	Tectum on Spaced Joists	LWEC Deck System
Base Bid (incl. in A-C Repair Scenarios)	**1:**$129,940 **2:**$109,688 **3:**$138,000	**1:** $128,540 **2:** $105,931 **3:** $139,000	**1:** $153,300 **2:** $128,773 **3:** $149,000	**1:**$129,940 **2:**$118,311 **3:**$143,000	**1:**$128,570 **2:**$118,311 **3:**$146,000	**1:**$128,540 **2:**$106,334 **3:**$141,000
Bid Line No.	1	1	1	1	1	1
A. Enhanced fastening of the roof deck	**1:**$134,440+ **2:**$157,556 **3:**$164,400	NA	**1:**$156,800+ **2:** $140,092 **3:** $163,425	NA	NA	**1:**$133,040+ **2:**$118,753 **3:**$155,900
Bid Line Nos.	1,2,3,4 & 8	---	1,2,3,4 & 8	---	---	1,2,3,4,5 & 9
B. Roof-to-wall connections enhanced fastening	**1:**$146,940+* **2:**$128,208 **3:**$164,990	**1:** $131,040+ **2:** $123,631 **3:** $158,560	**1:** $169,300+* **2:** $147,293 **3:** $173,200	**1:**$145,940+ **2:**$134,231 **3:**$134,575	**1:**$144,570+ **2:**$134,231 **3:**$179,075	**1:**$145,540+* **2:**$125,954 **3:**$165,675
Bid Line Nos.	1,2, 4,5 & 8	1, 2, 3 & 7	1,2,4,5 & 8	1,2,3,4 & 7	1,2,3,4 & 7	1,2,3,5,6 & 9
C. Entire roof deck replacement	**1:**$284,440+ **2:**$265,188* **3:**$173,790	**1:** $158,540+ **2:** $148,431* **3:** $196,600	**1:** $231,800+ **2:** $219,273* **3:** $230,150	**1:**$293,440+ **2:**$226,211* **3:**$207,795	**1:**$282,070+ **2:**$226,211* **3:**$246,815	**1:**$283,040+ **2:**$252,934* **3:**$235,075
Bid Line Nos.	1,2,4,7 & 8	1, 2, 6 &7	1,2, 4,7 & 8	1,2,3,6 & 7	1,2,3,6 & 7	1,2,3,5,8 & 9

+ = No Bid Items; * = Condition/Exclusions

COST NOTES:

- For all 6 deck types the following cost items need to be also taken into consideration:
  - **1:** Cost for relocation if needed of occupants, contents, etc. (Depends on use)
  - **2:** Cost for loss of business (Depends on use)
  - **3:** Cost for isolating dust from occupied area if contents are not relocated (Depends on use)
  - **4:** Cost to repair or replacing ceilings (Depends on use)
  - **5:** Cost to keep temporarily watertight or phasing of work to do the same (Factored in Bid)
  - **6:** Cost of engineering for each protocol ($8,250).
- For deck types with rigid insulation for replacement (A, B, D, E & F) the Cost for the cover board that is required over the polyisocyanurate insulation is factored in bid and cost if replacement triggers energy code requirements would apply across the boards regardless of diaphragm frame.
- For light weight insulating concrete deck type (A) the cost for required tapered insulation for replacement of LWIC fill is factored in bid.
- For gypsum deck type (D) cost for relocation (mandatory) depends on building use type and the cost for removal and replacement of ceiling, ductwork, wiring etc. depends on building use type and cannot all be pinned on diaphragm roof type.

Table 8. Mean Bid Prices for A-F Roof type and A-B Repair Scenarios[+*]

Repair	LWC on Bar Joists	Wood Deck System	Metal on Steel Bar Joists	Gypsum on Spaced Joists	Tectum on Spaced Joists	LWEC Deck System
Base Bid (incl. in A-C Repair Scenarios)	**1:** $129,940	**1:** $128,540	**3:** $149,000	**1:** $129,940	**1:** $128,570	**1:** $128,540
A. Enhanced fastening of the roof deck	**2:** $157,556	NA	**3:** $163,425	NA	NA	**1:** $133,040+
% Cost Increase over Base Bid	21.3 %	----	9.7%	----	----	3.5%
B. Roof-to-wall connections enhanced fastening	**1:** $146,940+*	**1:** $131,040+	**3:** $173,200	**1:** $134,575	**1:** $144,570+	**1:** $145,540+*
% Cost Increase over Base Bid	13.1%	1.9%	16.2%	3.6%	12.4%	13.2%
C. Entire roof deck replacement	**2:** $265,188*	**1:** $158,540+	**3:** $230,150	**2:** $226,211*	**3:** $246,815	**2:** $252,934*
% Cost Increase over Base Bid	104.1%	23.3%	54.5%	74.1%	92.0%	96.8%

+ = No Bid Items; * = Condition/Exclusions

COST NOTES:

- For all 6 deck types the following cost items need to be also taken into consideration:
  - **7:** Cost for relocation if needed of occupants, contents, etc. (Depends on use)
  - **8:** Cost for loss of business (Depends on use)
  - **9:** Cost for isolating dust from occupied area if contents are not relocated (Depends on use)
  - **10:** Cost to repair or replacing ceilings (Depends on use)
  - **11:** Cost to keep temporarily watertight or phasing of work to do the same (Factored in Bid)
  - **12:** Cost of engineering for each protocol ($8,250).
- For deck types with rigid insulation for replacement (A, B, D, E & F) the Cost for the cover board that is required over the polyisocyanurate insulation is factored in bid and cost if replacement triggers energy code requirements would apply across the boards regardless of diaphragm frame.
- For light weight insulating concrete deck type (A) the cost for required tapered insulation for replacement of LWIC fill is factored in bid.
- For gypsum deck type (D) cost for relocation (mandatory) depends on building use type and the cost for removal and replacement of ceiling, ductwork, wiring etc. depends on building use type and cannot all be pinned on diaphragm roof type.

Conclusions

Roofing subcontractor bid data were collected for six roof types (A-F) covering the base bid and three repair scenarios (A-C). Unit costs were also collected for partial roof replacement options. The collected data was used to make cost comparisons between different replacement scenarios among three roofing subcontractors and determine mean base bid costs and repair/replacement costs for three scenarios: enhanced fastening of the roof deck; roof-to-wall connections enhanced fastening; and entire roof deck replacement. In general, based solely on the three bids received, the wood deck system was the least costly system to bring in compliance with 2017 FBC-EB § 707.3.2, while the LWC on bar joists was the most expensive

Future work should address the following:

a. Setting minimum deck attachment criteria (similar to wood decks) and standardizing this for all NOA/Product Approval tests. This will eliminate non-applicability of approved products for several field conditions and streamline the roofing permitting process.
b. On properties valued over a certain threshold (say $500,000), requiring scenario B (roof to wall connections and enhanced edge supports) up to a pre-set percentage (say 15%) of re-roofing cost.
c. Conducting a cost impact analysis for future code changes, before implementation, except in the case of life and/or fire safety requirements.

R8060

72

Date Submitted	12/13/2018	**Section**	905.1.1	**Proponent**	Greg Keeler
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation No Affirmative Recommendation
Commission Action Pending Review

Comments

General Comments **No** **Alternate Language** **No**

Related Modifications

R7665

Summary of Modification

Placeholder for proposed ASTM Polymeric Underlayment Standard. This proposed standard is under ASTM Work Item #WK51913.

Rationale

This proposal adds an ASTM standard that is currently under development. This would be the first ASTM Standard that applies specifically to synthetic underlayment. This proposed standard is under ASTM Work Item #WK51913. It is critical to reference a standard that applies exclusively to synthetic underlayment as many are currently qualified under standards that were intended for use only for asphaltic felt underlayment.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None

Impact to building and property owners relative to cost of compliance with code

None

Impact to industry relative to the cost of compliance with code

None

Impact to small business relative to the cost of compliance with code

None

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Yes

Does not degrade the effectiveness of the code

Yes

R905.1.1 Underlayment. Unless otherwise noted underlayment for asphalt shingles, metal roof shingles, mineral surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes and metal roof panels shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D226, D1970, D4869, ~~and~~ D6757, and ASTM WK51913 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated in Table R905.1.1. Underlayment shall be applied and attached in accordance with Table R905.1.1.

~~**Exception:** A reinforced synthetic underlayment that is approved as an alternate to underlayment complying with ASTM D226 Type II and having a minimum tear strength in accordance with ASTM D1970 or ASTM D4533 of 20 pounds shall be permitted. This underlayment shall be installed and attached in accordance with the underlayment attachment methods of Table R905.1.1 for the applicable roof covering, slope, except metal cap nails shall be required where the ultimate design wind speed, V*ult*, equals or exceeds 150 mph~~.

R8062

Date Submitted	12/13/2018	**Section**	905.1.1	**Proponent**	Greg Keeler
Chapter	9	**Affects HVHZ**	No	**Attachments**	Yes

TAC Recommendation No Affirmative Recommendation
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

R8060

Summary of Modification

Modifies table to include placeholder for proposed ASTM Polymeric Underlayment Standard. This proposed standard is under ASTM Work Item #WK51913.

Rationale

This table corresponds with revised Section R905.1.1 to include a placeholder for the proposed ASTM Polymeric Underlayment Standard. This proposal adds an ASTM standard that is currently under development. This would be the first ASTM Standard that applies specifically to synthetic underlayment. This proposed standard is under ASTM Work Item #WK51913. It is critical to reference a standard that applies exclusively to synthetic underlayment as many are currently qualified under standards that were intended for use only for asphaltic felt underlayment.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None

Impact to building and property owners relative to cost of compliance with code

None

Impact to industry relative to the cost of compliance with code

None

Impact to small business relative to the cost of compliance with code

None

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Yes

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Yes

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Yes

Does not degrade the effectiveness of the code

Yes

Please see attached PDF.

TABLE R905.1.1
UNDERLAYMENT TABLE

Roof Covering Section	Roof Slope 2:12 and Less Than 4:12 Underlayment	Underlayment Attachment[1]	Roof Slope 4:12 and Greater Underlayment	Underlayment Attachment[1]
Asphalt Shingles R905.2	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757		ASTM D6757	
	ASTM WK51913		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3
Concrete and Clay Tile R905.3	See Section 1507.3.3			
Metal roof shingles R905.4	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757			
	ASTM WK51913		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3
Mineral-surfaced roll roofing R905.5	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757			
	ASTM WK51913		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3
Slate and Slate-Type Shingles R905.6	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757			
	ASTM WK51913		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3
Wood Shingles R905.7	ASTM D226 Type I or II		ASTM D226 Type II	
	ASTM D4869 Type II, III, or IV	1	ASTM D4869 Type IV	2
	ASTM WK51913		ASTM WK51913	
Wood Shakes R905.8	Not Permitted	Limited to roof slopes 4:12 and greater	ASTM D226 Type II	2
			ASTM D4869 Type IV	
			ASTM WK51913	
Metal Roof Panels R905.10	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757			
	ASTM WK51913		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3
Photovoltaic Shingles R905.17	ASTM D226 Type I or II	1	ASTM D226 Type II	2
	ASTM D4869 Type II, III, or IV		ASTM D4869 Type IV	
	ASTM D6757			
	ASTM WK51913		ASTM WK51913	
	ASTM D1970	3	ASTM D1970	3

[a]Underlayment Attachment

1. Roof slopes from two units vertical in 12 units horizontal (17-percent slope), and less than four units vertical in 12 units horizontal (33-percent slope). Apply a 19-inch (483 mm) strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inchwide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with corrosion-resistant fasteners with one row centered in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using metal or plastic cap nails with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.
2. Roof slopes of four units vertical in 12 units horizontal (33-percent slope) or greater. Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 4 inches (51 mm), end laps shall be 6 inches and shall be offset by 6 feet. The underlayment shall be attached to a nailable deck with two staggered rows in the field of the sheet with a maximum fastener spacing of 12 inches (305 mm) o.c., and one row at the end and side laps fastened 6 inches (152 mm) o.c. Underlayment shall be attached using metal or plastic cap nails with a nominal cap diameter of not less than 1 inch. Metal caps shall have a thickness of not less than 32-gage sheet metal. Power-driven metal caps shall have a minimum thickness of 0.010 inch. Minimum thickness of the outside edge of plastic caps shall be 0.035 inch. The cap nail shank shall be not less than 0.083 inch for ring shank cap nails and 0.091 inch for smooth shank cap nails. Cap nail shank shall have a length sufficient to penetrate through the roof sheathing or not less than 3/4 inch into the roof sheathing.
3. Roof slopes from two units vertical in 12 units horizontal (17-percent slope) and greater. The entire roof deck shall be covered with an approved self-adhering polymer modified bitumen underlayment complying with ASTM D1970 installed in accordance with both the underlayment manufacturer's and roof covering manufacturer's installation instructions for the deck material, roof ventilation configuration and climate exposure for the roof covering to be installed.
Exception: A minimum 4-inch-wide (102 mm) strip of self-adhering polymer-modified bitumen membrane complying with ASTM D1970, installed in accordance with the manufacturer's instructions for the deck material, shall be applied over all joints in the roof decking. An approved underlayment in accordance with Table R905.1.1 for the applicable roof covering shall be applied over the entire roof over the 4-inch-wide (102 mm) membrane strips.

R8077

Date Submitted	12/13/2018	**Section**	905.3	**Proponent**	T Stafford
Chapter	9	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation No Affirmative Recommendation
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Revises the roof tile section to clarify that wind loads on tile have to comply with ASCE 7-16.

Rationale

This proposal is primarily a correlation. During Phase I of the 2020 update of the FBC, the Commission voted to update ASCE 7 from the 2010 edition to the 2016 edition (ASCE 7-16). In ASCE 7-16, the component and cladding loads and roof zones for roofs with a MRH of 60 feet and less have changed. The code currently refers to the FRSA/TRI manual for tile. However Table 1A (uplift loads for underlayment and hip/ridge tiles) and Tables 2A and 2B (aerodynamic uplift moment) are still based on ASCE 7-10. This proposal simply clarifies that these loads have to be determined in accordance with ASCE 7-16. Clarifying language has also been added with regards to the manufacturer's product approval installation instructions.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact to local entities relative to enforcement of the code.

Impact to building and property owners relative to cost of compliance with code

No impact to building and property owners. While there may be cost impacts for certain buildings due to the adoption of ASCE 7-16, this code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Impact to industry relative to the cost of compliance with code

No impact to industry. While there may be cost impacts for certain buildings due to the adoption of ASCE 7-16, this code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Impact to small business relative to the cost of compliance with code

No impact to small business. While there may be cost impacts for certain buildings due to the adoption of ASCE 7-16, this code change simply correlates the code with the previous action by the commission to update ASCE 7 to the 2016 edition (ASCE 7-16).

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

This code change correlates the code with the previous action by the Commission to update reference standard ASCE 7 to the 2016 edition (ASCE 7-16).

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

This code change improves the code by providing correlation with the previous action by the Commission to update reference standard ASCE 7 to the 2016 edition (ASCE 7-16).

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

This code change dos not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

This code change does not degrade the effectiveness of the code.

Revise as follows:

R905.3 Clay and concrete tile. The installation of clay and concrete tile shall ~~be in~~ comply ~~accordance~~ with the manufacturer's product approval installation instructions~~, or~~ in accordance with the recommendations of FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition where the V_{asd} is determined in accordance with Section R301.2.1.3 or the recommendations of RAS 118, 119 or 120.

Revise as follows:

R905.3.2 Deck slope. Clay and concrete roof tile shall be installed on roof slopes in ~~accordance~~ compliance with the manufacturer's product approval installation instructions in accordance with therecommendations of FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual, Fifth Edition where the V_{asd} is determined in accordance with Section R301.2.1.3 or the recommendations of RAS 118, 119 or 120.

R905.3.3 Underlayment. Required underlayment shall comply with the underlayment manufacturer's product approval installation instructions in accordance with the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition, except as modified in Section R905.3.3.1, where the V_{asd} is determined in accordance with Section R301.2.1.3 or the recommendations of RAS 118, 119 or 120.

R905.3.3.1 FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition. Delete Table 1A in the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition. Required design pressures for underlayments for tile systems shall be determined in accordance with ASCE 7.

~~**R905.3.3.1 Slope and underlayment requirements.**Refer to manufacturer's installation instructions, FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition where the V_{asd} is determined in accordance with Section R301.2.1.3 or RAS 118, 119 or 120 for underlayment and slope requirements for specific roof tile systems.~~

Revise as follows:

~~**Table R905.3.7**~~ **Wind resistance of Clay and Concrete Tile ~~Attachment.~~** ~~Reserved.~~ Wind loads on clay and concrete tile roof coverings shall be determined in accordance with Section 1504.2 of the *Florida Building Code, Building.*

R905.3.7.1 Hip and ridge tiles. Hip and ridge tiles shall be installed in compliance ~~accordance~~ with the manufacturer's product approval installation instructions in accordance with the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, Fifth Edition, except as modified in Section R905.3.7.1, where the V_{asd} is determined in accordance with Section R301.2.1.3 or the recommendations of RAS 118, 119 or 120.

R905.3.7.1.1 FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition. Delete Tables 2A and 2B in the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual,* Fifth Edition. Required design pressures for hip and ridge tiles shall be determined in accordance with ASCE 7.

TAC: Roofing

Total Mods for **Roofing** in **Withdrawn: 2**

Total Mods for report: 76

Sub Code: Building

R8164

75

Date Submitted	12/14/2018	**Section**	1507.2.7.1	**Proponent**	Ann Russo5
Chapter	15	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Withdrawn

Commission Action Pending Review

Comments

General Comments **No**

Alternate Language **No**

Related Modifications

Summary of Modification

The proposal expands the definition of roofing beyond recognizing metal roof singles

Rationale

The proposal clarifies the wider definition of shingles, updates standard references and includes proper wording for its expanded definition

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Clarifies design and standard requirements making for clearer application and enforcement

Impact to building and property owners relative to cost of compliance with code

None expected

Impact to industry relative to the cost of compliance with code

None expected

Impact to small business relative to the cost of compliance with code

None expected

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Improves safety by improving definition of roofing covering options to correct standard(s)

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Improves Code

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not

Does not degrade the effectiveness of the code

Does not

Revise as follows:

1507.2.7.1 Wind resistance of ~~asphalt~~steep sloped shingles.

~~Asphalt shingles~~ Shingles shall be classified in accordance with ASTM D3161/D3161M-15, ASTM D7158 or TAS 107. Shingles classified as ASTM D3161/D3161M-15 Class D or ASTM D7158 Class G are acceptable for use where Vasd is equal to or less than 100 mph. Shingles classified as ASTM D3161/3161M-15 Class F, ASTM D7158 Class H or TAS 107 are acceptable for use for all wind speeds. ~~Asphalt shingle~~ Shingle wrappers shall indicate compliance with one of the required classifications, as shown in Table 1507.2.7.1.

Sub Code: Test Protocols

R8300

76

Date Submitted	12/15/2018	**Section**	TAS 114	**Proponent**	Chadwick Collins
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation Withdrawn
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

HVHZ roofing updates

Rationale

The Asphalt Roofing Manufacturers Association staff and volunteers and the Miami-Dade roofing product staff team worked together over the past year to perform a thorough review of the HVHZ requirements for asphalt roofing, and underlayment materials, as well as related RAS and TAS protocols. Many of these requirements have not been updated in decades; this review is an attempt to correlate the FBC with other changes that have occurred within the FBC, at ASCE, and with other standards developers including ASTM International. ARMA has submitted a series of code modifications that reflect that effort.

These proposed modifications include:

- Removal of references to withdrawn standards.
- Removal of references to legacy documents, including ICBO acceptance criteria.
- Updates to referenced standards, including name changes.
- Updates to performance criteria to reflect changes in referenced standards.
- Modifications to certain initial and aged performance values for test requirements to more accurately reflect the intent of the code.
- Removal of redundant or unnecessary requirements.
- Editorial changes and grammatical corrections.

ARMA would like to thank the staff at Miami-Dade for their efforts in working through this very tedious process.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

$0

Impact to building and property owners relative to cost of compliance with code

$0

Impact to industry relative to the cost of compliance with code

$0

Impact to small business relative to the cost of compliance with code

$0

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public

Updates roofing requirements for HVHZ use

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Strengthens the code through clarification of the roofing systems this procedure is intended for use.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not require the use of any specific product

Does not degrade the effectiveness of the code

Ensures that the code is up to date with available research.

See attached file

TAS 114 Appendix D Section 1

Add

Section 1.2

This procedure is not applicable to roofing assemblies applied onto a steel deck substrate