TAC: Roofing

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TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

1

S11763

Date Submitted	01/31/2025	**Section**	101	**Proponent**	Richard Logan
Chapter	1	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments Yes **Alternate Language Yes**

Related Modifications

None

Summary of Modification

The provisions contained in this Appendix P present recommendations for the design and construction of more resilient, healthier, and longer lasting buildings in Florida.

Rationale

The Florida Building Code, Building, does not adequately address or consider the role of moisture, flooding, or resource consumption in compromising building resilience, health, and long-term viability. By considering not only the destructive effects of moisture intrusion, but also the usage of water resources and flood-resistant construction best practices, users of this appendix will create more resilient, longer lasting, and safer facilities. See uploaded support file for further rationale.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

The Appendix will not have any impact to local entity unless it is adopted by local ordinance. While there may be minimal additional efforts to enforce, if adopted, there will be added benefits by making buildings and the community more resilient.

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

The Appendix will not have any impact to property owners unless it is adopted by local ordinance. While there may be additional initial construction costs, if adopted, those costs will be outweighed by making buildings on the properties more resilient.

Impact to industry relative to the cost of compliance with code

The Appendix will not have any impact to industry unless it is adopted by local ordinance. While there may be additional initial construction costs, if adopted, those costs will be outweighed by making buildings and the community more resilient.

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

more resilient.

Requirements

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

The appendix, if adopted, has more than a reasonable and substantial connection with the health, safety, and welfare of the general public by making buildings and communities more resilient, especially against natural and manmade disasters.

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

The appendix, if adopted, strengthens or improves the code, and provides equivalent or better methods, and systems of construction by making buildings and communities more resilient, especially against natural and manmade disasters.

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

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

Does not degrade the effectiveness of the code

The appendix does not degrade the effectiveness of the code

Alternate Language

1st Comment Period History

S11763-A2

Proponent David Metzger **Submitted** 3/14/2025 1:28:42 PM **Attachments** No

Rationale:

"Consumption" includes use of water for cooking and hygiene in addition to drinking.

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
The Appendix will not have any impact to small business unless it is adopted by local ordinance. While there may be additional initial construction costs, if adopted, those costs will be outweighed by making small businesses more resilient.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Water used for cooking and hygiene affects public health, safety, and welfare as much as water for drinking.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Recognizes that "potable water" is for more than only drinking.

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not change current code-approved materials, products, methods, or systems of construction.

Does not degrade the effectiveness of the code
Improves code effectiveness by including recognized uses of water within the definition of "potable water".

1st Comment Period History

S11763-G2

Proponent Lourdes Solera Submitted 3/15/2025 3:19:48 PM Attachments No

Comment:

As a Florida architect, I am in full support of the addition of the appendix. This appendix provides clear guidelines and recommendations for the design and construction of more resilient, healthier and longer lasting buildings.

1st Comment Period History

S11763-G3

Proponent Peter Hauerstein Submitted 3/24/2025 11:14:52 AM Attachments No

Comment:

As a Florida registered architect I fully support the adoption of this index as it offers clear direction on how to build more resilient, longer lasting, safer buildings.

1st Comment Period History

FS11763-G4

Proponent Carlos Marcet Submitted 3/24/2025 1:29:19 PM Attachments No

Comment:

As a Florida architect, I fully support the addition of this appendix because it offers clear guidelines and recommendations for the design and construction of more resilient, healthier and longer lasting buildings.

1st Comment Period History

FS11763-G5

Proponent Rebecca Talbert Submitted 3/24/2025 2:08:36 PM Attachments No

Comment:

As a Florida architect, I am in full support of the addition of the appendix. This appendix provides clear guidelines and recommendations for the design and construction of more resilient, healthier and longer lasting buildings.

1st Comment Period History

FS11763-G6

Proponent Arthur Molinari Submitted 3/24/2025 5:54:20 PM Attachments No

Comment:

As a Florida registered architect, I fully support the addition of this appendix because it offers clear guidelines and recommendations for the design and construction of more resilient, healthier and longer lasting buildings.

1st Comment Period History

FS11763-G7

Proponent Stephen Panzarino Submitted 3/25/2025 11:37:32 AM Attachments No

Comment:

As a Florida architect, I fully support the addition of this appendix because it offers clear guidelines and recommendations for the design and construction of more resilient, healthier and longer lasting buildings

1st Comment Period History

FS11763-G8

Proponent marjorie weibe reed Submitted 3/25/2025 1:25:34 PM Attachments No

Comment:

As a Florida architect, I fully support the addition of this appendix because it offers clear guidelines and recommendations for the design and construction of more resilient, healthier and longer lasting buildings.

1st Comment Period History

FS11763-G9

Proponent Barbara Hughes Submitted 3/25/2025 1:28:32 PM Attachments No

Comment:

As a Florida architectural designer, I fully support the addition of this appendix because it offers clear guidelines and recommendations for the design and construction of more resilient, healthier and longer lasting buildings.

1st Comment Period History

S11763-G10

Proponent Robert Graboski Submitted 3/25/2025 1:54:02 PM Attachments No

Comment:

I am a registered Architect in the state of Florida. I am in full support of the appendix and wish it was part of the building code. The appendix provides clear guidelines and recommendations for the design and construction of more resilient, healthier and longer lasting buildings. I would also support a similar appendix specifically for Residential.

1st Comment Period History

S11763-G11

Proponent Elizabeth Camargo Submitted 3/25/2025 2:55:05 PM Attachments No

Comment:

As a Florida architect, I fully support the addition of this appendix because it offers clear guidelines and recommendations for the design and construction of more resilient, healthier and longer lasting buildings. As a consequence, re-construction of buildings after natural disasters will be minimized, saving millions of dollars and allowing communities to normalize their activities in a much shorter period of time.

1st Comment Period History

S11763-G12

Proponent Daniel Silverman Submitted 4/4/2025 2:51:35 PM Attachments No

Comment:

As a Florida architect, I fully support the appendix, which offers clear guidelines for designing and constructing more resilient, healthier, and longer-lasting buildings.

1st Comment Period History

S11763-G13

Proponent Denis Daniel Submitted 4/9/2025 10:42:33 AM Attachments No

Comment:

As a Florida design and construction professional, I am in full support of the addition of the appendix as it provides clear guidelines and recommendations for the design and construction of more resilient, healthier, and longer last buildings.

1st Comment Period History

S11763-G14

Proponent Stephen Hruby Submitted 4/9/2025 4:25:38 PM Attachments No

Comment:

I am a Florida architect and member of the AIA. I fully support the inclusion of the AIA Resiliency Appendix to the 9th edition of the FBC. It is a impactful useful guide to making our buildings more resistant to impacts of natural disasters. Ultimately make our buildings safe and healthier for our citizens. Please consider its inclusion.

1st Comment Period History

S11763-G15

Proponent iuliia Fomina Submitted 4/11/2025 12:23:42 PM Attachments No

Comment:

Resilience is the main concern to Florida buildings. I support the appendix.

1st Comment Period History

S11763-G16

Proponent Adam Gayle Submitted 4/11/2025 1:08:29 PM Attachments No

Comment:

As a licensed architect, interior designer, and real estate professional in the state of Florida, I wholeheartedly support the inclusion of this appendix. It provides a thoughtful and much-needed framework of clear guidelines and best practices that will enhance the resilience, health, and longevity of our built environment. This addition represents a meaningful step forward in promoting smarter, more sustainable design and construction across our communities.

1st Comment Period History

S11763-G17

Proponent Brian Coldwell Submitted 4/11/2025 1:48:42 PM Attachments No

Comment:

As a Florida engineer, I support the addition of this appendix. This appendix provides clear guidelines and recommendations for more resilient designs and construction to ultimately benefit our State.

1st Comment Period History

S11763-G18

Proponent Paul Lauber Submitted 4/14/2025 5:44:34 PM Attachments No

Comment:

As a Florida architect, I am in full support of the addition of this appendix. This appendix provides clear guidelines and recommendations for the design and construction of more resilient, healthier and longer lasting buildings.

1st Comment Period History

S11763-G19

Proponent Dallas Thiesen Submitted 4/16/2025 9:05:13 AM Attachments No

Comment:

The Florida Swimming Pool Associations Opposes this modification. The Florida Building Section address issue of damp-proofing and secondary containment for elevated swimming pools and spa. The addition of an appendix is unnecessary and will add confusion in plan review and inspections. Contractors, architects, engineers, and code officials are free consult unadopted standards for their own education and information but such standards should not be given a place in the Florida Building Code even as an appendix.

1st Comment Period History

S11763-G20

Proponent Jane Gilbert Submitted 4/16/2025 5:19:20 PM Attachments No

Comment:

As a member of Miami-Dade County's Office of Environmental Risk and Resilience, we fully support the addition of this resource for architects and builders to consider in making new buildings more resilient to increasing flood and water damage risks.

1st Comment Period History

S11763-G21

Proponent Jennifer Hatfield Submitted 4/16/2025 6:58:12 PM Attachments No

Comment:

On behalf of the Building Officials Association of Florida (BOAF), we must oppose this modification. Although there is possible merit as to what this proposal seeks to do, it requires additional work to ensure it is in enforceable code language. BOAF would welcome the opportunity to work with AIA on both the concept itself and crafting enforceable code language.

S11763-A2Text Modification

Under 201.1 Intent

Potable (Water): Suitable for ~~drinking~~ human consumption.

Page: 1

Mod11763_A2_TextOfModification.pdf

APPENDIX P - ENHANCING THE RESILIENCE OF BUILDINGS: MOISTURE, RESOURCES AND FLOOD

Introduction
101 - General
201 - Definitions
301 - Moisture Control in Buildings
401 - Resources - Water Efficiency and Conservation
501 - Flood Resistant Construction

INTRODUCTION

The Florida Building Code, Building, does not adequately address or consider the role of moisture, flooding, or resource consumption in compromising building resilience, health, and long-term viability. By considering not only the destructive effects of moisture intrusion, but also the usage of water resources and flood-resistant construction best practices, users of the current appendix will create more resilient, longer lasting, and safer facilities.

MOISTURE CONTROL

The building envelope, which includes the walls, windows, roofs and foundation, forms the primary barrier between the interior and exterior environments. The integrity of this barrier is critical to its performance. If the building envelope is compromised, then problems within the interior of the building will develop. These problems often present themselves as mold or stains on the interior. Moving the air, moisture, vapor and thermal control layers outward of the structural layer mitigates intrusion of exterior elements into the wall assembly and allows a method for vapor to drain outward of the building instead of within the wall assembly to the interior of the building.This appendix proposes to prevent moisture intrusion opportunities.

The Florida Building Code, Building, does not define moisture and related terminology regarding structural integrity and design considerations. This appendix proposes establishing terminology and measures to limit moisture intrusion to manage this aspect of our constructed world.

This appendix aims to limit costs of such aspects of prevention and control of moisture as considered by code. The costs of preventing and controlling moisture are a fraction of those required to replace and rebuild and the long-term health costs building occupants could face.

Uncontrolled moisture and rot also cause the growth of organisms found to be unhealthy for human habitation: most commonly, mold. Moisture allows or even encourages mold to grow and creates environments that are dangerous to occupy, if given enough time.

Rust, corrosion, and rot *(see definitions section for more discussion of rust/corrosion & rot)* create slow, quiet, and considerable damage, until discovered by inspection or observation of failure. Currently these are fairly normal occurrences if the building is not designed and constructed to a more resilient standard.

Resilient design and construction can be cost effective. Over time, the savings add up. Making buildings resilient to these processes is not only economical but safe: structurally, for occupants, for communities, and for investment.

The final benefit to enhanced resiliency standards is to maintain healthy buildings for us all to occupy. Rot, mildew, humidity, and other factors allowing uncontrolled moisture and the growth of molds and organisms that endanger healthy spaces are known to create hazards and conditions whose only solutions are those of time and funding spent into our healthcare systems. Victims of such conditions must expend a great deal of funds, time and effort to heal from them. These incidents and circumstances can be greatly reduced, controlled, and even prevented by increasing building resiliency factors.

RESOURCES -Water Efficiency and Conservation

With a growing population constantly increasing the need for water for human habitation, industry, and agriculture, Florida is running the risk of having an inadequate water supply for the state's needs. As the aquifer is increasingly drained, saltwater intrusion from the Atlantic Ocean and the Gulf of Mexico becomes an ever-greater risk. Water is a basic need of any human population and for the state to thrive and be resilient, without resorting to costly desalination plants and incurring water shortages, then the population can be ensured they can live within its resources. Ensuring plentiful water is available to all will require greater efficiency in its usage and this Appendix provides the tools to achieve that.

FLOOD-RESISTANT CONSTRUCTION

The Florida Building Code, Building, currently addresses measures to increase the resilience of buildings to flooding only in new construction and alterations/additions that constitute substantial damage or substantial improvement (when the cost equals or exceeds 50 percent of the market value of the structure, before the improvement or repair is started). However, existing buildings undergoing alterations/additions of a smaller scale can greatly benefit from available measures to increase their resilience to flooding and avoid future costly reconstruction due to the impact of flood water. This appendix presents strategies for new and existing buildings to confront the ever-increasing frequency and severity of flooding events and their associated environmental challenges to health, safety and long-lasting structures.Resilient construction from the outset is more cost-effective than rebuilding and reconstruction. Added initial costs are between 5 – 10% for new construction. Replacement costs to rebuild and replace a structure are at least the original costs plus inflation, but those costs can be considerably higher in total expenditure.

COST REFERENCES

Insurance Institute for Business & Home Safety (IIBHS)

Increased construction cost ranges from .29 to 1.43 percent of the building's total cost, depending upon designation sought and building location. This added cost was more than offset by insurance savings and/or increased rent (value to the occupants).

Columbia University / Columbia Climate School

"Technologies exist to protect homes against severe weather — but those innovations have been slow to seep into mainstream homebuilding, leaving most Americans increasingly exposed to climate shocks, experts say… Houses made from steel and concrete can be more resilient to heat, wildfire and storms. Even traditional wood-framed homes can be constructed in ways that greatly reduce the odds of severe damage from hurricanes or flooding. But the costs of added resiliency can be about 10 percent higher than conventional construction."

Building Resilience: FEMA's Building Codes Policies and considerations for Congress June 27, 2023

The National Institute of Building Sciences emphasizes the importance of building codes in a widely cited study which found that adopting the most recent building code could save $11 for every dollar invested in hazard-resistant codes and standards, and above-code design could save $4 for each dollar invested. The study also found that adopting the 2015 International Code Council building codes added about 1% in costs relative to 1990 standards.

Columbia University / Columbia Climate School

"Weather-related disasters pushed more than 3.3 million American adults out of their homes in 2022, census data shows. Of those, at least 1.2 million people were out of their homes for at least a month or longer; more than half a million of them never returned.

Homeland Security Affairs, Volume VI no 3 September 2010. www.hsaj.org

The idea of building resilience to natural and manmade disasters is now a dominant strategic theme and operational goal in the current U.S. national security policy discourse. Resilience is a critical priority that can be planned for, managed and experienced real value in. It's not a matter of "IF" something happens, it's a matter of when.

CONCLUSION

> *"**A study in 2005** estimated that for every $1 invested in disaster risk mitigation, $4 was saved in post-disaster rebuilding efforts. **New Data in 2019** showed $1 spent on mitigation measures could save $11 post-disaster"*

The Harvard Gazette, April 5 2023. https://news.harvard.edu/gazette/story/2023/04/natural-disaster-recovery-costs-set-to-spiral-study-shows/

The costs of reconstruction (and all the concerns outlined above) will likely grow over time. As costs associated with construction increase–such as wages, property values, products & services, transportation, shipping, etc.-- so too will reconstruction costs, making the investment in resilient structures and spaces even more valuable and wise. From structural stability to healthy spaces to economic wisdom, the health, safety and welfare of our state is better protected by resilient design and construction codes (and their enforcement).

SECTION 101 - GENERAL

101.1 Intent.

The intent of this appendix is to express the more specific principles of Resilient Design and Construction of buildings in the State of Florida. It is important to first comply with the minimum requirements of the Florida Building Code, Building, then meeting or exceeding additional objectives as stated in this appendix to further enhance building resilience.

101.2 Scope.

To be applicable to the increased resilience of any project requiring application of the Florida Administrative or Building Codes, through its planning, design, operation, construction, and occupancy.

101.3 Referenced codes and standards.

Refer to Florida Building Code, Building, 101.4 Referenced Codes and Ch. 35, Reference Standards. When dealing with the design and construction of existing buildings refer to the Florida Building Code, Existing Building for additional requirements.

101.4 Enforcement.

When this appendix is adopted by a local Authority Having Jurisdiction (AHJ) provisions for enforcement shall be proposed and adopted by ordinance. Enforcement then falls under that AHJ in accordance with their ordinance language.

SECTION 201 - SUPPLEMENTAL DEFINITIONS

201.1 Intent

The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of the Florida Building Code, Building for general definitions.

S11763Text Modification

BIOSWALE. A long, channeled depression or trench that receives and transports rainwater runoff (as from a parking lot) and has vegetation (such as grasses, flowering herbs, and shrubs) and organic matter (such as mulch) to slow water infiltration and filter out pollutants.

CONDENSATION. Natural condition of moisture from the atmosphere collecting on or within a surface when conditions of humidity and temperature of both atmosphere and surfaces align. While conditions of condensation vary depending upon the range of humidity and temperature of atmosphere and temperatures of adjacent surfaces and materials, these conditions are predictable and can be foreseen - as such in certain assemblies should be avoided or managed. [please consider a simplified definition. Suggestion: The process through which the moisture from the atmosphere becomes water droplets in contact with a cooler surface - refer to dewpoint]

CONTROL. (1) To exercise restraining or directing influence over : (2) to incorporate suitable controls.

CRITICAL FACILITIES. Those structures, as listed as Risk Categories III and IV in Florida Building Code, Building, - Building, Table 1604.5, Risk Category of Buildings and Other Structures from which essential services and functions for victim survival, continuation of public safety actions, and disaster recovery are performed or provided. See Florida Building Code, Building, Ch.2.

DEW (POINT). Dew point is the condition where the temperature and relative humidity of the atmosphere, and the interface of solid objects/surfaces of a certain temperature allows moisture of the atmosphere to appear as a liquid (water) in the forms of drops or droplets on the surface of an object. (See condensation) This circumstance also occurs within an architectural assembly of elements (ie: Wall/Ceiling assemblies) resulting in the presence of water no longer in the atmosphere but present as water on the surface of (or within) elements of an assembly.

EVAPOTRANSPIRATION ADJUSTMENT FACTOR (ETAF). An adjustment factor when applied to reference evapotranspiration that adjusts for plant factors and irrigation efficiency, which are two major influences on the amount of water that needs to be applied to the landscape.

GREYWATER. Graywater means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing or operating wastes. "Graywater" includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.

HAZARDOUS EVENT. An incident, situation or occurrence that has the potential to cause harm, damage or adverse effects.

HUMIDITY. Humidity is the amount of moisture in the air.

HYDROZONES. A Hydrozone is an area of landscape with plants sharing similar watering requirements.

METAL OXIDATION. A chemical reaction that occurs when metal is exposed to oxygen and an electrolyte, like water or moisture in the air, and electrons move from the metal to the oxygen.

METERING FAUCET. A self-closing faucet that dispenses a specific volume of water for each actuation cycle. The volume or cycle duration can be fixed or adjustable.

MIST. Exterior moisture in the form of particles floating or falling in the atmosphere at or near the surface of the earth.

MOISTURE. The presence of liquid diffused or condensed in small or trace quantities. These (sometimes) small quantities of moisture are difficult to measure but nevertheless present, and if disregarded can cause reactions to materials and assemblies concerned in this code: Rust, Rot, Mold, etc.

MOLD. Naturally occurring fungus that grows on organic elements within certain conditions of temperature and humidity.

Page: 3

Mod11763_TextOfModification.pdf

S11763Text Modification

PERMEABILITY. Permeable material permits the passage of moisture.

POTABLE (WATER) Suitable for drinking.

RAIN. Moisture condensed from the atmosphere that falls visibly in separate drops. In calm (i.e., windless) weather, raindrops fall vertically. It can find its way into small gaps in a building, wetting the roofs, balconies, projections and causing damages.

RAIN, WIND DRIVEN. In wind, raindrop paths fall at oblique angles; the vertical component is called precipitation and the horizontal component is called wind-driven rain (WDR). While precipitation wets horizontal and sloped surfaces, wind-driven rain also wets vertical surfaces. It can find its way into small gaps in a building wetting the wall systems and causing damages.

RAINSCREEN. Rainscreen assemblies are those assemblies applied to an exterior wall that consist of, at minimum, an outer layer, an inner layer, and an airspace between them sufficient for the passive removal of liquid water and water vapor. Rainscreens are effective at managing moisture and provide exceptional opportunities for energy-efficient performance via continuous insulation and reducing thermal bridging.

RAIN GARDEN. Similar to a bioswale, but generally smaller in scale and does not transport water. It receives rainwater runoff (as from a parking lot) and has vegetation (such as grasses, flowering herbs, and shrubs) and organic matter (such as mulch) to slow water infiltration and filter out pollutants.

REMEDIATION OR REMEDIATE. intended as a remedy. Act of correcting an error or risk. Provide a remedy for; Redress or make right.

RESILIENT, RESILIENCE, RESILIENCY. The ability of a system and its component parts to anticipate, absorb, accommodate, and recover from the effects of a hazardous event in a timely and efficient manner, including the preservation, restoration, or improvements of its essential basic structures and functions. Adopted by AIA and IPCC (Intergovernmental Panel on Climate Change).

RUST. Rust is the result of oxidized iron or steel. Steel structures allowed to rust are compromised due to the corrosive effects of moisture. This results in compromised structural integrity, conditions calling into question their stability, and considerations of removal or renovation to maintain the health, safety, and welfare of occupants.

Concrete structures that allow moisture to migrate into the concrete form can allow the reinforcing steel within to rust and/or corrode. This corrosion often causes reinforcing steel to swell, often causing pieces of the protective layer of concrete to spall or break off, exposing the reinforcing steel. Left unabated, time and conditions permitting, a compromise of the structure can be expected.

ROT. the decomposition and loss of integrity from the action of bacteria and/or fungi. Rot is the natural effect of decay in organic material. Moisture almost always plays a pivotal role, as seen most notably in wood.

Wood structures that allow the presence of uncontrolled moisture will experience this decaying process over time. This process is quiet and steady, and unless found through inspections and routine investigation, it can almost always go far enough to require restructuring or replacement before being discovered. This compromise can and will require the replacement of structural elements in order to maintain the integrity of the structure.

SPECIAL LANDSCAPE AREA (SLA). An area of the landscape dedicated solely to edible plants, planting areas used for educational purposes, recreational areas, areas irrigated with recycled water, water features using recycled water, and where turf provides a playing surface or gathering space.

SUBMETER. A secondary device beyond a meter that measures water consumption of an individual section of a larger system.

VAPOR. Water in a gaseous state and often not visible.

VAPOR RETARDER. a material or assembly's ability to limit the amount of moisture that passes through that material or assembly.

VARIANCE. A grant of relief from the requirements of this section that permits construction in a manner otherwise prohibited by this section where specific enforcement results in undue hardship.

Page: 4

Mod11763_TextOfModification.pdf

VIOLATION. A development that is not fully compliant with this appendix, as applicable.

WATER. An inorganic compound with the chemical formula H2O. It is colorless, transparent, odorless liquid.

WIND SPEED. In a storm wind gusts can reach 60 miles per hour (mph) or greater. In a hurricane wind speed (sustained and/or gusts) can reach speeds of 75 mph and greater depending on locality and storm intensity.

SECTION 301 - MOISTURE CONTROL IN BUILDINGS

301.1 GENERAL

The provisions of this section address the detrimental impacts of moisture migrating through the building envelope, resulting in the degradation of materials and adversely affecting indoor environmental quality. Further, this section provides guidance and establishes the requirements for the design and construction for more resilient building envelope systems in buildings.

NOTE: Ensuring adherence to Florida Product Approval (FPA's) requirements is a critical step in designing and building a safe and resilient exterior building envelope in Florida.

The Florida Building Code, Building, presents the absolute minimum requirements for design and construction in the State of Florida. This section is intended to guide the designer and builder as to ways to implement improvements for moisture control, greater energy efficiency, greater safety, enhancing the longevity of Florida buildings.

- Design: Enhancing the design of buildings with better and more complete drawings and specifications is the first step in the process. Clear and concise communication of design intent is very important.
- Construction: The second step is the proper construction of buildings to most closely follow the design intent of the drawings and specifications, producing a higher quality building.

These requirements supplement the listing for buildings constructed under the Florida Building Code, Building in Ch. 1, Section 107.3.5.

Exterior Wall & Balcony Requirements:

- 302.4 Drawings & Details - Wall details checklist
- 302.9 Balconies & Similar Projections -Balcony details checklists
- 302.11 Testing requirement

Roofing & Terrace Requirements:

- 303.4 Drawings & Details - Roofing details checklist
- 303.8 Rooftop Terraces & Decks - Waterproofing details checklist
- 303.15 Testing requirements

Additional Recommendations:

If not adopted by local ordinance, this appendix document presents recommendations for design and construction leading to more resilient, healthier, and longer lasting buildings. The voluntary user of this document is encouraged to implement as many of these recommendations as possible in their project. If all recommendations cannot be followed due to time or cost constraints, it is understood that all projects have limitations and challenges. Do implement as many as possible for greater moisture resistance resulting in more resilient and long-lasting buildings.

See the sections below for the recommendations and guidance for the design and construction of wall systems and roofing systems for Florida buildings.

SECTION 302 - RESILIENT EXTERIOR WALLS

Exterior walls function as important aesthetic, structural, and weather resistant elements of the building. The design of today's exterior walls includes multiple enclosure systems of diverse materials and assemblies. Traditional opaque walls include masonry (brick, stone, concrete block), wood sidings, vinyl sidings, composite sidings, EIFS, rainscreens, metal panels, stucco, and other materials. Transparent and translucent walls include: glass walls (window wall, storefront, curtain wall), ceramic frits, reflective, insulated glass/glazing, tinted glass/glazing, mullion systems (aluminum, steel, fiberglass, composites, etc.).

302.1 Intent.

The intent of this section is to provide additional direction for the design and construction of more resilient exterior walls and other related wall components; exterior wall coverings; exterior wall openings; exterior windows and doors; exterior soffits and fascias; architectural trim; balconies and similar projections; and bay and oriel windows. See also appendix section 105 - Flood - Resistant Construction as it may pertain.

302.2 Degradation of materials.

As moisture enters the walls of a building, degradation of materials is just one undesirable impact. Moisture needs to be controlled or mitigated to the greatest extent possible. The long-term exposure of moisture to many building materials within exterior walls can adversely affect the lifespan of those

materials. Other adverse impacts are weakened structural capabilities, probable health concerns, noxious odors [caused as wood and paper materials begin to grow mold (acting as a food source) and/or rot], rusting of metals (studs, fasteners, hold down straps, connectors, etc.)

All wall materials degrade over time. Solar load, temperature fluctuations, expansion and contraction, moisture saturation and drying, the natural aging cycle of materials (due to loss of moisture or loss of a component or components within the materials), the influence of other materials inducing stress and strain within the materials in question, carbonization, salts, mineral deposits, environmental dirt, water leakage, freezing water, and other influences. All wall materials are influenced by the location installed and the specific climate zone, weather patterns, distance from the saltwater coast, lake effects, shading or lack of shading, varying climate cycles and weather trends. Even wild animals can be a source of degradation of the wall materials (rats, mice, squirrels and others) by abrasion and/or gnawing of the materials, especially if the materials have an organic or mineral content within the material.

Wall Degradation Examples:

- Concrete (poured in place, precast, tilt wall).
- Stucco (direct application to masonry, lathing, joint materials).
- Wood siding (various configurations).
- Wood paneling (various sizes and surface treatments).
- Composition siding.
- Shingle siding.
- Painting & Staining.
- Vented skins (varying materials with underlying air/water barriers).
- Glass & Glazing.
- Sloped glazing.

Balcony Degradation Examples:

- Bare concrete.
- Sealed concrete.
- Membrane systems over concrete.
- Membrane systems over wood.
- Safety railings (wood, metal, glass, composites).
- Floor drains and scuppers.

302.3 Moisture control within the building walls.

Moisture control within the wall system of a building is critical to the long-term health of the wall systems and the building occupants. Some materials are more moisture sensitive than others. There are several ways of designing framed (wood framing, metal framing, wood and composite sheathings, etc.) walls:

- Barrier Systems, where the primary form of moisture resistance is the facing of the wall to keep moisture from entering the wall system and interior.
- Drainage Systems, where there is a secondary form of moisture protection by the installation of a weather resistant barrier (WRB) installed within the wall system to protect the wall framing and interior wall from moisture penetration.
- Rainscreen Systems, where the primary moisture barrier is mounted behind the exterior cladding with a drainage space between the moisture barrier and backside of the exterior cladding. This allows the exterior wall cladding to provide solar, wind and water protection of the primary moisture barrier. Note that this moisture barrier must be robust in design to fully protect the structural substrate from moisture intrusion over the life of the building.
- Hybrid Systems,combining multiple combinations of wall systems in accordance with the design intent of the architect or design professional.

Likewise, masonry (brick, CMU, stone, cement products, etc.) and concrete (cast in place, tilt wall, precast, etc.) walls can incorporate some of the same features as framed walls depending on design intent.

- Masonry cavity wall construction, internal space allows for drying and drainage
- Exposed masonry construction, face sealed is the most economical systems
- Hybrid Systems, combining multiple combinations of wall systems in accordance with the design intent

Comply with chapter 14 of the Florida Building Code, Building for all Exterior Wall requirements;

- 1401 General.
- 1402 Definitions.
- 1403 Performance Requirements.
- 1404 Materials.
- 1405 Installation of Wall Coverings.
- 1406 Combustible Materials on the Exterior Side of Exterior Walls.
- 1407 Metal Composite Materials (MCM).
- 1408 Exterior Insulation and Finish Systems (EIFS).
- 1409 High-Pressure Decorative Exterior-Grade Compact Laminates (HPL).
- 1410 Soffits and Fascias at Roof Overhangs.
- 1411 Plastic Composite Decking.

Note: see HVHZ requirements in Chapter 24, Glass and Glazing, section 2411.3.2, Tests in the Florida Building Code, Building.

Wall and Opening Details

These wall and opening detail requirements supplement the listing for buildings constructed under the Florida Building Code, Building in Ch. 1, section 107.3.5.

For more resilient design and construction, the architectural and engineering drawing details must be more comprehensive and concise as to the intended materials and their connections. The path of water is important to indicate if water is allowed within the wall system.

Required Wall and Opening Details Checklist:

- Where an underlying weather barrier is a part of the assembly (specific type, thickness, manufacturer, specific directions for use, application diagrams and details from the manufacturer).
- All wall penetrations (vents, louvers, scuppers, fasteners).
- All window & frame penetrations (sill, jambs, head, flashings).
- All door & frame penetrations.
- If above a balcony, see section 302.11 for additional information.
- All copings on top of walls.
- All flashings by location, material, sizes & profiles, underlayments, fastening patterns.
- Where sealants are used, clearly indicating the location type of seal, material, sizes & profiles, backer rods.
- Integration of horizontal to vertical envelope systems.
- Below grade details(occupied and slab on grade conditions).
- Footing and foundation.
- Expansion joints.
- Interconnection between different wall systems(often overlooked until construction).
- For other special features see sections below.

302.4 Exterior wall coverings.

Exterior wall coverings are the outermost surfacing material of the exterior wall system. The possible exterior wall covering materials are many; wood (lap siding, panel siding, trim and moldings), masonry (brick, stone, CMU with various surface textures and treatments), stucco, metal panels, composite panels, plastic panels and lapped siding, and various combinations of materials. Exterior wall coverings can be painted, coated, stained or left natural to weather depending on what the building designer has in mind for the building.

For the Florida climate, building design and construction should consider a coating or stain to shed as much surface moisture as possible before the moisture contacts the actual surface material. While then the coating or stain must be maintained, it is invaluable in preserving the surface of the exterior wall covering to maximize its lifespan.

302.5 Exterior wall openings.

Exterior wall openings include any number of penetrations through the building wall envelope. Anything that penetrates the wall is a wall opening and makes the wall more susceptible to moisture entry into the wall system. All exterior wall openings are required by the Florida Building Code, Building, to be flashed or sealed and therefore need to be detailed by the designer of record so that construction teams can understand the approach to creating a watertight wall opening. See other sections of this appendix that further detail exterior walls and exterior wall openings.

302.6 Exterior soffits and fascias.

Exterior soffits are related to the underside of projecting elements (roof overhangs and other building elements) or ceiling surfaces of upper-level floors or balconies.

Fascias are related to the vertical surface of building overhangs or roofing terminations.

Exterior soffits and fascias shall be properly detailed to tie into the fascia on the outboard side and the wall and wall materials on the inboard side of the soffit. Size all components and connectors for the actual loading pressures (corner and field) to assure that the soffit material is stable in hurricane force winds and rain. Soffits are often the first wind damages and blow-offs in even nominal wind events.

Soffits should have a slight positive slope to the outboard side of the soffit so as to avoid moisture entering the attic or upper wall materials in the event of roof or eave leakage.

302.7 Architectural trim.

Architectural trim can be defined as ‘minor’ projections (less than 2” of horizontal dimension) of the building wall used for aesthetic articulation of the building facade. Where the horizontal dimension exceeds 2”, see the next section on ‘similar’ projections.

Architectural trim must minimize water penetration into the wall surface, whenever possible. The horizontal surfaces shall slope to drain (6% is the minimum slope recommended) to effectively drain water from the horizontal top surface of the trim. It is recommended that where possible, the bottom horizontal surface have a slope toward the exterior creating an effective dripline.

When the architectural trim consists of proprietary materials such as EIFS or single-coat stucco systems, follow the manufacturer’s requirements in addition to the base building code and this section.

When the architectural trim consists of wood, metals, composite materials, pvc, or other materials special architectural detailing will be required for those trim details, consult available manufacturer details and requirements. Industry publications can also be consulted for detailing information and direction.

Provide details as to the architectural intent of the architectural trim. Always make sure that architectural trim is properly attached. Often the method is nails, screws or construction adhesive. The best method is to combine mechanical attachment with a construction grade adhesive.

If metal flashing is used to prevent water entry, it must be properly detailed. If a liquid applied coating is used follow the manufacturer's instructions. If sealants are used follow the manufacturer's instructions.

302.8 Balconies and similar projections.

There can be public and private balconies serving the building and its occupants in multi-level buildings.

- Public balconies are common in hotels, motels, apartments/condominiums and sometimes on office or retail buildings. Public balconies must provide safe and easy access to the doors and entries to the occupied spaces daily. They must also provide safe egress to building stairways and elevators for fire services to assist in evacuating occupants from the building during emergency evacuations (smoke, fire, other emergencies).

- Private balconies provide multi-level buildings to allow their residents to enjoy the outdoor environment directly outside their residences, hotel rooms, or offices. Balconies also provide weather protection (shading, shadows, shielding from rain) to the walls, windows, glass doors and other parts of the wall systems. Private balconies can also be screened to defend against insects during the warm and hot months of the year.

Balconies on buildings have been one of the most challenging design, detailing, and construction elements of a building. Whether in single family residences, hotels, apartments/condominiums, office buildings using many types of construction (wood framing, metal framing, concrete, and composite materials). Balconies can be solid decking surfaces (and undersides) or constructed of open deck boards (and exposed structural elements) constructed of wood or composite materials.

If water is not effectively resisted (keeping it out of the building and structure) damage to structural components and other building materials can result. Florida wind especially along coastal areas are especially vulnerable to wind driven rains. In addition, coastal construction must withstand the effects of sand and salts weathering the finishes of balconies much faster than in inland locations.

There are no real standards for exactly how to detail balconies so as to maximize weather resistance and provide for their longevity, yet they all must be constructable providing safe railing systems, effectively shedding water, and resisting high velocity winds. Often wind driven rain soaks or even floods balconies with water under both dynamic and hydrostatic pressures.

Many sets of construction drawings and specifications fall short in providing adequate drawing details and clearly written specifications for the materials and workmanship that is needed. Many times the trades constructing balconies do not understand the design intent, so construct the balconies with breaches and voids in water resistant membrane materials and surfaces. Often, effective flashing materials are omitted or poorly installed, so as to leak water into the balcony and adjacent wall structures. When patio door thresholds and sliding glass door tracks are not correctly installed they leak and damage interior flooring materials, baseboards, and finished wall materials. When surface finishes and materials exhibit damage, then in most cases further damages underlie those materials causing structural damages to floor and balcony structural members and the wall systems (and columns) supporting those balconies.

Balcony Details

These balcony detail requirements supplement the listing for buildings constructed under the Florida Building Code, Building in Ch. 1 section 107.3.5.

Wood framed balconies (solid surface and open decking) are the most problematic for proper waterproofing, so minimum details are required as follows:

Minimum ‘solid surface decking’ balcony waterproofing details:

- Balcony cross sections with a minimum ¼” per foot of slope to drain.
- Scuppers (when utilized).
- Floor drains (when utilized).
- Terrace door thresholds (and jamb and head flashings).
- Sliding glass door tracks (and jamb and head flashings).
- Windowsill flashings at balcony locations (and jamb and head flashings).
- Wall to balcony flashing conditions.
- Railing attachment details (structural and waterproofing).
- Water discharge flashings at corner discharge points.
- Supporting beam details.
- Supporting column details (when present).
- Specifications of membrane waterproofing and walking surfaces.

Minimum ‘open surface decking’ balcony waterproofing details:

- Balcony cross sections.
- Terrace door thresholds (and jamb and head flashings).
- Sliding glass door tracks (and jamb and head flashings).
- Window sill flashings at balcony locations (and jamb and head flashings).
- Wall to balcony flashing conditions.
- Railing attachment details (structural and waterproofing).
- Joist framing connections to beam details.
- Ledger framing flashing at walls.
- Supporting beam cap flashing and saddle flashing (beam to wall) details.
- Supporting column details (when present).

S11763Text Modification

- Specifications of wood or composite walking surfaces.

Concrete balconies are less problematic, details are still required as follow:

- Balcony cross sections with a minimum ¼" per foot of slope to drain.
- Scuppers (when utilized).
- Floor drains (when utilized).
- Terrace door thresholds (and jamb and head flashings).
- Sliding glass door tracks (and jamb and head flashings).
- Windowsill flashings at balcony locations (and jamb and head flashings).
- Wall to balcony flashing conditions.
- Railing attachment details (structural and waterproofing).
- Water discharge flashings at corner discharge points.
- Specifications of liquid applied waterproofing and walking surfaces (tile or liquid applied wearing surface.

Similar Projections:

Similar projections come in various types. If the projection is a bay window or oriel window, see the next section addressing those elements as these are 'capped' with various types of roofing materials that must be properly flashed to the wall system.

Other projections include trim bands, cornice lines, and projections generally detailed as aesthetic elements of the wall system comprising the building facade. Projections can be detailed using traditional wall to horizontal flashings (generally metal 'L' and 'Z' shaped) sloping to effectively drain water off the horizontal element of the projection.

Minor projections can also be detailed using sealants and liquid applied flashings sloping to drain water off the horizontal element. When detailed using sealant and liquid applied flashings, those surfaces generally have a higher degree of maintenance required than metal flashings, so maintenance programs must be established and followed for the maintenance and refinishing for effective waterproofing.

302.9 Insulation.

The thermal performance of a wall system depends on all the wall materials with careful consideration of the insulation type, thickness, and material properties within the wall assembly. It is highly recommended that a hygrothermal analysis be completed on all exterior wall assemblies using both historic and future predicted climate characteristics of the project location including mean temperature, dewpoint, etc. to determine the best course of action for specifying the specific wall assembly for a project. It is best practice in a hot, humid climate to locate the air, moisture, vapor, and thermal control layers outward of the structural layer to mitigate intrusion of moisture into the wall assembly and provides a method for vapor to drain outward of the building versus within the wall assembly on the interior of the building. However this type of insulation and water-resistive barrier layering is not always possible so proper architectural detailing must be followed to achieve the code compliant installation that prevents entrapment of moisture within a wall assembly and interior to the building.

302.10 Building Envelope Testing requirements.

Building envelope testing as a holistic approach to moisture and air management in building design and construction is essential for achieving long-term resilience and viability. It integrates preventive measures against moisture intrusion and air leakage, enhances energy efficiency, supports indoor air quality, and ensures the durability and performance of buildings throughout their lifecycle. Investing in building envelope testing during the design and construction phases pays dividends in terms of reduced maintenance costs, improved occupant comfort, and sustainable building operations.

Page: 9

Mod11763_TextOfModification.pdf

S11763Text Modification

Moisture Management

- Preventing Water Intrusion: Building envelope testing, such as water penetration resistance testing (e.g., ASTM E1105), helps identify potential points of water entry during rain events or under high wind conditions. This early detection allows for necessary adjustments in design or construction to prevent water intrusion, which can lead to structural damage, mold growth, and degradation of building materials over time.
- Moisture Control: Properly designed and tested building envelopes include vapor barriers, drainage systems, and waterproofing materials that manage moisture effectively. Testing ensures that these components function as intended, reducing the risk of moisture buildup within wall assemblies and improving the durability of building materials.

Air Management

- Minimizing Air Leakage: Air leakage through the building envelope can compromise energy efficiency by allowing conditioned air to escape and unconditioned air to enter. Air leakage testing (e.g., ASTM E783) identifies areas of concern and allows for corrective measures to be implemented, such as improving air barriers and sealing penetrations.
- Enhancing Indoor Air Quality: A well-sealed building envelope helps maintain consistent indoor air quality by preventing the infiltration of outdoor pollutants, allergens, and moisture-laden air. This is crucial for occupant health and comfort, particularly in tightly sealed and energy-efficient buildings.

Energy Efficiency

- Reducing Heating and Cooling Loads: A tightly sealed building envelope with effective insulation and minimal air leakage reduces the demand for heating and cooling energy. This results in lower energy costs over the building's lifespan and contributes to sustainability goals by reducing greenhouse gas emissions associated with energy consumption.
- Optimizing HVAC Performance: By minimizing air leakage and controlling moisture, building envelope testing ensures that HVAC systems operate more efficiently. This can help optimize HVAC size reducing redundancy due to unknowns and saving upfront costs, reduces the workload on HVAC equipment, prolongs their lifespan, and lowers maintenance costs.

Long-Term Resilience

- Durability and Maintenance: Building envelope testing helps identify potential weaknesses or defects early in the construction phase, allowing for proactive maintenance and repairs. This proactive approach extends the lifespan of the building envelope and reduces the likelihood of costly repairs or premature replacement.
- Adaptability to Climate Change: A resilient building envelope, verified through testing, is better equipped to withstand extreme weather events and climate change impacts. It ensures that buildings remain habitable and functional, providing shelter and safety to occupants over the long term.

Viability and Performance Verification

- Meeting Design Intent: Building envelope testing verifies that the design and construction meet specified performance criteria, including compliance with building codes, standards, and project requirements. This ensures that the building envelope performs as intended by the owner, authority having jurisdiction, and design team and meets regulatory expectations.
- Documentation and Warranty Compliance: Testing provides documented evidence of the building envelope's performance, which is essential for warranty coverage and insurance purposes. It establishes accountability and ensures that stakeholders have confidence in the building's quality and longevity.

Field Testing

Field testing of exterior enclosure components and systems *as they relate to moisture* can include:

Water Penetration Resistance Testing

Purpose: To evaluate how well a wall system prevents water ingress under real-world conditions.

Standards:

1. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference:
   - Purpose: This test method covers the determination of the resistance of installed exterior windows, curtain walls, skylights, and doors to water penetration when water is applied to the outdoor face and exposed edges simultaneously with a static air pressure at the outdoor face higher than the pressure at the indoor face.(Source: ASTM)
   - Method: This test involves the use of a wall-mounted pressure chamber where air is exhausted to create a lower pressure on the test surface. Water is then sprayed at a controlled rate on the opposite surface using a calibrated nozzle rack over a specified time period.
2. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference:
   - Purpose: This test specifies a method for testing the water penetration resistance of exterior windows, skylights, doors, and curtain walls under uniform static air pressure differences.
   - Method: It involves subjecting the specimen to a specified pressure differential while applying water to the exterior surface and monitoring for water infiltration.
3. ASTM E2128 - Standard Guide for Evaluating Water Leakage of Building Walls:

Page: 10

Mod11763_TextOfModification.pdf

S11763Text Modification

- Purpose: This guide provides principles and procedures for evaluating water leakage through building walls, including exterior cladding and curtain walls.
- Method: ASTM E2128 outlines methods for field and laboratory evaluations to identify sources of water infiltration and potential remediation measures.

4. AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls, and Doors Using Dynamic Pressure:
   - Purpose: Published by the American Architectural Manufacturers Association (AAMA), this standard specifies procedures for evaluating the water penetration resistance of windows, curtain walls, and doors under dynamic pressure conditions.
   - Method: Dynamic water penetration testing is conducted at the specified air pressure differential by utilizing a wind generator employing an 84" diameter propeller. Water is simultaneously sprayed onto the exterior face of the assembly at the required rate of 5 gph/SF. Testing continues for 15 minutes. During testing, the interior face of the test area is inspected for water leakage.
5. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems:
   - Purpose: Another standard from AAMA, this document provides guidance for quality assurance and diagnostic field checks designed to aid in the water-tight testing of large glass areas meant to be permanently closed, such as store fronts, curtain walls, and sloped glazing systems to verify water leakage resistance.
   - Method: A constant pressure of between 30-35 psi is applied from a ¾" (19 mm) diameter hose fitted with a nozzle. This ½" diameter brass nozzle is to be part B-25 #6.030, sourced only from Monarch Manufacturing, to standardize test results. It is recommended to fit the nozzle with a gauge to measure distance from the test surface.

Air Leakage Testing

Notes: Air Leakage testing is indicated as an optional testing direction, not required for 'liquid' moisture mitigation in buildings. Although moisture does enter via air infused with moisture (known as humidity), it is not as critical as minimizing liquid moisture entering the wall cavities. When air conditioning (air cooling) is present in indoor spaces, there is also a possibility of liquid condensation on wall materials within the wall assembly.

Purpose: To measure the air tightness of building envelope walls.

Standards:

1. ASTM E779 - Standard Test Method for Determining Air Leakage Rate by Fan Pressurization:
   - Purpose: ASTM E779 outlines procedures for measuring air leakage rates of buildings by pressurizing or depressurizing the building envelope with a fan and measuring airflow.
   - Method: It quantifies air leakage through the building envelope under specified pressure differentials, providing a metric such as air changes per hour (ACH) or air leakage rate per unit area.
2. ASTM E1827 - Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door:
   - Purpose: ASTM E1827 provides alternative methods for determining the airtightness of buildings using a blower door test, which measures air leakage through the building envelope.
   - Method: It includes procedures for installing and operating the blower door equipment, controlling test conditions, and calculating air leakage rates.
3. ASTME3158 – Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building
   - **Purpose: ASTME3158 provides a quantitative field test procedure and calculation method for assessing an air leakage rate using a fan-induced pressure differential(s) across the building envelope, generated by blower doors or equivalent equipment.**
   - Method: This test method applies to all multizone and large building types and portions or subsections of buildings. It can be used to test envelopes that consist of a single zone or subsections of a zone that can be tested as a single zone. Test envelopes that are entirely composed of subsections separated by interior partitions or floors, or both, may be tested as a single zone by maintaining baseline relationships between these subsections throughout testing. The relationship between the airflows and induced pressures are used to measure the air leakage rate of the envelope. Specifications for air leakage rates of an envelope are written in terms of the maximum allowable airflow rate from a specified induced pressure differential.
4. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors:
   - Purpose: ASTM E783 specifies procedures for measuring air leakage through installed exterior windows, doors, and curtain walls under specified pressure differentials.
   - Method: The testing is performed by sealing a chamber to the interior or exterior face of the test specimen, supplying or exhausting air from the chamber at a rate required to maintain the specified test pressure, and measuring the air flow lost or gained across the testing chamber.
5. ISO 9972 - Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurization method:
   - Purpose: This international standard provides methods for determining the air permeability of buildings using a fan pressurization method, similar to ASTM E779.
   - Method: ISO 9972 To compare the relative air permeability of several similar buildings or parts of buildings, and to determine the air-leakage reduction resulting from individual retrofit measures applied incrementally to an existing building or part of a building. The fan pressurization method does not measure the air infiltration rate of a building. The results of this method can be used to estimate the air infiltration rate and resulted heat load by means of calculation.
6. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products:
   - Purpose: Published by the American Architectural Manufacturers Association (AAMA), AAMA 502 specifies procedures for field testing newly installed fenestration products (windows, doors) to verify air leakage resistance.
   - Method: Chamber test method where chamber is attached and sealed to adjacent frame members, concrete, structural steel or drywall at the top, bottom and sides of the specimen. The chamber is equipped with a centrifugal blower/vacuum pump, air flow meter, and a pressure sensing device to maintain the desired air pressure differential across the assembly

Thermal Performance Testing

Page: 11

Mod11763_TextOfModification.pdf

S11763Text Modification

Note: Thermal performance testing is indicated as an optional testing direction, not required for moisture mitigation in buildings.

Purpose: To assess the insulation properties of walls.

Standards: ASTM C1153.

Method: Involves measuring the thermal resistance (R-value) or thermal transmittance (U-value) using heat flow meter devices or infrared thermography.

Field Application: Can be performed in-situ to evaluate the actual thermal performance of installed wall assemblies.

SECTION 303 RESILIENT ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

A building's roof assembly provides multiple functions, aesthetic, structural, and weather resistance for the building. The design of today's roofing includes multiple roofing comprised of diverse materials and assemblies. Traditional roofs include steeply sloped and 'flat' membrane roofing materials, depending on the design and construction of the roofing system. Roof structures can be comprised of various materials including; wood (wood rafters, joists, trusses, plywood roof decking), metal (usually steel, light gauge, forged), concrete (reinforced, prestressed, post tensioned), hybrid structures (system buildings, prefabricated buildings, relocatable buildings). Sloped roof coverings include shingles (wood, asphaltic, tile), metal (standing seam, corrugated, composite panels), and other hybrid systems.

For minimum code requirements see chapter 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES in the Florida Building Code, Building,.

303.1 Intent.

The intent of this section is to provide additional direction for the design and construction of more resilient roof assemblies and rooftop structures. Increasing wind and moisture resistance is critical to the ultimate longevity of the roofing system and materials within the roofing system.

303.2 Degradation of materials.

All roofing materials degrade over time. Solar load, heat/cold, temperature fluctuations, expansion and contraction, moisture saturation and drying, the natural aging cycle of materials (due to loss of moisture or loss of a component or components within the materials), the influence of other materials inducing stress and strain within the materials in question, carbonization, salts, mineral deposits, environmental dirt, ponding water, freezing water, and other influences. All roofing materials are influenced by the location installed and the specific climate zone, weather patterns, distance from the saltwater coast, lake effects, tree coverage, varying climate cycles and weather trends. Even wild animals can be a source of degradation of the materials (rats, mice, squirrels and others) by abrasion and/or gnawing of the materials, especially if the materials have an organic or mineral element within the material.

Roofing Degradation Examples:

- Asphaltic shingles: Loss of granules, fading, mold growth, brittleness, cracking, loss of shingles and portions of shingles.
- Asphaltic membranes: Loss of granules, dirt build up, brittleness, cracking and splitting.
- Acrylic membranes: Loss of flexibility, dirt build up, brittleness, cracking and splitting.
- Cement and clay tiles: Color loss, fading, mold growth, loss of surface finish due to erosion, exposure of aggregate.
- Slate shingles: Mold growth, loss of natural surface finish due to erosion, delamination of the slate.
- Cedar shakes and shingles: Mold growth, shrinkage, separation, curing, loosening of fasteners.
- Metal roofing: Fading, color loss, mold growth, streaking of surface finish, rust bleed through.
- Hybrid roofing materials: TBD based upon the technology of the materials.

303.3 Moisture control within building roof assemblies and rooftop structures.

Moisture control through the roofing elements of the project is of critical importance for the proper health of the occupants and longevity of the building components. No one likes or can even tolerate a leaking roof! A roof leak is one of the most devastating occurrences that can happen to a building and its occupants. It can upset a building occupant beyond most any other issues with a building. Note, we acknowledge that there are other devastating occurrences such as fires, gas explosions, plumbing leaks, mechanical and electrical system problems, structural collapses and even vermin infestations however this portion of the appendix addresses moisture related building issues.

Comply with chapter 15 of the 2023 Florida Building Code, Building, for all roofing requirements;

- 1501 General.
- 1502 Definitions.
- 1503 Weather Protection.
- 1504 Performance Requirements.
- 1505 Fire Classification.
- 1506 Materials.

Page: 12

Mod11763_TextOfModification.pdf

- 1507 Requirements for Roof Coverings.
- 1508 Roof Insulation.
- 1509 Roof Coatings.
- 1510 Rooftop Structures.
- 1511 Existing Roofing.
- 1512 - 1524 High-Velocity Hurricane Zones Requirements (Miami-Dade and Broward Counties).

Roofing Details

These roofing details supplement the listing for buildings constructed under the Florida Building Code, Building, in Ch. 1 section 107.3.5.

Roofing details checklist:

- Roof type performance metrics (Durability, heat transfer, vapor drive, fire ratings, etc.):
  - Climate zone considerations.
  - Vapor drive.
  - Roof top activities or additional installations.
  - Insulation type, performance, size.
- Roofing system cross sections with a minimum ¼" per foot of slope to drain.
- Continuity of air/moisture barrier from horizontal to vertical surfaces.
- Roof scuppers (when utilized).
- Roof drains (when utilized).
- Sumps at roof drains and continuous insulation.
- Roof gutters & downspouts (when utilized).
- Roof access door thresholds (and jamb and head flashings) (when utilized).
- Roof hatch details (when utilized).
- Roof to Wall flashing conditions.
- Integration of additional roof-top mounted systems:
  - Green roof.
  - Photovoltaics.
  - Solar hot water.
  - Deck, paver, equipment.
- Roof curbs for mechanical, plumbing, electrical equipment.
- Roof penetrations(Pipe, duct, etc.), avoiding pitch pockets.
- Parapet wall details (indicating vertical membranes, other vertical materials, and cap flashings) (when utilized).
- Railing attachment details (structural and waterproofing) (when utilized).
- Water discharge flashings at corner discharge points (as example, kick out flashings).
- Cricket details to drain difficult locations.
- Expansion joints.
- Integration and interconnection between different roof systems.
- Roof underlayment and vapor barrier details(when and where to incorporate).
- Continuous insulation and cover board.
- Supporting beam details.
- Supporting column details (when present).
- Specifications of roofing materials and systems required on the drawings.

303.4 Steep slope roof coverings.

A steep sloped roof is a roof that slopes at 2:12 and greater slope. Roofs that slope less than 2:12 are considered low slope roofs. Steep sloped roof coverings are very popular in residential buildings and in many commercial buildings as well.

Consult chapter 15 in the Florida Building Code, Building, for more information on commercial roofing systems.

There are multiple types of steep sloped roof coverings. They depend on their slope to quickly remove water from the roof surface but must be detailed and constructed correctly to properly protect the building from moisture intrusion through the roof covering and into the roof structure itself and ultimately into the occupied spaces of the building.

Types of steep sloped roof coverings include:

- Shingle roofing- multiple types:
  - Asphalt shingles.
  - Concrete tile shingles.
  - Clay tile shingles.
  - Slate tile shingles.
  - Cedar shake and cedar shingles.
  - Metal shingles.

- Metal roofing:
  - Various types of seamed roofing, standing, interlocking, capped.
  - Overlapping seamed roofing, like '5V crimp' roofing, with exposed fasteners (this was commonly known as "barn siding" that then became used as a metal roof covering.
  - Structural metal roofing (where the roof panels are also structurally spanning between metal purlins as in manufactured building systems).
  - Metal roofing that covers membrane roofing acting like a rain screen for the membrane roof below.
- Hybrid and composite material roofing.
- Membrane roofing.
- Thatched roofing.

These steep sloped roofs require underlayments that come in different types of materials. Consult the building codes for more specific information. The function of the underlayment is multifold.

- Dry-in Protection: Builders commonly call the underlayment 'the dry-in' since once the underlayment is installed the building becomes mostly dry for the balance of the interior construction to continue without moisture damage from the roofing level. The underlayments generally have a restricted amount of time until the final roof covering is installed. This can range from as little as 3 months to as much as 9 months depending on the type of underlayment used. Consult the manufacturer for these time limits.
- Secondary Protection: Another function of the underlayment is for secondary protection to the building. This secondary protection will generally add life to the roof, even if during the aging of the roof shingles or other material causes degradation, the underlayment during wind and rain events, the underlayment provides a level of protection against moisture intrusion in such an event.
- Condensation protection: Airborne moisture known as humidity can cause problems below the roof covering when the outdoor temperatures drop on the exterior of the roof covering surfaces and the dew point is reached, condensation of liquid water occurs. This also occurs during nightly radiant cooling known as 'night sky radiation' where the dark night sky acts as a 'heat sink', cooling the roof covering below the dew point, causing condensation of liquid water below the roof covering. In these cases the underlayment provides condensation protection for the building.

303.5 Low slope membrane roof coverings.

Always comply with manufacturers minimum slope requirements, even if roofs appear close to flat for longevity and proper drainage. The following sections address the various systems and the importance of specific design, detailing and construction quality control and assurance.

303.6 Liquid applied roofing and roof coatings.

Liquid applied membrane roofing systems are reinforced membranes that are applied in the field using liquid membrane materials and fiber reinforcing combined as a part of the roofing application process. These are considered membrane roofs and must slope at a minimum of ¼" per foot to the roof drains, scuppers, gutters and other devices for final drainage. Manufacturers typically offer extended warranties for 5 and 10 years and longer.

Roof coatings are liquid applied coatings that are not reinforced and are designed to extend the life of the underlying roofing. They can be applied to sloped roofing and membrane roofing. As an example, shingle roofing can be coated to extend their life. These are considered as remedial measures and are considerably less expensive than full roof replacements. Before applying a liquid roof coating, the base roof must be dry and free of defects so these issues must be corrected prior to the installation of the roof coating.

303.7 Rooftop terraces and decks.

Waterproofing membranes designed for use under tile and paver systems are critically important for the watertight performance of the waterproof membrane. Since these waterproofing membrane systems are concealed throughout their lifespan they must perform to prevent water leakage. Leaks are difficult to find the source of leaks and are extremely difficult to locate and difficult and expensive to repair and/or replace. Most of these systems are membrane based, some are hot applied, others cold applied, some are liquid applied roofing membranes.

Major manufacturers should be consulted during the design, submittal and installation phases to assure that the correct systems are being selected, detailed and installed. Many manufacturers require certified and approved installation contractors who must use workers/installers that have been trained and certified to install the systems.

Design and construction conditions that must be thoroughly detailed and carefully constructed to be properly waterproofed for the life of the terrace or amenity deck. Features such as pools, spas, planters, seatwalls, lighting, showers and other features must be considered in the final detailing and design. These features will require specialized attention to a high level of detail.

Waterproofing Details

These waterproofing details supplement the listing for buildings constructed under the Florida Building Code, Building in Ch. 1 section 107.3.5.

Waterproofing details checklist:

- Membrane waterproofing system cross sections with a minimum ¼" per foot of slope to drain (note, generally greater than minimum slope is encouraged to account for construction tolerances).
- Terrace and deck scuppers (when utilized).
- Terrace and deck gutters & downspouts (when utilized).
- Terrace access door thresholds (and jamb and head flashings) (when utilized).
- Sliding glass doors and door thresholds (and jamb and head flashings) (when utilized) when used.
- Terrace and deck to Wall flashing conditions.
- Terrace and deck parapet wall details (indicating vertical membranes, other vertical materials, and cap flashings) (when utilized).
- Railing attachment details (structural and waterproofing) (when utilized).
- Water discharge flashings at corner discharge points (as example, kick out flashings).
- Cricket details to drain difficult locations.
- Supporting column details (when present).

- Specifications of waterproofing materials and systems.
- Where a pool or spa is present, see section 303.9.

303.8 Rooftop structures.

A rooftop structure is defined in section 1502 as “An enclosed structure on or above the roof of any part of the building.” See Florida Building Code, Building, section 1510, for minimum requirements for rooftop structures. This Florida Building Code, Building, section covers penthouses, tanks, cooling towers, towers, spires, domes and cupolas, mechanical equipment screens, photovoltaic systems, other rooftop structures, structural fire resistance, mechanical units, cable and raceway type wiring methods, and Lines, pipes, conduit and cables under roof decks. These resiliency recommendations do not modify those Florida Building Code, Building, minimum requirements. The key requirement of this resiliency appendix is to provide long term and durable weather protection in the design and construction of rooftop structures of all types. Water leakage through any rooftop structures will ultimately find its way into the roofing system and ultimately into the building structure and is not acceptable. All water leakage must be prevented.

303.9 Rooftop pools and spas.

See the Florida Building Code, Building, section 454 Swimming Pools and Bathing Places (Public and Private) for minimum code requirements. These resiliency recommendations do not modify those Florida Building Code, Building, minimum requirements.

In addition to the Florida Building Code, Building, rooftop pools and spas are governed by the local health department in local governments. Those health department requirements should be consulted and complied with, so must be followed and are not affected by this section.

Critical to all rooftop pools and spas is the requirement that they be structurally sound and watertight at the structural walls and floors. They must also be watertight at the junctures between the walls of these elements and the adjoining roof top terraces and decks. These junctures must be properly designed, detailed and constructed. Any leakage noted under these elevated pools and spas must be diagnosed and repaired. Periodic inspections by trained design and construction professionals should be undertaken by ownership of the property.

Design and Construction: It is critical that they are designed and constructed by responsible and knowledgeable designers and builders. Often they are designed and constructed by a third party who specializes in that design and construction as a specialty. Most pools and spas are made out of poured and reinforced concrete, which is a durable and long–lasting material.

However, some pools and spas are made of plasticized liners for the pool walls and pool bottoms. Those types of pools and spas also need their unique details designed and constructed to be watertight.

303.10 RESERVED.

303.11 Other considerations.

Cost of installation and lifespan of the roofing systems of a building must be considered in the selection, design and installation of roofing systems. The value of a roof is generally considered as the most important component of the building for keeping water out of the building. While cost is one of the elements, aesthetics, lifespan and maintenance requirements are other elements to be considered.

For roofing in Florida water resistance is one very important requirement. Wind resistance is another very important requirement in the performance of the roofing system. Storms tend to pull upward at the roof edges and corners in such a manner that those areas can begin to lift during strong winds and may ultimately cause a full roofing failure. Severe failures can result in the complete roofing system being lifted off of the roof structure. In the most severe failures when the underlying structure is then subjected to moisture intrusion and further lifting of the roof structure and when the roof structure is damaged the support of the top of the walls is then in danger of complete collapse. Such a collapse can kill and injure the occupants and result in large property losses.

303.12 Compliance.

Compliance with this section should enhance the resilience of a building’s roofing system. Proper design, detailing and construction is paramount to a successful roofing system to protect the building from the elements (water, wind, windborne debris, etc.)

303.13 Testing requirements.

Roofing systems are one of the most critical components of a buildings enclosure and its ability to provide protection from moisture intrusion and ensure the long-term health, safety, and welfare of the building occupants.While individual components of roof systems are manufactured, almost all roofing systems are field installed, sometimes by multiple trades over a period of time. The importance of testing and verification cannot be understated when it comes to the long-term viability, resilience, and success of the roofing system. There are many standards for both laboratory and field-testing roofing components and installed systems. Any testing should be part of a complete project strategy for the building envelope and its commissioning. This process is a key factor in the long-term resilience of a roofing system. Testing of roof systems, like walls, can be broken into two categories, lab testing and field testing.

Lab Testing: Involves controlled experiments to assess structural integrity, fire resistance, and other critical properties of roof assemblies using standardized test methods.

Field Testing: Focuses on evaluating the performance of installed roof systems under real-world conditions such as water penetration, air leakage, and thermal efficiency.

These tests should be performed by a third-party licensed and experienced testing agency and should be observed by both the project envelope commissioning agent and the design professional of record. Testing should be specified to be completed at the appropriate intervals during the construction phase and completed until a passing condition has been achieved.

A successful roofing system that ensures long-term viability and resilience begins with proper specifying and detailing of the system during the design phase. The design professional must understand how the various components become integrated to achieve viability. This includes ensuring compatibility of materials between manufacturers, vapor drive within the roofing system under different climatic conditions(and in anticipation of future conditions), internal program moisture load(natatorium, labs, etc), and process for installation and maintenance.

It's important to begin the construction phase of the project with an holistic approach to developing a plan by the contractor to ensure the understanding of the coordination and installation of all roofing systems components and that testing is understood by all trades and is properly integrated into the project schedule and workflow(this includes allowing time for evaluation and retesting if needed).

Specific tests can include:

ASTM D5957 - Standard Guide for Flood Testing Horizontal Waterproofing Installations: This standard outlines procedures for flood testing horizontal waterproofing installations having a slope not greater than 20 mm/m (2% slope) (1/4" per ft).

ASTM D7877 - Standard Guide for Electronic Methods for Detecting and Locating Leaks in Waterproof Membranes: This guide covers electronic methods for detecting leaks in waterproof membranes. This guide is applicable for waterproofing membranes installed in roofs, plaza decks, pools, water features, covered reservoirs and other waterproofing applications.

ANSI/SPRI RP 14 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems: This standard includes guidelines for wind resistance but can indirectly contribute to evaluating roof systems' ability to resist moisture intrusion by ensuring tight seals and connections.

Additional testing considerations to ensure long-term viability and resilience over time include:

Wind Uplift Resistance Testing: This tests how well a roof system can resist being uplifted by wind forces. Standards like ASTM E1592 outline procedures for determining the wind resistance of various roofing materials and systems.

Durability and Longevity Testing: Assesses the expected lifespan and durability of roofing materials under normal and extreme conditions, including exposure to sunlight (UV radiation), temperature fluctuations, and chemical exposure.

Energy Efficiency Testing: Measures the ability of a roof system to reflect sunlight (solar reflectance) and emit absorbed heat (thermal emittance). ASTM E1980 and ASTM E903 are standards used to quantify these properties.

Mechanical Testing: Evaluates the mechanical properties of roofing materials such as tensile strength, flexibility, and dimensional stability. ASTM D638 and ASTM D412 are examples of standards used for such testing.

Environmental Testing: Determines the environmental impact of roofing materials, including their recyclability, sustainability, and compliance with environmental regulations.

SECTION 304 CONCRETE SLABS

In Florida the concrete slab is an often-used component of buildings, both residential and commercial. Due to its economy, ease of installation, durability, and longevity it is used in all types of buildings and in all types of construction.

Concrete slabs can be load bearing and non-load bearing in function. Slabs can be as thin as 3.5 inches to as thick as 12 to 18 inches (or even greater) depending on the structural conditions of the soils below and loading of the building slab requirements.

All concrete slabs bear a certain amount of live and dead loads. Load bearing concrete slabs are often thickened with heavier reinforcing to support the superimposed loads from columns and walls.

In addition to their structural capacity concrete slabs must also provide protection from air, water vapor, and liquid water penetration from below the slab coming from the moisture in the soils below.

See chapters 18 - SOILS and FOUNDATIONS, and 19 - CONCRETE of the Florida Building Code, Building for additional requirements. See also appendix section 105 - Flood - Resistant Construction as it may pertain.

SECTION 305 FOUNDATION WALLS

While Florida buildings typically do not often include basements in most residential construction, basements are becoming increasingly more beneficial in commercial construction. The most common use for a basement in larger Florida buildings is to accommodate the parking of vehicles while not increasing the height of the building. Most zoning regulations set a height limitation on the building, basements for parking then give the building design greater flexibility for use of floor levels above grade.

When basements are used for parking and other purposes (storage, mechanical equipment, etc.) they must be waterproofed for hydrostatic pressure for maximum use and longevity. Hydrostatic pressure of moist soils and water can impose hundreds of pounds per square foot on the foundation walls, in addition to superimposed loading of columns and walls supported by the foundation walls. Waterproofing of these walls is highly specialized and should only be designed by licensed professionals and constructed by knowledgeable builders and subcontractors using materials and methods specifically designed for that purpose.

See chapters 18- SOILS and FOUNDATIONS, and 19 - CONCRETE, and 20 - MASONRY of the Florida Building Code for additional requirements. See also appendix section 105 - Flood - Resistant Construction as it may pertain.

SECTION 401 - RESOURCES - Water Efficiency and Conservation

401.1 Intent

The intent of this section shall establish the means of conserving water used indoors, outdoors, and in wastewater conveyance.

401.2 Scope

The following terms are described in Section 201:

- EVAPOTRANSPIRATION ADJUSTMENT FACTOR (ETAF).
- GREYWATER.
- HYDROZONES.
- METERING FAUCET.
- POTABLE WATER.
- SPECIAL LANDSCAPE AREA (SLA).
- SUBMETER.

SECTION 402 INDOOR WATER USE

402.1 Meters.

Separate submeters or metering devices shall be installed for the uses described in Sections 402.2, 402.3, and by the Irrigation Design Plan.

402.2 New buildings or additions more than 50,000 square feet.

Separate submeters shall be installed as follows:

1. For each individual leased, rented or other tenant space within the building projected to consume more than 100 gallons/day, including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop.
2. Where separate submeters for individual building tenants are unfeasible, for water supplied to the following subsystems.
3. Makeup water for cooling towers where flow through is greater than 500 gpm.
4. Makeup water for evaporative coolers greater than 6 gpm.
5. Steam and hot-water boilers with energy input more than 500,000 Btu/h (147 kW).

402.3 Excess consumption.

A separate submeter or metering device shall be provided for any tenant within a new building or within an addition that is projected to consume more than 1000 gal/day.

402.4 Water conserving plumbing fixtures and fittings.

Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:

402.5 Water Closets

The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the US EPA WaterSense Specification for Tank-Type Toilets.

Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

402.6 Urinals.

Wall-mounted urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush.

Floor-mounted urinals. The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush.

S11763Text Modification

402.7 Showerheads.

Single shower head. Shower Heads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Shower Heads shall be certified to the performance criteria of the US EPA WaterSense Specification for Showerheads.

Multiple shower heads serving one shower. When a shower is served by more than one shower head, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.

Note: A hand-held shower shall be considered a showerhead.

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402.8 Faucets and fountains.

Nonresidential lavatory faucets.

Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi.

Kitchen faucets.

Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

Wash fountains.

Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute/20 [rim space (inches) at 60 psi].

Metering faucets.

Metering faucets shall not deliver more than 0.20 gallons per cycle.

Metering faucets for wash fountains.

Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons per cycle/20 [rim space (inches) at 60 psi].

Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

SECTION 403 OUTDOOR WATER USE

403.1 Outdoor potable water use in landscape areas

WATER EFFICIENT LANDSCAPE WORKSHEET

A project applicant shall complete the Water Efficient Landscape Worksheet which contains information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydrozone. Calculations are then made to show that the evapotranspiration adjustment factor (ETAF) for the landscape project does not exceed a factor of 0.55 for multi-family residential areas and 0.45 for non-residential areas, exclusive of Special Landscape Areas. The ETAF for a landscape project is based on the plant factors and irrigation methods selected. The Maximum Applied Water Allowance is calculated based on the maximum ETAF allowed (0.55 for multi-family residential areas and 0.45 for non-residential areas) and expressed as annual gallons required. The Estimated Total Water Use (ETWU) is calculated based on the plants used and irrigation method selected for the landscape design. Estimated Total Water Use (ETWU) must be below the Maximum Applied Water Allowance (MAWA).

In calculating the MAWA and ETWU, a project applicant shall use historic Evapotranspiration values for the relevant County as issued by the Florida Automated Weather Network and UF | IFAS Extension.

Water budget calculations shall adhere to the following

- The plant factor used shall be from horticultural researchers with academic institutions or professional associations. The plant factor ranges from 0 to 0.1 for very low water using plants, 0.1 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
- All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.
- All Special Landscape Areas shall be identified and their water use calculated.

Page: 18

Mod11763_TextOfModification.pdf

S11763Text Modification

- ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

Mod11763_TextOfModification.pdf Page: 19

WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package.

Reference Evapotranspiration (ETo) _____

Hydrozone # /Planting Description[a]	Plant Factor (PF)	Irrigation Method[b]	Irrigation Efficiency (IE)[c]	ETAF (PF/IE)	Landscape Area (sq, ft,)	ETAF x Area	Estimated Total Water Use (ETWU)[e]
Regular Landscape Areas							
				Totals	(A)	(B)	
Special Landscape Areas							
				1			
				1			
				1			
				Totals	(C)	(D)	
						ETWU Total	
						Maximum Allowed Water Allowance (MAWA)[e]	

[redacted]

[a] ***Hydrozone #/Planting Description***
E.g
1.) front lawn
2.) low water use plantings
3.) medium water use planting

[b] ***Irrigation Method***
overhead spray
or drip

[c] ***Irrigation Efficiency***
0.75 for spray head
0.81 for drip

[d] ***ETWU*** **(Annual Gallons Required) =**
Eto x 0.62 x ETAF x Area
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

[e] ***MAWA (Annual Gallons Allowed)*** *= (Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]*
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	(B)
Total Area	(A)
Average ETAF	**B ÷ A**

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

All Landscape Areas

Total ETAF x Area	(B+D)
Total Area	(A+C)
Sitewide ETAF	**(B+D) ÷ (A+C)**

SOIL MANAGEMENT REPORT

S11763Text Modification

In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, or his/her designee, as follows:

- Submit soil samples to a laboratory for analysis and recommendations.
  - Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
- The soil analysis shall include:
  - soil texture;
  - infiltration rate determined by laboratory test or soil texture infiltration rate table;
  - pH;
  - total soluble salts;
  - Sodium;
  - percent organic matter; and
  - Recommendations.
- In projects with multiple landscape installations (i.e. production home developments) a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement. Large landscape projects shall sample at a rate equivalent to 1 in 7 lots.
  - The project applicant, or his/her designee, shall comply with one of the following:
    - If significant mass grading is not planned, the soil analysis report shall be submitted to the local agency as part of the Landscape Documentation Package; or
    - If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.
    - The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make any necessary adjustments to the design plans.
    - The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with Certificate of Completion.

LANDSCAPE DESIGN PLAN

For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

Plant Material

Any plant may be selected for the landscape, providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance. Methods to achieve water efficiency shall include one or more of the following:

- protection and preservation of native species and natural vegetation;
- selection of water-conserving plant, tree and turf species, especially local native plants;
- selection of plants based on local climate suitability, disease and pest resistance;
- selection of trees based on applicable local tree ordinances or tree shading guidelines, and size at maturity as appropriate for the planting area; and
- selection of plants from local and regional landscape program plant lists.

Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use.

Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. Methods to achieve water efficiency shall include one or more of the following:

- Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure [e.g., buildings, sidewalks, power lines]; allow for adequate soil volume for healthy root growth; and consider the solar orientation for plant placement to maximize summer shade and winter solar gain.
- Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).
- High water use plants, characterized by a plant factor of 0.7 to 1.0, are prohibited in street medians.
- The use of invasive plant species, such as those listed by the Florida Invasive Species Council (FISC), is strongly discouraged.
- The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

Water Features

- Recirculating water systems shall be used for water features.
- Where available, recycled water shall be used as a source for decorative water features.
- Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.
- Pool and spa covers are highly recommended.

Soil Preparation, Mulch and Amendments

- Prior to the planting of any materials, compacted soils shall be transformed to a friable condition. On engineered slopes, only amended planting holes need meet this requirement.
- Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected.
- For landscape installations, compost at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top 6 inches of soil are exempt from adding compost and tilling.
- A minimum three inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated. To provide habitat for beneficial insects and other wildlife, up to 5 % of the landscape area may be left without mulch. Designated insect habitat must be included in the landscape design plan as such.
- Stabilizing mulching products shall be used on slopes that meet current engineering standards.

Page: 21

Mod11763_TextOfModification.pdf

- The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.
- Organic mulch materials made from recycled or post-consumer shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available. Organic mulches are not required where prohibited by local ordinances.

The landscape design plan, at a minimum, shall:

- delineate and label each hydrozone by number, letter, or other method;
- identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
- identify recreational areas;
- identify areas permanently and solely dedicated to edible plants;
- identify areas irrigated with recycled water;
- identify type of mulch and application depth;
- identify soil amendments, type, and quantity;
- identify type and surface area of water features;
- identify hardscapes (pervious and non-pervious);
- identify location, installation details, and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Project applicants shall refer to the local agency or Water Management Board for information on any applicable stormwater technical requirements. Stormwater best management practices are encouraged in the landscape design plan and examples are provided in Section 492.16.
- identify any applicable rain harvesting or catchment technologies and their 24-hour retention or infiltration capacity;
- identify any applicable graywater discharge piping, system components and area(s) of distribution;
- contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan"; and
- bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape.

IRRIGATION DESIGN PLAN

This section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design criteria shall be submitted:

System

Landscape water meters, defined as either a dedicated water service meter or private submeter, shall be installed for all non-residential irrigated landscapes of 1,000 sq. ft. but not more than 5,000 sq.ft. and multi-family residential irrigated landscapes of 5,000 sq. ft. or greater. A landscape water meter may be either:

- a customer service meter dedicated to landscape use provided by the local water purveyor; or
- a privately owned meter or submeter.

Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems.

If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system.

Static water pressure, dynamic or operating pressure, and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation.

Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.

Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.

Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the applicable local agency code (i.e., public health) for additional backflow prevention requirements.

Flow sensors that detect high flow conditions created by system damage or malfunction are required for all non-residential landscapes and multi-family residential landscapes of 5000 sq. ft. or larger.

Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.

The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

S11763Text Modification

- The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
- All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers'/International Code Council's (ASABE/ICC) 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard. All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.
- It is highly recommended that the project applicant or local agency inquire with the local water purveyor about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.
- In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
- Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
- Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to hardscapes or in high traffic areas of turfgrass.
- Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.
- Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.
- Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:
  - the landscape area is adjacent to permeable surfacing and no runoff occurs; or
  - the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
- Slopes greater than 25% shall not be irrigated with an irrigation system with an application rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

Hydrozone

- Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.
- Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
- Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.
- Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:
  - The plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
  - The plant factor of the higher water using plants is used for calculations.
- Individual hydrozones that mix high and low water use plants shall not be permitted.
- On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve.

The irrigation design plan, at a minimum, shall contain:

- location and size of separate water meters for landscape;
- location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices;
- static water pressure at the point of connection to the public water supply;
- flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
- recycled water irrigation systems
- the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan"; and
- the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system.

Irrigation Scheduling

For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health.

Irrigation schedules shall meet the following criteria:

- Irrigation scheduling shall be regulated by automatic irrigation controllers.
- Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. If allowable hours of irrigation differ from the local water purveyor, the stricter of the two shall apply. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
- For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., from the Florida Automated Weather Network (FAWN) or soil moisture sensor data.
- Parameters used to set the automatic controller shall be developed and submitted for each of the following:
  - the plant establishment period;
  - the established landscape; and
  - temporarily irrigated areas.

Each irrigation schedule shall consider for each station all of the following that apply:

Page: 23

Mod11763_TextOfModification.pdf

- irrigation interval (days between irrigation);
- irrigation run times (hours or minutes per irrigation event to avoid runoff);
- number of cycle starts required for each irrigation event to avoid runoff;
- amount of applied water scheduled to be applied on a monthly basis;
- application rate setting;
- root depth setting;
- plant type setting;
- soil type;
- slope factor setting;
- shade factor setting; and
- irrigation uniformity or efficiency setting.

Landscape and Irrigation Maintenance Schedule

Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.

A regular maintenance schedule shall include, but not be limited to, routine inspection; auditing, adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; topdressing with compost, replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing obstructions to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

Repair of all irrigation equipment shall be done with the originally installed components or their equivalents or with components with greater efficiency.

A project applicant is encouraged to implement established landscape industry sustainable Best Practices for all landscape maintenance activities.

Irrigation Efficiency

For the purpose of determining Estimated Total Water Use, average irrigation efficiency is assumed to be 0.75 for overhead spray devices and 0.81 for drip system devices.

Recycled Water Systems

The installation of recycled water irrigation systems shall allow for the current and future use of recycled water.

All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.

Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor (ETAF) for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

Graywater Systems

Graywater systems promote the efficient use of water and are encouraged to assist in on-site landscape irrigation.

Water Waste Prevention

Local agencies shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff from leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures. Penalties for violation of these prohibitions shall be established locally.

Restrictions regarding overspray and runoff may be modified if:

- the landscape area is adjacent to permeable surfacing and no runoff occurs; or
- the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.

SECTION 501 – FLOOD-RESISTANT CONSTRUCTION

Reference: Building Code Requirements That Exceed or Are More Specific Than the National Flood Insurance Program

501.1 Intent

The intent of this section is to provide additional protections beyond those required by the Florida Building Code, Building, Section 1612, Flood Loads, ASCE 7, Minimum Design Loads and Associated Criteria for Buildings and other Structures (Chapter 8) and ASCE 24, Flood Resistant Design and Construction.

This section and the flood load and flood-resistant construction requirements of the Florida Building Code, Building are to establish minimum requirements to safeguard the public health, safety, and general welfare and to minimize public and private losses due to flooding through regulation of development in flood hazard areas to:

S11763Text Modification

1. Minimize unnecessary disruption of commerce, access and public service during times of flooding.
2. Require the use of appropriate construction practices in order to prevent or minimize future flood damage.
3. Minimize damage to public and private facilities and utilities.
4. Help maintain a stable tax base by providing for the sound use and development of flood prone areas.
5. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events.

Requirements set forth in this section shall not supersede more stringent local code requirements.

501.2 Scope

The provisions of this section shall apply to all existing construction and new construction that are located in a *flood hazard area* as established in Section 1612, Flood Loads of this code.

SECTION 502 SPECIAL REQUIREMENTS FOR CRITICAL FACILITIES

502.1 Intent

Promote the health, safety and general welfare, and to minimize losses due to flood hazards and flood loads to facilities classified as critical either because of the services they provide (e.g., hospitals) or their importance during an emergency (e.g., storm shelters) by establishing regulations that reduce disruption of the use of the structure during and after a flood event.

502.2 Scope

Critical Facilities, as defined in Sections 201.1 and 502.3 of this appendix, shall be constructed as Risk Category III and IV structures in accordance with the Florida Building Code, Building, Section
1604.5, Risk Category and Table 1604.5, Risk

502.3 List of Critical Facilities

- Storm shelters (as per the Florida Building Code, Building, Section 423)
- Hospitals and health care facilities (as per the Florida Building Code, Building, Section 449);
- Jails, correctional facilities and detention facilities;
- Facilities used in communications, operation centers, communication towers, electrical substations, back-up generators, fuel or water storage tanks, power generating stations and other public utility facilities;
- Major food distribution centers (with an annual expected volume of greater than 170,000,000 pounds);
- Infrastructure in transportation, telecommunications, or power networks including bridges, tunnels (vehicular and rail), traffic signals, (and other right of way elements including street lights and utilities), power transmission facilities, substations, circuit breaker houses, city gate stations, arterial roadways, telecommunications central offices, switching facilities, etc.;
- Ventilation buildings and fan plants;
- Operations centers;
- Pumping stations (sanitary and stormwater);
- Train and transit maintenance yards and shops;
- Wastewater treatment plants;
- Water supply infrastructure;
- Combined-sewer overflow (CSO) retention tanks;
- Fueling stations;
- Waste transfer stations; and
- Facilities where residents have limited mobility or ability, including care facilities and nursing homes (as per the Florida Building Code, Building, Section 450).

SECTION 503 EXISTING BUILDINGS

503.1 Intent

The Florida Building Code, Existing Buildings, Section 401.5, Flood Loads, addresses only buildings in flood hazard areas going through *repairs, alterations, additions and/or rehabilitation* that constitute *substantial improvements*, requiring resistance to the effects of flood hazards and flood loads as per Section 1612. This section provides measures to increase flood damage resistance of existing buildings in flood hazard areas that are going through *repairs, alterations, additions and/or rehabilitation* that do not constitute *substantial improvement*.

Page: 25

Mod11763_TextOfModification.pdf

S11763Text Modification

503.2 General.

In flood hazard areas, any *repair, alteration ,addition and/or rehabilitation* shall include all requirements *technically feasible* from the Florida Building Code - Building, Section 1612, Flood Loads.

503.3 Additional Requirements.

503.3.1 Protection of critical mechanical, plumbing and electrical systems

Mechanical, plumbing, electrical, and life safety system (including but not limited to HVAC units, emergency generators, duct work, alarm systems, electrical panels, electrical distribution, switching areas, gas and electrical meters, suppression equipment, telecommunications equipment, motors and controllers, fuel storage tanks) shall be elevated to or above the design flood elevation in *repairs*, *alterations*, *additions* and/or *rehabilitation* that do not constitute substantial improvement occurring below the design flood elevation in buildings in flood hazard areas. Exceptions may be made for life safety, egress, and low voltage components when necessary.

503.3.2 Dry Flood Proofing

The objective of dry floodproofing is to seal the portion of a structure (walls and other exterior components) that is below the design flood elevation making it watertight and impermeable to floodwaters as recommended by the Coastal Construction Manual FEMA P-55, Chapter 15.3.3.

503.3.3 Wet Flood Proofing

Wet floodproofing involves modifying a building to allow floodwaters to enter it in such a way that damage to the structure and its contents is minimized. Wet floodproofing is often used in a non-habitable understory of structures in flood prone areas, where the first habitable floor is elevated above the design flood elevation. The Coastal Construction Manual FEMA P-55, Chapter 15.3.4 provides guidance concerning wet proofing alternatives.

SECTION 504 FLOOD DAMAGE-RESISTANT MATERIALS

Reference: Coastal Construction Manual FEMA P-55, Chapter 9 and the FEMA National Flood Insurance Program (NFIP)Technical Bulletin 2.

504.1 Intent

Not currently required by the Florida Building Code, Existing Buildings, the use of the proper materials could assist in avoiding significant future material losses and disruption to people's lives.This section encourages the use of flood damage-resistant materials in *repairs*, *alterations*, *additions and/or rehabilitation* that do not constitute a *substantial improvement* occurring below the design flood elevation in buildings in flood hazard areas.

504.2 Scope

Repairs, alterations, additions and/or rehabilitation that do not constitute a substantial improvement occurring below the design flood elevation in buildings in high hazard areas shall be constructed using flood damage-resistant materials as required by the Coastal Construction Manual FEMA P-55, Chapter 9.4, and the FEMA NFIP Technical Bulletin 2 .

504.3 Additional Interventions to Mitigate Flood Damage to Buildings

- Storm water damage by relocating them above the design flood elevation.
- Install backwater prevention valves.
- Install sump pumps.
- Direct floodwaters away from critical equipment and building access towards detention areas if available.
- Reduce impervious surfaces in the building vicinity by using permeable paving and drainage underlayment.
- Increase water infiltration by planting trees, grass/ground coverage vegetation and vegetated swales per Section 403.
- Create stormwater detention areas in the landscape.
- Provide exterior waterproofing.
- Utilize flood-resistant materials.
- Seal penetrations below the design flood elevation.
- Provide redundant/elevated conduit entrances.
- Install back-up power.

Raise utilities installed below design flood elevation building/structure footprint in the direction of flow of oncoming floodwaters, allowing for free passage of water at or more than sixty (60), percent of the footprint after breakaway construction has been dislodged and scour has taken place.

SECTION 505 ELEMENTS BELOW DESIGN FLOOD ELEVATION

505.1 Obstruction Free Design

Free of Obstruction. In order to reduce the effects of flow diversion, wave reflection, and wave runup, the use of permanent structural components and systems designed to resist the combined effects of wind and flood loads below the Design Flood Elevation must not block or impede the passage of water more than an

Page: 26

Mod11763_TextOfModification.pdf

S11763Text Modification

aggregate forty (40) percent of the total width of the building/structure footprint in the direction of flow of oncoming floodwaters, allowing for free passage of water at or more than sixty (60) percent of the footprint after breakaway construction has been dislodged and scour has taken place.

505.2 Enclosed Areas

Enclosed Areas below design flood elevation. Enclosed areas, including crawl spaces, that are below the design flood elevation shall be used solely for parking of vehicles, building access and/or storage. The enclosed area shall not be conditioned space (temperature controlled) or finished or partitioned except for one storage area no larger than one hundred (100) square feet with one dimension not to exceed six (6) feet, access stairwells, ramps, and elevators, unless a partition is required by the Fire Prevention Code. The limitation on partitions does not apply to load bearing walls interior to perimeter wall (crawlspace) foundations.

505.3 Walls

Walls below design flood elevation. Walls and partitions are permitted below the elevated floor, provided that such walls and partitions are not part of the structural support of the building or structure and electrical, mechanical and plumbing system components are not mounted on or penetrate through such walls and partitions that are designed to break away under flood loads.

505.4 Accessory Structures

Accessory structures are permitted below the base flood elevation provided the accessory structures are used only for parking or storage and:

1. If located in special flood hazard areas (Zone A/AE) other than coastal high hazard areas or coastal A zones, they are one-story and not larger than six hundred (600) square feet.
2. If located in coastal high-hazard areas (Zone V/VE) or coastal A zones, they are not located below elevated buildings and are not larger than one hundred (100) square feet.

Page: 27

Mod11763_TextOfModification.pdf

WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package.

Reference Evapotranspiration (ETo) _____

Hydrozone # /Planting Description[a]	Plant Factor (PF)	Irrigation Method[b]	Irrigation Efficiency (IE)[c]	ETAF (PF/IE)	Landscape Area (sq, ft,)	ETAF x Area	Estimated Total Water Use (ETWU)[e]
Regular Landscape Areas							
				Totals	0 (A)	0 (B)	
Special Landscape Areas							
	[redacted]			1			
				1			
				1			
				Totals	0 (C)	0 (D)	
						ETWU Total	
						Maximum Allowed Water Allowance (MAWA)[e]	

[a] ***Hydrozone #/Planting Description***
E.g
1.) front lawn
2.) low water use plantings
3.) medium water use planting

[b] ***Irrigation Method***
overhead spray or drip

[c] ***Irrigation Efficiency***
0.75 for spray head
0.81 for drip

[d] ***ETWU*** **(Annual Gallons Required) =**
Eto x 0.62 x ETAF x Area
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

[e] ***MAWA (Annual Gallons Allowed) =*** *(Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]*
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	(B)	
Total Area	(A)	
Average ETAF	**B ÷ A**	

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

All Landscape Areas

Total ETAF x Area	(B+D)	
Total Area	(A+C)	
Sitewide ETAF	**(B+D) ÷ (A+C)**	

APPENDIX P - ENHANCING THE RESILIENCE OF BUILDINGS: MOISTURE, RESOURCES AND FLOOD

Introduction
101 - General
201 - Definitions
301 - Moisture Control in Buildings
401 - Resources - Water Efficiency and Conservation
501 - Flood Resistant Construction

INTRODUCTION

The Florida Building Code, Building, does not adequately address or consider the role of moisture, flooding, or resource consumption in compromising building resilience, health, and long-term viability. By considering not only the destructive effects of moisture intrusion, but also the usage of water resources and flood-resistant construction best practices, users of the current appendix will create more resilient, longer lasting, and safer facilities.

MOISTURE CONTROL

The building envelope, which includes the walls, windows, roofs and foundation, forms the primary barrier between the interior and exterior environments. The integrity of this barrier is critical to its performance. If the building envelope is compromised, then problems within the interior of the building will develop. These problems often present themselves as mold or stains on the interior. Moving the air, moisture, vapor and thermal control layers outward of the structural layer mitigates intrusion of exterior elements into the wall assembly and allows a method for vapor to drain outward of the building instead of within the wall assembly to the interior of the building.
This appendix proposes to prevent moisture intrusion opportunities.

The Florida Building Code, Building, does not define moisture and related terminology regarding structural integrity and design considerations. This appendix proposes establishing terminology and measures to limit moisture intrusion to manage this aspect of our constructed world.

This appendix aims to limit costs of such aspects of prevention and control of moisture as considered by code. The costs of preventing and controlling moisture are a fraction

of those required to replace and rebuild and the long-term health costs building occupants could face.

Uncontrolled moisture and rot also cause the growth of organisms found to be unhealthy for human habitation: most commonly, mold. Moisture allows or even encourages mold to grow and creates environments that are dangerous to occupy, if given enough time.

Rust, corrosion, and rot *(see definitions section for more discussion of rust/corrosion & rot)* create slow, quiet, and considerable damage, until discovered by inspection or observation of failure. Currently these are fairly normal occurrences if the building is not designed and constructed to a more resilient standard.

Resilient design and construction can be cost effective. Over time, the savings add up. Making buildings resilient to these processes is not only economical but safe: structurally, for occupants, for communities, and for investment.

The final benefit to enhanced resiliency standards is to maintain healthy buildings for us all to occupy. Rot, mildew, humidity, and other factors allowing uncontrolled moisture and the growth of molds and organisms that endanger healthy spaces are known to create hazards and conditions whose only solutions are those of time and funding spent into our healthcare systems. Victims of such conditions must expend a great deal of funds, time and effort to heal from them. These incidents and circumstances can be greatly reduced, controlled, and even prevented by increasing building resiliency factors.

RESOURCES -Water Efficiency and Conservation

With a growing population constantly increasing the need for water for human habitation, industry, and agriculture, Florida is running the risk of having an inadequate water supply for the state's needs. As the aquifer is increasingly drained, saltwater intrusion from the Atlantic Ocean and the Gulf of Mexico becomes an ever-greater risk. Water is a basic need of any human population and for the state to thrive and be resilient, without resorting to costly desalination plants and incurring water shortages, then the population can be ensured they can live within its resources. Ensuring plentiful water is available to all will require greater efficiency in its usage and this Appendix provides the tools to achieve that.

FLOOD-RESISTANT CONSTRUCTION

The Florida Building Code, Building, currently addresses measures to increase the resilience of buildings to flooding only in new construction and alterations/additions that constitute substantial damage or substantial improvement (when the cost equals or exceeds 50 percent of the market value of the structure, before the improvement or repair is started). However, existing buildings undergoing alterations/additions of a smaller scale can greatly benefit from available measures to increase their resilience to flooding and avoid future costly reconstruction due to the impact of flood water. This appendix presents strategies for new and existing buildings to confront the ever-increasing frequency and severity of flooding events and their associated environmental challenges to health, safety and long-lasting structures.
Resilient construction from the outset is more cost-effective than rebuilding and reconstruction. Added initial costs are between 5 – 10% for new construction. Replacement costs to rebuild and replace a structure are at least the original costs plus inflation, but those costs can be considerably higher in total expenditure.

COST REFERENCES
Insurance Institute for Business & Home Safety (IIBHS)

Increased construction cost ranges from .29 to 1.43 percent of the building's total cost, depending upon designation sought and building location. This added cost was more than offset by insurance savings and/or increased rent (value to the occupants).

Columbia University / Columbia Climate School

"Technologies exist to protect homes against severe weather — but those innovations have been slow to seep into mainstream homebuilding, leaving most Americans increasingly exposed to climate shocks, experts say… Houses made from steel and concrete can be more resilient to heat, wildfire and storms. Even traditional wood-framed homes can be constructed in ways that greatly reduce the odds of severe damage from hurricanes or flooding. But the costs of added resiliency can be about 10 percent higher than conventional construction."

Building Resilience: FEMA's Building Codes Policies and considerations for Congress June 27, 2023

The National Institute of Building Sciences emphasizes the importance of building codes in a widely cited study which found that adopting the most recent building code could save $11 for every dollar invested in hazard-resistant codes and standards, and above-code design could save $4 for each dollar invested. The study also found that

adopting the 2015 International Code Council building codes added about 1% in costs relative to 1990 standards.

Columbia University / Columbia Climate School

"Weather-related disasters pushed more than 3.3 million American adults out of their homes in 2022, census data shows. Of those, at least 1.2 million people were out of their homes for at least a month or longer; more than half a million of them never returned.

Homeland Security Affairs, Volume VI no 3 September 2010. www.hsaj.org
The idea of building resilience to natural and manmade disasters is now a dominant strategic theme and operational goal in the current U.S. national security policy discourse. Resilience is a critical priority that can be planned for, managed and experienced real value in. It's not a matter of "IF" something happens, it's a matter of when.

CONCLUSION

> **A study in 2005** estimated that for every $1 invested in disaster risk mitigation, $4 was saved in post-disaster rebuilding efforts. **New data in 2019** showed $1 spent on mitigation measures could save $11 post-disaster.

The Harvard Gazette, April 5 2023.
https://news.harvard.edu/gazette/story/2023/04/natural-disaster-recovery-costs-set-to-spiral-study-shows/

The costs of reconstruction (and all the concerns outlined above) will likely grow over time. As costs associated with construction increase–such as wages, property values, products & services, transportation, shipping, etc.-- so too will reconstruction costs, making the investment in resilient structures and spaces even more valuable and wise. From structural stability to healthy spaces to economic wisdom, the health, safety and welfare of our state is better protected by resilient design and construction codes (and their enforcement).

S11763Text Modification

SECTION 101 - GENERAL

101.1 Intent.

The intent of this appendix is to express the more specific principles of Resilient Design and Construction of buildings in the State of Florida. It is important to first comply with the minimum requirements of the Florida Building Code, Building, then meeting or exceeding additional objectives as stated in this appendix to further enhance building resilience.

101.2 Scope.

To be applicable to the increased resilience of any project requiring application of the Florida Administrative or Building Codes, through its planning, design, operation, construction, and occupancy.

101.3 Referenced codes and standards.

Refer to Florida Building Code, Building, 101.4 Referenced Codes and Ch. 35, Reference Standards. When dealing with the design and construction of existing buildings refer to the Florida Building Code, Existing Building for additional requirements.

101.4 Enforcement.

When this appendix is adopted by a local Authority Having Jurisdiction (AHJ) provisions for enforcement shall be proposed and adopted by ordinance. Enforcement then falls under that AHJ in accordance with their ordinance language.

Page: 5

Mod_11763_Text_Florida Building Code Appendix P.pdf

SECTION 201 - SUPPLEMENTAL DEFINITIONS

201.1 Intent

The following words and terms shall, for the purposes of this appendix, have the meanings shown herein. Refer to Chapter 2 of the Florida Building Code, Building for general definitions.

BIOSWALE. A long, channeled depression or trench that receives and transports rainwater runoff (as from a parking lot) and has vegetation (such as grasses, flowering herbs, and shrubs) and organic matter (such as mulch) to slow water infiltration and filter out pollutants.

CONDENSATION. Natural condition of moisture from the atmosphere collecting on or within a surface when conditions of humidity and temperature of both atmosphere and surfaces align. While conditions of condensation vary depending upon the range of humidity and temperature of atmosphere and temperatures of adjacent surfaces and materials, these conditions are predictable and can be foreseen - as such in certain assemblies should be avoided or managed. [please consider a simplified definition. Suggestion: The process through which the moisture from the atmosphere becomes water droplets in contact with a cooler surface - refer to dewpoint]

CONTROL. (1) To exercise restraining or directing influence over : (2) to incorporate suitable controls.

CRITICAL FACILITIES. Those structures and essential facilities, listed as Risk Categories III and IV in the Florida Building Code, Building, Table 1604.5, “Risk Category of Buildings and Other Structures”, from which essential services and functions for victim survival, continuation of public safety actions, and disaster recovery are performed or provided. See Florida Building Code, Building, Ch. 2.

DEW (POINT). Dew point is the condition where the temperature and relative humidity of the atmosphere, and the interface of solid objects/surfaces of a certain temperature allows moisture of the atmosphere to appear as a liquid (water) in the forms of drops or droplets on the surface of an object. (See condensation) This circumstance also occurs within an architectural assembly of elements (ie: Wall/Ceiling assemblies) resulting in the presence of water no

longer in the atmosphere but present as water on the surface of (or within) elements of an assembly.

EVAPOTRANSPIRATION ADJUSTMENT FACTOR (ETAF). An adjustment factor when applied to reference evapotranspiration that adjusts for plant factors and irrigation efficiency, which are two major influences on the amount of water that needs to be applied to the landscape.

GREYWATER. Graywater means untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing or operating wastes. “Graywater” includes, but is not limited to, wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.

HAZARDOUS EVENT. An incident, situation or occurrence that has the potential to cause harm, damage or adverse effects.

HUMIDITY. Humidity is the amount of moisture in the air.

HYDROZONES. A Hydrozone is an area of landscape with plants sharing similar watering requirements.

METAL OXIDATION. A chemical reaction that occurs when metal is exposed to oxygen and an electrolyte, like water or moisture in the air, and electrons move from the metal to the oxygen.

METERING FAUCET. A self-closing faucet that dispenses a specific volume of water for each actuation cycle. The volume or cycle duration can be fixed or adjustable.

MIST. Exterior moisture in the form of particles floating or falling in the atmosphere at or near the surface of the earth.

MOISTURE. The presence of liquid diffused or condensed in small or trace quantities. These (sometimes) small quantities of moisture are difficult to measure but nevertheless present, and if disregarded can cause reactions to materials and assemblies concerned in this code: Rust, Rot, Mold, etc.

MOLD. Naturally occurring fungus that grows on organic elements within certain conditions of temperature and humidity.

PERMEABILITY. Permeable material permits the passage of moisture.

POTABLE (WATER) Suitable for drinking.

RAIN. Moisture condensed from the atmosphere that falls visibly in separate drops. In calm (i.e., windless) weather, raindrops fall vertically. It can find its way into small gaps in a building, wetting the roofs, balconies, projections and causing damages.

RAIN, WIND DRIVEN. In wind, raindrop paths fall at oblique angles; the vertical component is called precipitation and the horizontal component is called wind-driven rain (WDR). While precipitation wets horizontal and sloped surfaces, wind-driven rain also wets vertical surfaces. It can find its way into small gaps in a building wetting the wall systems and causing damages.

RAINSCREEN. Rainscreen assemblies are those assemblies applied to an exterior wall that consist of, at minimum, an outer layer, an inner layer, and an airspace between them sufficient for the passive removal of liquid water and water vapor. Rainscreens are effective at managing moisture and provide exceptional opportunities for energy-efficient performance via continuous insulation and reducing thermal bridging.

RAIN GARDEN. Similar to a bioswale, but generally smaller in scale and does not transport water. It receives rainwater runoff (as from a parking lot) and has vegetation (such as grasses, flowering herbs, and shrubs) and organic matter (such as mulch) to slow water infiltration and filter out pollutants.

REMEDIATION OR REMEDIATE. intended as a remedy. Act of correcting an error or risk. Provide a remedy for; Redress or make right.

RESILIENT, RESILIENCE, RESILIENCY. The ability of a system and its component parts to anticipate, absorb, accommodate, and recover from the effects of a hazardous event in a timely and efficient manner, including the preservation, restoration, or improvements of its essential basic structures and functions. Adopted by AIA and IPCC (Intergovernmental Panel on Climate Change).

RUST. Rust is the result of oxidized iron or steel. Steel structures allowed to rust are compromised due to the corrosive effects of moisture. This results in compromised structural integrity, conditions calling into question their stability, and considerations of removal or renovation to maintain the health, safety, and welfare of occupants.

Concrete structures that allow moisture to migrate into the concrete form can allow the reinforcing steel within to rust and/or corrode. This corrosion often causes reinforcing steel to swell, often causing pieces of the protective layer of concrete to spall or break off, exposing the reinforcing steel. Left unabated, time and conditions permitting, a compromise of the structure can be expected.

ROT. the decomposition and loss of integrity from the action of bacteria and/or fungi. Rot is the natural effect of decay in organic material. Moisture almost always plays a pivotal role, as seen most notably in wood.

Wood structures that allow the presence of uncontrolled moisture will experience this decaying process over time. This process is quiet and steady, and unless found through inspections and routine investigation, it can almost always go far enough to require restructuring or replacement before being discovered. This compromise can and will require the replacement of structural elements in order to maintain the integrity of the structure.

SPECIAL LANDSCAPE AREA (SLA). An area of the landscape dedicated solely to edible plants, planting areas used for educational purposes, recreational areas, areas irrigated with recycled water, water features using recycled water, and where turf provides a playing surface or gathering space.

SUBMETER. A secondary device beyond a meter that measures water consumption of an individual section of a larger system.

VAPOR. Water in a gaseous state and often not visible.

VAPOR RETARDER. a material or assembly's ability to limit the amount of moisture that passes through that material or assembly.

VARIANCE. A grant of relief from the requirements of this section that permits construction in a manner otherwise prohibited by this section where specific enforcement results in undue hardship.

VIOLATION. A development that is not fully compliant with this appendix, as applicable.

WATER. An inorganic compound with the chemical formula H2O. It is colorless, transparent, odorless liquid.

WIND SPEED. In a storm wind gusts can reach 60 miles per hour (mph) or greater. In a hurricane wind speed (sustained and/or gusts) can reach speeds of 75 mph and greater depending on locality and storm intensity.

SECTION 301 - MOISTURE CONTROL IN BUILDINGS

301.1 GENERAL

The provisions of this section address the detrimental impacts of moisture migrating through the building envelope, resulting in the degradation of materials and adversely affecting indoor environmental quality. Further, this section provides guidance and establishes the requirements for the design and construction for more resilient building envelope systems in buildings.

NOTE: Ensuring adherence to Florida Product Approval (FPA's) requirements is a critical step in designing and building a safe and resilient exterior building envelope in Florida.

The Florida Building Code, Building, presents the absolute minimum requirements for design and construction in the State of Florida. This section is intended to guide the designer and builder as to ways to implement improvements for moisture control, greater energy efficiency, greater safety, enhancing the longevity of Florida buildings.

- Design: Enhancing the design of buildings with better and more complete drawings and specifications is the first step in the process. Clear and concise communication of design intent is very important.
- Construction: The second step is the proper construction of buildings to most closely follow the design intent of the drawings and specifications, producing a higher quality building.

These requirements supplement the listing for buildings constructed under the Florida Building Code, Building in Ch. 1, Section 107.3.5.

Exterior Wall & Balcony Requirements:

- 302.4 Drawings & Details - Wall details checklist
- 302.9 Balconies & Similar Projections -Balcony details checklists
- 302.11 Testing requirements

Roofing & Terrace Requirements:

- 303.4 Drawings & Details - Roofing details checklist
- 303.8 Rooftop Terraces & Decks - Waterproofing details checklist
- 303.15 Testing requirements

Additional Recommendations:

If not adopted by local ordinance, this appendix document presents recommendations for design and construction leading to more resilient, healthier, and longer lasting buildings. The voluntary user of this document is encouraged to implement as many of these recommendations as possible in their project. If all recommendations cannot be followed due to time or cost constraints, it is understood that all projects have limitations and challenges. Do implement as many as possible for greater moisture resistance resulting in more resilient and long-lasting buildings.

See the sections below for the recommendations and guidance for the design and construction of wall systems and roofing systems for Florida buildings.

SECTION 302 RESILIENT EXTERIOR WALLS

Exterior walls function as important aesthetic, structural, and weather resistant elements of the building. The design of today's exterior walls includes multiple enclosure systems of diverse materials and assemblies. Traditional opaque walls include masonry (brick, stone, concrete block), wood sidings, vinyl sidings, composite sidings, EIFS, rainscreens, metal panels, stucco, and other materials. Transparent and translucent walls include; glass walls (window wall, storefront, curtain wall), ceramic frits, reflective, insulated glass/glazing, tinted glass/glazing, mullion systems (aluminum, steel, fiberglass, composites, etc).

302.1 Intent.

The intent of this section is to provide additional direction for the design and construction of more resilient exterior walls and other related wall components; exterior wall coverings; exterior wall openings; exterior windows and doors; exterior soffits and fascias; architectural trim; balconies and similar projections; and bay and oriel windows. See also appendix section 105 - Flood - Resistant Construction as it may pertain.

302.2 Degradation of materials.

As moisture enters the walls of a building, degradation of materials is just one undesirable impact. Moisture needs to be controlled or mitigated to the greatest extent possible. The long-term exposure of moisture to many building materials within exterior walls can adversely affect the lifespan of those materials. Other adverse impacts are weakened structural capabilities, probable health concerns, noxious odors [caused as wood and paper materials begin to grow mold (acting as a food source) and/or rot], rusting of metals (studs, fasteners, hold down straps, connectors, etc.)

All wall materials degrade over time. Solar load, temperature fluctuations, expansion and contraction, moisture saturation and drying, the natural aging cycle of materials (due to loss of moisture or loss of a component or components within the materials), the influence of other materials inducing stress and strain within the materials in question, carbonization, salts, mineral deposits, environmental dirt, water leakage, freezing water, and other influences. All wall materials are influenced by the location installed and the specific climate zone, weather patterns, distance from the saltwater coast, lake effects, shading or lack of shading, varying climate cycles and weather trends. Even wild animals can be a source of degradation of the wall materials (rats, mice, squirrels and others) by abrasion and/or gnawing of the materials, especially if the materials have an organic or mineral content within the material.

Wall Degradation Examples:

- Concrete (poured in place, precast, tilt wall).
- Stucco (direct application to masonry, lathing, joint materials).
- Wood siding (various configurations).
- Wood paneling (various sizes and surface treatments).
- Composition siding.
- Shingle siding.
- Painting & Staining.
- Vented skins (varying materials with underlying air/water barriers).
- Glass & Glazing.
- Sloped glazing.

Balcony Degradation Examples:

- Bare concrete.
- Sealed concrete.
- Membrane systems over concrete.
- Membrane systems over wood.
- Safety railings (wood, metal, glass, composites).
- Floor drains and scuppers.

302.3 Moisture control within the building walls.

Moisture control within the wall system of a building is critical to the long-term health of the wall systems and the building occupants.

Some materials are more moisture sensitive than others. There are several ways of designing framed (wood framing, metal framing, wood and composite sheathings, etc.) walls:

- Barrier Systems, where the primary form of moisture resistance is the facing of the wall to keep moisture from entering the wall system and interior.
- Drainage Systems, where there is a secondary form of moisture protection by the installation of a weather resistant barrier (WRB) installed within the wall system to protect the wall framing and interior wall from moisture penetration.
- Rainscreen Systems, where the primary moisture barrier is mounted behind the exterior cladding with a drainage space between the moisture barrier and backside of the exterior cladding. This allows the exterior wall cladding to provide solar, wind and water protection of the primary moisture barrier. Note that this moisture barrier must be robust in design to fully protect the structural substrate from moisture intrusion over the life of the building.
- Hybrid Systems, combining multiple combinations of wall systems in accordance with the design intent of the architect or design professional.

Likewise, masonry (brick, CMU, stone, cement products, etc.) and concrete (cast in place, tilt wall, precast, etc.) walls can incorporate some of the same features as framed walls depending on design intent.

- Masonry cavity wall construction, internal space allows for drying and drainage
- Exposed masonry construction, face sealed is the most economical systems
- Hybrid Systems, combining multiple combinations of wall systems in accordance with the design intent

Comply with chapter 14 of the Florida Building Code, Building for all Exterior Wall requirements;

- 1401 General.
- 1402 Definitions.
- 1403 Performance Requirements.
- 1404 Materials.
- 1405 Installation of Wall Coverings.
- 1406 Combustible Materials on the Exterior Side of Exterior Walls.
- 1407 Metal Composite Materials (MCM).
- 1408 Exterior Insulation and Finish Systems (EIFS).
- 1409 High-Pressure Decorative Exterior-Grade Compact Laminates (HPL).
- 1410 Soffits and Fascias at Roof Overhangs.

- 1411 Plastic Composite Decking.

Note: see HVHZ requirements in Chapter 24, Glass and Glazing, section 2411.3.2, Tests in the Florida Building Code, Building.

Wall and Opening Details

These wall and opening detail requirements supplement the listing for buildings constructed under the Florida Building Code, Building in Ch. 1, section 107.3.5.

For more resilient design and construction, the architectural and engineering drawing details must be more comprehensive and concise as to the intended materials and their connections. The path of water is important to indicate if water is allowed within the wall system.

Required Wall and Opening Details Checklist:

- Where an underlying weather barrier is a part of the assembly (specific type, thickness, manufacturer, specific directions for use, application diagrams and details from the manufacturer).
- All wall penetrations (vents, louvers, scuppers, fasteners).
- All window & frame penetrations (sill, jambs, head, flashings).
- All door & frame penetrations.
- If above a balcony, see section 302.11 for additional information.
- All copings on top of walls.
- All flashings by location, material, sizes & profiles, underlayments, fastening patterns.
- Where sealants are used, clearly indicating the location type of seal, material, sizes & profiles, backer rods.
- Integration of horizontal to vertical envelope systems.
- Below grade details(occupied and slab on grade conditions).
- Footing and foundation.
- Expansion joints.
- Interconnection between different wall systems(often overlooked until construction).
- For other special features see sections below.

302.4 Exterior wall coverings.

Exterior wall coverings are the outermost surfacing material of the exterior wall system. The possible exterior wall covering materials are many; wood (lap siding, panel siding,

trim and moldings), masonry (brick, stone, CMU with various surface textures and treatments), stucco, metal panels, composite panels, plastic panels and lapped siding, and various combinations of materials. Exterior wall coverings can be painted, coated, stained or left natural to weather depending on what the building designer has in mind for the building.

For the Florida climate, building design and construction should consider a coating or stain to shed as much surface moisture as possible before the moisture contacts the actual surface material. While then the coating or stain must be maintained, it is invaluable in preserving the surface of the exterior wall covering to maximize its lifespan.

302.5 Exterior wall openings.

Exterior wall openings include any number of penetrations through the building wall envelope. Anything that penetrates the wall is a wall opening and makes the wall more susceptible to moisture entry into the wall system. All exterior wall openings are required by the Florida Building Code, Building, to be flashed or sealed and therefore need to be detailed by the designer of record so that construction teams can understand the approach to creating a watertight wall opening. See other sections of this appendix that further detail exterior walls and exterior wall openings.

302.6 Exterior soffits and fascias.

Exterior soffits are related to the underside of projecting elements (roof overhangs and other building elements) or ceiling surfaces of upper-level floors or balconies.

Fascias are related to the vertical surface of building overhangs or roofing terminations.

Exterior soffits and fascias shall be properly detailed to tie into the fascia on the outboard side and the wall and wall materials on the inboard side of the soffit. Size all components and connectors for the actual loading pressures (corner and field) to assure that the soffit material is stable in hurricane force winds and rain. Soffits are often the first wind damages and blow-offs in even nominal wind events.

Soffits should have a slight positive slope to the outboard side of the soffit so as to avoid moisture entering the attic or upper wall materials in the event of roof or eave leakage.

302.7 Architectural trim.

Architectural trim can be defined as ‘minor’ projections (less than 2” of horizontal dimension) of the building wall used for aesthetic articulation of the building facade. Where the horizontal dimension exceeds 2”, see the next section on ‘similar’ projections.

Architectural trim must minimize water penetration into the wall surface, whenever possible. The horizontal surfaces shall slope to drain (6% is the minimum slope recommended) to effectively drain water from the horizontal top surface of the trim. It is recommended that where possible, the bottom horizontal surface have a slope toward the exterior creating an effective dripline.

When the architectural trim consists of proprietary materials such as EIFS or single-coat stucco systems, follow the manufacturer’s requirements in addition to the base building code and this section.

When the architectural trim consists of wood, metals, composite materials, pvc, or other materials special architectural detailing will be required for those trim details, consult available manufacturer details and requirements. Industry publications can also be consulted for detailing information and direction.

Provide details as to the architectural intent of the architectural trim. Always make sure that architectural trim is properly attached. Often the method is nails, screws or construction adhesive. The best method is to combine mechanical attachment with a construction grade adhesive.

If metal flashing is used to prevent water entry, it must be properly detailed. If a liquid applied coating is used follow the manufacturer's instructions. If sealants are used follow the manufacturer’s instructions.

302.8 Balconies and similar projections.

There can be public and private balconies serving the building and its occupants in multi-level buildings.

- Public balconies are common in hotels, motels, apartments/condominiums and sometimes on office or retail buildings. Public balconies must provide safe and easy access to the doors and entries to the occupied spaces daily. They must also provide safe egress to building stairways and elevators for fire services to

assist in evacuating occupants from the building during emergency evacuations (smoke, fire, other emergencies).

- Private balconies provide multi-level buildings to allow their residents to enjoy the outdoor environment directly outside their residences, hotel rooms, or offices. Balconies also provide weather protection (shading, shadows, shielding from rain) to the walls, windows, glass doors and other parts of the wall systems. Private balconies can also be screened to defend against insects during the warm and hot months of the year.

Balconies on buildings have been one of the most challenging design, detailing, and construction elements of a building. Whether in single family residences, hotels, apartments/condominiums, office buildings using many types of construction (wood framing, metal framing, concrete, and composite materials). Balconies can be solid decking surfaces (and undersides) or constructed of open deck boards (and exposed structural elements) constructed of wood or composite materials.

If water is not effectively resisted (keeping it out of the building and structure) damage to structural components and other building materials can result. Florida wind especially along coastal areas are especially vulnerable to wind driven rains. In addition, coastal construction must withstand the effects of sand and salts weathering the finishes of balconies much faster than in inland locations.

There are no real standards for exactly how to detail balconies so as to maximize weather resistance and provide for their longevity, yet they all must be constructable providing safe railing systems, effectively shedding water, and resisting high velocity winds. Often wind driven rain soaks or even floods balconies with water under both dynamic and hydrostatic pressures.

Many sets of construction drawings and specifications fall short in providing adequate drawing details and clearly written specifications for the materials and workmanship that is needed. Many times the trades constructing balconies do not understand the design intent, so construct the balconies with breaches and voids in water resistant membrane materials and surfaces. Often, effective flashing materials are omitted or poorly installed, so as to leak water into the balcony and adjacent wall structures. When patio door thresholds and sliding glass door tracks are not correctly installed they leak and damage interior flooring materials, baseboards, and finished wall materials. When surface finishes and materials exhibit damage, then in most cases further damages underlie those materials causing structural damages to floor and balcony structural members and the wall systems (and columns) supporting those balconies.

Balcony Details
These balcony detail requirements supplement the listing for buildings constructed under the Florida Building Code, Building in Ch. 1 section 107.3.5.

Wood framed balconies (solid surface and open decking) are the most problematic for proper waterproofing, so minimum details are required as follows:

Minimum 'solid surface decking' balcony waterproofing details:

- Balcony cross sections with a minimum ¼" per foot of slope to drain.
- Scuppers (when utilized).
- Floor drains (when utilized).
- Terrace door thresholds (and jamb and head flashings).
- Sliding glass door tracks (and jamb and head flashings).
- Windowsill flashings at balcony locations (and jamb and head flashings).
- Wall to balcony flashing conditions.
- Railing attachment details (structural and waterproofing).
- Water discharge flashings at corner discharge points.
- Supporting beam details.
- Supporting column details (when present).
- Specifications of membrane waterproofing and walking surfaces.

Minimum 'open surface decking' balcony waterproofing details:

- Balcony cross sections.
- Terrace door thresholds (and jamb and head flashings).
- Sliding glass door tracks (and jamb and head flashings).
- Window sill flashings at balcony locations (and jamb and head flashings).
- Wall to balcony flashing conditions.
- Railing attachment details (structural and waterproofing).
- Joist framing connections to beam details.
- Ledger framing flashing at walls.
- Supporting beam cap flashing and saddle flashing (beam to wall) details.
- Supporting column details (when present).
- Specifications of wood or composite walking surfaces.

Concrete balconies are less problematic, details are still required as follow:

- Balcony cross sections with a minimum ¼" per foot of slope to drain.
- Scuppers (when utilized).

- Floor drains (when utilized).
- Terrace door thresholds (and jamb and head flashings).
- Sliding glass door tracks (and jamb and head flashings).
- Windowsill flashings at balcony locations (and jamb and head flashings).
- Wall to balcony flashing conditions.
- Railing attachment details (structural and waterproofing).
- Water discharge flashings at corner discharge points.
- Specifications of liquid applied waterproofing and walking surfaces (tile or liquid applied wearing surface.

Similar Projections:

Similar projections come in various types. If the projection is a bay window or oriel window, see the next section addressing those elements as these are 'capped' with various types of roofing materials that must be properly flashed to the wall system.

Other projections include trim bands, cornice lines, and projections generally detailed as aesthetic elements of the wall system comprising the building facade. Projections can be detailed using traditional wall to horizontal flashings (generally metal 'L' and 'Z' shaped) sloping to effectively drain water off the horizontal element of the projection.

Minor projections can also be detailed using sealants and liquid applied flashings sloping to drain water off the horizontal element. When detailed using sealant and liquid applied flashings, those surfaces generally have a higher degree of maintenance required than metal flashings, so maintenance programs must be established and followed for the maintenance and refinishing for effective waterproofing.

302.9 Insulation.

The thermal performance of a wall system depends on all the wall materials with careful consideration of the insulation type, thickness, and material properties within the wall assembly. It is highly recommended that a hygrothermal analysis be completed on all exterior wall assemblies using both historic and future predicted climate characteristics of the project location including mean temperature, dewpoint, etc. to determine the best course of action for specifying the specific wall assembly for a project. It is best practice in a hot, humid climate to locate the air, moisture, vapor, and thermal control layers outward of the structural layer to mitigate intrusion of moisture into the wall assembly and provides a method for vapor to drain outward of the building versus within the wall assembly on the interior of the building. However this type of insulation and water-resistive barrier layering is not always possible so proper

architectural detailing must be followed to achieve the code compliant installation that prevents entrapment of moisture within a wall assembly and interior to the building.

302.10 Building Envelope Testing requirements.

Building envelope testing as a holistic approach to moisture and air management in building design and construction is essential for achieving long-term resilience and viability. It integrates preventive measures against moisture intrusion and air leakage, enhances energy efficiency, supports indoor air quality, and ensures the durability and performance of buildings throughout their lifecycle. Investing in building envelope testing during the design and construction phases pays dividends in terms of reduced maintenance costs, improved occupant comfort, and sustainable building operations.

Moisture Management

- Preventing Water Intrusion: Building envelope testing, such as water penetration resistance testing (e.g., ASTM E1105), helps identify potential points of water entry during rain events or under high wind conditions. This early detection allows for necessary adjustments in design or construction to prevent water intrusion, which can lead to structural damage, mold growth, and degradation of building materials over time.
- Moisture Control: Properly designed and tested building envelopes include vapor barriers, drainage systems, and waterproofing materials that manage moisture effectively. Testing ensures that these components function as intended, reducing the risk of moisture buildup within wall assemblies and improving the durability of building materials.

Air Management

- Minimizing Air Leakage: Air leakage through the building envelope can compromise energy efficiency by allowing conditioned air to escape and unconditioned air to enter. Air leakage testing (e.g., ASTM E783) identifies areas of concern and allows for corrective measures to be implemented, such as improving air barriers and sealing penetrations.
- Enhancing Indoor Air Quality: A well-sealed building envelope helps maintain consistent indoor air quality by preventing the infiltration of outdoor pollutants, allergens, and moisture-laden air. This is crucial for occupant health and comfort, particularly in tightly sealed and energy-efficient buildings.

Energy Efficiency

- Reducing Heating and Cooling Loads: A tightly sealed building envelope with effective insulation and minimal air leakage reduces the demand for heating and cooling energy. This results in lower energy costs over the building's lifespan and contributes to sustainability goals by reducing greenhouse gas emissions associated with energy consumption.
- Optimizing HVAC Performance: By minimizing air leakage and controlling moisture, building envelope testing ensures that HVAC systems operate more efficiently. This can help optimize HVAC size reducing redundancy due to unknowns and saving upfront costs, reduces the workload on HVAC equipment, prolongs their lifespan, and lowers maintenance costs.

Long-Term Resilience

- Durability and Maintenance: Building envelope testing helps identify potential weaknesses or defects early in the construction phase, allowing for proactive maintenance and repairs. This proactive approach extends the lifespan of the building envelope and reduces the likelihood of costly repairs or premature replacement.
- Adaptability to Climate Change: A resilient building envelope, verified through testing, is better equipped to withstand extreme weather events and climate change impacts. It ensures that buildings remain habitable and functional, providing shelter and safety to occupants over the long term.

Viability and Performance Verification

- Meeting Design Intent: Building envelope testing verifies that the design and construction meet specified performance criteria, including compliance with building codes, standards, and project requirements. This ensures that the building envelope performs as intended by the owner, authority having jurisdiction, and design team and meets regulatory expectations.
- Documentation and Warranty Compliance: Testing provides documented evidence of the building envelope's performance, which is essential for warranty coverage and insurance purposes. It establishes accountability and ensures that stakeholders have confidence in the building's quality and longevity.

Field Testing

Field testing of exterior enclosure components and systems *as they relate to moisture* can include:

Water Penetration Resistance Testing

Purpose: To evaluate how well a wall system prevents water ingress under real-world conditions.

Standards:

1. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference:
    - Purpose: This test method covers the determination of the resistance of installed exterior windows, curtain walls, skylights, and doors to water penetration when water is applied to the outdoor face and exposed edges simultaneously with a static air pressure at the outdoor face higher than the pressure at the indoor face.(Source: ASTM)
    - Method: This test involves the use of a wall-mounted pressure chamber where air is exhausted to create a lower pressure on the test surface. Water is then sprayed at a controlled rate on the opposite surface using a calibrated nozzle rack over a specified time period.
2. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference:
    - Purpose: This test specifies a method for testing the water penetration resistance of exterior windows, skylights, doors, and curtain walls under uniform static air pressure differences.
    - Method: It involves subjecting the specimen to a specified pressure differential while applying water to the exterior surface and monitoring for water infiltration.
3. ASTM E2128 - Standard Guide for Evaluating Water Leakage of Building Walls:
    - Purpose: This guide provides principles and procedures for evaluating water leakage through building walls, including exterior cladding and curtain walls.
    - Method: ASTM E2128 outlines methods for field and laboratory evaluations to identify sources of water infiltration and potential remediation measures.
4. AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls, and Doors Using Dynamic Pressure:

- Purpose: Published by the American Architectural Manufacturers Association (AAMA), this standard specifies procedures for evaluating the water penetration resistance of windows, curtain walls, and doors under dynamic pressure conditions.
- Method: Dynamic water penetration testing is conducted at the specified air pressure differential by utilizing a wind generator employing an 84" diameter propeller. Water is simultaneously sprayed onto the exterior face of the assembly at the required rate of 5 gph/SF. Testing continues for 15 minutes. During testing, the interior face of the test area is inspected for water leakage.

5. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems:
    - Purpose: Another standard from AAMA, this document provides guidance for quality assurance and diagnostic field checks designed to aid in the water-tight testing of large glass areas meant to be permanently closed, such as store fronts, curtain walls, and sloped glazing systems to verify water leakage resistance.
    - Method: A constant pressure of between 30-35 psi is applied from a ¾" (19 mm) diameter hose fitted with a nozzle. This ½" diameter brass nozzle is to be part B-25 #6.030, sourced only from Monarch Manufacturing, to standardize test results. It is recommended to fit the nozzle with a gauge to measure distance from the test surface.

Air Leakage Testing

Notes: Air Leakage testing is indicated as an optional testing direction, not required for 'liquid' moisture mitigation in buildings. Although moisture does enter via air infused with moisture (known as humidity), it is not as critical as minimizing liquid moisture entering the wall cavities. When air conditioning (air cooling) is present in indoor spaces, there is also a possibility of liquid condensation on wall materials within the wall assembly.

Purpose: To measure the air tightness of building envelope walls.

Standards:

1. ASTM E779 - Standard Test Method for Determining Air Leakage Rate by Fan Pressurization:

- Purpose: ASTM E779 outlines procedures for measuring air leakage rates of buildings by pressurizing or depressurizing the building envelope with a fan and measuring airflow.
- Method: It quantifies air leakage through the building envelope under specified pressure differentials, providing a metric such as air changes per hour (ACH) or air leakage rate per unit area.

2. ASTM E1827 - Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door:
   - Purpose: ASTM E1827 provides alternative methods for determining the airtightness of buildings using a blower door test, which measures air leakage through the building envelope.
   - Method: It includes procedures for installing and operating the blower door equipment, controlling test conditions, and calculating air leakage rates.
3. ASTM E3158 – Standard Test Method for Measuring the Air Leakage Rate of a Large or Multizone Building
   - Purpose: ASTM E3158 provides a quantitative field test procedure and calculation method for assessing an air leakage rate using a fan-induced pressure differential(s) across the building envelope, generated by blower doors or equivalent equipment.
   - Method: This test method applies to all multizone and large building types and portions or subsections of buildings. It can be used to test envelopes that consist of a single zone or subsections of a zone that can be tested as a single zone. Test envelopes that are entirely composed of subsections separated by interior partitions or floors, or both, may be tested as a single zone by maintaining baseline relationships between these subsections throughout testing. The relationship between the airflows and induced pressures are used to measure the air leakage rate of the envelope. Specifications for air leakage rates of an envelope are written in terms of the maximum allowable airflow rate from a specified induced pressure differential.
4. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors:
   - Purpose: ASTM E783 specifies procedures for measuring air leakage through installed exterior windows, doors, and curtain walls under specified pressure differentials.
   - Method: The testing is performed by sealing a chamber to the interior or exterior face of the test specimen, supplying or exhausting air from the

chamber at a rate required to maintain the specified test pressure, and measuring the air flow lost or gained across the testing chamber.

5. ISO 9972 - Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurization method:
    - Purpose: This international standard provides methods for determining the air permeability of buildings using a fan pressurization method, similar to ASTM E779.
    - Method: ISO 9972 To compare the relative air permeability of several similar buildings or parts of buildings, and to determine the air-leakage reduction resulting from individual retrofit measures applied incrementally to an existing building or part of a building. The fan pressurization method does not measure the air infiltration rate of a building. The results of this method can be used to estimate the air infiltration rate and resulted heat load by means of calculation.
6. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products:
    - Purpose: Published by the American Architectural Manufacturers Association (AAMA), AAMA 502 specifies procedures for field testing newly installed fenestration products (windows, doors) to verify air leakage resistance.
    - Method: Chamber test method where chamber is attached and sealed to adjacent frame members, concrete, structural steel or drywall at the top, bottom and sides of the specimen. The chamber is equipped with a centrifugal blower/vacuum pump, air flow meter, and a pressure sensing device to maintain the desired air pressure differential across the assembly

Thermal Performance Testing

Note: Thermal performance testing is indicated as an optional testing direction, not required for moisture mitigation in buildings.

Purpose: To assess the insulation properties of walls.

Standards: ASTM C1153.

Method: Involves measuring the thermal resistance (R-value) or thermal transmittance (U-value) using heat flow meter devices or infrared thermography.

Field Application: Can be performed in-situ to evaluate the actual thermal performance of installed wall assemblies.

SECTION 303 RESILIENT ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

A building's roof assembly provides multiple functions, aesthetic, structural, and weather resistance for the building. The design of today's roofing includes multiple roofing comprised of diverse materials and assemblies. Traditional roofs include steeply sloped and 'flat' membrane roofing materials, depending on the design and construction of the roofing system. Roof structures can be comprised of various materials including; wood (wood rafters, joists, trusses, plywood roof decking), metal (usually steel, light gauge, forged), concrete (reinforced, prestressed, post tensioned), hybrid structures (system buildings, prefabricated buildings, relocatable buildings). Sloped roof coverings include shingles (wood, asphaltic, tile), metal (standing seam, corrugated, composite panels), and other hybrid systems.

For minimum code requirements see chapter 15 ROOF ASSEMBLIES AND ROOFTOP STRUCTURES in the Florida Building Code, Building..

303.1 Intent.

The intent of this section is to provide additional direction for the design and construction of more resilient roof assemblies and rooftop structures. Increasing wind and moisture resistance is critical to the ultimate longevity of the roofing system and materials within the roofing system.

303.2 Degradation of materials.

All roofing materials degrade over time. Solar load, heat/cold, temperature fluctuations, expansion and contraction, moisture saturation and drying, the natural aging cycle of materials (due to loss of moisture or loss of a component or components within the materials), the influence of other materials inducing stress and strain within the materials in question, carbonization, salts, mineral deposits, environmental dirt, ponding water, freezing water, and other influences. All roofing materials are influenced by the location installed and the specific climate zone, weather patterns, distance from the saltwater coast, lake effects, tree coverage, varying climate cycles and weather trends. Even wild animals can be a source of degradation of the materials (rats, mice, squirrels and others) by abrasion and/or gnawing of the materials, especially if the materials have an organic or mineral element within the material.

Roofing Degradation Examples:

- Asphaltic shingles: Loss of granules, fading, mold growth, brittleness, cracking, loss of shingles and portions of shingles.
- Asphaltic membranes: Loss of granules, dirt build up, brittleness, cracking and splitting.
- Acrylic membranes: Loss of flexibility, dirt build up, brittleness, cracking and splitting.
- Cement and clay tiles: Color loss, fading, mold growth, loss of surface finish due to erosion, exposure of aggregate.
- Slate shingles: Mold growth, loss of natural surface finish due to erosion, delamination of the slate.
- Cedar shakes and shingles: Mold growth, shrinkage, separation, curing, loosening of fasteners.
- Metal roofing: Fading, color loss, mold growth, streaking of surface finish, rust bleed through.
- Hybrid roofing materials: TBD based upon the technology of the materials.

303.3 Moisture control within building roof assemblies and rooftop structures.

Moisture control through the roofing elements of the project is of critical importance for the proper health of the occupants and longevity of the building components. No one likes or can even tolerate a leaking roof! A roof leak is one of the most devastating occurrences that can happen to a building and its occupants. It can upset a building occupant beyond most any other issues with a building. Note, we acknowledge that there are other devastating occurrences such as fires, gas explosions, plumbing leaks, mechanical and electrical system problems, structural collapses and even vermin infestations however this portion of the appendix addresses moisture related building issues.

Comply with chapter 15 of the 2023 Florida Building Code, Building, for all roofing requirements;

- 1501 General.
- 1502 Definitions.
- 1503 Weather Protection.
- 1504 Performance Requirements.

- 1505 Fire Classification.
- 1506 Materials.
- 1507 Requirements for Roof Coverings.
- 1508 Roof Insulation.
- 1509 Roof Coatings.
- 1510 Rooftop Structures.
- 1511 Existing Roofing.
- 1512 - 1524 High-Velocity Hurricane Zones Requirements *(Miami-Dade and Broward Counties).*

Roofing Details

These roofing details supplement the listing for buildings constructed under the Florida Building Code, Building, in Ch. 1 section 107.3.5.

Roofing details checklist:

- Roof type performance metrics (Durability, heat transfer, vapor drive, fire ratings, etc.):
  - Climate zone considerations.
  - Vapor drive.
  - Roof top activities or additional installations.
  - Insulation type, performance, size.
- Roofing system cross sections with a minimum ¼" per foot of slope to drain.
- Continuity of air/moisture barrier from horizontal to vertical surfaces.
- Roof scuppers (when utilized).
- Roof drains (when utilized).
- Sumps at roof drains and continuous insulation.
- Roof gutters & downspouts (when utilized).
- Roof access door thresholds (and jamb and head flashings) (when utilized).
- Roof hatch details (when utilized).
- Roof to Wall flashing conditions.
- Integration of additional roof-top mounted systems:
  - Green roof.
  - Photovoltaics.
  - Solar hot water.
  - Deck, paver, equipment.
- Roof curbs for mechanical, plumbing, electrical equipment.
- Roof penetrations(Pipe, duct, etc.), avoiding pitch pockets.
- Parapet wall details (indicating vertical membranes, other vertical materials, and cap flashings) (when utilized).

- Railing attachment details (structural and waterproofing) (when utilized).
- Water discharge flashings at corner discharge points (as example, kick out flashings).
- Cricket details to drain difficult locations.
- Expansion joints.
- Integration and interconnection between different roof systems.
- Roof underlayment and vapor barrier details(when and where to incorporate).
- Continuous insulation and cover board.
- Supporting beam details.
- Supporting column details (when present).
- Specifications of roofing materials and systems required on the drawings.

303.4 Steep slope roof coverings.

A steep sloped roof is a roof that slopes at 2:12 and greater slope. Roofs that slope less than 2:12 are considered low slope roofs. Steep sloped roof coverings are very popular in residential buildings and in many commercial buildings as well.

Consult chapter 15 in the Florida Building Code, Building, for more information on commercial roofing systems.

There are multiple types of steep sloped roof coverings. They depend on their slope to quickly remove water from the roof surface but must be detailed and constructed correctly to properly protect the building from moisture intrusion through the roof covering and into the roof structure itself and ultimately into the occupied spaces of the building.

Types of steep sloped roof coverings include:

- Shingle roofing- multiple types:
  - Asphalt shingles.
  - Concrete tile shingles.
  - Clay tile shingles.
  - Slate tile shingles.
  - Cedar shake and cedar shingles.
  - Metal shingles.
- Metal roofing:
  - Various types of seamed roofing, standing, interlocking, capped.

    - Overlapping seamed roofing, like '5V crimp' roofing, with exposed fasteners (this was commonly known as "barn siding" that then became used as a metal roof covering.
    - Structural metal roofing (where the roof panels are also structurally spanning between metal purlins as in manufactured building systems).
    - Metal roofing that covers membrane roofing acting like a rain screen for the membrane roof below.
- Hybrid and composite material roofing.
- Membrane roofing.
- Thatched roofing.

These steep sloped roofs require underlayments that come in different types of materials. Consult the building codes for more specific information. The function of the underlayment is multifold.

- Dry-in Protection: Builders commonly call the underlayment 'the dry-in' since once the underlayment is installed the building becomes mostly dry for the balance of the interior construction to continue without moisture damage from the roofing level. The underlayments generally have a restricted amount of time until the final roof covering is installed. This can range from as little as 3 months to as much as 9 months depending on the type of underlayment used. Consult the manufacturer for these time limits.
- Secondary Protection: Another function of the underlayment is for secondary protection to the building. This secondary protection will generally add life to the roof, even if during the aging of the roof shingles or other material causes degradation, the underlayment during wind and rain events, the underlayment provides a level of protection against moisture intrusion in such an event.
- Condensation protection: Airborne moisture known as humidity can cause problems below the roof covering when the outdoor temperatures drop on the exterior of the roof covering surfaces and the dew point is reached, condensation of liquid water occurs. This also occurs during nightly radiant cooling known as 'night sky radiation' where the dark night sky acts as a 'heat sink', cooling the roof covering below the dew point, causing condensation of liquid water below the roof covering. In these cases the underlayment provides condensation protection for the building.

303.5 Low slope membrane roof coverings.

Always comply with manufacturers minimum slope requirements, even if roofs appear close to flat for longevity and proper drainage. The following sections address the

various systems and the importance of specific design, detailing and construction quality control and assurance.

303.6 Liquid applied roofing and roof coatings.

Liquid applied membrane roofing systems are reinforced membranes that are applied in the field using liquid membrane materials and fiber reinforcing combined as a part of the roofing application process. These are considered membrane roofs and must slope at a minimum of ¼" per foot to the roof drains, scuppers, gutters and other devices for final drainage. Manufacturers typically offer extended warranties for 5 and 10 years and longer.

Roof coatings are liquid applied coatings that are not reinforced and are designed to extend the life of the underlying roofing. They can be applied to sloped roofing and membrane roofing. As an example, shingle roofing can be coated to extend their life. These are considered as remedial measures and are considerably less expensive than full roof replacements. Before applying a liquid roof coating, the base roof must be dry and free of defects so these issues must be corrected prior to the installation of the roof coating.

303.7 Rooftop terraces and decks.

Waterproofing membranes designed for use under tile and paver systems are critically important for the watertight performance of the waterproof membrane. Since these waterproofing membrane systems are concealed throughout their lifespan they must perform to prevent water leakage. Leaks are difficult to find the source of leaks and are extremely difficult to locate and difficult and expensive to repair and/or replace. Most of these systems are membrane based, some are hot applied, others cold applied, some are liquid applied roofing membranes.

Major manufacturers should be consulted during the design, submittal and installation phases to assure that the correct systems are being selected, detailed and installed. Many manufacturers require certified and approved installation contractors who must use workers/installers that have been trained and certified to install the systems.

Design and construction conditions that must be thoroughly detailed and carefully constructed to be properly waterproofed for the life of the terrace or amenity deck. Features such as pools, spas, planters, seatwalls, lighting, showers and other features must be considered in the final detailing and design. These features will require specialized attention to a high level of detail.

Waterproofing Details

These waterproofing details supplement the listing for buildings constructed under the Florida Building Code, Building in Ch. 1 section 107.3.5.

Waterproofing details checklist:

- Membrane waterproofing system cross sections with a minimum ¼" per foot of slope to drain (note, generally greater than minimum slope is encouraged to account for construction tolerances).
- Terrace and deck scuppers (when utilized).
- Terrace and deck drains (when utilized).
- Terrace and deck gutters & downspouts (when utilized).
- Terrace access door thresholds (and jamb and head flashings) (when utilized).
- Sliding glass doors and door thresholds (and jamb and head flashings) (when utilized) when used.
- Terrace and deck to Wall flashing conditions.
- Terrace and deck parapet wall details (indicating vertical membranes, other vertical materials, and cap flashings) (when utilized).
- Railing attachment details (structural and waterproofing) (when utilized).
- Water discharge flashings at corner discharge points (as example, kick out flashings).
- Cricket details to drain difficult locations.
- Supporting beam details.
- Supporting column details (when present).
- Specifications of waterproofing materials and systems.
- Where a pool or spa is present, see section 303.9.

303.8 Rooftop structures.

A rooftop structure is defined in section 1502 as "An enclosed structure on or above the roof of any part of the building." See Florida Building Code, Building, section 1510, for minimum requirements for rooftop structures. This Florida Building Code, Building, section covers penthouses, tanks, cooling towers, towers, spires, domes and cupolas, mechanical equipment screens, photovoltaic systems, other rooftop structures, structural fire resistance, mechanical units, cable and raceway type wiring methods, and Lines, pipes, conduit and cables under roof decks. These resiliency recommendations do not modify those Florida Building Code, Building, minimum requirements. The key requirement of this resiliency appendix is to provide long term and durable weather

protection in the design and construction of rooftop structures of all types. Water leakage through any rooftop structures will ultimately find its way into the roofing system and ultimately into the building structure and is not acceptable. All water leakage must be prevented.

303.9 Rooftop pools and spas.

See the Florida Building Code, Building, section 454 Swimming Pools and Bathing Places (Public and Private), for minimum code requirements. These resiliency recommendations do not modify those Florida Building Code, Building, minimum requirements.

In addition to the Florida Building Code, Building, rooftop pools and spas are governed by the local health department in local governments. Those health department requirements should be consulted and complied with, so must be followed and are not affected by this section.

Critical to all rooftop pools and spas is the requirement that they be structurally sound and watertight at the structural walls and floors. They must also be watertight at the junctures between the walls of these elements and the adjoining roof top terraces and decks. These junctures must be properly designed, detailed and constructed. Any leakage noted under these elevated pools and spas must be diagnosed and repaired. Periodic inspections by trained design and construction professionals should be undertaken by ownership of the property.

Design and Construction: It is critical that they are designed and constructed by responsible and knowledgeable designers and builders. Often they are designed and constructed by a third party who specializes in that design and construction as a specialty. Most pools and spas are made out of poured and reinforced concrete, which is a durable and long–lasting material.

However, some pools and spas are made of plasticized liners for the pool walls and pool bottoms. Those types of pools and spas also need their unique details designed and constructed to be watertight.

303.10 RESERVED.

303.11 Other considerations.

Cost of installation and lifespan of the roofing systems of a building must be considered in the selection, design and installation of roofing systems. The value of a

roof is generally considered as the most important component of the building for keeping water out of the building. While cost is one of the elements, aesthetics, lifespan and maintenance requirements are other elements to be considered.

For roofing in Florida water resistance is one very important requirement. Wind resistance is another very important requirement in the performance of the roofing system. Storms tend to pull upward at the roof edges and corners in such a manner that those areas can begin to lift during strong winds and may ultimately cause a full roofing failure. Severe failures can result in the complete roofing system being lifted off of the roof structure. In the most severe failures when the underlying structure is then subjected to moisture intrusion and further lifting of the roof structure and when the roof structure is damaged the support of the top of the walls is then in danger of complete collapse. Such a collapse can kill and injure the occupants and result in large property losses.

303.12 Compliance.

Compliance with this section should enhance the resilience of a building's roofing system. Proper design, detailing and construction is paramount to a successful roofing system to protect the building from the elements (water, wind, windborne debris, etc.)

303.13 Testing requirements.

Roofing systems are one of the most critical components of a buildings enclosure and its ability to provide protection from moisture intrusion and ensure the long-term health, safety, and welfare of the building occupants. While individual components of roof systems are manufactured, almost all roofing systems are field installed, sometimes by multiple trades over a period of time. The importance of testing and verification cannot be understated when it comes to the long-term viability, resilience, and success of the roofing system. There are many standards for both laboratory and field-testing roofing components and installed systems. Any testing should be part of a complete project strategy for the building envelope and its commissioning. This process is a key factor in the long-term resilience of a roofing system. Testing of roof systems, like walls, can be broken into two categories, lab testing and field testing.

Lab Testing: Involves controlled experiments to assess structural integrity, fire resistance, and other critical properties of roof assemblies using standardized test methods.

Field Testing: Focuses on evaluating the performance of installed roof systems under real-world conditions such as water penetration, air leakage, and thermal efficiency.

These tests should be performed by a third-party licensed and experienced testing agency and should be observed by both the project envelope commissioning agent and the design professional of record. Testing should be specified to be completed at the appropriate intervals during the construction phase and completed until a passing condition has been achieved.

A successful roofing system that ensures long-term viability and resilience begins with proper specifying and detailing of the system during the design phase. The design professional must understand how the various components become integrated to achieve viability. This includes ensuring compatibility of materials between manufacturers, vapor drive within the roofing system under different climatic conditions(and in anticipation of future conditions), internal program moisture load(natatorium, labs, etc), and process for installation and maintenance.

It's important to begin the construction phase of the project with an holistic approach to developing a plan by the contractor to ensure the understanding of the coordination and installation of all roofing systems components and that testing is understood by all trades and is properly integrated into the project schedule and workflow(this includes allowing time for evaluation and retesting if needed).

Specific tests can include:

ASTM D5957 - Standard Guide for Flood Testing Horizontal Waterproofing Installations: This standard outlines procedures for flood testing horizontal waterproofing installations having a slope not greater than 20 mm/m (2% slope) (1/4" per ft).

ASTM D7877 - Standard Guide for Electronic Methods for Detecting and Locating Leaks in Waterproof Membranes: This guide covers electronic methods for detecting leaks in waterproof membranes. This guide is applicable for waterproofing membranes installed in roofs, plaza decks, pools, water features, covered reservoirs and other waterproofing applications.

ANSI/SPRI RP 14 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems: This standard includes guidelines for wind resistance but can indirectly contribute to evaluating roof systems' ability to resist moisture intrusion by ensuring tight seals and connections.

Additional testing considerations to ensure long-term viability and resilience over time include:

Wind Uplift Resistance Testing: This tests how well a roof system can resist being uplifted by wind forces. Standards like ASTM E1592 outline procedures for determining the wind resistance of various roofing materials and systems.

Durability and Longevity Testing: Assesses the expected lifespan and durability of roofing materials under normal and extreme conditions, including exposure to sunlight (UV radiation), temperature fluctuations, and chemical exposure.

Energy Efficiency Testing: Measures the ability of a roof system to reflect sunlight (solar reflectance) and emit absorbed heat (thermal emittance). ASTM E1980 and ASTM E903 are standards used to quantify these properties.

Mechanical Testing: Evaluates the mechanical properties of roofing materials such as tensile strength, flexibility, and dimensional stability. ASTM D638 and ASTM D412 are examples of standards used for such testing.

Environmental Testing: Determines the environmental impact of roofing materials, including their recyclability, sustainability, and compliance with environmental regulations.

SECTION 304 CONCRETE SLABS

In Florida the concrete slab is an often-used component of buildings, both residential and commercial. Due to its economy, ease of installation, durability, and longevity it is used in all types of buildings and in all types of construction.

Concrete slabs can be load bearing and non-load bearing in function. Slabs can be as thin as 3.5 inches to as thick as 12 to 18 inches (or even greater) depending on the structural conditions of the soils below and loading of the building slab requirements.

All concrete slabs bear a certain amount of live and dead loads. Load bearing concrete slabs are often thickened with heavier reinforcing to support the superimposed loads from columns and walls.

In addition to their structural capacity concrete slabs must also provide protection from air, water vapor, and liquid water penetration from below the slab coming from the moisture in the soils below.

See chapters 18 - SOILS and FOUNDATIONS, and 19 - CONCRETE of the Florida Building Code, Building for additional requirements. See also appendix section 105 - Flood - Resistant Construction as it may pertain.

SECTION 305 FOUNDATION WALLS

While Florida buildings typically do not often include basements in most residential construction, basements are becoming increasingly more beneficial in commercial construction. The most common use for a basement in larger Florida buildings is to accommodate the parking of vehicles while not increasing the height of the building. Most zoning regulations set a height limitation on the building, basements for parking then give the building design greater flexibility for use of floor levels above grade.

When basements are used for parking and other purposes (storage, mechanical equipment, etc.) they must be waterproofed for hydrostatic pressure for maximum use and longevity. Hydrostatic pressure of moist soils and water can impose hundreds of pounds per square foot on the foundation walls, in addition to superimposed loading of columns and walls supported by the foundation walls. Waterproofing of these walls is highly specialized and should only be designed by licensed professionals and constructed by knowledgeable builders and subcontractors using materials and methods specifically designed for that purpose.

See chapters 18- SOILS and FOUNDATIONS, and 19 - CONCRETE, and 20 - MASONRY of the Florida Building Code for additional requirements. See also appendix section 105 - Flood - Resistant Construction as it may pertain.

SECTION 401 - RESOURCES - Water Efficiency and Conservation

401.1 Intent

The intent of this section shall establish the means of conserving water used indoors, outdoors, and in wastewater conveyance.

401.2 Scope

The following terms are described in Section 201:

- EVAPOTRANSPIRATION ADJUSTMENT FACTOR (ETAF).
- GREYWATER.
- HYDROZONES.
- METERING FAUCET.
- POTABLE WATER.
- SPECIAL LANDSCAPE AREA (SLA).
- SUBMETER.

SECTION 402 INDOOR WATER USE

402.1 Meters.

Separate submeters or metering devices shall be installed for the uses described in Sections 402.2, 402.3, and by the Irrigation Design Plan.

402.2 New buildings or additions more than 50,000 square feet.

Separate submeters shall be installed as follows:

1. For each individual leased, rented or other tenant space within the building projected to consume more than 100 gallons/day, including, but not limited to, spaces used for laundry or cleaners, restaurant or food service, medical or dental office, laboratory, or beauty salon or barber shop.

2. Where separate submeters for individual building tenants are unfeasible, for water supplied to the following subsystems.
3. Makeup water for cooling towers where flow through is greater than 500 gpm.
4. Makeup water for evaporative coolers greater than 6 gpm.
5. Steam and hot-water boilers with energy input more than 500,000 Btu/h (147 kW).

402.3 Excess consumption.

A separate submeter or metering device shall be provided for any tenant within a new building or within an addition that is projected to consume more than 1000 gal/day.

402.4 Water conserving plumbing fixtures and fittings.

Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:

402.5 Water Closets

The effective flush volume of all water closets shall not exceed 1.28 gallons per flush. Tank-type water closets shall be certified to the performance criteria of the US EPA WaterSense Specification for Tank-Type Toilets.
Note: The effective flush volume of dual flush toilets is defined as the composite, average flush volume of two reduced flushes and one full flush.

402.6 Urinals.

Wall-mounted urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush.

Floor-mounted urinals. The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush.

402.7 Showerheads.

Single shower head. Shower Heads shall have a maximum flow rate of not more than 1.8 gallons per minute at 80 psi. Shower Heads shall be certified to the performance criteria of the US EPA WaterSense Specification for Showerheads.

Multiple shower heads serving one shower. When a shower is served by more than one shower head, the combined flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi, or the shower shall be designed to allow only one shower outlet to be in operation at a time.
Note: A hand-held shower shall be considered a showerhead.

402.8 Faucets and fountains.

Nonresidential lavatory faucets.
Lavatory faucets shall have a maximum flow rate of not more than 0.5 gallons per minute at 60 psi.

Kitchen faucets.
Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute at 60 psi. Kitchen faucets may temporarily increase the flow above the maximum rate, but not to exceed 2.2 gallons per minute at 60 psi, and must default to a maximum flow rate of 1.8 gallons per minute at 60 psi.

Wash fountains.
Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute/20 [rim space (inches) at 60 psi].

Metering faucets.
Metering faucets shall not deliver more than 0.20 gallons per cycle.

Metering faucets for wash fountains.
Metering faucets for wash fountains shall have a maximum flow rate of not more than 0.20 gallons per cycle/20 [rim space (inches) at 60 psi].
Note: Where complying faucets are unavailable, aerators or other means may be used to achieve reduction.

402.9 Food waste disposers.

Disposers shall either modulate the use of water to no more than 1 gpm when the disposer is not in use (not actively grinding food waste/no-load) or shall automatically shut off after no more than 10 minutes of inactivity. Disposers shall use no more than 8 gpm of water.

SECTION 403 OUTDOOR WATER USE

403.1 Outdoor potable water use in landscape areas

WATER EFFICIENT LANDSCAPE WORKSHEET

A project applicant shall complete the Water Efficient Landscape Worksheet which contains information on the plant factor, irrigation method, irrigation efficiency, and area associated with each hydrozone. Calculations are then made to show that the evapotranspiration adjustment factor (ETAF) for the landscape project does not exceed a factor of 0.55 for multi-family residential areas and 0.45 for non-residential areas, exclusive of Special Landscape Areas. The ETAF for a landscape project is based on the plant factors and irrigation methods selected. The Maximum Applied Water Allowance is calculated based on the maximum ETAF allowed (0.55 for multi-family residential areas and 0.45 for non-residential areas) and expressed as annual gallons required. The Estimated Total Water Use (ETWU) is calculated based on the plants used and irrigation method selected for the landscape design. Estimated Total Water Use (ETWU) must be below the Maximum Applied Water Allowance (MAWA.)

In calculating the MAWA and ETWU, a project applicant shall use historic Evapotranspiration values for the relevant County as issued by the Florida Automated Weather Network and UF | IFAS Extension.

Water budget calculations shall adhere to the following

- The plant factor used shall be from horticultural researchers with academic institutions or professional associations. The plant factor ranges from 0 to 0.1 for very low water using plants, 0.1 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
- All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.
- All Special Landscape Areas shall be identified and their water use calculated.

- ETAF for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package.

Reference Evapotranspiration (ETo) _____

Hydrozone # /Planting Description[a]	Plant Factor (PF)	Irrigation Method[b]	Irrigation Efficiency (IE)[c]	ETAF (PF/IE)	Landscape Area (sq, ft,)	ETAF x Area	Estimated Total Water Use (ETWU)[e]
Regular Landscape Areas							
				Totals	(A)	(B)	
Special Landscape Areas							
	[redacted]			1			
				1			
				1			
				Totals	(C)	(D)	
						ETWU Total	
						Maximum Allowed Water Allowance (MAWA)[e]	

[a] ***Hydrozone #/Planting Description***
E.g
1.) front lawn
2.) low water use plantings
3.) medium water use planting

[b] ***Irrigation Method***
overhead spray or drip

[c] ***Irrigation Efficiency***
0.75 for spray head
0.81 for drip

[d] ***ETWU*** **(Annual Gallons Required) =**
Eto x 0.62 x ETAF x Area
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

[e] ***MAWA (Annual Gallons Allowed)*** = *(Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]*
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	(B)
Total Area	(A)
Average ETAF	**B ÷ A**

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

All Landscape Areas

Total ETAF x Area	(B+D)
Total Area	(A+C)
Sitewide ETAF	**(B+D) ÷ (A+C)**

SOIL MANAGEMENT REPORT

In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, or his/her designee, as follows:

- Submit soil samples to a laboratory for analysis and recommendations.
    - Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
- The soil analysis shall include:
    - soil texture;
    - infiltration rate determined by laboratory test or soil texture infiltration rate table;
    - pH;
    - total soluble salts;
    - Sodium;
    - percent organic matter; and
    - Recommendations.
- In projects with multiple landscape installations (i.e. production home developments) a soil sampling rate of 1 in 7 lots or approximately 15% will satisfy this requirement. Large landscape projects shall sample at a rate equivalent to 1 in 7 lots.
    - The project applicant, or his/her designee, shall comply with one of the following:
        - If significant mass grading is not planned, the soil analysis report shall be submitted to the local agency as part of the Landscape Documentation Package; or
        - If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.
        - The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make any necessary adjustments to the design plans.
        - The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with Certificate of Completion.

LANDSCAPE DESIGN PLAN

For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

Plant Material

Any plant may be selected for the landscape, providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance. Methods to achieve water efficiency shall include one or more of the following:

- Protection and preservation of native species and natural vegetation;
- selection of water-conserving plant, tree and turf species, especially local native plants;
- selection of plants based on local climate suitability, disease and pest resistance;
- selection of trees based on applicable local tree ordinances or tree shading guidelines, and size at maturity as appropriate for the planting area; and
- selection of plants from local and regional landscape program plant lists.

Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use.

Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. Methods to achieve water efficiency shall include one or more of the following:

- Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure [e.g., buildings, sidewalks, power lines]; allow for adequate soil volume for healthy root growth; and consider the solar orientation for plant placement to maximize summer shade and winter solar gain.
- Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).
- High water use plants, characterized by a plant factor of 0.7 to 1.0, are prohibited in street medians.
- The use of invasive plant species, such as those listed by the Florida Invasive Species Council (FISC), is strongly discouraged.

- The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

Water Features

- Recirculating water systems shall be used for water features.
- Where available, recycled water shall be used as a source for decorative water features.
- Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.
- Pool and spa covers are highly recommended.

Soil Preparation, Mulch and Amendments

- Prior to the planting of any materials, compacted soils shall be transformed to a friable condition. On engineered slopes, only amended planting holes need meet this requirement.
- Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected.
- For landscape installations, compost at a rate of a minimum of four cubic yards per 1,000 square feet of permeable area shall be incorporated to a depth of six inches into the soil. Soils with greater than 6% organic matter in the top 6 inches of soil are exempt from adding compost and tilling.
- A minimum three inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated. To provide habitat for beneficial insects and other wildlife, up to 5 % of the landscape area may be left without mulch. Designated insect habitat must be included in the landscape design plan as such.
- Stabilizing mulching products shall be used on slopes that meet current engineering standards.
- The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.
- Organic mulch materials made from recycled or post-consumer shall take precedence over inorganic materials or virgin forest products unless the recycled post-consumer organic products are not locally available. Organic mulches are not required where prohibited by local ordinances.

The landscape design plan, at a minimum, shall:

- delineate and label each hydrozone by number, letter, or other method;
- identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
- identify recreational areas;
- identify areas permanently and solely dedicated to edible plants;
- identify areas irrigated with recycled water;
- identify type of mulch and application depth;
- identify soil amendments, type, and quantity;
- identify type and surface area of water features;
- identify hardscapes (pervious and non-pervious);
- identify location, installation details, and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Project applicants shall refer to the local agency or Water Management Board for information on any applicable stormwater technical requirements. Stormwater best management practices are encouraged in the landscape design plan and examples are provided in Section 492.16.
- identify any applicable rain harvesting or catchment technologies and their 24-hour retention or infiltration capacity;
- identify any applicable graywater discharge piping, system components and area(s) of distribution;
- contain the following statement: “I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan”; and
- bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape.

IRRIGATION DESIGN PLAN

This section applies to landscaped areas requiring permanent irrigation, not areas that require temporary irrigation solely for the plant establishment period. For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design

criteria shall be submitted.

System

Landscape water meters, defined as either a dedicated water service meter or private submeter, shall be installed for all non-residential irrigated landscapes of 1,000 sq. ft. but not more than 5,000 sq.ft. and multi-family residential irrigated landscapes of 5,000 sq. ft. or greater. A landscape water meter may be either:

- a customer service meter dedicated to landscape use provided by the local water purveyor; or
- a privately owned meter or submeter.

Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems.

If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.

If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system.

Static water pressure, dynamic or operating pressure, and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation.

Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.

Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to

minimize water loss in case of an emergency (such as a main line break) or routine repair.

Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the applicable local agency code (i.e., public health) for additional backflow prevention requirements.

Flow sensors that detect high flow conditions created by system damage or malfunction are required for all non-residential landscapes and multi-family residential landscapes of 5000 sq. ft. or larger.

Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for the individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.

The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

- The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
- All irrigation emission devices must meet the requirements set in the American National Standards Institute (ANSI) standard, American Society of Agricultural and Biological Engineers'/International Code Council's (ASABE/ICC) 802-2014 “Landscape Irrigation Sprinkler and Emitter Standard, All sprinkler heads installed in the landscape must document a distribution uniformity low quarter of 0.65 or higher using the protocol defined in ASABE/ICC 802-2014.
- It is highly recommended that the project applicant or local agency inquire with the local water purveyor about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.
- In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
- Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.

- Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
- Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to hardscapes or in high traffic areas of turfgrass.
- Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.
- Areas less than ten (10) feet in width in any direction shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray.
- Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:
    - the landscape area is adjacent to permeable surfacing and no runoff occurs; or
    - the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
- Slopes greater than 25% shall not be irrigated with an irrigation system with an application rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

Hydrozone

- Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.
- Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
- Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf to facilitate the appropriate irrigation of trees. The mature size and extent of the root zone shall be considered when designing irrigation for the tree.
- Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:

    - The plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
    - The plant factor of the higher water using plants is used for calculations.
- Individual hydrozones that mix high and low water use plants shall not be permitted.
- On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve.

The irrigation design plan, at a minimum, shall contain:

- location and size of separate water meters for landscape;
- location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices;
- static water pressure at the point of connection to the public water supply;
- flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
- recycled water irrigation systems
- the following statement: “I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan”; and
- the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system.

Irrigation Scheduling

For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health.

Irrigation schedules shall meet the following criteria:

- Irrigation scheduling shall be regulated by automatic irrigation controllers.
- Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. If allowable hours of irrigation differ from the local water purveyor, the stricter of the two shall apply. Operation of the irrigation

system outside the normal watering window is allowed for auditing and system maintenance.

- For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., from the Florida Automated Weather Network (FAWN)) or soil moisture sensor data.
- Parameters used to set the automatic controller shall be developed and submitted for each of the following:
    - the plant establishment period;
    - the established landscape; and
    - temporarily irrigated areas.

Each irrigation schedule shall consider for each station all of the following that apply:

- irrigation interval (days between irrigation);
- irrigation run times (hours or minutes per irrigation event to avoid runoff);
- number of cycle starts required for each irrigation event to avoid runoff;
- amount of applied water scheduled to be applied on a monthly basis;
- application rate setting;
- root depth setting;
- plant type setting;
- soil type;
- slope factor setting;
- shade factor setting; and
- irrigation uniformity or efficiency setting.

Landscape and Irrigation Maintenance Schedule

Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.

A regular maintenance schedule shall include, but not be limited to, routine inspection; auditing, adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; topdressing with compost, replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing obstructions to emission

devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

Repair of all irrigation equipment shall be done with the originally installed components or their equivalents or with components with greater efficiency.

A project applicant is encouraged to implement established landscape industry sustainable Best Practices for all landscape maintenance activities.

Irrigation Efficiency

For the purpose of determining Estimated Total Water Use, average irrigation efficiency is assumed to be 0.75 for overhead spray devices and 0.81 for drip system devices.

Recycled Water Systems

The installation of recycled water irrigation systems shall allow for the current and future use of recycled water.

All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.

Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor (ETAF) for new and existing (non-rehabilitated) Special Landscape Areas shall not exceed 1.0.

Graywater Systems

Graywater systems promote the efficient use of water and are encouraged to assist in on-site landscape irrigation.

Water Waste Prevention

Local agencies shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff from leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures. Penalties for violation of these prohibitions shall be established locally.

S11763Text Modification

Restrictions regarding overspray and runoff may be modified if:

- the landscape area is adjacent to permeable surfacing and no runoff occurs; or
- the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.

Page: 54

Mod_11763_Text_Florida Building Code Appendix P.pdf

SECTION 501 – FLOOD-RESISTANT CONSTRUCTION

Reference: Building Code Requirements That Exceed or Are More Specific Than the National Flood Insurance Program

501.1 Intent

The intent of this section is to provide additional protections beyond those required by the Florida Building Code, Building, Section 1612, Flood Loads, ASCE 7, Minimum Design Loads and Associated Criteria for Buildings and other Structures (Chapter 8) and ASCE 24, Flood Resistant Design and Construction.

This section and the flood load and flood-resistant construction requirements of the Florida Building Code, Building are to establish minimum requirements to safeguard the public health, safety, and general welfare and to minimize public and private losses due to flooding through regulation of development in flood hazard areas to:

1. Minimize unnecessary disruption of commerce, access and public service during times of flooding.
2. Require the use of appropriate construction practices in order to prevent or minimize future flood damage.
3. Minimize damage to public and private facilities and utilities.
4. Help maintain a stable tax base by providing for the sound use and development of flood prone areas.
5. Minimize the need for future expenditure of public funds for flood control projects and response to and recovery from flood events.

Requirements set forth in this section shall not supersede more stringent local code requirements.

501.2 Scope

The provisions of this section shall apply to all existing construction and new construction that are located in a *flood hazard area* as established in Section 1612, Flood Loads of this code.

SECTION 502 SPECIAL REQUIREMENTS FOR CRITICAL FACILITIES

502.1 Intent

Promote the health, safety and general welfare, and to minimize losses due to flood hazards and flood loads to facilities classified as critical either because of the services they provide (e.g., hospitals) or their importance during an emergency (e.g., storm shelters) by establishing regulations that reduce disruption of the use of the structure during and after a flood event.

502.2 Scope

Critical Facilities, as defined in Sections 201.1 and 502.3 of this appendix, shall be constructed as Risk Category III and IV structures in accordance with the Florida Building Code, Building, Section 1604.5, Risk Category and Table 1604.5, Risk Category of Buildings and Other Structures.

502.3 List of Critical Facilities

- Storm shelters (as per the Florida Building Code, Building, Section 423)
- Hospitals and health care facilities (as per the Florida Building Code, Building, Section 449);
- Jails, correctional facilities and detention facilities;
- Facilities used in communications, operation centers, communication towers, electrical substations, back-up generators, fuel or water storage tanks, power generating stations and other public utility facilities;
- Major food distribution centers (with an annual expected volume of greater than 170,000,000 pounds);
- Infrastructure in transportation, telecommunications, or power networks including bridges, tunnels (vehicular and rail), traffic signals, (and other right of way elements including street lights and utilities), power transmission facilities, substations, circuit breaker houses, city gate stations, arterial roadways, telecommunications central offices, switching facilities, etc.;
- Ventilation buildings and fan plants;
- Operations centers;
- Pumping stations (sanitary and stormwater);
- Train and transit maintenance yards and shops;
- Wastewater treatment plants;
- Water supply infrastructure;
- Combined-sewer overflow (CSO) retention tanks;
- Fueling stations;
- Waste transfer stations; and

- Facilities where residents have limited mobility or ability, including care facilities and nursing homes (as per the Florida Building Code, Building, Section 450).

SECTION 503 EXISTING BUILDINGS

503.1 Intent

The Florida Building Code, Existing Buildings, Section 401.5, Flood Loads, addresses only buildings in flood hazard areas going through *repairs, alterations, additions and/or rehabilitation* that constitute *substantial improvements*, requiring resistance to the effects of flood hazards and flood loads as per Section 1612. This section provides measures to increase flood damage resistance of existing buildings in flood hazard areas that are going through *repairs, alterations, additions and/or rehabilitation* that do not constitute *substantial improvement*.

503.2 General.

In flood hazard areas, any *repair, alteration ,addition and/or rehabilitation* shall include all requirements *technically feasible* from the Florida Building Code - Building, Section 1612, Flood Loads.

503.3 Additional Requirements.

503.3.1 Protection of mechanical, plumbing, electrical, and life safety systems

Mechanical, plumbing, electrical, and life safety systems (including but not limited to HVAC units, emergency generators, duct work, alarm systems, electrical panels, electrical distribution, switching areas, gas and electrical meters, suppression equipment, telecommunications equipment, motors and controllers, fuel storage tanks) shall be elevated to or above the design flood elevation in *repairs*, *alterations*, *additions* and/or *rehabilitation* that do not constitute substantial improvement occurring below the design flood elevation in buildings in flood hazard areas. Exceptions may be made for life safety, egress, and low voltage components when necessary.

503.3.2 Dry Flood Proofing

The objective of dry floodproofing is to seal the portion of a structure (walls and other exterior components) that is below the design flood elevation making it watertight and impermeable to floodwaters as recommended by the Coastal Construction Manual FEMA P-55, Chapter 15.3.3.

503.3.3 Wet Flood Proofing

Wet floodproofing involves modifying a building to allow floodwaters to enter it in such a way that damage to the structure and its contents is minimized. Wet floodproofing is often used in a non-habitable understory of structures in flood prone areas, where the first habitable floor is elevated above the design flood elevation. The Coastal Construction Manual FEMA P-55, Chapter 15.3.4 provides guidance concerning wet proofing alternatives.

SECTION 504 FLOOD DAMAGE-RESISTANT MATERIALS

Reference: Coastal Construction Manual FEMA P-55, Chapter 9 and the FEMA National Flood Insurance Program (NFIP) Technical Bulletin 2 .

504.1 Intent

Not currently required by the Florida Building Code, Existing Buildings, the use of the proper materials could assist in avoiding significant future material losses and disruption to people's lives. This section encourages the use of flood damage-resistant materials in *repairs, alterations, additions and/or rehabilitation* that do not constitute a *substantial improvement* occurring below the design flood elevation in buildings in flood hazard areas.

504.2 Scope

Repairs, *alterations*, *additions* and/or *rehabilitation* that do not constitute a *substantial improvement* occurring below the design flood elevation in buildings in high hazard areas shall be constructed using flood damage-resistant materials as required by the Coastal Construction Manual FEMA P-55, Chapter 9.4, and the FEMA NFIP Technical Bulletin 2 .

504.3 Additional Interventions to Mitigate Flood Damage to Buildings

- Storm water damage by relocating them above the design flood elevation.
- Install backwater prevention valves.
- Install sump pumps.
- Direct floodwaters away from critical equipment and building access towards detention areas if available.
- Reduce impervious surfaces in the building vicinity by using permeable paving and drainage underlayment.

- Increase water infiltration by planting trees, grass/ground coverage vegetation and vegetated swales per Section 403.
- Create stormwater detention areas in the landscape.
- Provide exterior waterproofing.
- Utilize flood-resistant materials.
- Seal penetrations below the design flood elevation.
- Provide redundant/elevated conduit entrances.
- Install back-up power.

Raise utilities installed below design flood elevation building/structure footprint in the direction of flow of oncoming floodwaters, allowing for free passage of water at or more than sixty (60) percent of the footprint after breakaway construction has been dislodged and scour has taken place.

SECTION 505 ELEMENTS BELOW DESIGN FLOOD ELEVATION

505.1 Obstruction Free Design

Free of Obstruction. In order to reduce the effects of flow diversion, wave reflection, and wave runup, the use of permanent structural components and systems designed to resist the combined effects of wind and flood loads below the *Design Flood Elevation* must not block or impede the passage of water more than an aggregate forty (40) percent of the total width of the building/structure footprint in the direction of flow of oncoming floodwaters, allowing for free passage of water at or more than sixty (60) percent of the footprint after breakaway construction has been dislodged and scour has taken place.

505.2 Enclosed Areas

Enclosed areas below design flood elevation. Enclosed areas, including crawl spaces, that are below the design flood elevation shall be used solely for parking of vehicles, building access and/or storage. The enclosed area shall not be conditioned space (temperature controlled) or finished or partitioned except for one storage area no larger than one hundred (100) square feet with one dimension not to exceed six (6) feet, access stairwells, ramps, and elevators, unless a partition is required by the Fire Prevention Code. The limitation on partitions does not apply to load bearing walls interior to perimeter wall (crawlspace) foundations.

S11763Text Modification

505.3 Walls

Walls below *design flood elevation*. Walls and partitions are permitted below the elevated floor, provided that such walls and partitions are not part of the structural support of the building or structure and electrical, mechanical and plumbing system components are not mounted on or penetrate through such walls and partitions that are designed to break away under flood loads.

505.4 Accessory Structures

Accessory structures are permitted below the base flood elevation provided the accessory structures are used only for parking or storage and:

1. If located in special flood hazard areas (Zone A/AE) other than coastal high hazard areas or coastal A zones, they are one-story and not larger than six hundred (600) square feet.
2. If located in coastal high-hazard areas (Zone V/VE) or coastal A zones, they are not located below elevated buildings and are not larger than one hundred (100) square feet.

Page: 60

Mod_11763_Text_Florida Building Code Appendix P.pdf

MOISTURE

Section 301 of the proposed Florida Building Code Appendix focuses on moisture control in buildings, addressing the harmful effects of moisture migration into and through the building envelope which can degrade materials and negatively impact indoor air quality. The section provides guidance on designing and constructing resilient building envelope systems, with an emphasis on moisture control and additionally on improving energy efficiency, occupant health, and building longevity. It outlines the importance of adhering to the Florida Building Codes, Florida Product Approval (FPA) requirements, Notices of Acceptances (NOA's) in Miami-Dade and Broward Counties and stresses the need for clear and concise communication of detailed design intent and proper construction practices. Additionally, it highlights specific requirements for exterior walls, balconies, roofs, and terraces, including detailed drawing checklists and testing protocols.

RESOURCES -Water Efficiency and Conservation

With a growing population constantly increasing the need for water for both human habitation, industry, and agriculture, Florida is in a seemingly counterintuitive situation of running the risk of having an inadequate water supply for the State's needs. As the aquifer is increasingly drained, saltwater intrusion from the Atlantic Ocean and the Gulf of Mexico becomes an ever-greater risk. Water is a basic need of any human population and for the State to thrive and be resilient, without resorting to costly desalination plants and incurring water shortages, then we will need to ensure the population can live within its resources. Ensuring plentiful water is available to all will require greater efficiency in its usage and this Appendix provides the tools to achieve that.

FLOOD-RESISTANT CONSTRUCTION

The flood-resistant construction guidelines establish enhanced standards to protect public health, safety, and welfare by mitigating the impact of flood hazards. These guidelines aim to reduce flood-related damage, ensure continuous access to essential public services, and minimize economic loss. They apply to all new and existing construction in flood-prone areas, requiring the use of advanced construction practices that exceed the minimum standards set by the Florida Building Code and ASCE regulations. Critical facilities, such as hospitals, storm shelters, and essential infrastructure, are subject to stricter construction requirements to maintain functionality during and after flood events.

The guidelines also address flood resilience measures for existing buildings and design features below the flood elevation. Non-substantially improved buildings must incorporate flood-resistant retrofits, such as elevating essential equipment and employing dry or wet floodproofing techniques. The use of flood-damage-resistant materials is encouraged to

S11763Rationale

reduce repair costs and minimize disruptions following a flood. Additionally, the design of building elements below the flood elevation must allow the free passage of water, limit the use of enclosed spaces, and restrict the size and function of accessory structures in high-risk flood zones. These measures collectively aim to reduce the long-term costs of flood recovery, ensure public safety, and support community resilience.

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

2

SP11831

Date Submitted	02/06/2025	**Section**	453.12.1	**Proponent**	Aaron Phillips
Chapter	4	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11835, 11836, 11837, 11839, 11840, 11841, 11842

Summary of Modification

Clarify that roof assemblies not roof coverings are tested for fire resistance.

Rationale

This modification improves and clarifies terminology associated with roofing fire tests. It corrects instances where results of ASTM E108 or UL 790 tests are associated with "roofing materials" or "roofing systems" instead of a roof assembly. ASTM E108 and UL 790 tests cannot be performed on "roofing materials" or "roofing systems." They involve a roof covering (and sometimes other elements, such as insulation or underlayment) installed onto a roof deck. These tests are always performed on a roof assembly, which by definition includes a roof covering and a roof deck. The proposed modifications of this section are not intended to alter technical requirements. They are solely intended to clarify the existing provisions.

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
Improves clarity of the code regarding fire resistance provisions.

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

Improves clarity of the code regarding fire resistance provisions.

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

Improves the effectiveness of the code.

SP11831Text Modification

Revise as follows:

453.12.1 Class A materials. *Roof assemblies* shall be tested in accordance with ASTM E108 or UL 790 and *listed* as Class A. ~~All roofing materials shall be labeled Class A per ASTM E108 and shall be certified by a nationally recognized independent testing laboratory.~~ All *roof assemblies* ~~roofing systems~~ shall be installed within the limitations of the *listing* ~~test procedure~~ for surfacing, deck ~~cross~~ slope, and deck combustibility.

Page: 1

Mod11831_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

3

F11835

Date Submitted	02/06/2025	**Section**	603.1	**Proponent**	Aaron Phillips
Chapter	6	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11831, 11836, 11837, 11839, 11840, 11841, 11842

Summary of Modification

Clarify that roof assemblies not roof coverings are tested for fire resistance.

Rationale

This modification improves and clarifies terminology associated with roofing fire tests. It corrects instances where results of ASTM E108 or UL 790 tests are associated with a "roof covering" instead of a roof assembly. ASTM E108 and UL 790 tests cannot be performed on a "roof covering." They involve a roof covering (and sometimes other elements, such as insulation or underlayment) installed onto a roof deck. These tests are always performed on a roof assembly, which by definition includes a roof covering and a roof deck.

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
Improves clarity of the code regarding fire resistance provisions.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improves clarity of the code regarding fire resistance provisions.

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

Improves the effectiveness of the code.

F11835Text Modification

Revise as follows:

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* above *grade 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 assemblies* ~~Roof coverings~~ that have an A, B or C classification.

[Remaining numbered items are not changed.]

Page: 1

Mod11835_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

4

F11836

Date Submitted	02/06/2025	**Section**	705.11	**Proponent**	Aaron Phillips
Chapter	7	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11831, 11835, 11837, 11839, 11840, 11841, 11842

Summary of Modification

Clarify that roof assemblies not roof coverings are tested for fire resistance.

Rationale

This modification improves and clarifies terminology associated with roofing fire tests. It corrects instances where results of ASTM E108 or UL 790 tests are associated with a "roof covering" instead of a roof assembly. ASTM E108 and UL 790 tests cannot be performed on a "roof covering." They involve a roof covering (and sometimes other elements, such as insulation or underlayment) installed onto a roof deck. These tests are always performed on a roof assembly, which by definition includes a roof covering and a roof deck.

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
Improves clarity of the code regarding fire resistance provisions.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improves clarity of the code regarding fire resistance provisions.

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

Improves the effectiveness of the code.

F11836Text Modification

Revise as follows:

705.11 Parapets.

Parapets shall be provided on *exterior walls* of buildings.

Exceptions: A parapet need not be provided on an *exterior wall* where any of the following conditions exist:

1. The wall is not required to be fire-resistance rated in accordance with Table 705.5 because of *fire separation distance*.
2. The building has an area of not more than 1,000 square feet (93 m2) on any floor.
3. Walls that terminate at roofs of not less than 2-hour fire-resistance-rated construction or where the roof, including the deck or slab and supporting construction, is constructed entirely of noncombustible materials.
4. One-hour fire-resistance-rated *exterior walls* that terminate at the underside of the roof sheathing, deck or slab, provided:
    - 4.1. Where the roof/ceiling framing elements are parallel to the walls, such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction for a width of 4 feet (1220 mm) for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
    - 4.2. Where roof/ceiling framing elements are not parallel to the wall, the entire span of such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction.
    - 4.3. Openings in the roof shall not be located within 5 feet (1524 mm) of the 1-hour fire-resistance-rated *exterior wall* for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
    - 4.4. The entire building shall be provided with not less than a Class B *roof assembly*~~roof covering~~.
5. In Groups R-2 and R-3 where the entire building is provided with a Class C *roof assembly*~~roof covering~~, the *exterior wall* shall be permitted to terminate at the underside of the roof sheathing or deck in Type III, IV and V construction, provided one or both of the following criteria is met:
    - 5.1. The roof sheathing or deck is constructed of *approved* noncombustible materials or of *fire-retardant-treated wood* for a distance of 4 feet (1220 mm).
    - 5.2. The roof is protected with 0.625-inch (16 mm) Type X gypsum board directly beneath the underside of the roof sheathing or deck, supported by not less than nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members for a minimum distance of 4 feet (1220 mm).
6. Where the wall is permitted to have not less than 25 percent of the *exterior wall* areas containing unprotected openings based on *fire separation distance* as determined in accordance with Section 705.8.

Page: 1

Mod11836_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

5

F11837

Date Submitted	02/06/2025	**Section**	706.6	**Proponent**	Aaron Phillips
Chapter	7	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11831, 11835, 11836, 11839, 11840, 11841, 11842

Summary of Modification

Clarify that roof assemblies, not roof coverings, are tested for fire resistance.

Rationale

This modification improves and clarifies terminology associated with roofing fire tests. It corrects instances where results of ASTM E108 or UL 790 tests are associated with a "roof covering" instead of a roof assembly. ASTM E108 and UL 790 tests cannot be performed on a "roof covering." They involve a roof covering (and sometimes other elements, such as insulation or underlayment) installed onto a roof deck. These tests are always performed on a roof assembly, which by definition includes a roof covering and a roof deck.

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
Improve clarity of the code regarding fire resistance provisions.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improve clarity of the code regarding fire resistance provisions.

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

Improves effectiveness of the code.

F11837Text Modification

Revise as follows:

706.6 Vertical continuity.

Fire walls shall extend from the foundation to a termination point not less than 30 inches (762 mm) above both adjacent roofs.

Exceptions:

1. Stepped buildings in accordance with Section 706.6.1.
2. Two-hour fire-resistance-rated walls shall be permitted to terminate at the underside of the roof sheathing, deck or slab, provided:
    2.1. The lower roof assembly within 4 feet (1220 mm) of the wall has not less than a 1-hour *fire-resistance rating* and the entire length and span of supporting elements for the rated roof assembly has a *fire-resistance rating* of not less than 1 hour.
    2.2. Openings in the roof shall not be located within 4 feet (1220 mm) of the *fire wall*.
    2.3. Each building shall be provided with not less than a Class B *roof assembly*~~roof covering~~.
3. Walls shall be permitted to terminate at the underside of noncombustible roof sheathing, deck or slabs where both buildings are provided with not less than a Class B *roof assembly*~~roof covering~~. Openings in the roof shall not be located within 4 feet (1220 mm) of the *fire wall*.
4. In buildings of Type III, IV and V construction, walls shall be permitted to terminate at the underside of combustible roof sheathing or decks, provided:
    4.1. There are no openings in the roof within 4 feet (1220 mm) of the *fire wall*,
    4.2. The roof is covered with a minimum Class B *roof assembly*~~roof covering~~, and
    4.3. The roof sheathing or deck is constructed of *fire-retardant-treated wood* for a distance of 4 feet (1220 mm) on both sides of the wall or the roof is protected with 5/8-inch (15.9 mm) Type X gypsum board directly beneath the underside of the roof sheathing or deck, supported by not less than 2-inch (51 mm) nominal ledgers attached to the sides of the roof framing members for a distance of not less than 4 feet (1220 mm) on both sides of the *fire wall*.
5. In buildings designed in accordance with Section 510.2, *fire walls* located above the 3-hour *horizontal assembly* required by Section 510.2, Item 1 shall be permitted to extend from the top of this *horizontal assembly*.
6. Buildings with sloped roofs in accordance with Section 706.6.2.

Page: 1

Mod11837_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

6

R11744

Date Submitted	02/05/2025	**Section**	1507.2.7.2	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11833 - coordinating mod for FBC, Building HVHZ section 11748 - coordinating mod for FBC, Residential 11745 - adds pointer in RAS 115

Summary of Modification

Add new requirements for wind resistance of asphalt hip and ridge shingles.

Rationale

Areas of roofing systems where wind flow is diverted, such as at hips and ridges, may generate larger uplift pressures, making the products installed in these areas more vulnerable to damage in windstorms. Post-storm investigations conducted by the Federal Emergency Management Agency and other stakeholders document the vulnerability of these transition areas. Although post-storm investigations do not identify specific causes for damage to hip and ridge shingles during wind events, the associated observations that products are sometimes damaged in these areas is a reason to consider improved testing or installation options to reduce the likelihood of damage. This modification adds a new requirement that hip and ridge shingles used on asphalt shingle roofs either demonstrate compliance to a third-party test that evaluates wind resistance or be installed using a prescriptive method designed to increase resistance to uplift in wind events. The prescriptive alternative recognizes common roof cements which comply with ASTM standards or other adhesives which are specified by the hip or ridge shingle manufacturer. Also, it clarifies that fasteners used to install hip and ridge shingles are to comply with the existing asphalt shingle fastener requirements. Finally, it makes an editorial change to position the reference to ASTM F1667 with the other fastener requirements instead of as a stand-alone sentence. UL 2375 is a fan-induced wind resistance test which is modified from ASTM D3161 specifically for testing hip and ridge shingles. Decks are constructed to simulate a roof ridge, and tests are conducted in two orientations (i.e., with fan-induced wind perpendicular or parallel to the ridge). Like ASTM D3161, UL 2375 is conducted at a fixed wind speed for two hours. As written, UL 2375 is performed at 60 mph. The proposal modifies the wind test speed to 110 mph to align with the Class F designation associated with ASTM D3161.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Introduces a new provision for enforcement.

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
Neutral or increase.
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
Improved performance of asphalt roofing systems in wind events.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improved performance of asphalt roofing systems in wind events.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Applies to hips and ridges on all asphalt shingle roofs.
Does not degrade the effectiveness of the code
Improves effectiveness of the code.

R11744Text Modification

Revise as follows:

1507.2.6 Fasteners. Fasteners for asphalt shingles, including hip and ridge shingles, shall be galvanized, stainless steel, aluminum or copper roofing nails, minimum 12-gage [0.105 inch (2.67 mm)] shank with a minimum 3/8-inch-diameter (9.5 mm) head, complying with ASTM F1667, of a length to penetrate through the roofing materials and a minimum of 3/4 inch (19.1 mm) into the roof sheathing. Where the roof sheathing is less than 3/4 inch (19.1 mm) thick, the nails shall penetrate through the sheathing. ~~Fasteners shall comply with ASTM F1667.~~

Add new sections as follows:

1507.2.7.2 Wind resistance of hip and ridge shingles. Hip and ridge shingles shall comply with Section 1507.2.7.2.1 or 1507.2.7.2.2.

1507.2.7.2.1 Testing of hip and ridge shingles. Hip and ridge shingles shall be tested and classified in accordance with the wind test requirements in UL 2375 modified to use a wind speed of 110 mph (177 km/hr). Hip and ridge shingle packaging shall bear a *label* to indicate compliance with the modified version of UL 2375.

1507.2.7.2.2 Prescriptive alternative for attaching hip and ridge shingles. Prior to installing each hip or ridge shingle, two minimum 1-inch diameter spots of roof cement complying with ASTM D3019 or ASTM D4586, or other adhesive specified by the hip or ridge shingle manufacturer, shall be placed on each side of the hip or ridge. The spots shall be placed near the leading edge and fully covered by the exposed portion of the hip or ridge shingle. Each hip or ridge shingle shall be fastened in accordance with the hip or ridge shingle manufacturer's installation instructions.

Add the following new standard in Chapter 35:

UL	UL LLC 333 Pfingsten Road Northbrook, IL 60062	
2375-2006	Outline for Hip and Ridge Shingles	

Page: 1

Mod11744_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

7

R11749

Date Submitted	02/11/2025	**Section**	1507.2.9.3	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11750 makes changes for FBC, Residential.

Summary of Modification

Clarify drip edge installation.

Rationale

Drip edge flashing is an important element of the roofing system, contributing to both proper water management and wind resistance of the roofing system in transitional areas. This proposal makes two important changes. First, it standardizes the spacing of drip edge fasteners for all conditions to a maximum of four inches. Second, it establishes minimum requirements for fasteners used to attach drip edge flashing by referring to the fasteners prescribed for installation of asphalt shingles. Inclusion of minimum requirements will help prevent use of improper fasteners which may contribute to issues. These changes are intended to improve wind resistance of asphalt shingle roofs in these important transitional areas.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Clarifies drip edge fastening requirements.
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
Clarifies requirements.

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

Clarifies requirements.

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

No discrimination.

Does not degrade the effectiveness of the code

Effectiveness of code is improved.

R11749Text Modification

Revise as follows:

1507.2.9.3 Drip edge. Provide drip edge at eaves and gables of shingle roofs. Overlap is 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 shall be installed over the underlayment. Self-adhering, ASTM D1970 underlayment may be installed over a primed drip edge flange. There shall be a minimum 4 inch~~es~~ (102 ~~51~~ mm) width of roof cement installed over the drip edge flange or the self-adhering underlayment. Drip edge shall be mechanically fastened a maximum of 4 ~~12~~ inches (102 ~~305~~ mm) on center with fasteners as specified in Section 1507.2.6. ~~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.~~

Page: 1

Mod11749_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

8

R11754

Date Submitted	02/04/2025	**Section**	1507.10.2	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11755 addresses FBC, Residential 11756 addresses FBC, Test Protocols

Summary of Modification

Remove withdrawn standards.

Rationale

Three standards which are no longer used are removed by this modification. D225 was withdrawn by ASTM in 2012 and is not cited within the Florida codes. D2822 was withdrawn in 2016. D2823 was withdraw in 2014. There are no products in the market manufactured to these standards. Also, the continued presence of D2822 and D2823 implies that asbestos containing materials are still used on roofs, which has not been the case for many years.

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

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

Does not discriminate, since materials meeting these standards are no longer available.

Does not degrade the effectiveness of the code

Improves effectiveness of the code.

R11754Text Modification

Revise Table 1507.10.2 as follows:

TABLE 1507.10.2 BUILT-UP ROOFING MATERIAL STANDARDS

[Only table rows shown are modified]

Asphalt cements used in roofing ASTM D3019; ~~D2822,~~ D4586

Asphalt coatings used in roofing ASTM D1227; ~~D2823,~~ D2824; D4479

Revise Table 1509.2

TABLE 1509.2 ROOF COATING MATERIAL STANDARDS

[Only table rows shown are modified]

~~Asphalt coating ASTM D2823~~

Revise Chapter 35 as follows:

~~D225-07 Specification for Asphalt Shingles (Organic Felt) Surfaced with Mineral Granules 1507.2.5~~

~~D2822/D2822M-05(2011) Specification for Asphalt Roof Cement, Asbestos Containing Table 1507.10.2~~

~~D2823/D2823M-05(2011)e1 Specification for Asphalt Roof Coatings, Asbestos Containing Table 1507.10.2~~

Page: 1

Mod11754_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

9

R11758

Date Submitted	02/04/2025	**Section**	1503.5	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11759 addresses FBC, Residential

Summary of Modification

Clarify roof ventilation.

Rationale

This modification clarifies the code's existing requirements regarding attic and enclosed rafter assembly ventilation by indicating that ventilation requires the presence of both intake and exhaust. An exception is added to direct users to Section 1203.3 for provisions related to unvented attic and unvented enclosed rafter assemblies.

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
Improves clarity of roof ventilation provisions.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improves clarity of roof ventilation provisions.
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

Improves effectiveness of the code.

R11758Text Modification

Revise as follows:

1503.5 Roof ventilation. Intake and exhaust vents for ventilation of *attic* and enclosed rafter assemblies~~Attic ventilation~~ shall be provided in accordance with Section 1203.2 and the vent product manufacturer's installation instructions.

Exception: Unvented attic and unvented enclosed rafter assemblies in accordance with Section 1203.3.

Page: 1

Mod11758_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

10

R11760

Date Submitted	02/04/2025	**Section**	1507.2.7.1	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Mod 11761 addresses for FBC, Residential.

Summary of Modification

Add units to asphalt shingle classification table for wind resistance.

Rationale

Although the units for the table are implied by reference to the basic wind speed figures in Chapter 16, which provide contours in miles per hour, making the units explicit in the table removes opportunity for confusion.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Improves clarity of the code.
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
Improves clarity of the code.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improves clarity of the code.
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
Improves effectiveness of the code.

R11760Text Modification

Revise first and second column headings of Table 1507.2.7.1 as follows:

TABLE 1507.2.7.1 CLASSIFICATION OF ASPHALT SHINGLES

MAXIMUM BASIC WIND SPEED FROM FIGURE 1609.3(1), 1609.3(2), 1609.3(3), 1609.3(4) or ASCE 7 (mph)	*Vasd* AS DETERMINED IN ACCORDANCE WITH SECTION 1609.3.1 (mph)	ASTM D3161 ASTM D7158

Page: 1

Mod11760_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

11

R11764

Date Submitted	02/04/2025	**Section**	1504.6	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Remove physical properties section.

Rationale

This Mod clarifies the code's intent by removing Section 1504.6, which requires accelerated weathering for roof coverings used on low-slope roofs to demonstrate no significant loss of tensile strength or breaking strength. The code requirement does not specifically define "significant loss." As a result, this requirement is difficult to interpret and enforce. Section 1506.2 already requires roofing products to conform to the applicable product standards prescribed in the code. Section 1507 (Requirements for Roof Coverings) defines the specific standards the products and materials shall meet. Such product standards include accelerated aging and weathering testing, and specific pass/fail criteria deemed appropriate for the products. For example, the product standard for TPO single-ply roof membranes, ASTM D6878, "Standard Specification for Thermoplastic Polyolefin-based Sheet Roofing," includes not only accelerated weathering resistance testing with no resulting cracks or crazing, but also ozone resistance testing (no cracks) and retention of physical properties after heat aging (max. 1.5% weight loss and no cracking when bent over a mandrel). As another example, modified bitumen membrane standards (e.g., ASTM D6162, D6163, D6164, D6222, D6223) rely on heat conditioning instead of accelerated weathering to evaluate degradation potential, because heat conditioning has been shown to be more appropriate for these products. Removing Section 1504.6 and relying on the testing in the product standards which is already prescribed within Section 1507 will not decrease the performance levels of roof coverings.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Clarify code provisions.

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

Neutral or decrease.

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

Remove a redundant and unnecessary code provision to simplify and clarify requirements.

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

Improves the code by removing a difficult to interpret provision which is covered more properly via standards compliance.

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

Improves effectiveness of the code.

R11764Text Modification

Revise as follows:

1504.6 RESERVED~~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.~~

Page: 1

Mod11764_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

12

R11788

Date Submitted	02/06/2025	**Section**	1507.2.7	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11789 addresses for FBC, Residential

Summary of Modification

Modify asphalt shingle attachment.

Rationale

This modification updates the asphalt shingle attachment section of the FBC, Building code. The existing requirements for four fasteners per strip shingle and two fasteners per individual shingle harken back to a day when three-tab strip shingles were the primary asphalt shingle product offering and interlocking shingles, which only required two fasteners per "individual" shingle due to their different width to length proportions, were more common. The modification adds specific guidance for interlocking shingles in recognition of the purpose for the current "individual shingle" requirement. The changes proposed herein align better with products in use today. In addition, the section title of 1507.2.5 is altered to align it with the section content and to differentiate it from the title of Section 1507.2. Finally, the title of Section 1507.2.7 is changed from "Attachment" to "Fastening" to make the title align better with the content.

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

Clarifies details of the code.

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

Clarifies details of the code.

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

Effectiveness of the code is improved.

R11788Text Modification

Revise as follows:

1507.2.5 Material standards~~Asphalt shingles~~. Asphalt shingles shall have self-seal strips or be interlocking and comply with ASTM D3462.

1507.2.7 Fastening~~Attachment~~. Asphalt shingles shall have the minimum number of fasteners required by the manufacturer and Section 1504.1. Asphalt shingles shall be secured to the roof with not less than four fasteners per ~~strip~~ shingle or two fasteners per partial ~~individual~~ shingle. Interlocking asphalt shingles shall have not less than two fasteners per shingle or partial shingle. Where the roof slope exceeds 21 units vertical in 12 units horizontal (21:12), asphalt shingles shall be installed in accordance with the manufacturer's installation instructions for steep-slope roof applications.

Page: 1

Mod11788_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

13

R11790

Date Submitted	02/06/2025	**Section**	1516.2.5	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11791, 11792

Summary of Modification

Properly identify ASTM E108 or UL 790 fire test results as classifications.

Rationale

ASTM E108 and UL 790 fire tests are performed on roof assemblies to establish a classification (Class A, B, or C) based on exposure to simulated fire sources originating outside the building. The outcome of these tests is a classification of the assembly. In contrast, ASTM E119 or UL 263 tests evaluate the duration for which building elements contain a fire, retain their structural integrity, or exhibit both properties during a predetermined test exposure. The result of these tests is expressed as a fire resistance rating. This proposal adjusts language to clarify the distinction between these important fire tests.

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
Clarifies an important safety requirement of the code.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Clarifies an important safety requirement of the code.

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

Improves the effectiveness of the code.

R11790Text Modification

Revise as follows:

1516.2.5

Waterproofing assemblies ~~assembly~~ must possess a Class A, Class B or Class C fire classification ~~rating~~ as required herein.

Page: 1

Mod11790_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

14

R11795

Date Submitted	02/06/2025	**Section**	1503.2	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent. Section 1503.2 primarily addresses parapet wall flashing and coping when this section under 1503 Weather Protection should address all types of flashing.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11795Text Modification

SECTION 1503 WEATHER PROTECTION

1503.2 Flashing.

Flashing shall be used to seal roofing systems, where the system is interrupted or terminated and shall be installed in such a manner ~~so as~~ to prevent moisture entering ~~the wall and roof through joints in copings,~~ through the *roof system* and component<u>s</u> ~~moisture-permeable materials~~, ~~and~~ at intersections with ~~parapet~~ walls and ~~other~~ penetrations through the *roof* ~~plane~~ *<u>system</u>*.

Page: 1

Mod11795_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

15

R11796

Date Submitted	02/06/2025	**Section**	1503.2.1	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent. Section 1503.2.1 Locations. Fails to address many locations where flashings are required. Because this section addresses all roof types, steep slope and low slope and different applications it requires a few exceptions.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11796Text Modification

SECTION 1503 WEATHER PROTECTION

1503.2.1 Locations.

Flashing shall be installed at wall and roof intersections, at roof edges ~~gutters~~, ~~wherever there is a change in roof slope or direction~~ around roof openings, penetrations and where there is a change in roof slope or direction or a change of roof covering types. Where flashing or other components ~~is of~~ are metal, the metal shall be corrosion resistant with a thickness of not less than provided in Table 1503.2 or incompliance with RAS 111.

Exceptions:

This requirement does not apply to hip and ridge junctions on steep slope roof coverings (2/12 or greater) other than those made of metal.

This requirement does not apply where there is a change in direction or roof slope of less than 25 degrees in low slope roof coverings (less than 2/12).

Page: 1

Mod11796_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

16

R11797

Date Submitted	02/06/2025	**Section**	1507.3.9	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading. Adds locations where flashing is needed beyond vertical surfaces.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11797Text Modification

1507.3 Clay and concrete tile.

1507.3.9 Flashing.

At ~~the juncture of the roof~~ Interruptions, terminations and penetrations of the roof system ~~vertical surfaces,~~. ~~f~~Flashing and/or counterflashing shall be ~~provided~~ installed 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, Seventh Edition* where the basic wind speed, Vasd, is determined in accordance with Section 1609.3.1.

Page: 1

Mod11797_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

17

R11798

Date Submitted	02/06/2025	**Section**	1507.4.6	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language Yes**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent. Section 1507.4 Metal roof panels does not have a flashing reference.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No Impact.
Impact to building and property owners relative to cost of compliance with code
No Impact.
Impact to industry relative to the cost of compliance with code
No Impact.
Impact to small business relative to the cost of compliance with code
No Impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

Alternate Language

1st Comment Period History

R11798-A1

Proponent Michael Silvers (FRSA) **Submitted** 4/14/2025 2:09:18 PM **Attachments** No

Rationale:

The term "metal roof panel manufacturer's" better reflects the section title. The modification to the Residential Sub Code was inadvertently not submitted.

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

No Impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11798-A1Text Modification

1507.4 Metal roof panels.
1507.4.6 Flashing
Flashing shall comply with this Chapter and the metal roof ~~covering~~ panel manufacturer's installation instructions.

Add the same revised language to Residential Sub Code.
R905.10 Metal roof panels
R905.10.6
Flashing shall comply with this Chapter and the metal roof panel manufacturer's installation instructions.

Page: 1

Mod11798_A1_TextOfModification.pdf

R11798Text Modification

1507.4 Metal roof panels.

1507.4.6 Flashing

Flashing shall comply with this Chapter and the metal roof covering manufacturer's installation instructions.

Page: 1

Mod11798_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

18

R11803

Date Submitted	02/06/2025	**Section**	1507.5.7	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No Impact.
Impact to building and property owners relative to cost of compliance with code
No Impact.
Impact to industry relative to the cost of compliance with code
No Impact.
Impact to small business relative to the cost of compliance with code
No Impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11803Text Modification

1507.5 Metal roof shingles

1507.5.7 Flashing.

Roof valley flashing shall be of corrosion-resistant metal of the same material as the roof covering or shall comply with the standards in Table 1507.4.3(1). The valley flashing shall extend at least 8 inches (203 mm) from the centerline each way and shall have a splash diverter rib not less than 0.75 inch (19.1 mm) high at the flow line formed as part of the flashing. Sections of flashing shall have an end lap of not less than 4 inches (102 mm).

1507.5.7.1 Flashing shall comply with this Chapter and the metal roof shingle manufacturer's installation instructions.

Page: 1

Mod11803_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

19

R11804

Date Submitted	02/06/2025	**Section**	1507.6.6	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No Impact.
Impact to building and property owners relative to cost of compliance with code
No Impact.
Impact to industry relative to the cost of compliance with code
No Impact.
Impact to small business relative to the cost of compliance with code
No Impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11804Text Modification

1507.6 Mineral-surfaced roll roofing.

1507.6.6 Flashing

Flashing shall comply with this Chapter and the mineral-surfaced roll roofing manufacturer's installation instructions.

Page: 1

Mod11804_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

20

R11805

Date Submitted	02/06/2025	**Section**	1507.7.7	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No Impact.
Impact to building and property owners relative to cost of compliance with code
No Impact.
Impact to industry relative to the cost of compliance with code
No Impact.
Impact to small business relative to the cost of compliance with code
No Impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11805Text Modification

1507.7 Slate shingles.

507.7.7 Flashing.

Flashing and counterflashing shall be made with sheet metal. Valley flashing shall be a minimum of 16 inches (381 mm) wide. Valley and flashing metal shall be a minimum thickness provided in Table 1503.2 nonferrous metal or stainless steel.

1507.7.7.1 Flashing shall comply with this Chapter and the slate shingle manufacturer's installation instructions.

Page: 1

Mod11805_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

21

R11806

Date Submitted	02/06/2025	**Section**	1507.8.8	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11806Text Modification

1507.8 Wood shingles.

1507.8.8 Flashing.

~~**Reserved.**~~ Flashing shall comply with this Chapter and the *Cedar Shake and Shingle Bureau New Roof Construction Manual.*

Page: 1

Mod11806_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

22

R11807

Date Submitted	02/06/2025	**Section**	1507.9.9	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11807Text Modification

1507.9 Wood shakes.

1507.9.9 Flashing.

~~**Reserved.**~~ Flashing shall comply with this Chapter and the *Cedar Shake and Shingle Bureau New Roof Construction Manual.*

Mod11807_TextOfModification.pdf Page: 1

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

23

R11808

Date Submitted	02/06/2025	**Section**	1507.10.4	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11808Text Modification

1507.10 Built-up roofs.

1507.10.4 Flashing

Flashing shall comply with this Chapter and the built-up roofing manufacturer’s installation instructions.

Page: 1

Mod11808_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

24

R11809

Date Submitted	02/06/2025	**Section**	1507.11.3	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Yas.

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.

R11809Text Modification

1507.11 Modified bitumen roofing.

1507.11.3 Flashing

Flashing shall comply with this Chapter and the modified bitumen roofing manufacturer’s installation instructions.

Page: 1

Mod11809_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

25

R11810

Date Submitted	02/06/2025	**Section**	1507.12.4	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11810Text Modification

1507.12 Single-ply roofing.

1507.12.4 Flashing

Flashing shall comply with this Chapter and the single-ply roofing manufacturer’s installation instructions.

Page: 1

Mod11810_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

26

R11811

Date Submitted	02/06/2025	**Section**	1507.16.2	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11811Text Modification

1507.16 Vegetative roofs, roof gardens and landscaped roofs.

1507.16.2 Flashing

Flashing shall comply with this Chapter and the vegetative roof, roof garden and landscaped roofs roof covering or waterproofing manufacturer's installation instructions.

Page: 1

Mod11811_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

27

R11812

Date Submitted	02/06/2025	**Section**	1507.17.9	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11812Text Modification

1507.17 Photovoltaic modules/shingles

1507.17.9 Flashing

Flashing shall comply with this Chapter and the photovoltaic module/shingle manufacturer’s installation instructions.

Page: 1

Mod11812_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

28

R11813

Date Submitted	02/06/2025	**Section**	1507.18.2	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11813Text Modification

1507.18 Solar photovoltaic panels and modules.

1507.18.2 Flashing

Flashing shall comply with this Chapter and the roof covering manufacturer's installation instructions.

Page: 1

Mod11813_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

29

R11833

Date Submitted	02/05/2025	**Section**	1518.7.4	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11744 - coordinating mod for FBC, Building 11748 - coordinating mod for FBC, Residential 11745 - adds pointer in RAS 115

Summary of Modification

Add new requirements for wind resistance of asphalt hip and ridge shingles.

Rationale

Areas of roofing systems where wind flow is diverted, such as at hips and ridges, may generate larger uplift pressures, making the products installed in these areas more vulnerable to damage in windstorms. Post-storm investigations conducted by the Federal Emergency Management Agency and other stakeholders document the vulnerability of these transition areas. Although post-storm investigations do not identify specific causes for damage to hip and ridge shingles during wind events, the associated observations that products are sometimes damaged in these areas is a reason to consider improved testing or installation options to reduce the likelihood of damage. This modification adds a new requirement that hip and ridge shingles used on asphalt shingle roofs either demonstrate compliance to a third-party test that evaluates wind resistance or be installed using a prescriptive method designed to increase resistance to uplift in wind events. The prescriptive alternative recognizes common roof cements which comply with ASTM standards or other adhesives which are specified by the hip or ridge shingle manufacturer. Also, it clarifies that fasteners used to install hip and ridge shingles are to comply with the existing asphalt shingle fastener requirements. UL 2375 is a fan-induced wind resistance test which is modified from ASTM D3161 specifically for testing hip and ridge shingles. Decks are constructed to simulate a roof ridge, and tests are conducted in two orientations (i.e., with fan-induced wind perpendicular or parallel to the ridge). Like ASTM D3161, UL 2375 is conducted at a fixed wind speed for two hours. As written, UL 2375 is performed at 60 mph. The proposal modifies the wind test speed to 110 mph to align with the Class F designation associated with ASTM D3161.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

New code provision to enforce.

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
Neutral or increase.
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
Improved performance of asphalt shingle roof systems in wind events.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improved performance of asphalt shingle roof systems in wind events.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Applies to hips and ridges of all asphalt shingle roofs.
Does not degrade the effectiveness of the code
Improves effectiveness of the code.

R11833Text Modification

Add new sections as follows:

1518.7.4 Wind resistance of hip and ridge shingles. Hip and ridge shingles shall comply with Section 1518.7.4.1 or 1518.7.4.2. Fasteners used to install hip and ridge shingles shall comply with Section 1517.5.1.

1518.7.4.1 Testing of hip and ridge shingles. Hip and ridge shingles shall be tested and classified in accordance with the wind test requirements in UL 2375 modified to use a wind speed of 110 mph (177 km/hr). Hip and ridge shingle packaging shall bear a *label* to indicate compliance with the modified version of UL 2375.

1518.7.4.2 Prescriptive alternative for attaching hip and ridge shingles. Prior to installing each hip or ridge shingle, two minimum 1-inch diameter spots of roof cement complying with ASTM D3019 or ASTM D4586, or other adhesive specified by the hip or ridge shingle manufacturer, shall be placed on each side of the hip or ridge. The spots shall be placed near the leading edge and fully covered by the exposed portion of the hip or ridge shingle. Each hip or ridge shingle shall be fastened in accordance with the hip or ridge shingle manufacturer's installation instructions.

Page: 1

Mod11833_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

30

R11838

Date Submitted	02/06/2025	**Section**	1513.1	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Remove unused definition.

Rationale

This modification deletes a defined term that is not used within the FBC, Building, FBC, Residential, or FBC, Test Protocols.

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
Improves clarity of the code regarding fire resistance provisions by removing an unused definition.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improves clarity of the code regarding fire resistance provisions.
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

Improves the effectiveness of the code.

R11838Text Modification

Revise as follows:

1513.1 Definitions

~~**FIRE-RESISTANT ROOF COVERING.** Any Class A, Class B or Class C roofing system applied to the appropriate deck type within the specified slope of the listed classification.~~

Page: 1

Mod11838_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

31

R11855

Date Submitted	02/07/2025	**Section**	1507.12	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

R905.12

Summary of Modification

Modification is similar to IBC to FBC R11581 which was denied due to overlap. It aligns the language in FBC-B and FBC-R.

Rationale

Modification is similar to IBC to FBC R11581 which was denied due to overlap. It aligns the language in FBC-B and FBC-R with the current IBC.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11855Text Modification

1507.12 Single-ply roofing. The installation of *single-ply membrane roof covering* roofing shall comply with the provisions of this section.

1507.12.1 Slope. *Single-ply membrane roof coverings* ~~roofs~~ shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope) for drainage.

1507.12.2 Material standards. *Single-ply membrane roof coverings* shall comply with the material standards in Table 1507.12.2.

TABLE 1507.12.2

SINGLE-PLY ROOFING MATERIAL STANDARDS

MATERIAL	MATERIALSTANDARD
Chlorosulfonated polyethylene (CSPE) or polyisobutylene (PIB)	ASTM D5019
Ethylene propylene diene monomer (EPDM)	ASTM D4637
Ketone Ethylene Ester (KEE)	ASTM D6754
Polyvinyl chloride (PVC)	ASTM D4434
Thermoplastic polyolefin (TPO)	ASTM D6878

Page: 1

Mod11855_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

32

R11858

Date Submitted	02/13/2025	**Section**	1518.8	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Reposition tile underlayment wind uplift test requirements.

Rationale

This modification clarifies the wind uplift resistance provisions for tile underlayment. In Section 1518.8.8, it establishes ASCE 7 as the reference for tile underlayment design loads. Section 1523.6.5.2.1 is modified to point to TAS 110, which directs the user to either TAS 103 or TAS 104 provisions based on the underlayment type. Tile underlayment uplift resistance is established using well recognized test methods FM 4474 and UL 1897. The uplift resistance determined through those tests is required to be included in the Product Approval to facilitate comparison with the design loads applicable to the project. With wind uplift requirements established directly in the body of the code, the presence of wind uplift in TAS 103 is no longer necessary, so the modification removes wind uplift from TAS 103. This rearrangement clarifies existing provisions without changing technical requirements.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Clarifies code provisions to aid enforcement.
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
Clarifies code provisions to simplify enforcement.

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

Clarifies code provisions to improve understanding and enhance enforcement.

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

Improves effectiveness of the code.

R11858Text Modification

Revise as follows:

1518.8.8

~~Reserved.~~ Uplift resistance of tile *underlayment* shall meet the component and cladding loads of ASCE 7.

1523.6.5.2.1 Underlayment

All underlayments used in discontinuous roof tile systems shall be tested in compliance with TAS 110. ~~TAS 103 and TAS 104, unless otherwise specifically listed in the applicable RAS.~~ Uplift resistance of tile *underlayment* shall be tested in accordance with FM 4474 or UL 1897. The uplift resistance value shall be included in the Product Approval.

Revise TAS 103 as follows:

1.2 The test procedures outlined in this Protocol cover the determination of ~~the Wind Uplift Resistance;~~ the Thickness; the Dimensional Stability; the Tear Resistance; the Breaking Strength; the Elongation; the Low Temperature Flexibility; the Ultraviolet Resistance; the Accelerated Aging Performance; the Cyclic Elongation Performance; the Water Vapor Transmission; the Compound Stability; the Puncture Resistance; the Tile Slippage ~~Slip-page~~ Resistance; the Peel Resistance; the Accelerated Weathering Performance of an underlayment material; the Tensile Adhesion properties of the exposed surface of the underlayment; and Granular Adhesion for granular surfaced underlayment.

1.3 These test methods appear in the following order: [Only the section 7 reference is modified; all others are unchanged]

Reserved~~Wind Uplift~~ 7

7. Reserved~~Wind Uplift~~

~~7.1 Adhered or mechanically attached tile underlayment or underlayment assemblies shall be tested in accordance with FM 4474 or UL 1897.~~

Page: 1

Mod11858_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

33

R11859

Date Submitted	02/07/2025	**Section**	1507.2.10	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

R905.2.9, EB706.3

Summary of Modification

Places existing language contained in EB706.3 Recovering versus replacement concerning coating of asphalt shingles to the more appropriate 1507.2 Asphalt Shingles section. The coating does not involve recovering or replacement.

Rationale

Places existing language contained in EB706.3 Recovering versus replacement Exception 5. concerning coating of asphalt shingles in the more appropriate 1507.2 Asphalt Shingles section. The coating addressed does not involve recovering or replacement. Changes are proposed to address correlate this in Existing Building and Residential sub codes.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11859Text Modification

1507.2.5 Asphalt shingles.

Asphalt shingles shall have self-seal strips or be interlocking and comply with ASTM D3462

1507.2.10 Coating of Asphalt Shingles.

Application of elastomeric and or maintenance coating systems over existing asphalt shingles shall be in accordance with the shingle manufacturer's approved installation instructions.

Page: 1

Mod11859_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

34

R11862

Date Submitted	02/07/2025	**Section**	1511.3	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

EB706.3 R908.3

Summary of Modification

Provides options to remove the upper (second) roof covering or roof system only. To preserve insulation from the lower roof system without removing it down to the roof deck. To use LWIC (Lightweight Insulating Concrete) that has been previously applied over an existing roof system.

Rationale

This modification provides the option to remove the upper (second) roof covering or roof system only, when recovering. The option to preserve insulation from the lower roof system without removing it down to the roof deck. An option to use LWIC (Lightweight Insulating Concrete) that has been previously applied over an existing roof system without removal down to the original roof deck.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11862Text Modification

1511.3 Recovering versus replacement.

New roof coverings shall not be installed without first removing all existing layers of roof coverings down to the roof deck where any of the following conditions occur:

1. Where the existing roof covering or roof system components ~~covering is~~ are water soaked or ~~has~~ have deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.
4. When blisters exist in any roofing, unless blisters are cut or scraped open and remaining materials secured down before applying additional roofing.
5. Where the existing roof covering is to be used for attachment for a new roof system and compliance with the securement provisions of Section 1504.1 of the *Florida Building Code, Building* cannot be met.

Exceptions:

1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
2. ~~Reserved.~~ Where two roof covering applications exist, and the upper roof system or roof coverings are removed leaving an existing or repaired substrate that is adequate for installation of a new approved roof covering or roof system.
3. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.
4. Where the existing roof assembly includes ~~an ice barrier~~ vapor barrier or self-adhering membrane that is adhered to the roof deck, the existing ~~ice barrier~~ membrane shall be permitted to remain in place and covered with an additional layer of ~~ice barrier~~ membrane in accordance with Section 1507.

Page: 1

Mod11862_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

35

R11868

Date Submitted	02/04/2025	**Section**	1515.1.3	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Clarify HVHZ test requirements.

Rationale

Existing language (i.e., "and other sections of this code") can be interpreted to mean that every aspect of the HVHZ code requirements must be tested by a testing laboratory. This is not the intention or the practice. This Mod offers new language to rectify the uncertainty in the existing language.

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
Clarifies requirements of the code.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Clarifies requirements of the code.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate, as it applies to all roofing assemblies which fall under the HVHZ provisions.

Does not degrade the effectiveness of the code
Improves effectiveness of the code.

R11868Text Modification

Revise as follows:

1515.1.3

Where testing is required, all ~~All~~ roofing assemblies shall be tested by a testing laboratory, certified by the certification agency in accordance with TAS 301, to confirm compliance with fire classification and other sections of this code.

Mod11868_TextOfModification.pdf Page: 1

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

36

R11900

Date Submitted	02/07/2025	**Section**	1516.2.1	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Changes the term “roof covering provision” to “roof assembly”. Which is defined in the code.

Rationale

Section 1516.2 states that certain materials shall be considered to meet Class A roof covering provisions. Class A is a test of an assembly or roof covering and not a “roof covering provision”.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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
Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11900Text Modification

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 a Class A *roof assembly* ~~covering provisions~~ without testing

Page: 1

Mod11900_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

37

R11901

Date Submitted	02/07/2025	**Section**	1515.2.5	**Proponent**	Michael Silvers (FRSA)
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Corrects what appears to be a typographical error by referring to TAS110 when the proper reference would be 100(A).

Rationale

Corrects what appears to be a typographical error by referring to TAS110 when the proper reference would be 100(A).

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11901Text Modification

1515.2.5 Ridge vents.

Ridge vents shall have a product approval, and shall be tested for wind driven rain in accordance with TAS ~~110~~ 100(A) and Section 1523.

Page: 1

Mod11901_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

38

R11947

Date Submitted	02/07/2025	**Section**	1517.4.1	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Remove marking requirement for ASTM standard roll goods.

Rationale

Product identification requirements for the HVHZ are spread across three sections of the code (i.e., 1517.4, 1517.4.1, and 1523.5). The primary requirement, present in 1517.4, is that all roofing components be identified as mandated by the product approval. This modification removes the requirement to apply a yellow line to roll goods which meet an ASTM standard because this practice is no longer useful. Its continued presence generates unnecessary waste of materials. Specifically, the modification eliminates Section 1517.4.1 and the second sentence in Section 1523.5. The intention is to simplify and clarify the product identification provisions.

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
Neutral or reduction.
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
Removes an unnecessary code requirement.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Removes an unnecessary code requirement.

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

Improves the effectiveness of the code.

R11947Text Modification

Revise as follows:

1517.4 Product identification

All roofing components shall be labeled and/or identified as mandated by the product approval.

1517.4.1

RESERVED ~~ASTM standard roll goods shall be marked with a yellow line to identify the ASTM standard, or such other marking as may be deemed appropriate by the product approval.~~

1523.5 Material labeling.

All products shall be identified with the product approval number or logo; or the manufacturer's name or logo. ~~ASTM standard roll goods shall be marked with a yellow line to identify the ASTM standard, or such other marking indicated in the product approval.~~

Page: 1

Mod11947_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

39

R11949

Date Submitted	02/12/2025	**Section**	1512	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Align roof assembly terminology across the FBC, Building.

Rationale

This modification corrects a terminology discrepancy between the non-HVHZ and HVHZ sections of the FBC, Building. The non-HVHZ portion uses the term "roof assembly," while the HVHZ section uses the term "roofing assembly." Not only do the terms differ, the definitions differ as well, although the elements which may be incorporated in a roof/roofing assembly agree (i.e., roof deck, vapor retarder, insulation, roof covering). All occurrences of "roofing assembly" in the HVHZ section are replaced with "roof assembly." The HVHZ definition of "roofing assembly" is replaced by the definition of "roof assembly." Acceptance of these changes will bring alignment on this important term and definition throughout all of Chapter 15.

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
Clarifies fire resistant provisions for roofing.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Clarifies fire resistant provisions for roofing.

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

Does not discrimintate.

Does not degrade the effectiveness of the code

Improves effectiveness of the code.

R11949Text Modification

Revise as follows:

1512.1 Scope.

Sections 1512 through 1525 set forth minimum requirements for the materials and installation of roofing components, roofing systems, ~~roofing assemblies~~ *roof assemblies* and the waterproofing thereof.

1512.2.1

All roofing components, roofing systems and ~~roofing assemblies~~ *roof assemblies* for construction regulated by this code shall comply with this chapter. All roofing components, roofing systems and ~~roofing assemblies~~ *roof assemblies* shall have a valid and current product approval. In the event that the manufacturers published literature or instructions are in conflict with those of the product approval, the product approval shall prevail. Where items specifically and expressly addressed in this chapter are in conflict with the product approval, the provisions of this chapter shall prevail.

1512.2.5 Workmanship standards.

All roofing work shall be performed by a qualified contractor licensed to perform roofing, in compliance with the tolerances, quality and methods of construction established herein or set forth in the standards adopted by these high-velocity hurricane zone requirements. ~~Roofing assemblies~~ *Roof assemblies* detailed in the product approval shall be installed in strict compliance with the method of application set forth in such product approval or, if not part of the product approval, in compliance with manufacturer's published application instructions, or as approved by the building official. (Aesthetic issues not affecting the performance of the roof are not part of this chapter.)

1512.3

Permits outside these high-velocity hurricane zone requirements shall comply with Section 105. Permits within the HVHZ shall be required for all work in connection with the application, repair or maintenance of any roofing component or any ~~roofing assembly~~ *roof assembly* and/or any of its components except as otherwise permitted in Section 105 of this code.

1512.3.2

The HVHZ Uniform Roofing Permit Application shall include calculations in accordance with Chapter 16 (High-Velocity Hurricane Zones) of this code, unless the ~~roofing assembly~~ *roof assembly* is less than the height/pressure threshold allowed in the applicable protocols herein.

1512.4.3.1

During application of any roofing system prior to the full concealment of the adhesion/attachment process to the roof deck or to the existing ~~roofing assembly~~ *roof assembly*.

1513.1 Definitions.

BASE SHEET. The bottom or first ply of a ~~roofing assembly~~ *roof assembly* over which subsequent roofing plies are applied. A base sheet may be designed for mechanical attachment, full or partial adhesion to the substrate.

BUILDING INTEGRATED PHOTOVOLTAIC ROOFING. A roofing product consisting of electricity generating photovoltaic component integrated into a roof covering.

"CLASS A" ~~ROOFING ASSEMBLY~~ ROOF ASSEMBLY. A ~~roofing assembly~~ *roof assembly* that, in combination with the roof slope, has been classified by an approved testing agency, with a listing and follow-up service, as "Class A" in compliance with ASTM E108 or UL 790.

Page: 1

Mod11949_TextOfModification.pdf

R11949Text Modification

"CLASS B" ~~ROOFING ASSEMBLY~~ ROOF ASSEMBLY. A ~~roofing assembly~~ *roof assembly* that, in combination with the roof slope, has been classified by an approved testing agency, with a listing and follow-up service, as "Class B" in compliance with ASTM E108 or UL 790.

"CLASS C" ~~ROOFING ASSEMBLY~~ ROOF ASSEMBLY. A ~~roofing assembly~~ *roof assembly* that, in combination with the roof slope, has been classified by an approved testing agency, with a listing and follow-up service, as "Class C" in compliance with ASTM E108 or UL 790.

RECOVERING. The process of covering an existing ~~roofing assembly~~ *roof assembly* with a new roofing system or a prepared roofing system.

ROOF ASSEMBLY. A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof covering, roof deck, and may include a vapor retarder, thermal barrier, insulation or similar substrate.

ROOF COVERING. An assembly of multiple field-applied components or a single component designed to weatherproof a building's top surface. A roof covering may be a ~~roofing assembly~~ *roof assembly* or form a portion thereof.

~~ROOFING ASSEMBLY. An assembly of interacting roofing components [includes the roof deck, vapor retarder (if present), insulation, and roof covering].~~

ROOFING COATINGS, ADHESIVES AND MASTICS. Any and all liquid materials applied to the roofing membrane layer to enhance ultraviolet light resistance; increase resistance to fire; increase reflectivity of the ~~roofing assembly~~ *roof assembly*; or, in some way, enhance the performance of the ~~roofing assembly~~*roof assembly*. Roofing coatings, adhesives or mastics shall not contain asbestos materials.

ROOFING COMPONENT. A roofing product that is incorporated into various ~~roofing assemblies~~*roof assemblies*.

1515.1.1

All continuous ~~roofing assemblies~~ *roof assemblies* shall be tested in compliance with FM Test Standards 4470 and/or 4471 (for metal roofing), as modified for the purposes of this code and set forth in TAS 114. Only those components listed within the ~~roofing assembly~~ *roof assembly* product approval shall be approved for use with the roof covering. ~~Roofing assemblies~~ *Roof assemblies* shall be acceptable for use in this code's jurisdiction providing they are in compliance with the fire classification required for the structure to which the ~~roofing assembly~~ *roof assembly* is to be installed.

1515.1.3

All ~~roofing assemblies~~ *roof assemblies* shall be tested by a testing laboratory, certified by the certification agency in accordance with TAS 301, to confirm compliance with the fire classification and other sections of this code.

1515.2.2 Minimum slope.

All ~~roofing assemblies~~ *roof assemblies* must be installed in compliance with the slope requirements specified in the product control approval, in compliance with Table 1515.2.

1515.2.3.3

Perimeter edge metal shall be fastened with nails or fasteners fabricated from similar or compatible material. The nails or fasteners shall be as set forth in the ~~roofing assembly~~ *roof*

Page: 2

Mod11949_TextOfModification.pdf

R11949Text Modification

assembly product approval.

1516.2

Fire-resistant ~~roofing assemblies~~ *roof assemblies* and coverings shall be provided on all structures. Fire classification of ~~roofing assemblies~~ *roof assemblies* and coverings shall be based on the exposure hazard as follows:

1516.2.4

All ~~roofing assemblies~~ *roof assemblies* shall be installed at a slope no greater than the maximum allowed for the required fire classification.

1517.6.2.4

Gravel stops shall be installed after all roofing felts have been applied, or in compliance with the application method set forth in the ~~roofing assembly~~ *roof assembly* product approval. All asphalt or

approved cold adhesive bonding areas shall be coated with ASTM D41 or ASTM D43, as required, and allowed to dry prior to application.

1518.5 Fiber cement shingles.

Fiber-cement shingles shall be applied in compliance with the shingle manufacturer's ~~roofing assembly~~ *roof assembly* product approval. The roofing system assembly product approval shall meet the following minimum requirements:

1518.6 Quarry slate.

Quarry slates shall be applied in compliance with the slate manufacturer's product approval. The ~~roofing assembly~~ *roof assembly* product approval shall meet the following minimum requirements:

1519.1 General.

All adhered roofing components shall be bonded to the various types of substrates in compliance with the requirements set forth in the ~~roofing assembly~~ *roof assembly* product approval and the following minimum requirements. The authority having jurisdiction may adopt RAS 150 as the means of complying with the requirements listed in this section.

1519.3

Asphalt types, as defined by ASTM D312, shall be employed in all ~~roofing assemblies~~ *roof assemblies*. Application of asphalt shall be in compliance with Table 1519.3A and Table 1519.3B or as detailed in the ~~roofing assembly~~ *roof assembly* product approval.

1519.5 Mechanical attachment.

All mechanically attached roofing components shall be attached to the various types of substrates in compliance with the requirements set forth in the ~~roofing assembly~~ *roof assembly* product approval and the following minimum requirements.

1519.5.1.3

Spacing of such fasteners shall be in compliance with patterns set forth in the ~~roofing assembly~~ *roof assembly* product approval.

1519.5.4 Other nailable decks.

Page: 3

Mod11949_TextOfModification.pdf

R11949Text Modification

The mechanical attachment of roofing components to other nailable decks shall be governed by the ~~roofing assembly~~ *roof assembly* product approval.

1519.7 Steel decks.

Steel decks shall be covered with a roof insulation panel having its own product approval and listed in the ~~roofing assembly~~ *roof assembly* product approval. Insulation panels shall be mechanically fastened in compliance with the mechanical attachment patterns listed in the ~~roofing assembly~~*roof assembly* product approval and in accordance with the provisions of RAS 117.

1519.12 Surfacing.

~~Roofing assemblies~~ *Roof assemblies* shall be surfaced in compliance with the product approval. Surfacing shall be in sufficient quantity to comply with the required fire classification. Aggregate surfacing shall not be used on slopes greater than 3:12. Aggregate shall be embedded in a flood coat of bitumen applied over a prepared top ply.

1519.14 Expansion joints.

Expansion joint covers and expansion joint components shall be constructed and installed in accordance with the ~~roofing assembly~~ *roof assembly* manufacturer's published literature.

1519.15 Venting ~~roofing assemblies~~ *roof assemblies*.

All roof assemblies shall be applied to a dry substrate. Vapor retarders shall be installed, where applicable, to reduce moisture vapor flow into insulation from the warm, humid building interior, leading to internal condensation. Vents shall be installed to assist in the expulsion of moisture vapor where such vapor may enter the ~~roofing assembly~~ *roof assembly* or moisture, as defined in Section 1521.12. Venting units shall not allow vapor to enter the ~~roofing assembly~~ *roof assembly* when the high vapor pressure side is above the roofing membrane.

1520.1 General.

All roof insulation shall have a product approval as an approved roofing component for use in ~~roofing assemblies~~ *roof assemblies*. All insulation shall be tested for physical properties in accordance with TAS 110.

1521.9

One additional roofing system may be applied over an original ~~roofing assembly~~ *roof assembly*, providing the existing ~~roofing assembly~~ *roof assembly* complies with the requirements of Section 1521.

1521.10

If the recover ~~roofing assembly~~ *roof assembly* is to be bonded to an existing roofing membrane, the existing roofing membrane shall be tested in compliance with TAS 124 for uplift resistance. The existing roofing membrane shall resist the design pressures calculated under Chapter 16 (High-Velocity Hurricane Zones) of this code. Test results shall be submitted with the uniform roofing permit application.

1521.11

If the recover ~~roofing assembly~~ *roof assembly* is mechanically attached through either a base sheet or insulation layer, the attachment assembly shall be field tested for fastener withdrawal resistance in compliance with TAS 105, and laboratory tested for pull-over resistance to insure compliance with wind uplift requirements set forth in Chapter 16 (High-Velocity Hurricane Zones) of this code. Test results shall be submitted with the uniform roofing permit application. Recover

Page: 4

Mod11949_TextOfModification.pdf

R11949Text Modification

~~roofing assembly~~ *roof assembly* anchor sheet or base sheet shall not be mechanically fastened directly to existing gravel roof unless all gravel is completely removed.

1521.12

Moisture content of the existing ~~roofing assembly~~ *roof assembly* to be covered by a new roofing system shall not exceed 5 percent by weight in the roofing membrane and 8 percent by weight in commercially manufactured rigid board roof insulation as verified by moisture survey performed in accordance with TAS 126. Test results shall be submitted with the Uniform Roofing Permit Application. Testing for moisture content shall not be required for existing lightweight insulating concrete, gypsum, and cementitious wood fiber roof decks. All existing lightweight insulating concrete, gypsum and cementitious wood fiber roof decks shall be tested in accordance with Section 1521.7 to confirm compliance with wind load requirements of Chapter 16 (High-Velocity Hurricane Zones).

1521.14.3

Insulation shall have a product approval as a roofing component approved for use as a part of the ~~roofing assembly~~ *roof assembly*. The insulation panels shall be bonded or mechanically attached in compliance with the product approval and RAS 117.

1521.18

Sprayed polyurethane foam (PUF) and elastomeric coating systems may be applied over existing ~~roofing assemblies~~ *roof assemblies* providing the PUF system has obtained a product approval, the deck has been prepared in compliance with the product approval and this code, the application is in strict compliance with the foam manufacturer's published application instructions for the environmental conditions at the time of application and post-application inspections conform to RAS 109.

1521.20

Lightweight insulating concrete shall not be applied over an existing roofing system unless the existing ~~roofing assembly~~ *roof assembly* is verified to be adequate to accept the new lightweight insulating concrete and is in compliance with the testing required herein.

1523.1 Scope.

This section defines the minimum testing requirements for substrates, roofing components, roofing systems and ~~roofing assemblies~~*roof assemblies*. All roofing products shall be tested for physical properties, water-infiltration, uplift performance and fire resistance, as addressed within this code.

1523.2 Application.

Testing for substrates, roofing components, roofing systems and ~~roofing assemblies~~ *roof assemblies* shall comply with the provisions herein and those of Florida Building Code, Building, TAS and RAS listed in this code.

1523.6.2.1.1

Physical properties testing for acrylic coatings used on spray applied polyurethane foam ~~roofing assemblies~~ *roof assemblies* shall be tested in compliance with ASTM D6083 and federal specification TTC-555B, Test Specification for Wind Driven Rain Infiltration Resistance.

Page: 5

Mod11949_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

40

R11953

Date Submitted	02/12/2025	**Section**	1513.1	**Proponent**	Aaron Phillips
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Align terminology between HVHZ and non-HVHZ sections of the FBC, Building.

Rationale

This modification aligns the defined term "roof covering" between the non-HVHZ and HVHZ portions of the FBC, Building. Confusion created by the use of different definitions for the same thing in different sections of the same code is eliminated by this modification, which applies the definition used in the non-HVHZ section to the HVHZ section.

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
Eliminates confusion of terminology for roof coverings.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Eliminates confusion of terminology for roof coverings.
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

Improves effectiveness of the code.

R11953Text Modification

Revise as follows:

1513.1 Definitions

ROOF COVERING. The covering applied to the roof deck for weather resistance, fire classification or appearance. ~~An assembly of multiple field applied components or a single component designed to weatherproof a building's top surface. A roof covering may be a roofing assembly or form a portion thereof.~~

Page: 1

Mod11953_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

41

R11995

Date Submitted	02/11/2025	**Section**	1525	**Proponent**	Gaspar Rodriguez
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Update the title to reflect the FBC 9th Edition 2026. Also, adding Perimeter Sizing Information section so that the permit applicant includes this information during the permitting process.

Rationale

Many applicants are not aware of the perimeter sizing requirements. It is realized during inspections when it can be a costly fix. The intent is to provide the information sooner in the process.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Intent is to provide information sooner, to avoid costly remedies later.
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
Intent is to provide information sooner, to avoid costly remedies later.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Does not change requirements.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
No change to code requirements.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
No changes.

Does not degrade the effectiveness of the code
Correct.

R11995Text Modification

See text below.

Mod11995_TextOfModification.pdf

Page: 1

R11995Text Modification

SECTION 1525 HIGH-VELOCITY HURRICANE ZONES—UNIFORM PERMIT APPLICATION

Florida Building Code 8th Edition (2026)

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 Tiles
☐	Asphalt Shingles	☐	Metal Panel/Shingles	☐	Wood Shingles/Shakes
		☐	Prescriptive BUR-RAS 150		

ROOF TYPE

☐ New roof ☐ Repair ☐ Maintenance ☐ Reroofing ☐ Recovering

ROOF SYSTEM INFORMATION

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

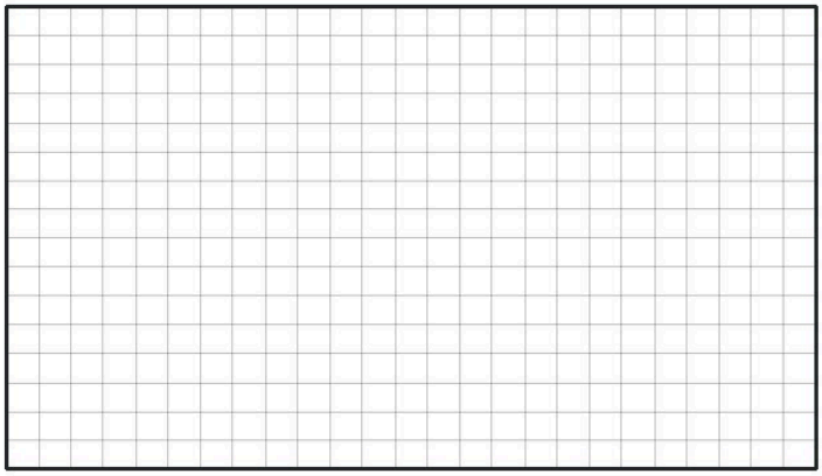
PERIMETER SIZING INFORMATION

ROOF Mean Height (RMH) ____FT Perimeter Width (0.6 x RMH) ____FT

Corner Length (0.6 x RMH) ____FT Corner Width (0.2 x RMH) ____FT

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.



Page: 1

Mod_11995_Text_Mod 11995 PDF.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

42

R11997

Date Submitted	02/11/2025	**Section**	1524	**Proponent**	Gaspar Rodriguez
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Replace roofing with reroofing. FBC 1524 requires owner's notification when reroofing. The current language, roofing, should actually indicate reroofing.

Rationale

This section of the code is for reroofing, many people provide this form during new construction, which is not necessary.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact, just clarifying language.
Impact to building and property owners relative to cost of compliance with code
No impact, just clarifying language.
Impact to industry relative to the cost of compliance with code
No impact, just clarifying language.
Impact to small business relative to the cost of compliance with code
No impact, just clarifying language.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
No impact, just clarifying language.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
No impact, just clarifying language.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
No impact, just clarifying language.

Does not degrade the effectiveness of the code

No impact, just clarifying language.

R11997Text Modification

SECTION 1524
HIGH-VELOCITY HURRICANE ZONES—
REQUIRED OWNER'S NOTIFICATION ~~FOR~~ WHEN REROOFING ~~CONSIDERATIONS~~

Page: 1

Mod11997_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

43

R12033

Date Submitted	02/12/2025	**Section**	1523.6.5.2.1	**Proponent**	Gaspar Rodriguez
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

This new language contains requirements that will allow for the testing of tile underlayment that do not completely comply with TAS 103 or TAS 104.

Rationale

Since the prescriptive code allowance for the 30/90 is being removed from the code, this required testing will address systems that do not fix precisely in TAS 103 or TAS 104.

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
Some manufacturers will need to provide testing for their products.
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
Does not discriminate.

Does not degrade the effectiveness of the code

Does not.

R12033Text Modification

SECTION 1523 HIGH-VELOCITY HURRICANE ZONES TESTING

1523.6.5.2.1 Underlayment.

All underlayments used in discontinuous roof tile systems shall be tested in compliance with TAS 110 Physical Property Requirements.~~103 and TAS 104, unless otherwise specifically listed in the applicable RAS~~. Uplift resistance of the tile underlayment shall be tested in compliance with FM 4474 or UL 1897. The uplift resistance shall be included in the Product Approval.

Page: 1

Mod12033_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

44

R12037

Date Submitted	02/12/2025	**Section**	1518.8.8	**Proponent**	Gaspar Rodriguez
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Add language to clarify that tile underlayment uplift must meet ASCE 7.

Rationale

Clarify that tile underlayment must meet the ASCE 7 load 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
Correct.
Does not degrade the effectiveness of the code
Correct.

R12037Text Modification

Chapter 15 Roof Assemblies and Rooftop Structures

1518.8.8. ~~Reserved.~~ Uplift resistance of the tile underlayment shall meet the component and cladding loads of ASCE 7.

Page: 1

Mod12037_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

45

R12038

Date Submitted	02/12/2025	**Section**	1522.2	**Proponent**	Jeanne Clarke
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

This section specifies that fully-ballasted systems are not allowed in the HVHZ

Rationale

Fully ballasted systems are problematic in that they can often exceed the design load of a roof, can move under wind load and may affect roof drainage systems

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
Avoids over-stressing existing structure
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Provides a reliable load-path
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
allows other systems to be used
Does not degrade the effectiveness of the code

It removes possibility of exceeding roof design limits

R12038Text Modification

1522.2.1 Fully ballasted systems are not allowed in the High Velocity Hurricane Zone.

Page: 1

Mod12038_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

46

R12042

Date Submitted	02/12/2025	**Section**	1522	**Proponent**	Jeanne Clarke
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

outlines requirements for approval of hybrid ballasted system

Rationale

While fully ballasted systems are not allowed in the HVHZ, a hybrid system can be used to reduce misalignment of the system and to reduce the amount of ballast rrequired

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
Reduces amount of load added to roof system
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Limits horizontal displacement (sliding) and load to roof
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
many alternate systems are available
Does not degrade the effectiveness of the code

Code is strengthened by providing clear guidelines

R12042Text Modification

1522.4 Hybrid Ballasted Systems

The design professional shall provide a complete design that includes the following verifications:

1. The hybrid system shall be able to resist the wind uplift pressures as calculated by ASCE7 Chapter 29.
2. The hybrid system must be able to resist the overturning and sliding wind forces as calculated by ASCE7 Chapter 29.
3. Structural calculations of the existing roof structure including the additional loads must be provided. The structure of a roof (deck, framing and connections) that supports the rooftop mounted structure shall be able to resist the full structure and ballast dead load.
4. Calculations of existing structure supporting rooftop mounted structures must include verification of strength (bending and shear), deflection and ponding due to rain load.
5. The counterweight single component (ballast) must be able to resist the wind load acting on the ballast unless it is secured to the rest of the components.
6. Dimensioned plans showing the connection locations and ballast location is required. This plan shall include wind pressure zones and values.
7. Complete detailing of the rooftop mounted structure along with manufacturer specifications must be provided.

Page: 1

Mod12042_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

47

R12064

Date Submitted	02/17/2025	**Section**	1504.3	**Proponent**	Robert Zabcik
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments Yes **Alternate Language No**

Related Modifications

12070

Summary of Modification

Testing requirements for edge and ridge metal systems for metal panel roofs over solid and closely fitted decks in hurricane-prone regions. (FBC)

Rationale

Note: Proposed new reference standard, ANSI/MCA FTS-1 2019 is attached to Mod 12070. The purpose of this proposal is to add new requirements to determination of wind load resistance values of metal roof panel assemblies over solid or closely fitted deck in hurricane-prone regions. These changes are consistent with the recommendations of FEMA P-2342. This proposal also aligns panel testing requirements in hurricane-prone regions with Section 8 of the Florida Building Code (FBC) Test Application Standard TAS-125. This is necessary because UL 580 testing ceases at Class 90 (105 psf net uplift/52.5 psf design load) and will not produce results addressing wind loads in the edge and corner zones required by ASCE 7 2016 in hurricane-prone regions. While UL 1897 does not have this limitation, it lacks the two 1-hour-long oscillating load sequences required by UL 580 and is generally considered less rigorous for that reason. Section 8 of TAS-125 addresses these issues quite well and the resulting practice is already widely used in the metal roofing industry. Finally, this proposal moves the other roofs section (Currently 1504.4.1) to 1504.4.5 as "other" is typically used at the end of a list, not the beginning. See attachment for technical explanation.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This proposal will not create any additional cost on the local entity as the product approval listings will be updated with the new requirements once the code goes into effect, but the permit submission and approval processes remain the same as current state.

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

Property owners could see a very slight increase in cost if manufactures carry additional costs to the consumer. However, the attachment shows this impact to be less than one percent increase.

This proposal will not impact industry other than as property owners covered above.

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

This proposal will not impact small business other than as property owners covered above.

Requirements

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

This proposal increases the HSW of the people of Florida as it directly addresses the water ingress and windborne debris risks identified by FEMA and RICOWI in their Hurricane Ian investigations, as well as other storms.

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

This proposal strengthens and improves the code as it directly and appropriately addresses the water ingress and windborne debris risks identified by FEMA and RICOWI in their Hurricane Ian investigations, as well as other recent storms.

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

This proposal does not discriminate against any existing materials, products or construction methods. It impacts only metal panel roofs over solid and closely fitted decks and is being proposed by a trade association representing companies which manufacture systems in that space.

Does not degrade the effectiveness of the code

This code change does not increase costs experienced by the consumer substantially, however it should result in an increase in the already long functional life span of metal roof over deck significantly. This will lower cost-of-ownership over the lifespan of the roof.

1st Comment Period History

R12064-G1

Proponent David Eng Submitted 4/16/2025 12:14:07 PM Attachments Yes

Comment:

Virtually every metal roofing panel tested to UL 580 is also tested to UL 1897—requiring Section 8 of TAS 125 is unnecessary and does not solve the indicated problem. Requiring metal trim to be tested to ANSI/MCA FTS-1 may be a helpful development, but as written is likely to be more disruptive and costly than currently assumed. A more thoroughly developed implementation plan is likely to deliver better results.

R12064Text Modification

1504.3 Unchanged

~~**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.~~

1504.3.1 Metal roof panel systems over deck. *Metal roof panels* applied to a solid or closely fitted deck in non-*hurricane-prone* regions shall be tested in accordance with FM 4474, UL 580, or Part I of UL 1897. *Metal roof panels* and related hip, ridge and edge systems in *hurricane-prone* regions shall be tested in accordance with Section 1504.3.1.1 and 1504.3.1.2.

1504.3.1.1 Metal roof panels. *Metal roof panels* in *hurricane-prone regions* shall be tested in accordance with UL 580 as modified by Section 8 of TAS-125.

1504.3.1.2 Metal edge systems. Metal hip, ridge, and edge systems, excluding gutters, shall be tested for uplift resistance in accordance with ANSI/MCA FTS-1.

1504.3.2 Unchanged

1504.3.3 Unchanged

1504.3.4 Other roof systems. Built-up, modified bitumen, fully adhered or mechanically attached single-ply roof systems, and other types of membrane roof coverings shall be tested in accordance with FM 4474, UL 580 or UL 1897.

Page: 1

Mod12064_TextOfModification.pdf

15 April 2025

To the Florida Building Commission and related committees,

Thanks for the opportunity to submit comments on proposed code modifications. While I support continuing to refine code requirements to protect life and property, I have concerns with the proposed modifications 12064 and 12077.

For background, I work with over 30 metal roofing manufacturers that sell products in the state of Florida. I provide consultation on developing testing portfolios and prepare evaluation reports for Florida product approvals pursuant to method D of FL Rule 61G20-3. The manufacturers I work with range in size from small businesses with just a single machine and a single product approval to large national conglomerates with over 100 product approvals.

Having worked specifically in the metal roofing space, I would note that metal roofing is a potentially unique segment of the roofing industry. Unlike asphalt shingles or tile with just a few large national players, the build-to-order nature of metal roofing has kept the metal roofing industry in FL fragmented. While there are a few large national players, a large portion of the industry is represented by many small local businesses producing panels and trim. As a proxy for fragmentation, on https://floridabuilding.org/, there are 2 pages of product approvals for *Roofing Tiles* and 2 pages for *Asphalt Shingles*. *Metal Roofing* has 20 pages. As such, the impact of changing testing requirements on a GAF or a Ludowici with large corporate resources are markedly different than the impact on a small, local manufacturer with limited resources.

Succinctly, my concerns are: 1.) requiring section 8 of TAS 125 is unnecessary/redundant and does not solve the indicated problem. And, 2.) the proposed requirement of ANSI/MCA FTS-1 is unclear and is likely to be more burdensome than considered in the impact statements.

Less succinctly, my concerns are thus:

1. Extending the requirements of Section 8 of TAS 125 to virtually all of FL is unnecessary, does not solve the indicated problem, and would result in significant costs.
    a. <u>This change is unnecessary; testing to UL 1897 is the de facto requirement.</u> If a manufacturer publishes a product approval with only UL 580, it will be listed with that 52.5 psf as the max design pressure from the class 90. Since this pressure is not useful in much of Florida, virtually every UL 580 test run also runs UL 1897. From what I've seen, this is how all the major labs quote the test (UL 580/1897)—you would have to

explicitly ask to only do UL 580. In several hundred product approvals, I think I've seen only one with just UL 580. *The testing and product approval process functionally already requires UL 1897, because the pressure from UL 580 class 90 is generally insufficient.*

b. Section 8 of TAS 125 does not solve the indicated problem. The stated problem is that "*UL 580 testing ceases at Class 90 (105 psf net uplift/52.5 psf design load) and will not produce results addressing wind loads in the edge and corner zones required by ASCE 7 2016 in hurricane-prone regions*".
TAS 125 does NOT solve for this problem either, as it does NOT require the additional static pressures after the conclusion of Phase 5 of Class 90—
TAS 125
8.7.4 Subsequent to the completion of Phase 5 of the Class 90 test sequence, the test specimen ***may*** be subjected to additional static uplift pressures. ***Continuation of the test to increased pressure levels is the option of the manufacturer***.
(https://codes.iccsafe.org/content/FLTP2023P1/testing-application-standard-tas-125-03-standard-requirements-for-metal-roofing-systems
with emphasis added)

c. While unnecessary, if this change was to be implemented, a more targeted and effective solution would be to require UL 1897 when UL 580 is used instead of requiring TAS 125. As noted, TAS 125 does not solve the indicated problem, however requiring UL 1897 when UL 580 is used *would* present both the cyclic loading of UL 580, while also testing to failure under UL 1897 to get the higher maximum design pressures. This would reduce or nearly eliminate the cost burden described in item d.) below, as virtually every approval predicated on UL 580 also includes a max design pressure form a UL 1897 test.

d. The cost burden to retest to TAS 125 is likely to be more significant than assumed, and likely insurmountable for many small businesses. While the 8 profiles referenced in the cost impact writeup is reasonable (rib, 5V, PBR, 1" nailstrip, 1.5" clipped snaplock, 1.75" clipped snaplock, 1.5" mechanical, 2.0" mechanical), most manufacturers carry a diverse portfolio of metals (e.g. 24ga, 26ga, 29ga, 032 aluminum) on a range of substrates (e.g. 15/32" plywood, 7/16" OSB, 1x4 battens on plywood/OSB, B-deck, etc). This commonly creates at least *3-4 configuration permutations per profile*, sometimes as many as 8-10+.
Note also that section 8 of *TAS 125 requires a minimum of (3) tests*, while UL580/1897 does not. (I.e. each TAS 125 test is really 3 UL 580 uplift

tests.) *For many manufacturers, 8 profiles would result in a requirement to run 50-150+ test decks*.
In the past 12 months, I routinely have seen a single UL580/UL1897 test (TAS 125 modified or not) quoted closer to the range of $3500-$4500. This is before considering the costs of materials, shipment, and labor, and before considering the costs of engineering/validation/state fees for the product approval.
For many of the manufacturers that I work with, to retest their portfolios to TAS 125 would likely drive $250,000+ in costs, some much more. Particularly in a world with uncertainty around steel/aluminum tariffs, this would be an insurmountable regulatory burden for many small businesses that produce metal roof panels.

e. The TAS 125 retest timeframe would be infeasible. With typically 6 months from final code publication to the effective date, and accounting for processing time for product approvals, many manufacturers would need to complete dozens to hundreds of tests within just a few months. This would create significant turmoil and is likely infeasible. Many small businesses already struggle just to revise/renew their existing approvals to the new code each cycle, without any retesting required.
f. Use of the *Hurricane-Prone* region in FL is likely to create confusion and would create additional impact to enforcement of the code. From a procedural standpoint, to date, the FBC has largely not used the *Hurricane-Prone* region designation from IBC. *High Velocity Hurricane Zone* and *Wind-Borne Debris Regions* and their respective requirements are somewhat understood, but imperfectly. Adding another regional classification should be done thoughtfully where the distinction adds significant value. Inasmuch as the *Hurricane-Prone* region includes most of the populated areas of Florida, the exclusion of a handful of counties risks creating more confusion.
Few manufacturers limit their sales region to these counties—most would likely test to the *Hurricane Prone* requirement anyway, so the exclusion is of limited value. If this requirement were to be implemented, it should just apply to all of FL. Use of the *Hurricane Prone* region would require plans examiners to explicitly look for an additional item on every product approval and for manufacturers and roofers to understand and track an additional distinction and the appropriate requirements.

2. While more rigorous codes for metal trim may be beneficial/necessary, as written, the proposal for ANSI/MCA FTS-1 is unclear and overly burdensome.

a. Lack of clarity on which trim items would require testing: “hip, ridge, and edge systems, excluding gutters” creates opportunity for numerous questions of interpretation. If this were to be implemented, the code should explicitly indicate the trim items which require testing to avoid varying interpretations.
b. The cost burden is likely to be more substantial than assumed. The cost impact statement assumes 4-8 styles of edge metal and $1,500/test. Depending on which items this test will be required, I would anticipate at the top end of that range. I imagine the following items might be covered by this requirement: high side cap, ridge/hip cap, gable rake, eave drip, sidewall, endwall, gambrel (7 items).
   Virtually every manufacturer carries one or more exposed fastener version(s) that is/are direct fastened, AND one or more standing seam version(s) that is/are cleated, resulting in likely at least 14 trim styles to be tested.
   Most manufactures also carry a variety of materials (24ga, 26ga, 032 aluminum) on a variety of substrates (15/32 plywood, 7/16 OSB, B deck), which can quickly climb to 5-10 permutations per trim item, potentially now reaching 100’s of tests per manufacturer.
   This does not consider that many manufactures offer multiple styles of cleats and varying installation methods, which would further increase the number of permutations to test. Some combinations and redesigns could reduce the number of total tests, but assuming 4-8 tests per manufacturer likely significantly underestimates the testing burden.
c. The 4” and 2” face exclusions may lead to unintended consequences. FTS-1 does not apply to flashings with faces less than 4” if direct fastened, nor does it apply to other flashings with faces less than 2”. This may lead to manufacturers simply reducing their flashing face sizes to avoid the testing requirement. While these flashings may perform for wind uplift based on the smaller exposed faces, the resulting assembles may be less protected from water intrusion and otherwise result in unideal designs.
d. The testing timeframe would be infeasible. As noted for the TAS 125, this would be a challenging ask for many metal roofing manufacturers. It is also unclear if sufficient testing capacity exists for what appears to be a fairly new test with currently limited application.
e. Prescriptive options should be provided, especially for direct fastened options. It is not uncommon for roofers to have a brake and bend their own trim on-site, especially for direct fastened trim/exposed fastener panels. These shapes will realistically never be tested by the roofer, and simple prescriptive options should be provided, similar to FBC

1507.2.9/R905.2.8 for asphalt shingles. Alternatively, an external document could be created similar to FRSA-TRI with a series of prescriptive options that do not require testing.

Obviously, I have a bias as a service provider—I would personally benefit from the additional consulting work created by these proposed modifications in their current form. Further, I have an ethical obligation as an engineer to hold paramount the safety/health/welfare of the public. Those items notwithstanding, I am skeptical if the proposed modifications will result in the desired outcomes, and am concerned that the proposed implementation will result in significant cost and turmoil, especially for small businesses.

I fully support continued refinement of the code to ensure that Florida structures can sufficiently protect occupants from the destructive natural forces of a storm. However, I would ask that the Commission and the appropriate committees carefully consider the most targeted ways to reach the desired goals of these modifications, and/or consider delaying these items until a more effective and less disruptive implementation can be designed.

Thank you for the opportunity present comments on this modification. I am available for follow-up and/or further conversation at david.eng@timberlakecove.com.

Very respectfully,

David Eng, PE
Technical Director, Timberlake Cove

Technical Background for Mod 12064 and 12070

The technical changes for this proposal fall into the following areas and are discussed in detail as shown below:

1. Addressing limitations of UL 580, which terminates at Class 90 instead of progressing to failure, and UL 1897, which does not require oscillation, by citing UL 580 as modified by Section 8 of TAS-125.
2. Introduces new test requirements for edge, hip and roof systems to address issues observed by FEMA and RICOWI in their Hurricane Ian investigations.

Item 1

Item 1 requires UL 580 testing as modified by Section 8 of TAS-125 in hurricane-prone regions in lieu of UL 580 or UL 1897 alone to determine appropriate wind load resistance values as represented by common industry practice.

UL 580 and 1897 are very different tests. UL 1897 utilizes steady-state load sequencing progressing until system failure and often takes less than 20 minutes to complete. However, UL 580 is designed to evaluate overall system integrity using a cyclic load sequence and yields a performance rating (Classification) from a fixed set of options. UL 580 involves two separate hour-long periods of cyclic loading and is generally considered the more rigorous test, but the test standard does not allow for additional testing to failure once the highest classification (Class 90) is achieved. Class 90 provides a net uplift value of 105 psf, which equates to a safe working load of 52.5 psf. With the current version of ASCE 7 Chapter 30, this result is not useful in the extreme edge or corner zones of roofs in hurricane-prone regions of the US. Section 8 of TAS-125 addresses these issues quite well by hybridizing the UL tests and the resulting practice is already widely used in the metal roofing industry.

Item 2

Item 2 also only applies within hurricane-prone regions, as defined by IBC and adds requirements for testing of ridge, hip and edge metal systems similar to those currently in place for low-slope built-up, modified bitumen and single-ply roof systems in Section 1504.5 of FBC. It is being put forth to address issues observed by the Roofing Industry Committee on Weather Issues (RICOWI) through their Windstorm Investigation Program (WIP) as well as FEMA's Hurricane Ian investigation.

The test standard cited, ANSI/MCA FTS-1-2019, was developed by MCA through the Single Ply Roofing Institute's (SPRI) ANSI-accredited canvassing process. The RICOWI and FEMA WIP field studies revealed instances where metal ridge, hip and/or edge system with cleats (See Figures 1 and 2) were torn from the perimeter of a building with a metal roof, exposing a longer leading edge of the incorporated roof panel and initiating a partial failure of the roof system, particularly near the corners and gable edges of the roof. Although the damage was very localized, it did allow water to enter the building and in cases, the edge metal became a wind-borne debris threat. Most commonly, this occurred in two situations:

- Where a multi-piece edge trim assembly incorporating cleats deformed enough to disengage from the cleat. (Figures 1a and 2a)
- Where the metal edge trim assembly was fastened to a non-metal substrate such as wood or masonry, leaving to question the appropriateness of the fastener used since it would often not be provided by the edge system manufacturer for non-metal substrates. (Figures 1b and 2b)

These tendencies were also observed by FEMA in their Mitigation Assessment Team Report for Hurricane Ian. (https://tinyurl.com/mmrstxju) Section 6.3 of this report includes Conclusion FL-10, as shown in Figure 3, recommending that FEMA support industry stakeholders in supporting code change proposals to requiring testing of hip and ridge roof coverings. (FEMA P-2342, Page 6-9)

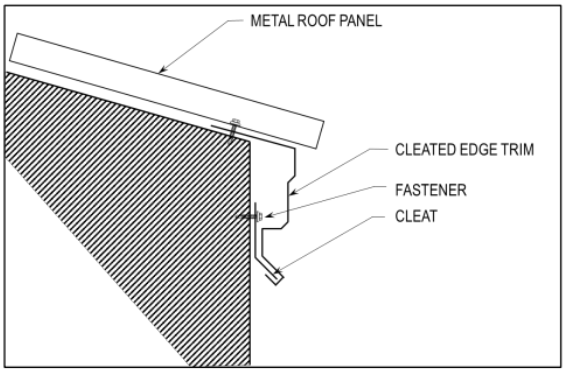


Figure 1 – Cleated Eave Edge Metal System

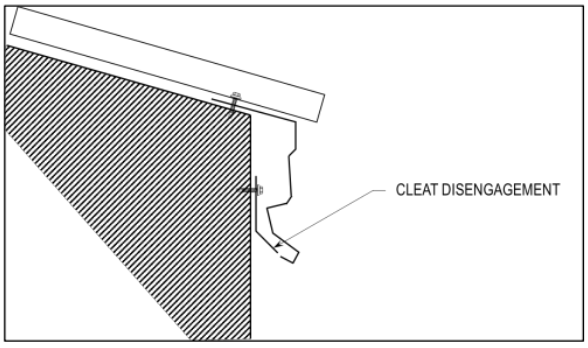


Figure 1a – Cleated Eave Edge Metal System – Cleat Disengagement

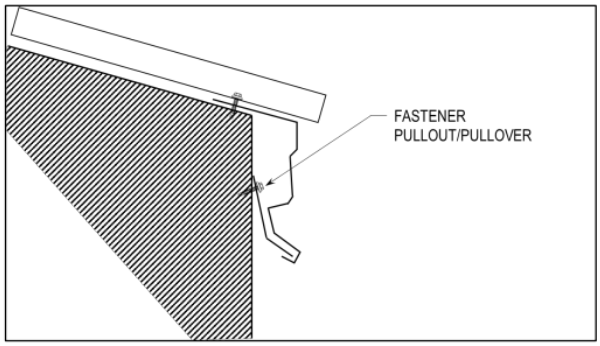


Figure 1b – Cleated Eave Edge Metal System – Fastener Failure

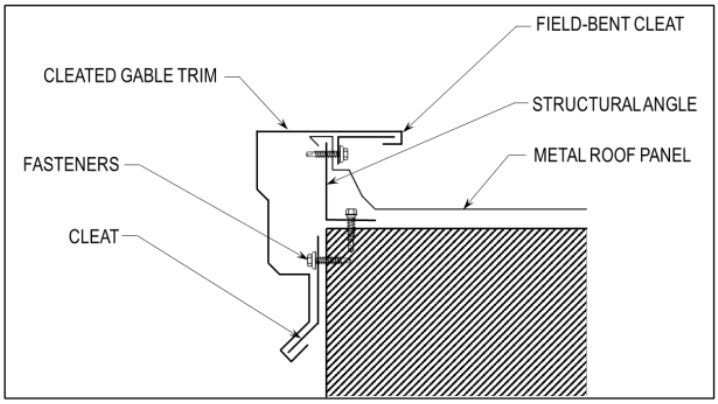


Figure 2 – Cleated Gable Edge Metal System

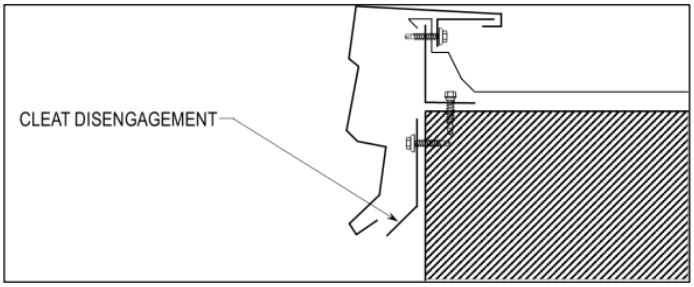


Figure 2a – Cleated Gable Edge Metal System – Cleat Disengagement

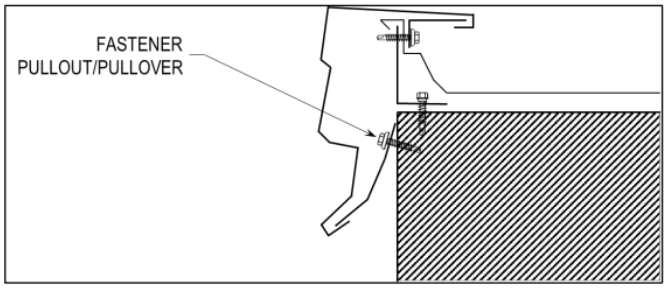


Figure 2b – Cleated Gable Edge Metal System – Fastener Failure

County to capture any lessons learned from the process as the damage assessment dashboard would be an effective tool to include in preparedness exercises and training. It would be highly beneficial to SLTTs to have access to street-level panoramic imagery and helicopter videography following an event like Hurricane Ian to support various response, recovery, mitigation, and preparedness efforts.

6.3. Wind-Related Building Codes, Standards, and Regulations Conclusions and Recommendations

Conclusion FL-10

Hip and ridge roof coverings for many residential buildings appeared to have inadequate resistance to wind loads. Failure of hip and ridge roof coverings on asphalt shingle and metal panel roof coverings was widespread and the most common roof covering failure observed by the MAT. While some asphalt shingle manufacturers test hip and ridge shingles to a modified version of ASTM D3161, the IBC, IRC, and FBC do not specifically require testing of hip and ridge asphalt shingles or metal panel roof coverings.

Recommendation FL-10a. **FEMA should consider submitting code change proposals or supporting code change proposals from other stakeholders—such as IBHS, Asphalt Roofing Manufacturers Association (ARMA), National Roofing Contractors Association (NRCA), and other aligned groups to the IBC, IRC, and the FBC—to require testing of hip and ridge roof coverings for asphalt shingle roof coverings.** The IBC, IRC, and the FBC require asphalt shingles to be tested for wind loads in accordance with ASTM D7158 or ASTM D3161. Underwriters Laboratories (UL) 2375, *Outline of Investigation for Hip and Ridge Shingles* (2016), provides a methodology to use a modified version of ASTM D3161 to test hip and ridge shingles for wind resistance. As an alternative to testing, a prescriptive solution that includes the use of an appropriate adhesive should be developed and included in the IBC, IRC, and FBC.

Recommendation FL-10b. **FEMA should consider submitting code change proposals or supporting code change proposals from other stakeholders—such as IBHS, Metal Construction Association (MCA), NRCA, and other aligned groups to the IBC, IRC, and the FBC—to require testing of hip and ridge roof coverings for metal panel roof coverings.** The ANSI/MCA FTS-1, *Test Method for Wind Load Resistance of Flashings Used with Metal Roof Systems* (2019), specifies wind load resistance testing of hip covers on metal panel roof systems in addition to other edge/flashing metal.

Recommendation FL-10c. **FEMA should consider submitting code change proposals or supporting code change proposals from other stakeholders—such as IBHS, ARMA, NRCA, and other aligned groups to the IBC, IRC, and the FBC—to require a minimum of 6 inches overlap of the roof underlayment to hip and ridges that do not have ventilation components.** Wrapping underlayment over hips and ridges that don't have ventilation components will

Figure 3 – Excerpt from FEMA P-2342

Metal Construction Association

This proposal is being brought forward by The Metal Construction Association. (MCA) Founded in 1983, the MCA is a 501(c)(6) organization promoting the use of metal in the building envelope by bringing together manufacturers and suppliers of metal products used in structures throughout the world to collaborate on marketing, education and advocacy. For more information, see the MCA website at www.metalconstruction.org.

Bibliography:

Federal Emergency Management Association (FEMA); Mitigation Assess Team Report Hurricane Ian in Florida; FEMA P-2342, December 2023; Page 6-9.

Roofing Industry Committee on Weather Issues (RICOWI); Wind Investigation Report: Hurricane Ian; September 2023; Pages 87-90.

R12064Impact Statement

Mod 12064 Cost Impact Statement Attachment

ANSI/MCA FTS-1 testing is estimated to be $1,500/test and most manufacturers carry 4-8 styles of edge metal systems different enough to test separately. Thus, total cost is estimated to be $36,000. Similarly, the TAS-125 testing required for wind resistance of the panel system is estimated as $2,500 per test over a product line of 8 profiles for $40,000. This is a total of $76,000 to carry both.

If this cost is accrued over the life of the product lines, assumed to be at least 1,000 buildings, this results in a nominal increase of at most $76 per building. A typical building of this construction is 5,000 square feet of roof area at $6/square foot and 600 lineal feet of edge/hip/ridge materials valued at $5/lineal foot, this represents a total cost of $33,000 installed. At a total cost of $30/square foot, the building would be $150,000, making the roof 22% of the total cost, which is consistent with industry estimation practices. The increase over the total building cost is 76/150,000, or 0.5%.

Note: Cost estimates are based on general experience of industry stakeholders and are not available publicly due to antitrust restrictions.

Page: 1

Mod_12064_Impact_Cost Impact Statement 12064.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

48

R12074

Date Submitted	02/13/2025	**Section**	1507	**Proponent**	T Stafford
Chapter	15	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language Yes**

Related Modifications

Summary of Modification

Secures the edge of underlayment by requiring drip edge to be installed at eaves and rakes for all steep slope roof coverings and requires it to be installed over the underlayment.

Rationale

This proposal addresses underlayment securement at eave and rake locations for steep slope roof coverings as currently required for asphalt shingles. The roof underlayment methods required in FBCB are intended to provide a secondary barrier against water infiltration through the roof deck if the primary roofing material fails. Given its importance, properly securing underlayment is vital to this function. For many roof configurations, wind pressures are highest along the eave edge, particularly the eave and rake edge corners, due to the wind's interaction with the roof structure. Considering that underlayment is installed shingle fashion, inadequate securement at the eave and rake can lead to underlayment failure at these locations during high-wind events, potentially causing a cascading failure across other rows of underlayment and compromise the entire underlayment system. This proposal addresses this vulnerability by specifically requiring the use of a drip edge mechanically fastened at 4 inches on center to secure the edges of the underlayment. A separate proposal is being submitted by ARMA to change the drip edge fastener spacing for asphalt shingles from 6 inches or 12 inches on center to 4 inches on center applicable for any wind speed. This proposal will align the edge securement of other steep slope roof coverings with those being proposed for asphalt shingles by ARMA.

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
Minimal to no impact to building and property owners relative to the cost of compliance with the code.
Impact to industry relative to the cost of compliance with code
No impact to industry relative to the cost compliance with the code.
Impact to small business relative to the cost of compliance with code
No impact to small business relative to the cost compliance with the code.

Requirements

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

This proposal improves the water penetration resistance of roofs where the primary roof covering is damaged or is blown off.

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

This proposal improves and strengthens the code by requiring mechanically fastened underlayment to be secured at eaves and rakes for all roof covering types.

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 of demonstrated capabilities.

Does not degrade the effectiveness of the code

This proposal does not degrade the effectiveness of the code.

Alternate Language

1st Comment Period History

R12074-A1

Proponent Kelsey Archer **Submitted** 4/16/2025 6:40:43 PM **Attachments** No

Rationale:

It is good roofing practice with self-adhered underlayments (direct to deck) to install the underlayment on top of the drip edge flange so that it is continuous to the roof edge and does not buck water against the edge of the drip edge flange. In these cases though, there needs to be some sort of buffer between the drip edge and the deck. So a stripping ply is needed first, then the drip edge over it, then the underlayment. this is a standard detail with all self-adhered underlayment manufacturers.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact.

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

No impact.

Impact to industry relative to the cost of compliance with code

No impact.

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

No impact to small business relative to the cost compliance with the code.

Requirements

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

This mod comment has a connection with health safety and welfare of general public.

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

This mod comment strengthens and improves the code to be more in accordance with common material/ manufacturers recommended installation instructions.

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

This mod comment does not discriminate against materials products methods or system of construction.

Does not degrade the effectiveness of the code

This mod does not degrade the effectiveness of the code.

R12074-A1Text Modification

For all section changes:

1507.3.9.1 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment or an approved stripping ply. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

Page: 1

Mod12074_A1_TextOfModification.pdf

R12074Text Modification

1507.3.9.1 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

1507.4.6 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

1507.5.7.1 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

1507.6.6 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

1507.7.7.1 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

1507.8.8 Drip edge ~~Flashing~~. ~~Reserved~~ Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

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1507.9.9 Drip edge ~~Flashing~~. ~~Reserved~~ Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

1507.11.3 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

1507.17.9 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment

Page: 1

Mod12074_TextOfModification.pdf

R12074Text Modification

complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

1507.18.2 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

Page: 2

Mod12074_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

49

R12075

Date Submitted	02/14/2025	**Section**	1517.6.2.3	**Proponent**	T Stafford
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Secures the edge of underlayment by requiring drip edge to be installed at eaves and rakes for all steep slope roof coverings and requires it to be installed over the underlayment.

Rationale

This proposal addresses underlayment securement at eave and rake locations for steep slope roof coverings in the HVHZ as currently only required for asphalt shingles in areas outside the HVHZ. The roof underlayment methods required in FBCB are intended to provide a secondary barrier against water infiltration through the roof deck if the primary roofing material fails. Given its importance, properly securing underlayment is vital to this function. For many roof configurations, wind pressures are highest along the eave edge, particularly the eave and rake edge corners, due to the wind's interaction with the roof structure. Considering that underlayment is installed shingle fashion, inadequate securement at the eave and rake can lead to underlayment failure at these locations during high-wind events, potentially causing a cascading failure across other rows of underlayment and compromise the entire underlayment system. This proposal addresses this vulnerability by specifically requiring the use of a drip edge mechanically fastened at 4 inches on center to secure the edges of the underlayment. This proposal will align the edge securement of slope roof coverings with those required for asphalt shingles and those being proposed for other steep slope roof coverings in areas outside the HVHZ.

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
Minimal to no impact to building and property owners relative to the cost of compliance with the code.
Impact to industry relative to the cost of compliance with code
No impact to industry relative to the cost compliance with the code.
Impact to small business relative to the cost of compliance with code
No impact to small business relative to the cost compliance with the code.

Requirements

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

This proposal improves the water penetration resistance of roofs where the primary roof covering is damaged or is blown off.

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

This proposal improves and strengthens the code by requiring mechanically fastened underlayment to be secured at eaves and rakes for all roof covering types.

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 of demonstrated capabilities.

Does not degrade the effectiveness of the code

This proposal does not degrade the effectiveness of the code.

R12075Text Modification

1517.6.2.3 Drip edge. ~~Reserved~~ Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange.

Page: 1

Mod12075_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

50

R12104

Date Submitted	02/14/2025	**Section**	1511	**Proponent**	T Stafford
Chapter	15	**Affects HVHZ**	No	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments Yes **Alternate Language Yes**

Related Modifications

Summary of Modification

Modifies the provisions regarding existing self-adhered underlayment during a roof replacement to ensure protection from water intrusion through the roof deck is maintained for roof replacements.

Rationale

This proposal addresses the use of existing self-adhered underlayment during a roof replacement. While the code requires roofing materials to removed down to the roof deck for roof replacements, removing existing self-adhered underlayment can be challenging. This proposal would permit an existing self-adhered underlayment to remain and be covered with mechanically attached underlayment provided the underlayment is installed using the double-layer method in Item 3 of Section 1507.1.1.1. During reroofing, the self-adhered underlayment will likely be damaged in some areas and may not be suitable for resisting water intrusion through the roof deck in the event the primary roof covering is damaged or blown off. This proposal also permits one additional layer of self-adhered underlayment to be installed over a single existing layer of self-adhered underlayment provided the criteria specified is met. Approval of this proposal will ensure that roof replacement projects are protected from water intrusion as required for new construction. The full rationale is provided in the attached support file.

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.
Impact to industry relative to the cost of compliance with code
No impact to industry relative to the cost of compliance with the code.
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.

Requirements

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

This proposal ensures that roof replacement projects are protected from water intrusion as required for new construction.

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

This proposal strengthens and improves the code by ensuring that roof replacement projects are protected from water intrusion as required for new construction.

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 of demonstrated capabilities.

Does not degrade the effectiveness of the code

This proposal does not degrade the effectiveness of the code.

Alternate Language

1st Comment Period History

R12104-A4

Proponent Kelsey Archer **Submitted** 4/16/2025 5:21:34 PM **Attachments** No

Rationale:

This comment is on behalf of Polyglass USA, a manufacturer of residential and commercial roofing and waterproofing products and on behalf of Building Envelope Associates, a registered consulting/engineering firm and industry expert in roofing and waterproofing. SA = self-adhered Where the proposed mod language designates “one layer of self-adhered underlayment", it implies that it would not allow the recovering of a 2-ply SA underlayment system (2 self-adhered membranes applied on top of each other, directly over the wood deck). Several manufacturers have approved 2-ply SA systems with the intent of a redundant waterproofing and secondary barrier to provide extra protection of the roof. Also, for fire-rated SA underlayments such as Polyglass XFR, 2 layers is REQUIRED for aluminum roof coverings in order to meet the Class A Fire Rating. By limiting the option of a recover to only roofs that have 1 SA on the deck, it would force building owners that either chose a better, redundant underlayment initially or that have an aluminum roof covering, to have their decks torn off instead of recovered because they already have 2 layers on them. The proposed mod language “Item 3 of Section 1507.1.1.1” references a Section for installing 2 layers of ASTM D226 Type II. It is my understanding that that is not the code intent, and that 1 layer is allowed if the pitch is 4:12 or greater. Therefore, it falls more in line with Item 2 of Section 1507.1.1.1 and certainly lines up with the Table 1507.1.1.1. Table 1507.1.1.1 was created for the specific use of underlayment to be installed over an existing SA on the deck or over stripped-in plywood joints. It wouldn’t make any sense to require 2 layers of ASTM D226 Type II over an existing SA, especially for a tile roof.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Unknown

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

As modification is currently written, this would greatly impact the cost to replace a roof where an approved, self-adhered 2-ply system is installed.

Impact to industry relative to the cost of compliance with code

Unknown

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.

Requirements

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

The current mod as written would deter building owners from initially installing a 2-ply underlayment system despite it being a better system, and therefore is a negative connection with the public. My comments improve public welfare.

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

The modification as it reads now actually reinforces the use of inferior products and systems, as it limits self-adhered underlayments to only 1 layer. Allowing 2 layers without repercussions in the future when replacing the roof covering would improve the performance of the roof system as a whole.

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

The modification as it reads now DOES discriminate against underlayment manufacturers that innovated the best underlayment systems consisting of 2-plies, and that have gone through extensive testing for wind uplift and fire testing My changes to the modifications would mitigate the discrimination.

Does not degrade the effectiveness of the code

The mod as it reads now (relating to Item 3 of Section 1507.1.1.1) degrades the effectiveness of the code, as it refers to a section that is not best practices and nor the code intent. My changes to the mod will improve the effectiveness of the code as it will then relate to the intended table.

1st Comment Period History

R12104-G1

Proponent Michael Silvers (FRSA) Submitted 4/16/2025 2:28:20 PM Attachments No

Comment:

The FBC has included methods to address self-adhering underlayment during reroofing for two code cycles (2020 and 2023). The provisions have been thoroughly vetted by the appropriate TACs and the Commission. The language incorporated in the FBC was produced and mutually agreed on by a work group comprised of those who represent FRSA, IBHS and ARMA. The application methods have been taught in numerous continuing education courses presented by FRSA and others for contractors, building officials, architects and engineers. These requirements are understood and have been widely accepted and implemented. They have been expanded to include all steep slope (2/12 and greater) roof coverings. Similar provisions have also been adopted in the HVHZ making the general methods applicable statewide. The FBC has dealt with an existing self-adhering underlayment in the same manner as self-adhering strips installed over the joints in the roof decking. The FBC sections that address existing self-adhering underlayment installed direct to deck specifically points to TABLE 1507.1.1 and R905.1.1 UNDERLAYMENT WITH SELF-ADHERING STRIPS OVER ROOF DECKING JOINTS to prescribe how the required additional underlayment is to be installed. The taped joint with additional nailed underlayment approach has been in the FBC since 2010. The suggested language in this modification that was incorporated into the IBC does not take the same approach as taken in the two previous versions of the FBC and will cause confusion and possible unintended consequences moving forward. We urge you to support maintaining the current FBC approach and respectfully request your support in urging denial of this modification.

1st Comment Period History

R12104-G2

Proponent Kelsey Archer Submitted 4/16/2025 6:03:05 PM Attachments No

Comment:

This comment is on behalf of Polyglass USA, a manufacturer of residential and commercial roofing and waterproofing products and on behalf of Building Envelope Associates, a registered consulting/engineering firm and industry expert in roofing and waterproofing. I believe this modification is misleading and/or degrades the effectiveness of the code because it implies that there are only 2 ways to recover an existing self-adhered underlayment: Option 1 being 2 layers of D226 Type II felt and Option 2 being applying another self-adhered over the existing. Option 1 will only work for non-tile applications because tile foams will not adhere to most D226 sheets. It is also overkill to install 2 layers over an already-adhered membrane, when the current code cycle allows just 1 layer of D226 over an existing SA if the pitch is 4:12 or greater. Option 2 seems like it will cause many issues and also would not work for tile applications. Since underlayments need to meet wind uplift pressures, installing an SA on top of an old SA (of any manufacturer) would not have a tested assembly or product approval with a pressure. I foresee issues arising because there is no added testing required to test the adhesion of the new SA to the existing. Manufacturers will not be able to go out to every job site to determine if the existing SA is suitable to apply a new SA over the top, so there will be a lot of roofers installing this without permission and without confirming good adhesion. Also, most underlayment manufacturers do not offer products that qualify for Option 2. In both options, a tile roof covering is not an option. There needs to be an option for a recover for tile roofs.

R12104-A4Text Modification

Where the existing roof includes ~~one layer of~~ self-adhered underlayment(s) applied direct to the roof deck, and supplemental fastening of the roof deck has been performed where required by Section 706.7.1 of the *Florida Building Code, Existing Building*, the existing self-adhered underlayment(s) is permitted to remain in place in accordance with the following:

1. Where the existing sheathing is not water soaked or deteriorated to the point that it is not adequate as a base for additional roofing, mechanically fastened underlayment is permitted to be installed over the existing self-adhered underlayment in accordance with Table 1507.1.1.1.~~Item 3 of Section 1507.1.1.1.~~

Page: 1

Mod12104_A4_TextOfModification.pdf

1507.1.1.1 Underlayment for asphalt shingles, metal roof panels or shingles, mineral surfaced roll roofing, slate and slate-type roof shingles, wood shakes and wood shingles. Underlayment for asphalt shingles, metal roof panels or shingles, mineral surfaced roll roofing, slate and slate-type shingles, wood shakes and wood shingles shall comply with one of the following methods:

1. 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. This method is not permitted for wood shingles or shakes.

2. ~~An e~~Existing self-adhering modified bitumen underlayment is permitted to comply with Exception 2 to Section 1511.3 ~~that has been previously installed over the roof decking and, where it is required, renailing off the roof sheathing in accordance with Section 706.7.1 of the Florida Building Code, Existing Building can be confirmed or verified. An approved underlayment in accordance with Table 1507.1.1.1 for the applicable roof covering shall be applied over the entire roof over the existing self-adhered modified bitumen underlayment~~.

1511.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15.

Exceptions:

~~1.~~ Reroofing shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide positive roof drainage.

~~2. An existing self-adhering modified bitumen underlayment that has been previously installed over the roof decking and, where it is required, renailing off the roof sheathing in accordance with Section 706.7.1 of the Florida Building Code, Existing Building can be confirmed or verified. An approved underlayment in accordance with Table 1507.1.1.1 for the applicable roof covering shall be applied over the entire roof over the existing self-adhered modified bitumen underlayment.~~

1511.3 Recovering versus replacement. New roof coverings shall not be installed without first removing all existing layers of roof coverings down to the roof deck where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.

2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.

3. Where the existing roof has two or more applications of any type of roof covering.

4. When blisters exist in any roofing, unless blisters are cut or scraped open and remaining materials secured down before applying additional roofing.

5. Where the existing roof covering is to be used for attachment for a new roof system and compliance with the securement provisions of Section 1504.1 cannot be met.

Exceptions:

1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.

2. ~~Reserved.~~ Where the existing roof includes one layer of self-adhered underlayment applied direct to the roof deck, and supplemental fastening of the roof deck has been performed where required by Section 706.7.1 of the *Florida Building Code, Existing Building*, the existing self-adhered underlayment is permitted to remain in place in accordance with the following:

1. Where the existing sheathing is not water soaked or deteriorated to the point that it is not adequate as a base for additional roofing, mechanically fastened underlayment is permitted to be installed over the existing self-adhered underlayment in accordance with Item 3 of Section 1507.1.1.1.

2. Where the existing layer of self-adhered underlayment cannot be removed without damaging the roof deck, a second layer of self-adhered underlayment is permitted to be installed over the existing self-adhered underlayment provided that the following conditions are met:

2.1 It is permitted by the roof covering manufacturer and self-adhered underlayment manufacturer.

2.2 The existing sheathing is not water-soaked or deteriorated to the point that it is not adequate as a base for additional roofing.

2.3 The second layer of self-adhered underlayment is installed such that buildup of material at walls, valleys, roof edges, end laps and side laps does not exceed two layers.

2.4 The existing self-adhered membrane is smooth and clean without granulation or other properties that interfere with adhesion.

3. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.

~~4. Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507.~~

Rationale:

The use of a self-adhered polymer modified bitumen membrane complying with ASTM D1970 is one of several underlayment options permitted for roof coverings in the FBC. ASTM D1970 self-adhered membranes were recognized as an underlayment option in the early editions of the FBC. After 20 years of code implementation, it remains approved by roof covering manufacturers, underlayment manufacturers and building codes, and has been consistently observed to perform very well as a method for preventing water intrusion in the event the roof covering is lost or damaged.

While the code requires materials and methods for roof replacement to comply with Chapter 15, it provides limited guidance for what to do where a roof is being replaced and there is an existing self-adhered underlayment. Exception 2 to Section 1511.1 does provide some requirements but is missing a few key details.

This proposal is a collaboration between the Insurance Institute for Business and Home Safety (IBHS), the Asphalt Roofing Manufacturers Association (ARMA), and the National Roofing Contractors Association (NRCA). It provides specific requirements on acceptable methods for dealing with existing self-adhered membranes during a roof replacement. The underlayment methods in the FBC include specific methods for preventing water intrusion in the event the roof covering is damaged or lost in high wind regions. The changes proposed herein seek to maintain that level of protection during roof replacement.

ARMA provides guidance on the removal of self-adhered membrane in their Technical Bulletin, Self-Adhering Underlayment Removal Prior to Steep Slope Re-Roofing: "*Removal of self-adhering underlayment is always recommended in situations in which it can be removed without damaging the deck....If one layer of self-adhering underlayment is in place, and it is not possible to remove it without damaging the deck, installation of a second layer of underlayment over the existing membrane may be permissible: Check with the underlayment manufacturer's installation instructions and local building codes for details. Offset end and side laps in the new and existing underlayment to minimize thickness build-up and "feather in" the new underlayment by extending the new material a minimum of 8" up the slope onto the bare deck. This will reduce the likelihood of problems with drainage and aesthetics. If two or more layers of self-adhering underlayment are in place, all layers should be removed.*"

This proposal would permit an existing self-adhered underlayment to remain and be covered with mechanically attached underlayment provided the underlayment is installed using the double-layer method in Item 3 of Section 1507.1.1.1. During reroofing, the self-adhered underlayment will likely be damaged in some areas and may not be suitable for resisting water intrusion through the roof deck in the event the primary roof covering is damaged or blown off.

This proposal also permits one additional layer of self-adhered underlayment to be installed over a single existing layer of self-adhered underlayment provided the criteria specified is met.

Approval of this proposal will ensure that roof replacement projects are protected from water intrusion as required for new construction.

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

51

R12113

Date Submitted	02/14/2025	**Section**	1521.21	**Proponent**	T Stafford
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments Yes **Alternate Language Yes**

Related Modifications

Summary of Modification

Adds provisions regarding existing self-adhered underlayment during a roof replacement to ensure protection from water intrusion through the roof deck is maintained for roof replacements.

Rationale

This proposal addresses the use of existing self-adhered underlayment during a roof replacement. While the code requires roofing materials to removed down to the roof deck for roof replacements, removing existing self-adhered underlayment can be challenging. This proposal would permit an existing self-adhered underlayment to remain and be covered with mechanically attached underlayment provided the underlayment is installed using the double-layer method in Item 3 of Section 1518.2.1. During reroofing, the self-adhered underlayment will likely be damaged in some areas and may not be suitable for resisting water intrusion through the roof deck in the event the primary roof covering is damaged or blown off. This proposal also permits one additional layer of self-adhered underlayment to be installed over a single existing layer of self-adhered underlayment provided the criteria specified is met. Approval of this proposal will ensure that roof replacement projects are protected from water intrusion as required for new construction. The full rationale is provided in the attached support file.

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.
Impact to industry relative to the cost of compliance with code
No impact to industry relative to the cost of compliance with the code.
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.

Requirements

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

This proposal ensures that roof replacement projects are protected from water intrusion as required for new construction.

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

This proposal strengthens and improves the code by ensuring that roof replacement projects are protected from water intrusion as required for new construction.

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 of demonstrated capabilities.

Does not degrade the effectiveness of the code

This proposal does not degrade the effectiveness of the code.

Alternate Language

1st Comment Period History

R12113-A1

Proponent Kelsey Archer **Submitted** 4/16/2025 5:45:27 PM **Attachments** No

Rationale:

This comment is on behalf of Polyglass USA, a manufacturer of residential and commercial roofing and waterproofing products and on behalf of Building Envelope Associates, a registered consulting/engineering firm and industry expert in roofing and waterproofing. SA = self-adhered Where the proposed mod language designates “one layer of self-adhered underlayment", it implies that it would not allow the recovering of a 2-ply SA underlayment system (2 self-adhered membranes applied on top of each other, directly over the wood deck). Several manufacturers have approved 2-ply SA systems with the intent of a redundant waterproofing and secondary barrier to provide extra protection of the roof. Also, for fire-rated SA underlayments such as Polyglass XFR, 2 layers is REQUIRED for aluminum roof coverings in order to meet the Class A Fire Rating. By limiting the option of a recover to only roofs that have 1 SA on the deck, it would force building owners that either chose a better, redundant underlayment initially or that have an aluminum roof covering, to have their decks torn off instead of recovered because they already have 2 layers on them. The proposed mod language “Item 3 of Section 1507.1.1.1” references a Section for installing 2 layers of ASTM D226 Type II. It is my understanding that that is not the code intent, and that 1 layer is allowed if the pitch is 4:12 or greater. Therefore, it falls more in line with Item 2 of Section 1507.1.1.1 and certainly lines up with the Table 1507.1.1.1. Table 1507.1.1.1 was created for the specific use of underlayment to be installed over an existing SA on the deck or over stripped-in plywood joints. It wouldn’t make any sense to require 2 layers of ASTM D226 Type II over an existing SA, especially for a tile roof.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Unknown

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

As modification is currently written, this would greatly impact the cost to replace a roof where an approved, self-adhered 2-ply system is installed.

Impact to industry relative to the cost of compliance with code

Unknown

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.

Requirements

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

The current mod as written would deter building owners from initially installing a 2-ply underlayment system despite it being a better system, and therefore is a negative connection with the public. My comments improve public welfare.

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

The modification as it reads now actually reinforces the use of inferior products and systems, as it limits self-adhered underlayments to only 1 layer. Allowing 2 layers without repercussions in the future when replacing the roof covering would improve the performance of the roof system as a whole.

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

The modification as it reads now DOES discriminate against underlayment manufacturers that innovated the best underlayment systems consisting of 2-plies, and that have gone through extensive testing for wind uplift and fire testing My changes to the modifications would mitigate the discrimination.

Does not degrade the effectiveness of the code

The mod as it reads now (relating to Item 3 of Section 1518.2.1) degrades the effectiveness of the code, as it refers to a section that is not best practices and nor the code intent. My changes to the mod will improve the effectiveness of the code as it will then relate to the intended table.

1st Comment Period History

R12113-G1

Proponent Michael Silvers (FRSA) Submitted 4/16/2025 2:31:33 PM Attachments No

Comment:

The FBC has included methods to address self-adhering underlayment during reroofing for two code cycles (2020 and 2023). The provisions have been thoroughly vetted by the appropriate TACs and the Commission. The language incorporated in the FBC was produced and mutually agreed on by a work group comprised of those who represent FRSA, IBHS and ARMA. The application methods have been taught in numerous continuing education courses presented by FRSA and others for contractors, building officials, architects and engineers. These requirements are understood and have been widely accepted and implemented. They have been expanded to include all steep slope (2/12 and greater) roof coverings. Similar provisions have also been adopted in the HVHZ making the general methods applicable statewide. The FBC has dealt with an existing self-adhering underlayment in the same manner as self-adhering strips installed over the joints in the roof decking. The FBC sections that address existing self-adhering underlayment installed direct to deck specifically points to TABLE 1507.1.1 and R905.1.1 UNDERLAYMENT WITH SELF-ADHERING STRIPS OVER ROOF DECKING JOINTS to prescribe how the required additional underlayment is to be installed. The taped joint with additional nailed underlayment approach has been in the FBC since 2010. The suggested language in this modification that was incorporated into the IBC does not take the same approach as taken in the two previous versions of the FBC and will cause confusion and possible unintended consequences moving forward. We urge you to support maintaining the current FBC approach and respectfully request your support in urging denial of this modification.

1st Comment Period History

R12113-G2

Proponent Kelsey Archer Submitted 4/16/2025 6:04:13 PM Attachments No

Comment:

This comment is on behalf of Polyglass USA, a manufacturer of residential and commercial roofing and waterproofing products and on behalf of Building Envelope Associates, a registered consulting/engineering firm and industry expert in roofing and waterproofing. I believe this modification is misleading and/or degrades the effectiveness of the code because it implies that there are only 2 ways to recover an existing self-adhered underlayment: Option 1 being 2 layers of D226 Type II felt and Option 2 being applying another self-adhered over the existing. Option 1 will only work for non-tile applications because tile foams will not adhere to most D226 sheets. It is also overkill to install 2 layers over an already-adhered membrane, when the current code cycle allows just 1 layer of D226 over an existing SA if the pitch is 4:12 or greater. Option 2 seems like it will cause many issues and also would not work for tile applications. Since underlayments need to meet wind uplift pressures, installing an SA on top of an old SA (of any manufacturer) would not have a tested assembly or product approval with a pressure. I foresee issues arising because there is no added testing required to test the adhesion of the new SA to the existing. Manufacturers will not be able to go out to every job site to determine if the existing SA is suitable to apply a new SA over the top, so there will be a lot of roofers installing this without permission and without confirming good adhesion. Also, most underlayment manufacturers do not offer products that qualify for Option 2. In both options, a tile roof covering is not an option. There needs to be an option for a recover for tile roofs.

R12113-A1Text Modification

1521.21 Existing self-adhered underlayment. ~~Reserved~~ Where the existing roof includes ~~one layer of~~self-adhered underlayment(s) applied direct to the roof deck, and supplemental fastening of the roof deck has been performed where required by Section 706.7.1 of the *Florida Building Code, Existing Building*, the existing self-adhered underlayment(s)is permitted to remain in place in accordance with the following:

1. Where the existing sheathing is not water soaked or deteriorated to the point that it is not adequate as a base for additional roofing, mechanically fastened underlayment is permitted to be installed over the existing self-adhered underlayment in accordance with Table 1518.2.1.~~Item 3 of Section 1518.2.1.~~

Page: 1

Mod12113_A1_TextOfModification.pdf

R12113Text Modification

1521.21 Existing self-adhered underlayment. ~~Reserved~~ Where the existing roof includes one layer of self-adhered underlayment applied direct to the roof deck, and supplemental fastening of the roof deck has been performed where required by Section 706.7.1 of the *Florida Building Code, Existing Building*, the existing self-adhered underlayment is permitted to remain in place in accordance with the following:

1. Where the existing sheathing is not water soaked or deteriorated to the point that it is not adequate as a base for additional roofing, mechanically fastened underlayment is permitted to be installed over the existing self-adhered underlayment in accordance with Item 3 of Section 1518.2.1.

2. Where the existing layer of self-adhered underlayment cannot be removed without damaging the roof deck, a second layer of self-adhered underlayment is permitted to be installed over the existing self-adhered underlayment provided that the following conditions are met:

2.1 It is permitted by the roof covering manufacturer and self-adhered underlayment manufacturer.

2.2 The existing sheathing is not water-soaked or deteriorated to the point that it is not adequate as a base for additional roofing.

2.3 The second layer of self-adhered underlayment is installed such that buildup of material at walls, valleys, roof edges, end laps and side laps does not exceed two layers.

2.4 The existing self-adhered membrane is smooth and clean without granulation or other properties that interfere with adhesion.

Page: 1

Mod12113_TextOfModification.pdf

Rationale:

The use of a self-adhered polymer modified bitumen membrane complying with ASTM D1970 is one of several underlayment options permitted for roof coverings in the FBC. ASTM D1970 self-adhered membranes were recognized as an underlayment option in the early editions of the FBC. After 20 years of code implementation, it remains approved by roof covering manufacturers, underlayment manufacturers and building codes, and has been consistently observed to perform very well as a method for preventing water intrusion in the event the roof covering is lost or damaged. In the HVHZ, it has historically not been permitted to be applied directly to the roof deck. However, the 8th Edition (2023) FBC now permits self-adhered underlayment complying with ASTM D1970 to be applied directly to the roof deck.

While the code requires materials and methods for roof replacement to comply with Chapter 15, provides limited guidance for what to do where a roof is being replaced and there is an existing self-adhered underlayment applied directly to the roof deck.

This proposal is a collaboration between the Insurance Institute for Business and Home Safety (IBHS), the Asphalt Roofing Manufacturers Association (ARMA), and the National Roofing Contractors Association (NRCA). It provides specific requirements on acceptable methods for dealing with existing self-adhered membranes during a roof replacement. The underlayment methods in the FBC include specific methods for preventing water intrusion in the event the roof covering is damaged or lost in high wind regions. The changes proposed herein seek to maintain that level of protection during roof replacement.

ARMA provides guidance on the removal of self-adhered membrane in their Technical Bulletin, Self-Adhering Underlayment Removal Prior to Steep Slope Re-Roofing: "*Removal of self-adhering underlayment is always recommended in situations in which it can be removed without damaging the deck....If one layer of self-adhering underlayment is in place, and it is not possible to remove it without damaging the deck, installation of a second layer of underlayment over the existing membrane may be permissible: Check with the underlayment manufacturer's installation instructions and local building codes for details. Offset end and side laps in the new and existing underlayment to minimize thickness build-up and "feather in" the new underlayment by extending the new material a minimum of 8" up the slope onto the bare deck. This will reduce the likelihood of problems with drainage and aesthetics. If two or more layers of self-adhering underlayment are in place, all layers should be removed.*"

This proposal would permit an existing self-adhered underlayment to remain and be covered with mechanically attached underlayment provided the underlayment is installed using the double-layer method in Item 3 of Section 1518.2.1. During reroofing, the self-adhered underlayment will likely be damaged in some areas and may not be suitable for resisting water intrusion through the roof deck in the event the primary roof covering is damaged or blown off.

This proposal also permits one additional layer of self-adhered underlayment to be installed over a single existing layer of self-adhered underlayment provided the criteria specified is met.

Approval of this proposal will ensure that roof replacement projects are protected from water intrusion as required for new construction.

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

52

R12123

Date Submitted	02/14/2025	**Section**	1504.3	**Proponent**	Amanda Hickman
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

no

Summary of Modification

Permits allowable stress design to be used for wind load determination.

Rationale

Using Allowable Stress Design (ASD) for determining wind loads on non-ballasted roofs offers several advantages, including consistency with material design standards. It incorporates built-in safety factors, ensuring structural integrity while using simplified load combinations compared to Load and Resistance Factor Design (LRFD). Additionally, ASD wind load factors are generally lower than LRFD, leading to more economical designs without reducing safety. Many existing structures and local codes reference ASD-based calculations, making it practical for retrofit projects or jurisdictions that have not fully transitioned to LRFD. Moreover, roofing components such as fasteners, membranes, and metal panels often have ASD-based test data, allowing for direct comparison and straightforward application in design. Additionally, it is included in IBHS Fortified Wind Standard.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Yes. Allows for more straightforward applications making enforcement easier.

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

ASD wind load factors are generally lower than LRFD, leading to more economical designs without reducing safety.

Impact to industry relative to the cost of compliance with code

ASD wind load factors are generally lower than LRFD, leading to more economical designs without significantly reducing safety.

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

ASD wind load factors are generally lower than LRFD, leading to more economical designs without significantly reducing safety.

Requirements

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

Using Allowable Stress Design (ASD) for determining wind loads on non-ballasted roofs offers several advantages.

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

Using Allowable Stress Design (ASD) for determining wind loads on non-ballasted roofs offers several advantages.

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

No. Expands.

Does not degrade the effectiveness of the code

No. Makes compliance easier without reducing safety.

R12123Text Modification

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 1609. The wind load on the roof covering shall be permitted to be determined using allowable stress design.

Page: 1

Mod12123_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

53

R12141

Date Submitted	02/14/2025	**Section**	1510.8.6	**Proponent**	Amanda Hickman
Chapter	15	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments Yes **Alternate Language No**

Related Modifications

no

Summary of Modification

Updates Rooftop Structures for LPS

Rationale

Lightning Protection systems (LPS) are required to be installed on roofs of hospitals and nursing facilities per the FL code. However, no guidance exists in the code on how to appropriately attach LPS to the roof so that damage does not occur to the roof. This proposal was added to the 2024 IBC to address this concern even though LPS is not required anywhere per the IBC. Therefore, it is imperative that it be added to the FBC to ensure LPS WHEN installed it is done so in protection of the roof and roof components.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Provides guidance on appropriate installation of LPS to safeguard the roof.
Impact to building and property owners relative to cost of compliance with code
None. Provides guidance on appropriate installation of LPS to safeguard the roof.
Impact to industry relative to the cost of compliance with code
None. Provides guidance on appropriate installation of LPS to safeguard the roof.
Impact to small business relative to the cost of compliance with code
None. Provides guidance on appropriate installation of LPS to safeguard the roof.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Provides guidance on appropriate installation of LPS to safeguard the roof.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

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

No. Provides industry standard practices for installation.

Does not degrade the effectiveness of the code

Provides guidance on appropriate installation of LPS to safeguard the roof.

1st Comment Period History

R12141-G1

Proponent Dillon Mike Submitted 4/10/2025 11:47:08 AM Attachments No

Comment:

My name is Michael Dillon, and I am with Bonded Lightning Protection. I represent the Lightning Protection Industry, as an installer in Florida. I support this because it aligns FLorida roofing construction with the national model code (IBC) and ensures LPS installations do not negatively impact roofing systems. This will help reduce LPS installer liability for damaged/leaking roofing systems and help standardize LPS practices associated with roofing systems.

1st Comment Period History

R12141-G2

Proponent Tyler Baumert Submitted 4/14/2025 2:55:40 PM Attachments No

Comment:

My name is Tyler Baumert, and I represent the Lightning Protection Coalition. I am writing to express strong support for Proposal R12141. Proposal R12141 ensures that lightning protection systems are installed without compromising roof performance or warranties. It requires the use of compatible components and compliance with guidance from manufacturers or design professionals. This proposal promotes safety, quality, and accountability—without adding cost burdens to building owners or contractors—and aligns Florida's code with national best practices already reflected in the 2024 IBC.

1st Comment Period History

R12141-G3

Proponent Bret Peifer Submitted 4/14/2025 3:49:17 PM Attachments No

Comment:

As a licensed lightning protection contractor, Bret Peifer of Mr. Lightning, I fully support the proposed addition of Section 1510.8.6 to the Florida Building Code, which provides clear guidance on the installation of lightning protection systems on metal edge systems, gutters, and roof coverings. Florida experiences some of the highest rates of lightning activity in the nation, making comprehensive protection measures essential for preserving both property and public safety. This proposal enhances clarity and ensures that lightning protection system components are installed in a manner consistent with tested and approved methods. Requiring compatibility with ANSI/SPRI/FM standards and adherence to manufacturer guidelines or design professional oversight will help prevent damage to roofing systems and maintain the integrity of waterproofing details. By outlining responsibilities when manufacturer instructions are unavailable, this change also helps ensure safe, consistent installations across the state. These provisions represent a thoughtful balance between safety, performance, and practicality, and I commend the initiative to strengthen Florida's resilience to lightning-related hazards.

1st Comment Period History

R12141-G4

Proponent harger Tim Submitted 4/15/2025 4:35:23 PM Attachments No

Comment:

My name is Tim Harger from the Lightning Protection Institute, and I support Proposal R12141. This update ensures that lightning protection systems are installed without compromising the performance or warranty of roofing systems. By requiring the use of compatible components and adherence to manufacturer or design professional guidance, this proposal promotes quality, safety, and accountability—without adding costs to building owners or contractors. It helps protect structures, reduce liability, and align Florida's code with national best practices already adopted in the 2024 IBC.

1st Comment Period History

R12141-G5

Proponent George Po Submitted 4/16/2025 4:05:05 PM Attachments Yes

Comment:

Support of R122141

R12141Text Modification

1510.8.6 Lightning protection systems. Where provided,Lightning protection systems shall be installed in accordance with Sections 1510.8.6.1 and 1510.8.6.2.

1510.8.6.1 Installation on metal edge systems or gutters.
Lightning protection system components attached to a ANSI/SPRI/ FM 4435/ES-1 or ANSI/SPRI GT-1 tested metal edge systems for gutters shall be installed with compatible brackets, fasteners or adhesives, in accordance with the metal edge systems or gutter manufacturer's installation instructions. Where the metal edge system or gutter manufacturer is unknown, installation shall be directed by a *registered design professional*.

1510.8.6.2 Installation on roof coverings.
Lightning protection system components directly attached to or through the *roof covering* shall be installed in accordance with this chapter and the *roof covering* manufacturer's installation instructions. Flashing shall be installed in accordance with the *roof assembly* manufacturer's installation instructions and section 1503.2 and 1507 where the lightning protection system installation results in a penetration through the *roof covering*. Where the *roof covering* manufacturer is unknown, installation shall be directed by a *registered design professional.*

Page: 1

Mod12141_TextOfModification.pdf

R12141-G5General Comment

George Portfleet here, a member of the United Lightning Protection Association. I support Proposal R12141. This update ensures that lightning protection systems are installed without compromising the performance or warranty of roofing systems. This Proposal requiring the use of compatible components and adherence to manufacturer or design professional guidance, while also promoting quality, safety, and accountability without adding costs to building owners or contractors. It helps protect structures, reduce liability, and aligns Florida's code with national best practices already adopted in the 2024 IBC.

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

54

R12162

Date Submitted	02/16/2025	**Section**	1507.1.1	**Proponent**	T Stafford
Chapter	15	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

This proposal requires underlayment to be lapped over hips and ridges except where ventilation openings are provided.

Rationale

This proposal is submitted on behalf of the Insurance Institute for Business and Home Safety (IBHS). It requires underlayment to be lapped over hips and ridges except where ventilation openings are provided. See attached support file for the full rationale.

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
Minimal to no impact to building and property owners relative to the cost of compliance with the code.
Impact to industry relative to the cost of compliance with code
No impact to industry relative to the cost of compliance with the code.
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.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
This proposal will improve the water penetration resistance of roofs in the event that hip and ridge roof coverings are damaged or blown off.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This proposal strengthens the code by improving the water penetration resistance of roofs in the event that hip and ridge roof coverings are damaged or blown off.

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 of demonstrated capabilities.

Does not degrade the effectiveness of the code

This proposal does not degrade the effectiveness of the code.

R12162Text Modification

Revise as follows:

1507.1.1 Underlayment. Underlayment for roof slopes 2:12 and greater shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D226, D1970, D4869, D6757 and D8257 shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated. Underlayment for roof slopes 2:12 and greater shall be applied and attached in accordance with Section 1507.1.1.1 or 1507.1.1.2, as applicable. Underlayment shall lap over hips and ridges a minimum of 6 inches except where ventilation openings in accordance with Section 1203 are provided.

Exceptions:

1. For areas of a roof that cover exterior walkways and roofs of agricultural buildings, underlayment shall comply with the manufacturer's installation instructions.

2. Compliance with Section 1507.1.1.1 is not required for structural metal panels that do not require a substrate or underlayment.

Page: 1

Mod12162_TextOfModification.pdf

R12162Text Modification

Rationale:

This proposal is submitted on behalf of the Insurance Institute for Business and Home Safety (IBHS).

This proposal seeks to provide an additional level of water intrusion protection for minimal effort in the event part of the roof covering is blown off. If approved, this proposal will align the code with IBHS's FORTIFIED Roof™ designation regarding underlayment application at hips and ridges. The FORTIFIED Home™ program was developed to reduce avoidable suffering and financial loss caused by hurricanes, high winds, and hail. The program requirements provide a systems-based, multi-tiered approach for improving the resistance of homes and their contents to damage caused by wind, wind-driven rain, and hail. There are three designation levels—FORTIFIED Roof™, FORTIFIED Silver™, and FORTIFIED Gold™—that build on each other and address different systems of the home.

Roof covering damage is typically the most observed damage in post-windstorm investigations. This has been observed in damage investigations by IBHS and FEMA Mitigation Assessment Team (MAT) deployments. While widespread roof covering damage was observed and documented in the Hurricane Ian MAT report, the report noted that the failure of hip and ridge roof coverings was the most common damage observed for all roof covering types. The following paragraph is an excerpt from Section 4.2.4 in the FEMA Hurricane Ian MAT Report (https://www.fema.gov/sites/default/files/documents/fema_rm-hurriance-ian-mat-report-12-2023.pdf):

“Although roof covering damage was widespread at all sites visited by the MAT, the degree of roof covering damage varied across the sites. The most common damage observed by the MAT for all roof coverings was displacement of hip and ridge roof coverings.”

The FEMA Hurricane Michael in Florida MAT Report (https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-michael_florida.pdf) also noted that the failure of hip and ridge asphalt shingles was prevalent (see Section 4.2.1.1).

When hip and ridge roof coverings are blown off, the interior of the building is at risk of water intrusion due to gaps in the roof framing and decking. This water intrusion can result in costly damage to interior contents and furnishings. The observations from the FEMA Hurricane Ian in Florida MAT led to the report recommending the following in Recommendation FL-10c:

FEMA should consider submitting code change proposals or supporting code change proposals from other stakeholders—such as IBHS, ARMA, NRCA, and other aligned groups to the IBC, IRC, and the FBC—to require a minimum of 6 inches overlap of the roof underlayment to hip and ridges that do not have ventilation components. Wrapping underlayment over hips and ridges that don’t have ventilation components will improve the roof’s resistance to water intrusion in the event the hip and ridge coverings are damaged or blown off.

This proposal, if approved, would implement this recommendation by requiring roof underlayment to be lapped over hips and ridges a minimum of 6 inches and would also be consistent with IBHS requirements for a FORTIFIED Roof™ designation. An exception to this required lapping is provided for hips and ridges that have ventilation components. According to discussions with the Asphalt Roofing Manufacturer’s Association (ARMA), many of its members already recommend this

Page: 1

Mod_12162_Text_Underlayment lap at hips and ridges rationale.pdf

practice in their installation instructions. This proposal would codify this requirement for asphalt shingles and expand this practice to all roof covering types.

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

55

R12165

Date Submitted	02/16/2025	**Section**	1518.2	**Proponent**	T Stafford
Chapter	15	**Affects HVHZ**	Yes	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

This proposal requires underlayment to be lapped over hips and ridges except where ventilation openings are provided.

Rationale

This proposal is submitted on behalf of the Insurance Institute for Business and Home Safety (IBHS). It requires underlayment to be lapped over hips and ridges except where ventilation openings are provided. See attached support file for the full rationale.

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
Minimal to no impact to building and property owners relative to the cost of compliance with the code.
Impact to industry relative to the cost of compliance with code
No impact to industry relative to the cost of compliance with the code.
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.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
This proposal will improve the water penetration resistance of roofs in the event that hip and ridge roof coverings are damaged or blown off.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This proposal strengthens the code by improving the water penetration resistance of roofs in the event that hip and ridge roof coverings are damaged or blown off.

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 of demonstrated capabilities.

Does not degrade the effectiveness of the code

This proposal does not degrade the effectiveness of the code.

R12165Text Modification

Revise as follows:

1518.2 Underlayment. Underlayment for roof slopes 2:12 and greater shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D226, D1970, D4869, D6757 and D8257 shall bear a label indicating compliance with the standard designation and, if applicable, type classification indicated. Underlayment for roof slopes 2:12 and greater shall be applied and attached in accordance with Section 1518.1, 1518.2, 1518.5, 1518.6, 1518.7, 1518.8, 1518.9, 1518.10 or 1518.11, as applicable. Underlayment shall lap over hips and ridges a minimum of 6 inches except where ventilation openings in accordance with Section 1203 are provided.

Exceptions:

1. For areas of a roof that cover exterior walkways and roofs of agricultural buildings, underlayment shall comply with the manufacturer's installation instructions.

2. Compliance with Section 1518.2.1 is not required for structural metal panels that do not require a substrate or underlayment.

Page: 1

Mod12165_TextOfModification.pdf

R12165Text Modification

Rationale:

This proposal is submitted on behalf of the Insurance Institute for Business and Home Safety (IBHS).

This proposal seeks to provide an additional level of water intrusion protection for minimal effort in the event part of the roof covering is blown off. If approved, this proposal will align the code with IBHS's FORTIFIED Roof™ designation regarding underlayment application at hips and ridges. The FORTIFIED Home™ program was developed to reduce avoidable suffering and financial loss caused by hurricanes, high winds, and hail. The program requirements provide a systems-based, multi-tiered approach for improving the resistance of homes and their contents to damage caused by wind, wind-driven rain, and hail. There are three designation levels—FORTIFIED Roof™, FORTIFIED Silver™, and FORTIFIED Gold™—that build on each other and address different systems of the home.

Roof covering damage is typically the most observed damage in post-windstorm investigations. This has been observed in damage investigations by IBHS and FEMA Mitigation Assessment Team (MAT) deployments. While widespread roof covering damage was observed and documented in the Hurricane Ian MAT report, the report noted that the failure of hip and ridge roof coverings was the most common damage observed for all roof covering types. The following paragraph is an excerpt from Section 4.2.4 in the FEMA Hurricane Ian MAT Report (https://www.fema.gov/sites/default/files/documents/fema_rm-hurriance-ian-mat-report-12-2023.pdf):

“Although roof covering damage was widespread at all sites visited by the MAT, the degree of roof covering damage varied across the sites. The most common damage observed by the MAT for all roof coverings was displacement of hip and ridge roof coverings.”

The FEMA Hurricane Michael in Florida MAT Report (https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-michael_florida.pdf) also noted that the failure of hip and ridge asphalt shingles was prevalent (see Section 4.2.1.1).

When hip and ridge roof coverings are blown off, the interior of the building is at risk of water intrusion due to gaps in the roof framing and decking. This water intrusion can result in costly damage to interior contents and furnishings. The observations from the FEMA Hurricane Ian in Florida MAT led to the report recommending the following in Recommendation FL-10c:

FEMA should consider submitting code change proposals or supporting code change proposals from other stakeholders—such as IBHS, ARMA, NRCA, and other aligned groups to the IBC, IRC, and the FBC—to require a minimum of 6 inches overlap of the roof underlayment to hip and ridges that do not have ventilation components. Wrapping underlayment over hips and ridges that don’t have ventilation components will improve the roof’s resistance to water intrusion in the event the hip and ridge coverings are damaged or blown off.

This proposal, if approved, would implement this recommendation by requiring roof underlayment to be lapped over hips and ridges a minimum of 6 inches and would also be consistent with IBHS requirements for a FORTIFIED Roof™ designation. An exception to this required lapping is provided for hips and ridges that have ventilation components. According to discussions with the Asphalt Roofing Manufacturer’s Association (ARMA), many of its members already recommend this

Page: 1

Mod_12165_Text_Underlayment lap at hips and ridges rationale.pdf

R12165Text Modification

practice in their installation instructions. This proposal would codify this requirement for asphalt shingles and expand this practice to all roof covering types.

Page: 2

Mod_12165_Text_Underlayment lap at hips and ridges rationale.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

56

R12176

Date Submitted	02/16/2025	**Section**	1507.17.9	**Proponent**	Jennifer Hatfield
Chapter	15	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

On behalf of the Building Officials Association of Florida (BOAF), this code change proposal is intended to add flashing guidance for building officials and users of the code when addressing PV shingles and BIPV roof panels.

Rationale

This code change proposal is intended to add guidance to building officials and users of the code by specifically indicating flashings for PV shingles and BIPV roof panels be installed according to the roof covering manufacturer's installation instructions.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

By having this guidance in the code, costs could lessen as it relates to inaccurate installation by not currently having this code provision.

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

There should be none if already being done accurately.

Impact to industry relative to the cost of compliance with code

There should be none if already being done accurately.

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, as it ensures proper flashing of BIPV.

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

Yes, as it ensures proper flashing of BIPV.

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

It does not.

Does not degrade the effectiveness of the code

It does not.

R12176Text Modification

1507.17.9 Flashing.

Flashing for building-integrated photovoltaic modules/*shingles* shall be installed in accordance with the *roof covering* manufacturer's installation instructions to prevent water from entering the wall and roof through joints in copings, through moisture-permeable materials and at intersections with parapet walls and other penetrations through the roof plane.

Page: 1

Mod12176_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

57

F11839

Date Submitted	02/06/2025	**Section**	2603	**Proponent**	Aaron Phillips
Chapter	26	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11831, 11835, 11836, 11837, 11840, 11841, 11842

Summary of Modification

Clarify that roof assemblies not roof coverings are tested for fire resistance.

Rationale

This modification improves and clarifies terminology associated with roofing fire tests. It corrects instances where results of ASTM E108 or UL 790 tests are associated with a "roof-covering assembly" or a "roofing assembly" instead of a roof assembly. Roof-covering assembly and roofing assembly are undefined terms. ASTM E108 and UL 790 tests are performed on a roof assembly, which involves a roof covering (and sometimes other elements, such as insulation or underlayment) installed onto a roof deck. These tests are always performed on a roof assembly, which by definition includes a roof covering and a roof deck.

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
Improves clarity of the code regarding fire resistance provisions.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Improves clarity of the code regarding fire resistance provisions.

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

Improves the effectiveness of the code.

F11839Text Modification

Revise as follows:

2603.3 Surface-burning characteristics. Unless otherwise indicated in this section, foam plastic insulation and foam plastic cores of manufactured assemblies shall have a flame spread index of not more than 75 and a smoke-developed index of not more than 450 where tested in the maximum thickness intended for use in accordance with ASTM E84 or UL 723. Loose fill-type foam plastic insulation shall be tested as board stock for the flame spread and smoke-developed indexes.

Exceptions:

1. Smoke-developed index for interior *trim* as provided for in Section 2604.2.
2. In cold storage buildings, ice plants, food plants, food processing rooms and similar areas, foam plastic insulation where tested in a thickness of 4 inches (102 mm) shall be permitted in a thickness up to 10 inches (254 mm) where the building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1. The approved *automatic sprinkler system* shall be provided in both the room and that part of the building in which the room is located.
3. Foam plastic insulation that is a part of a Class A, B or C *roof assembly* where tested in accordance with ASTM E108 or UL 790 ~~roof covering assembly~~ provided the assembly with the foam plastic insulation satisfactorily passes NFPA 276 or UL 1256. The smoke-developed index shall not be limited for roof applications.
4. Foam plastic insulation greater than 4 inches (102 mm) in thickness shall have a maximum flame spread index of 75 and a smoke-developed index of 450 where tested at a minimum thickness of 4 inches (102 mm), provided the end use is approved in accordance with Section 2603.9 using the thickness and density intended for use.
5. Flame spread and smoke-developed indexes for foam plastic interior signs in *covered and open mall buildings* provided the signs comply with Section 402.6.4.

2603.4.1.5 Roofing. A thermal barrier is not required for foam plastic insulation that is a part of a Class A, B or C *roof assembly* ~~roof covering assembly~~ that is installed in accordance with the code and the manufacturer's instructions and is either constructed as described in Item 1 or tested as described in Item 2.

1. The roof assembly is separated from the interior of the building by wood structural panel sheathing not less than 0.47 inch (11.9 mm) in thickness bonded with exterior glue, with edges supported by blocking, tongue-and-groove joints, other approved type of edge support or an equivalent material.

2. The assembly with the foam plastic insulation satisfactorily passes NFPA 276 or UL 1256.

2603.6 Roofing. Foam plastic insulation meeting the requirements of Sections 2603.2, 2603.3 and 2603.4 shall be permitted as part of a *roof assembly*~~roof covering assembly~~, provided the assembly with the foam plastic insulation is a Class A, B or C *roof assembly* ~~roofing assembly~~ where tested in accordance with ASTM E108 or UL 790.

Page: 1

Mod11839_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

58

R11849

Date Submitted	02/03/2025	**Section**	35	**Proponent**	Aaron Phillips
Chapter	35	**Affects HVHZ**	No	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language Yes**

Related Modifications

Summary of Modification

Update editions of referenced standards.

Rationale

This modification updates roofing-related referenced standards to current editions.

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
Updates referenced standards to current editions.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Updates referenced standards to current editions.
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
Improves effectiveness of the code.

Alternate Language

1st Comment Period History

Proponent Aaron Phillips **Submitted** 4/3/2025 2:08:17 PM **Attachments** Yes

R11849-A1

Rationale:

This comment corrects three mistakes in the standard designations which were identified after submission of the original modification 11849. Correcting these errors will improve clarity of the referenced standards.

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
Updates referenced standards to current editions.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Updates referenced standards to current editions.

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
Improves effectiveness of the code.

R11849-A1Text Modification

This comment corrects mistakes in the original 11849 submission for three standard designations, as follows:

~~D226/D226M-17~~ D226/D226M-17(2023)D226/D226M-17(2023)

~~D3462/D3462M-16~~ D3462/D3462M-23

~~D3746/D3746M-85(2015)e1~~ D3746/D3746M-85(2022)

The corrections are shown via yellow highlights.

The full text of the original modification with the corrections shown above is included as an attachment to this comment.

Page: 1

Mod11849_A1_TextOfModification.pdf

R11849-A1Text Modification

Alternative language comment for 11849, correcting mistakes in three standard designations via additions as shown below via yellow highlights. All other details match the original modification.

Text of Modification

Update referenced standards editions as follows:

[Standard titles not shown do not change.]

ASTM

~~C208-12(2017)e2~~ C208-22

~~C578-19~~ C578-23

~~C726-17~~ C726-24

~~C728-17a~~ C728-17a(2022)

~~C1177/C1177M-17~~ C1177/C1177M-24

~~C1289-21~~ C1289-23a

Page: 1

Mod_11849_A1_Text_11849-Alt.pdf

R11849-A1Text Modification

~~D41/D41M-2011(2016)~~ D41/D41M-11(2023)

~~D92-18~~ D92-24

~~D226/D226M-17~~ D226/D226M-17(2023)

~~D312/D312M-16a~~ D312/D312M-16a(2023)

~~D1079-02~~ D1079-24

~~D1863/D1863M-05(2018)e1~~ D1863/D1863M-05(2024)

~~D2824/D2824M-18~~ D2824/D2824M-18(2024)

~~D3018~~ D3018/D3018M-22

~~D3019/D3091M-17~~ D3019/D3019M-17(2024) D3161/

~~D3161M-20~~ ~~D3161/~~D3161M-20(2025)

~~D3462/D3462M-16~~ D3462/D3462M-23

~~D3746/D3746M-85(2015)e1~~ D3746/D3746M-85(2022)

~~D3909/D3909M-14~~ D3909/D3909M-22

~~D4479/D4479M-07(2018)~~ D4479/D4479M-07(2024)

~~D4586/D4586M-07(2018)e1~~ D4586/D4586M-07(2024)

~~D4897/D4897M-16a~~ D4897/D4897M-16(2023)

~~D6162/D6162M-16~~ D6162/D6162M-21

~~D6163/D6163M-16~~ D6163/D6163M-21

~~D6164/D6164M-16~~ D6164/D6164M-21

~~D6222/D6222M-16~~ D6222/D6222M-16(2023)

~~D6223/D6223M-16~~ D6223/D6223M-21

~~D6298/D6298M-16~~ D6298/D6298M-16(2023)

~~D6380/D6380-03(2018)~~ D6380/D6380M-03(2022)

~~D6509/D6509M-16~~ D6509/D6509M-16(2023)

~~D6757/D6757M-18~~ D6757/D6757M-18(2023)

~~D7158/D7158M-20~~ D7158/D7158M-24a

~~D7655/D7655M-12(2017)~~ D7655/D7655M-12(2022)

~~E84-18b~~ E84-24

~~E96/E96M-16~~ E96/E96M-24a

~~E108-20~~ E108-25

~~F1667-21~~ F1667/F1667M-21a

FM

~~4470-2016~~ 4470 (April 2022)

UL

~~580-2006~~ 580-2006 Tests for Uplift Resistance of Roof Assemblies--with Revisions through April 2024 ~~2018~~

~~790-2004~~ 790-2004 Standard Test Methods for Fire Tests of Roof Coverings--with Revisions through February 2022 ~~October 2018~~

~~1897-2015~~ 1897-2015 Uplift Tests for Roof Covering Systems--with revisions through July 2023 ~~September 2020~~

Page: 2

Mod_11849_A1_Text_11849-Alt.pdf

R11849Text Modification

Update referenced standards editions as follows:

[Standard titles not shown do not change.]

ASTM

~~C208-12(2017)e2~~ C208-22

~~C578-19~~ C578-23

~~C726-17~~ C726-24

~~C728-17a~~ C728-17a(2022)

~~C1177/C1177M-17~~ C1177/C1177M-24

~~C1289-21~~ C1289-23a

~~D41/D41M-2011(2016)~~ D41/D41M-11(2023)

~~D92-18~~ D92-24

~~D226/D226M-17~~ D226/226M-17(2023)

~~D312/D312M-16a~~ D312/D312M-16a(2023)

~~D1079-02~~ D1079-24

~~D1863/D1863M-05(2018)e1~~ D1863/D1863M-05(2024)

~~D2824/D2824M-18~~ D2824/D2824M-18(2024)

~~D3018~~ D3018/D3018M-22

~~D3019/D3091M-17~~ D3019/D3019M-17(2024)

~~D3161/D3161M-20~~ D3161/D3161M-20(2025)

~~D3462/D3462M-16~~ D3462D3462M-23

~~D3746/D3746M-85(2015)e1~~ D3746/D3746-85(2022)

~~D3909/D3909M-14~~ D3909/D3909M-22

~~D4479/D4479M-07(2018)~~ D4479/D4479M-07(2024)

~~D4586/D4586M-07(2018)e1~~ D4586/D4586M-07(2024)

~~D4897/D4897M-16a~~ D4897/D4897M-16(2023)

~~D6162/D6162M-16~~ D6162/D6162M-21

~~D6163/D6163M-16~~ D6163/D6163M-21

~~D6164/D6164M-16~~ D6164/D6164M-21

~~D6222/D6222M-16~~ D6222/D6222M-16(2023)

~~D6223/D6223M-16~~ D6223/D6223M-21

Page: 1

Mod11849_TextOfModification.pdf

R11849Text Modification

~~D6298/D6298M-16~~ D6298/D6298M-16(2023)

~~D6380/D6380-03(2018)~~ D6380/D6380M-03(2022)

~~D6509/D6509M-16~~ D6509/D6509M-16(2023)

~~D6757/D6757M-18~~ D6757/D6757M-18(2023)

~~D7158/D7158M-20~~ D7158/D7158M-24a

~~D7655/D7655M-12(2017)~~ D7655/D7655M-12(2022)

~~E84-18b~~ E84-24

~~E96/E96M-16~~ E96/E96M-24a

~~E108-20~~ E108-25

~~F1667-21~~ F1667/F1667M-21a

FM

~~4470-2016~~ 4470 (April 2022)

UL

~~580-2006~~ 580-2006 Tests for Uplift Resistance of Roof Assemblies--with Revisions through April 2024 ~~2018~~

~~790-2004~~ 790-2004 Standard Test Methods for Fire Tests of Roof Coverings--with Revisions through February 2022 ~~October 2018~~

~~1897-2015~~ 1897-2015 Uplift Tests for Roof Covering Systems--with revisions through July 2023 ~~September 2020~~

Page: 2

Mod11849_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

59

R12070

Date Submitted	02/17/2025	**Section**	1	**Proponent**	Robert Zabcik
Chapter	35	**Affects HVHZ**	Yes	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

12064

Summary of Modification

Adding ANSI/MCA FTS-1 Standard to Chapter 35 (FBC)

Rationale

This proposal adds ANSI/MCA FTS-1 as a referenced standard as required for Proposal 12064. Please see rationale for proposal 12064. A current copy of the FTS-1 standard is attached to this proposal.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
See impact statement for Mod 12064.
Impact to building and property owners relative to cost of compliance with code
See impact statement and attachment for Mod 12064.
Impact to industry relative to the cost of compliance with code
See impact statement for Mod 12064.
Impact to small business relative to the cost of compliance with code
See impact statement for Mod 12064.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
See statement for Mod 12064
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
See statement for Mod 12064
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not degrade the effectiveness of the code
See statement for Mod 12064

R12070Text Modification

MCA Metal Construction Association

1601 American Lane Suite 310

Schaumburg IL 60631

ANSI/MCA FTS-1 2019 Test Method for Wind Load Resistance of Flashings Used with Metal Roof Systems

Page: 1

Mod12070_TextOfModification.pdf

ANSI/MCA FTS-1-2019

Test Method for Wind Load Resistance of Flashings Used with Metal Roof Systems

Approved 6/25/19

1.0 Scope

1.1 This test method evaluates the wind load resistance of flashings to be installed at the roof perimeter and roof plan transitions of metal roof systems by testing the flashing and its attachment to the supporting structure using line loads.

1.2 The provisions of this test method apply to exposed flashings with a face 4 inches or greater that are direct-fastened, and hem-and-cleat connections, or other attachment methods with a face 2 inches or greater.

1.3 This test method provides a standard procedure to demonstrate wind load resistance under uniform line load. This procedure is intended to represent the effects of uniform loading on exposed elements on a building surface. Two methods of testing are provided: 1) Face Load and 2) Face Load and Top Load.

3.0 Terminology

Where the following terms appear in this standard they are in italics and shall have the meaning defined herein. Terms not defined in Section 3 of this standard shall have the ordinary accepted meaning for the context in which they are used.

Anticipated ultimate load – the estimated maximum load that the *specimen* is expected to resist.

Cleat – a continuous metal strip to which a flashing with an open hem is engaged.

Clip – a non-continuous metal component used to secure two or more metal components together.

Coping – the covering piece on top of a parapet wall exposed to the weather, usually made of metal and sloped to carry off water.

Direct-fastened – an attachment method that involves a *fastener* passing through the attached member rather than attaching with a *cleat* or other similar method.

Drip edge – the outward projecting lower edge of a flashing used to control the direction of dripping water and to protect underlying building components.

***Face*—**the exposed surface or surfaces of a flashing to which one load is applied

Failure – fracture, disengagement or unrestrained deformation of components, including *fasteners*, such that the *specimen* is not capable of resisting additional load.

Fastener – any of a wide variety of mechanical devices and assemblies, including nails, staples, screws, rivets and bolts for securing components to a building.

Load case – one orientation of load or loads that is applied for a *test cycle*.

Specimen – the entire assembled unit submitted for testing.

Sustained load – a load resisted for specified time.

Test cycle – a series of increasing, *sustained loads*.

Ultimate load – the maximum *sustained load* resisted by the *specimen*.

4.0 Units and Terms

Any compatible system of measurement units is acceptable to be used in this standard, except where explicitly stated otherwise. The unit systems in this standard shall include U.S. customary units (force in kips and length in inches) and SI units (force in newtons and length in millimeters).

5.0 Summary of Test Method

5.1 This test method shall include all of the following: (1) attachment of the stiffening plate or other test apparatus components to the flashing *specimen* as needed, (2) attachment of the flashing *specimen* to the bed of the test apparatus, (3) application of a series of uniform line loads to the test *specimen* and (4) observation and recording of the loads resisted and mode or modes of *failure* of the test *specimen*.

5.2 The increments of load application shall be chosen so that results from a minimum of four *sustained loads* are recorded. If *failure* occurs before a minimum of four loads have been sustained, the test shall be deemed invalid.

6.0 Apparatus

6.1 Description of Apparatus

The apparatus for single load tests shall include the major components shown in Figure 1. The apparatus for two load tests shall include the major components shown in Figure 2 and Figure 3. The Optional Stiffening Plate shown in these figures, if used, shall be no wider than 2" (51 mm) and no thicker than 1/8" (3.2 mm). Figures 1, 2 and 3 indicate how loads are applied to various generic flashing configurations. Actual flashing and configuration connection shall be per the design and manufacture of the flashing to be tested.

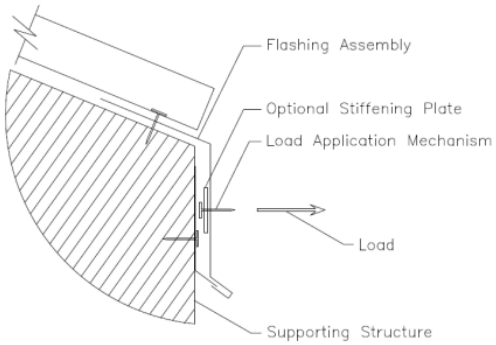

Figure 1 – Single Load Test Apparatus

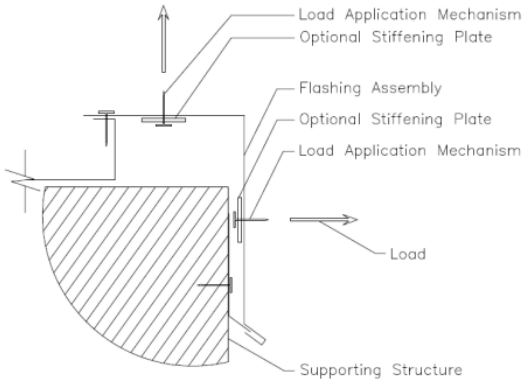

Figure 2 – Two Load Test Apparatus

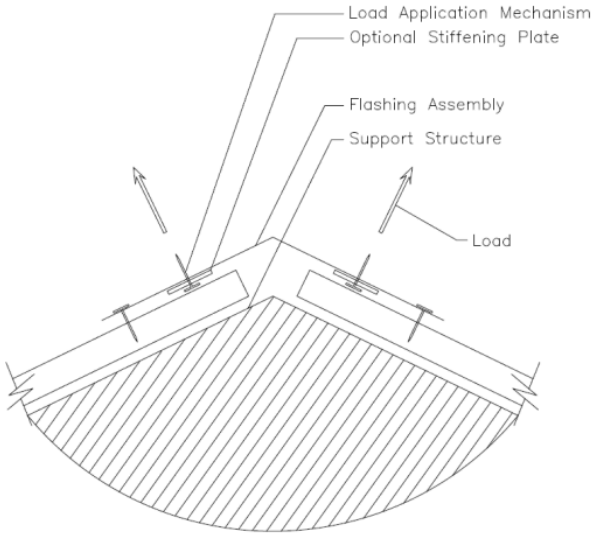

Figure 3 – Two Load Test Apparatus

6.2 Supporting Structure

The supporting structure shall be representative of field conditions and sized to allow the secure attachment of the *specimen*. Anchorage shall be required to hold the supporting structure in place while load is applied during the test. The supporting structure shall be representative of field conditions.

6.3 Load Application System

6.3.1 The load application system shall consist of a tensile tester or other device capable of providing concentrated load and fitted with a load cell capable of indicating loads of at least the *anticipated ultimate load*.

6.3.2 The load application system shall be attached to the *specimen* in the center of the tested face and shall be capable of uniformly distributing the load to the *specimen*. The spacing of the *specimen* attachment to the load application system shall be no greater than 12 inches (300 mm) on center. The load application system shall be attached to the face centered on its width.

6.3.3 The precision of the load application system shall be +/- 10 pounds (4.5 kg) based on calibration within 12 months of the test date. The maximum calibration load shall not be exceeded in testing.

7.0 Test Specimen

7.1 The *specimen* shall consist of all parts relevant to the assembly. Field-application conditions of the *specimen* shall be simulated. The *specimen* shall be full size. Supporting structure shall be of a length no less than the length of the test *specimens*.

The ends of the *specimen* shall not be restrained, but free to deflect under load. End and edge restraint shall be representative of field conditions and shall be documented in the test report.

7.2 The flashing *specimen* shall be a minimum of 120 inches (3000 mm) in length, without laps in the flashing, unless the flashing is only produced in lengths less than 120 inches (3000 mm).

7.3 A face shall consist of a flat segment of a flashing profile plus adjacent segments such as *drip edge* or hem that are within 45 degrees of being inline. Two parallel, flat segments offset by less than 1 inch (25 mm) shall be tested as one face.

7.4 The minimum number of *specimens* shall be based on the number of *load cases* and *test cycles* required for the flashing. Three *test cycles* shall be performed for each *load case*. A new specimen shall be used for each test cycle.

7.4.1 For flashings with only one exposed face, one *load case* shall be required, therefore three *specimens* are required. Loads shall be applied perpendicular to the exposed face. The Single Load Test Apparatus shall be employed for this purpose.

7.4.2 For flashings with two exposed faces, one *load case* shall be required; therefore, three specimens are required. Loads shall be applied to the two faces simultaneously. Loads shall be applied with a ratio of 2 psf (96 Pa) vertical to 1 psf (48 Pa) horizontal. If both faces are expected to receive approximately equal loading in field applications (e.g. ridge cap), then both faces shall be tested with equal load simultaneously. The Two Load Test Apparatus shall be employed for flashings in this category. Load shall be applied perpendicular to the face.

7.4.3 For flashings with three or more exposed faces, the number of required *load cases* shall equal the number of pairs of adjacent faces. In the case of a *coping*, two *load cases* shall be required; therefore, six specimens are required. In the first *load case*, loads shall be applied simultaneously to the top (upward) and to one of the vertical faces (lateral). In the second *load case*, loads shall be applied simultaneously to the top (upward) and

to the other vertical face (lateral). Loads shall be applied with a ratio of 2 psf (96 Pa) upward on the top surface to 1 psf (48 Pa) horizontal on the wall coverage surfaces. The Two Load Test Apparatus shall be employed for flashings in this category. Load shall be applied to each face in a manner that is perpendicular to the roof or wall surface plane covered by that face. For top surfaces sloped less than 10 degrees, the top surface load is permitted to be applied vertically.

8.0 Loading Procedure

8.1 Orientation

The test set up shall be oriented such that gravity shall not have an undue influence on the test other than that experienced by in-place field applications. Only loads resisted by the *specimen* shall be included in the reported loads.

8.2 Procedure

This procedure shall be designed to produce a *test cycle* with a minimum of four *sustained loads*.

8.2.1 The typical loading cycle shall consist of two phases: a load phase and an unload phase.

8.2.2 The load phase shall apply the line loading in increasing magnitudes. The first loading shall be at one third of the *anticipated ultimate load*. Subsequent loadings shall be increased by up to one sixth of the *anticipated ultimate load*. For loads of up to 150 psf (7.2 kPa), the load shall be achieved within 1 minute. For loads greater than 150 psf (7.2 kPa), the load shall be achieved within 2 minutes. Each loading shall be held for at least 1 minute.

Loads shall be recorded to a precision of five percent of the *anticipated ultimate load* during applications of the test loads.

8.2.3 The unload phase shall relax the load to zero. This phase shall last no longer than 5 minutes. This phase shall be followed by the next loading cycle.

8.2.4 For flashings loaded on two separate faces simultaneously, the loading shall progress as described above based upon the *anticipated ultimate* vertical *load* (applied to the more horizontal surface.

8.2.5 The test shall be concluded when any of the following happen, the *specimen* fails, the capacity of the test apparatus is reached, or at the direction of the party conducting

the test. *Failure* in the *specimen* shall be when any of the following conditions occur: 1) *Fastener failure* (ex. pull-out, pull-over or breakage), 2) Unlatching of a panel or flashing, 3) Component *failure* (ex. Rupture, tearing or cracking),

8.2.6 A minimum of four *sustained loads* shall be recorded before a *test cycle* is concluded. If the *specimen* fails before four *sustained loads* are recorded the *test cycle* shall be deemed invalid and shall be repeated with a lower *anticipated ultimate load* that will yield four *sustained loads*.

9.0. Test Report

9.1 Date of test and date of report shall be included in the test report along with the name of the testing organization and location. The observers, their qualifications and affiliation shall be included.

9.2 The test report shall describe the *specimen*, including the manufacturer, location of manufacture and dimensions. The testing equipment including load cell and load application device shall be described.

9.3 The test report shall include cross-section drawings of the *specimen* including flashing, panels, panel attachment method and supporting structure. The drawings shall identify type, location and spacing of *fasteners* and show how and where the test apparatus is attached to the specimen.

9.5 The test report shall include the measured thickness and yield strength of the *specimen*.

9.6 Tabulation of the loadings and load durations, including the *anticipated ultimate load*, shall be included in the test report.

9.7 The test report shall include visual observations including *failure* mode, the *sustained loads* applied, and the *ultimate loads*. The *ultimate loads* from the performed *test cycles* shall be averaged and recorded as the test result.

9.8 The test report shall include a statement that the test(s) were conducted in accordance with this test method, noting any deviations.

ANSI/MCA FTS-1-2019

Commentary

This commentary consists of explanatory and supplementary material designed to help in applying the requirements of the preceding Standard.
This commentary is intended to create an understanding of the requirement through brief explanations of the reasoning employed in arriving at these requirements.
The sections of this commentary are numbered to correspond to sections of the Standard to which they refer. Since having comments for every section of the Standard is not necessary, not all section numbers appear in this commentary.

C1.0 Scope

In significant wind events, *failure* frequently begins at the flashing attachment at the roof edge, e.g. eaves and gables, and at roof plane transitions with a reflex angle, e.g. hips and ridges. This test method is intended to determine the capacity of these flashings to withstand the anticipated wind loads.

C1.2 For *direct-fastened* faces less than 4 inches (100 mm) it is anticipated that the mode of *failure* will be *fastener* pull-out; therefore, testing of faces less than 4 inches (100 mm) is not required. *Fasteners* used to *direct-fasten* faces less than 4 inches (100 mm) must have adequate pull-out resistance for the design loads.

For *cleated* faces less than 2 inches (50 mm) the design loads will yield a line load that is too low to allow for a significantly meaningful series of *test cycles*; therefore, testing is not required for flashing with faces less than 2 inches (50 mm).

C2.0 Referenced Documents

The following documents were considered during the development of this document.

1. ASTM E 1592-05(2017) Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference

2. 2017 Florida Building Code Test Protocols for High Velocity Hurricane Zones:
(TAS) No. 111(B)-95 Test Procedure for Edge Metal Pull-Off Performance
(TAS) No. 111(C)-95 Test Procedure for Coping Cap Pull-Off Performance

3. ANSI/SPRI/FM 4435/ES-1 2017 Test Standard for Edge Systems Used with Low Slope Roofing Systems

C5.0 Summary of Test method

This summary is to outline the general steps that are required for testing. The attachment of test apparatus connections to the test *specimen* may be made before or after the *specimen* is mounted to the apparatus test bed.

C5.2 Metal flashings are subjected to repeated loading from gusting winds; therefore, a critical component of the test is that the test load is applied and relaxed a minimum of four times prior to the application of the *Ultimate Load*. If *failure* occurs before four loads are applied, the *anticipated ultimate load*, and therefore the load increments, must be decreased and the test repeated, until a minimum of four *sustained loads* have been recorded.

C6.0 Apparatus

C6.1 The apparatus is general in nature. Any equipment capable of performing the test procedure within the allowable tolerances described in this section is acceptable.

The purpose of the Optional Stiffening Plate is to reduce complications of fastener(s) in the Load Application Mechanism pulling through the flashing, or the flashing bending along the line of fasteners, by better distributing the load on the loaded face.

C6.2 To simplify and standardize testing, the apparatus does not need to be an exact replication of the substrate expected in field application; however, the apparatus must provide no greater pull-out resistance for the *specimen fasteners* than what will be achieved in field application.

C7.0 Test Specimen

C7.1 The *specimen* includes the supporting structure such as wood or steel, the exterior metal panel(s), panel *clips*, sealant, *fasteners, cleats* and the flashing as applicable.

C7.4.2 and 7.4.3 The ratio between the vertical and horizontal GC_p values used to calculate wind loads vary with building height, roof zone location, and the version of ASCE7 being used. To standardize the testing, and to avoid necessitating that multiple tests be run with several different vertical:horizontal ratios, a simple and conservative ratio of 2:1 was selected.

C9.0 Test Report

C9.5 Both material thickness and yield strength can greatly affect the performance of a flashing system; therefore, the thickness and strength of the tested specimen is needed to confirm that the product produced for use in the field is of equal or greater thickness and yield strength. Yield strength may be determined by methods such as ASTM A 370-17a, ASTM B 557-15, etc. as appropriate for the material being tested.

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Building

60

F11841

Date Submitted	02/06/2025	**Section**	102.2.4	**Proponent**	Aaron Phillips
Chapter	2704	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11831, 11835, 11836, 11837, 11839, 11840, 11841

Summary of Modification

Clarify that roof assemblies, not roof coverings, are tested for fire resistance.

Rationale

This modification improves and clarifies terminology associated with roofing fire tests. It corrects instances where results of ASTM E108 or UL 790 tests are associated with a "roof covering" instead of a roof assembly. ASTM E108 and UL 790 tests cannot be performed on a "roof covering." They involve a roof covering (and sometimes other elements, such as insulation or underlayment) installed onto a roof deck. These tests are always performed on a roof assembly, which by definition includes a roof covering and a roof deck.

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
Improves clarity of the code regarding fire resistance provisions.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improves clarity of the code regarding fire resistance provisions.

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

Improves the effectiveness of the code.

F11841Text Modification

D102.2.4 Roof covering.

Roof covering in the fire district shall conform to the requirements of Class A or B *roof assemblies* ~~roof coverings~~ as defined in Section 1505.

Page: 1

Mod11841_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Existing Building

61

R11854

Date Submitted	02/07/2025	**Section**	706.7.2	**Proponent**	Michael Silvers (FRSA)
Chapter	7	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

This modification brings sections that are in Building and Residential sub codes that addresses existing self-adhering underlayment applied direct to deck in roof replacement work. This condition only applies to existing buildings and should be included in the Existing Building sub code.

Rationale

This modification aligns with current sections in FBCB Chapter 15 and FBCR Chapter 9 which address how to proceed with new underlayment (secondary water barrier) when an existing self-adhered underlayment is applied directly to a wood deck. This condition typically occurs on existing buildings and should be included in the Existing Building sub-code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11854Text Modification

706.7.2 Roof secondary water barrier for existing structures with wood roof decks.

When a roof covering is removed and replaced, a secondary water barrier shall be installed in accordance with Section 1507.1.1 or 1518.2 of the Florida Building Code, Building or Section R905.1.1 of the Florida Building Code, Residential.

706.7.3 Existing self-adhering underlayment applied direct to deck.

706.7.3.1 During roof covering replacement of asphalt shingles, metal roof panels or shingles, mineral surfaced roll roofing, slate and slate-type shingles, wood shakes and wood shingles where an existing self-adhering modified bitumen underlayment that has been previously installed over the roof decking and, where it is required, renailing off the roof sheathing in accordance with Section 706.7.1 of the Florida Building Code, Existing Building can be confirmed or verified. An approved underlayment in accordance with Table 1507.1.1.1 or 1518.2.1 of the Florida Building Code, Building or section 905.1.1.1 of the Florida Building Code Building for the applicable roof covering shall be applied over the entire roof over the existing self-adhered modified bitumen underlayment.

706.7.3.2 Continuous roof system having a roof slope < 2:12 shall be deemed to comply with Section 706.7.2 requirements for a secondary water barrier. Where an existing self-adhering modified bitumen roof system has been previously installed over the roof decking and, where it is required, renailing of the roof sheathing in accordance with Section 706.7.1 of the *Florida Building Code, Existing Building* can be confirmed or verified. An approved roof system in accordance with Sections 1507.10 through 1507.16 or Section 1519 of the Florida Building Code, Building or Sections R905.9 through R905.15 of the Florida Building Code, Residential shall be applied over the entire roof over the existing self-adhered modified bitumen underlayment.

706.7.3.3 Clay and concrete tile roof systems installed as required by the Florida Building Code are deemed to comply with the requirements of Section 706.7.2 for Secondary Water Barriers. Where an existing self-adhering modified bitumen underlayment that has been previously installed directly over the roof decking and, where it is required, renailing of the roof sheathing in accordance with Section 706.7.1 of the *Florida Building Code, Existing Building* can be confirmed or verified. An approved underlayment in accordance with a two-ply system as described in the FRSA/TRI *Florida High Wind Concrete and Clay Roof Tile Installation Manual*, Seventh Edition shall be applied over the entire roof over the existing self-adhered modified bitumen underlayment.

Page: 1

Mod11854_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Existing Building

62

R11861

Date Submitted	02/07/2025	**Section**	706.3	**Proponent**	Michael Silvers (FRSA)
Chapter	7	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1511.3, R908.3

Summary of Modification

Provides options to remove the upper (second) roof covering or roof system only. To preserve insulation from the lower roof system without removing it down to the roof deck. To use LWIC (Lightweight Insulating Concrete) that has been previously applied over an existing roof system

Rationale

This modification provides the option to remove the upper (second) roof covering or roof system only, when recovering. The option to preserve insulation from the lower roof system without removing it down to the roof deck. An option to use LWIC (Lightweight Insulating Concrete) that has been previously applied over an existing roof system without removal down to the original roof deck.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact
Impact to industry relative to the cost of compliance with code
No impact
Impact to small business relative to the cost of compliance with code
No impact

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11861Text Modification

706.3 Recovering versus replacement.

New roof coverings shall not be installed without first removing all existing layers of roof coverings down to the roof deck where any of the following conditions occur:

1. Where the existing roof covering or roof system components ~~covering is~~ are water soaked or ~~has~~ have deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.
4. When blisters exist in any roofing, unless blisters are cut or scraped open and remaining materials secured down before applying additional roofing.
5. Where the existing roof covering is to be used for attachment for a new roof system and compliance with the securement provisions of Section 1504.1 of the *Florida Building Code, Building* cannot be met.

Exceptions:

1. Buildings and structures located within the High-Velocity Hurricane Zone shall comply with the provisions of Sections 1512 through 1525 of the *Florida Building Code, Building*.
2. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
3. ~~Reserved.~~ Where two roof covering applications exist, and the upper roof system or roof coverings are removed leaving an existing or repaired substrate that is adequate for installation of a new approved roof covering or roof system.
4. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.
5. ~~Roof Coating. Application of elastomeric and or maintenance coating systems over existing asphalt shingles shall be in accordance with the shingle manufacturer's approved installation instructions~~.

Where the existing roof assembly includes a vapor barrier or self-adhering membrane that is adhered to the roof deck, the existing membrane shall be permitted to remain in place and covered with an additional layer of membrane in accordance with Sections 1507 or R905.

Page: 1

Mod11861_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Existing Building

63

R12112

Date Submitted	02/14/2025	**Section**	706.3	**Proponent**	T Stafford
Chapter	7	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments Yes **Alternate Language Yes**

Related Modifications

Summary of Modification

Adds provisions regarding existing self-adhered underlayment during a roof replacement to ensure protection from water intrusion through the roof deck is maintained for roof replacements.

Rationale

This proposal addresses the use of existing self-adhered underlayment during a roof replacement. While the code requires roofing materials to removed down to the roof deck for roof replacements, removing existing self-adhered underlayment can be challenging. This proposal would permit an existing self-adhered underlayment to remain and be covered with mechanically attached underlayment provided the underlayment is installed using the double-layer method in Item 3 of Section 1507.1.1.1 of the Flroida Building Code, Building. During reroofing, the self-adhered underlayment will likely be damaged in some areas and may not be suitable for resisting water intrusion through the roof deck in the event the primary roof covering is damaged or blown off. This proposal also permits one additional layer of self-adhered underlayment to be installed over a single existing layer of self-adhered underlayment provided the criteria specified is met. Approval of this proposal will ensure that roof replacement projects are protected from water intrusion as required for new construction. The full rationale is provided in the attached support file.

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.
Impact to industry relative to the cost of compliance with code
No impact to industry relative to the cost of compliance with the code.
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.

Requirements

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

This proposal ensures that roof replacement projects are protected from water intrusion as required for new construction.

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

This proposal strengthens and improves the code by ensuring that roof replacement projects are protected from water intrusion as required for new construction.

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 of demonstrated capabilities.

Does not degrade the effectiveness of the code

This proposal does not degrade the effectiveness of the code.

Alternate Language

1st Comment Period History

R12112-A1

Proponent Kelsey Archer **Submitted** 4/16/2025 5:48:04 PM **Attachments** No

Rationale:

This comment is on behalf of Polyglass USA, a manufacturer of residential and commercial roofing and waterproofing products and on behalf of Building Envelope Associates, a registered consulting/engineering firm and industry expert in roofing and waterproofing. SA = self-adhered Where the proposed mod language designates “one layer of self-adhered underlayment", it implies that it would not allow the recovering of a 2-ply SA underlayment system (2 self-adhered membranes applied on top of each other, directly over the wood deck). Several manufacturers have approved 2-ply SA systems with the intent of a redundant waterproofing and secondary barrier to provide extra protection of the roof. Also, for fire-rated SA underlayments such as Polyglass XFR, 2 layers is REQUIRED for aluminum roof coverings in order to meet the Class A Fire Rating. By limiting the option of a recover to only roofs that have 1 SA on the deck, it would force building owners that either chose a better, redundant underlayment initially or that have an aluminum roof covering, to have their decks torn off instead of recovered because they already have 2 layers on them. The proposed mod language “Item 3 of Section 1507.1.1.1” references a Section for installing 2 layers of ASTM D226 Type II. It is my understanding that that is not the code intent, and that 1 layer is allowed if the pitch is 4:12 or greater. Therefore, it falls more in line with Item 2 of Section 1507.1.1.1 and certainly lines up with the Table 1507.1.1.1. Table 1507.1.1.1 was created for the specific use of underlayment to be installed over an existing SA on the deck or over stripped-in plywood joints. It wouldn’t make any sense to require 2 layers of ASTM D226 Type II over an existing SA, especially for a tile roof.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Unknown

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

As modification is currently written, this would greatly impact the cost to replace a roof where an approved, self-adhered 2-ply system is installed.

Impact to industry relative to the cost of compliance with code

Unknown

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.

Requirements

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

The current mod as written would deter building owners from initially installing a 2-ply underlayment system despite it being a better system, and therefore is a negative connection with the public. My comments improve public welfare.

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

The modification as it reads now actually reinforces the use of inferior products and systems, as it limits self-adhered underlayments to only 1 layer. Allowing 2 layers without repercussions in the future when replacing the roof covering would improve the performance of the roof system as a whole.

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

The modification as it reads now DOES discriminate against underlayment manufacturers that innovated the best underlayment systems consisting of 2-plies, and that have gone through extensive testing for wind uplift and fire testing My changes to the modifications would mitigate the discrimination.

Does not degrade the effectiveness of the code

The mod as it reads now (relating to Item 3 of Section 1507.1.1.1) degrades the effectiveness of the code, as it refers to a section that is not best practices and nor the code intent. My changes to the mod will improve the effectiveness of the code as it will then relate to the intended table.

1st Comment Period History

R12112-G1

Proponent Michael Silvers (FRSA) Submitted 4/16/2025 2:30:30 PM Attachments No

Comment:

The FBC has included methods to address self-adhering underlayment during reroofing for two code cycles (2020 and 2023). The provisions have been thoroughly vetted by the appropriate TACs and the Commission. The language incorporated in the FBC was produced and mutually agreed on by a work group comprised of those who represent FRSA, IBHS and ARMA. The application methods have been taught in numerous continuing education courses presented by FRSA and others for contractors, building officials, architects and engineers. These requirements are understood and have been widely accepted and implemented. They have been expanded to include all steep slope (2/12 and greater) roof coverings. Similar provisions have also been adopted in the HVHZ making the general methods applicable statewide. The FBC has dealt with an existing self-adhering underlayment in the same manner as self-adhering strips installed over the joints in the roof decking. The FBC sections that address existing self-adhering underlayment installed direct to deck specifically points to TABLE 1507.1.1 and R905.1.1 UNDERLAYMENT WITH SELF-ADHERING STRIPS OVER ROOF DECKING JOINTS to prescribe how the required additional underlayment is to be installed. The taped joint with additional nailed underlayment approach has been in the FBC since 2010. The suggested language in this modification that was incorporated into the IBC does not take the same approach as taken in the two previous versions of the FBC and will cause confusion and possible unintended consequences moving forward. We urge you to support maintaining the current FBC approach and respectfully request your support in urging denial of this modification.

1st Comment Period History

R12112-G2

Proponent Kelsey Archer Submitted 4/16/2025 6:05:29 PM Attachments No

Comment:

This comment is on behalf of Polyglass USA, a manufacturer of residential and commercial roofing and waterproofing products and on behalf of Building Envelope Associates, a registered consulting/engineering firm and industry expert in roofing and waterproofing. I believe this modification is misleading and/or degrades the effectiveness of the code because it implies that there are only 2 ways to recover an existing self-adhered underlayment: Option 1 being 2 layers of D226 Type II felt and Option 2 being applying another self-adhered over the existing. Option 1 will only work for non-tile applications because tile foams will not adhere to most D226 sheets. It is also overkill to install 2 layers over an already-adhered membrane, when the current code cycle allows just 1 layer of D226 over an existing SA if the pitch is 4:12 or greater. Option 2 seems like it will cause many issues and also would not work for tile applications. Since underlayments need to meet wind uplift pressures, installing an SA on top of an old SA (of any manufacturer) would not have a tested assembly or product approval with a pressure. I foresee issues arising because there is no added testing required to test the adhesion of the new SA to the existing. Manufacturers will not be able to go out to every job site to determine if the existing SA is suitable to apply a new SA over the top, so there will be a lot of roofers installing this without permission and without confirming good adhesion. Also, most underlayment manufacturers do not offer products that qualify for Option 2. In both options, a tile roof covering is not an option. There needs to be an option for a recover for tile roofs.

R12112-A1Text Modification

FEBC Section 706.3, Exception 3:

Where the existing roof includes ~~one layer of~~ self-adhered underlayment(s) applied direct to the roof deck, and supplemental fastening of the roof deck has been performed where required by Section 706.7.1 of the *Florida Building Code, Existing Building*, the existing self-adhered underlayment(s) is permitted to remain in place in accordance with the following:

1. Where the existing sheathing is not water soaked or deteriorated to the point that it is not adequate as a base for additional roofing, mechanically fastened underlayment is permitted to be installed over the existing self-adhered underlayment in accordance with Table 1507.1.1.1.~~Item 3 of Section 1507.1.1.1.~~

Page: 1

Mod12112_A1_TextOfModification.pdf

R12112Text Modification

706.3 Recovering versus replacement. New roof coverings shall not be installed without first removing all existing layers of roof coverings down to the roof deck where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.

2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.

3. Where the existing roof has two or more applications of any type of roof covering.

4. When blisters exist in any roofing, unless blisters are cut or scraped open and remaining materials secured down before applying additional roofing.

5. Where the existing roof covering is to be used for attachment for a new roof system and compliance with the securement provisions of Section 1504.1 of the *Florida Building Code, Building* cannot be met.

Exceptions:

1. Building and structures located within the High-Velocity Hurricane Zone shall comply with the provisions of Sections 1512 through 1525 of the Florida Building Code, Building.

2. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.

3. ~~Reserved.~~ Where the existing roof includes one layer of self-adhered underlayment applied direct to the roof deck, and supplemental fastening of the roof deck has been performed where required by Section 706.7.1, the existing self-adhered underlayment is permitted to remain in place in accordance with the following:

1. Where the existing sheathing is not water soaked or deteriorated to the point that it is not adequate as a base for additional roofing, mechanically fastened underlayment is permitted to be installed over the existing self-adhered underlayment in accordance with Item 3 of Section 1507.1.1.1 of the *Florida Building Code, Building*.

2. Where the existing layer of self-adhered underlayment cannot be removed without damaging the roof deck, a second layer of self-adhered underlayment is permitted to be installed over the existing self-adhered underlayment provided that the following conditions are met:

2.1 It is permitted by the roof covering manufacturer and self-adhered underlayment manufacturer.

2.2 The existing sheathing is not water-soaked or deteriorated to the point that it is not adequate as a base for additional roofing.

2.3 The second layer of self-adhered underlayment is installed such that buildup of material at walls, valleys, roof edges, end laps and side laps does not exceed two layers.

2.4 The existing self-adhered membrane is smooth and clean without granulation or other properties that interfere with adhesion.

4. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.

5. Roof coating. Application of elastomeric and/or maintenance coating systems over existing asphalt shingles shall be in accordance with the shingle manufacturer's approved installation instructions.

Page: 1

Mod12112_TextOfModification.pdf

Rationale:

The use of a self-adhered polymer modified bitumen membrane complying with ASTM D1970 is one of several underlayment options permitted for roof coverings in the FBC. ASTM D1970 self-adhered membranes were recognized as an underlayment option in the early editions of the FBC. After 20 years of code implementation, it remains approved by roof covering manufacturers, underlayment manufacturers and building codes, and has been consistently observed to perform very well as a method for preventing water intrusion in the event the roof covering is lost or damaged.

While the code requires materials and methods for roof replacement to comply with Chapter 15, it provides limited guidance for what to do where a roof is being replaced and there is an existing self-adhered underlayment. The FBCB and FBCR provide some requirements but are missing a few key details. It's not addressed at all in the FBCEB.

This proposal is a collaboration between the Insurance Institute for Business and Home Safety (IBHS), the Asphalt Roofing Manufacturers Association (ARMA), and the National Roofing Contractors Association (NRCA). It provides specific requirements on acceptable methods for dealing with existing self-adhered membranes during a roof replacement. The underlayment methods in the FBC include specific methods for preventing water intrusion in the event the roof covering is damaged or lost in high wind regions. The changes proposed herein seek to maintain that level of protection during roof replacement.

ARMA provides guidance on the removal of self-adhered membrane in their Technical Bulletin, Self-Adhering Underlayment Removal Prior to Steep Slope Re-Roofing: "*Removal of self-adhering underlayment is always recommended in situations in which it can be removed without damaging the deck....If one layer of self-adhering underlayment is in place, and it is not possible to remove it without damaging the deck, installation of a second layer of underlayment over the existing membrane may be permissible: Check with the underlayment manufacturer's installation instructions and local building codes for details. Offset end and side laps in the new and existing underlayment to minimize thickness build-up and "feather in" the new underlayment by extending the new material a minimum of 8" up the slope onto the bare deck. This will reduce the likelihood of problems with drainage and aesthetics. If two or more layers of self-adhering underlayment are in place, all layers should be removed.*"

This proposal would permit an existing self-adhered underlayment to remain and be covered with mechanically attached underlayment provided the underlayment is installed using the double-layer method in Item 3 of Section 1507.1.1.1 of the Florida Building Code, Building. During reroofing, the self-adhered underlayment will likely be damaged in some areas and may not be suitable for resisting water intrusion through the roof deck in the event the primary roof covering is damaged or blown off.

This proposal also permits one additional layer of self-adhered underlayment to be installed over a single existing layer of self-adhered underlayment provided the criteria specified is met.

Approval of this proposal will ensure that roof replacement projects are protected from water intrusion as required for new construction.

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Existing Building

64

R11904

Date Submitted	02/04/2025	**Section**	16	**Proponent**	Aaron Phillips
Chapter	16	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language Yes**

Related Modifications

Summary of Modification

Update editions of referenced standards.

Rationale

This modification updates roofing-related referenced standards to current editions.

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
Updates referenced standards to current editions.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Updates referenced standards to current editions.
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
Improves effectiveness of the code.

Alternate Language

1st Comment Period History

Proponent Aaron Phillips **Submitted** 4/3/2025 2:28:56 PM **Attachments** No

R11904-A1

Rationale:

This comment corrects an error in the standard designation which was recognized after the original modification was submitted.

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
Updates referenced standards to current editions.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Updates referenced standards to current editions.

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
Improves effectiveness of the code.

R11904-A1Text Modification

Text of Modification

Update referenced standards editions as follows:

[Standard titles not shown do not change.]

ASTM

E108-25 ~~E1108-20a~~

F1667/F1667M-21a ~~F1667-18~~

Page: 1

Mod11904_A1_TextOfModification.pdf

R11904Text Modification

Update referenced standards editions as follows:

[Standard titles not shown do not change.]

ASTM

E108-25 ~~E108-20a~~

F1667/1667M-21a ~~F1667-18~~

Page: 1

Mod11904_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

65

CA11777

Date Submitted	01/18/2025	**Section**	101.1	**Proponent**	Greg Burke
Chapter	1	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

FBCR302 FBCB901.6.1 FBCB901.6.2 FBCB903.3.1.3 FBCB907.6.6 FBCEx505.2 FBCEx505.3 FBCEx702.4 FBCEx702.5 FBCFG101.2

Summary of Modification

Adds three- and four- family dwellings to the scope.

Rationale

Housing and skilled labor is at a crisis point in the United States. Demand is outpacing supply in a critical way. To entice development and local authorities in providing more options for first time buyers or those who are wishing to down-size, the scope change will enable an opportunity for choice, Moving these two dwelling types into the FBC,R allows construction in an equivalent manner to single-, two-family, and townhouses buildings. More cost savings can come in the form of reduced egress requirements. Single exits could be required that would have stairs meet the riser/tread dimensions reduced from the commercial maximum requirement to the residential requirements for treads and risers. In Occupancy Group R2, under the FBC,B live load will be reduced to 40 psf from the commercial requirement of 100 psf. Other sections of the FBC,R may allow for potential for smaller HVAC units. Financial institutions finance these two types of dwelling units as single-family homes. It is not until a building has five or more residential units that the financing is a commercial loan. For this reason alone, three-family, and four-family dwelling units should be included in the FBC,R. It is possible to purchase these dwellings with an FHA Loan. Realtors in Florida are also permitted to sell up to four units on a residential license. With proper zoning, three-family and four-family dwelling units can be designed and constructed to be compatible in single-family neighborhoods. Most can be constructed within a 35-foot height limit, common in many parts of the state. Normally, three-family, and four-family dwellings are two, two and one-half or three stories above the grade plane making them compatible with a single-family or two-family home. The footprint of either a three- or a four-family building could be designed and constructed in dimensions of forty feet by sixty feet.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

The less restrictive application of a residential code souldlessen the burden on enforcement.

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

Less expensive construction and sales cost.

Impact to industry relative to the cost of compliance with code

None

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

May provide more opportunity for small developers and contractors.

Requirements

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

The design of three- and four-family dwelligs are similar in nature to a duplex. As such the dgree of health, safety and elfare is enhanced by admitting these two dwelling types to the residential code.

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

The modification is in line with industry standards for financing and sales.

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

No.

Does not degrade the effectiveness of the code

No.

CA11777Text Modification

FBC,B 101.2 Scope.

The provisions of the *Florida Building Code, Residential* shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, removal, and demolition of detached one-, ~~and~~ two-, three- and four- family dwellings and *townhouses* not more than three stories above *grade plane* in height with a separate means of egress and their *accessory structures* not more than three stories above *grade plane* in height.

Page: 1

Mod11777_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

66

R12329

Date Submitted	02/18/2025	**Section**	202	**Proponent**	Nelson Conarroe
Chapter	2	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

FBC, Residential R806.5 Unvented Attic and Unvented Enclosed Rafter Assemblies FBC, Energy Conservation R403.3.2 Ductwork Buried with Ceiling or Attic Floor Insulation

Summary of Modification

Language update for the definition of a Vapor Diffusion Vent. For industry clarity.

Rationale

this name and definition change are also being proposed in ICC language (current cycle). This provides some consistency in language and provides a clearer definition that the assembly addresses vapor moisture out and must be an air barrier. This application works in conjunction with air permeable insulations in unvented attics. See two other modifications submitted that support this change.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Enforcement of the code is zero to minimal impact through basic visual inspection
Impact to building and property owners relative to cost of compliance with code
minimal to no impact to cost.
Impact to industry relative to the cost of compliance with code
minimal to no impact to cost.
Impact to small business relative to the cost of compliance with code
minimal to no impact to cost.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
safe for the general public
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

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

No discrimination.

Does not degrade the effectiveness of the code

Does not degrade.

R12329Text Modification

Section R202 Definitions

VAPOR DIFFUSION ~~PORT~~ VENT. An assembly constructed or installed within a roof assembly at an opening in the roof deck to convey water vapor from an unvented attic to the outside atmosphere and perform as an air barrier.

Page: 1

Mod12329_TextOfModification.pdf

R12329Text Modification

Section R202 Definitions

VAPOR DIFFUSION ~~PORT~~ VENT. An assembly constructed or installed within a roof assembly at an opening in the roof deck to convey water vapor from an unvented attic to the outside atmosphere and perform as an air barrier.

Page: 1

Mod_12329_Text_FBC Residential, R202 Definitions_FL Mod 02.18.25.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

67

R11791

Date Submitted	02/06/2025	**Section**	302.2.2	**Proponent**	Aaron Phillips
Chapter	3	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11790, 11792, 11831, 11835, 11836, 11837, 11839, 11840, 11841

Summary of Modification

Properly identify results of ASTM E108 or UL 790 tests as classifications. Clarify that roof assemblies not roof coverings are tested for fire resistance.

Rationale

ASTM E108 and UL 790 fire tests are performed on roof assemblies, not roof coverings, to establish a classification (Class A, B, or C) based on exposure to simulated fire sources originating outside the building. The outcome of these tests is a classification of the roof assembly. In contrast, ASTM E119 or UL 263 tests evaluate the duration for which building elements contain a fire, retain their structural integrity, or exhibit both properties during a predetermined test exposure. The result of these tests is expressed as a fire resistance rating. This proposal adjusts language to clarify the distinction between these important fire tests and to associate the test results properly with a roof assembly instead of a roof covering.

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
Clarifies an important safety requirement of the code.

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

Clarifies an important safety requirement of the code.

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

Improves the effectiveness of the code.

R11791Text Modification

Revise as follows:

R302.2.2 Parapets for townhouses. Parapets constructed in accordance with Section R302.2.3 shall be constructed for *townhouses* as an extension of exterior walls or common walls in accordance with the following:

1. Where roof surfaces adjacent to the wall or walls are at the same elevation, the parapet shall extend not less than 30 inches (762 mm) above the roof surfaces.

2. Where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is not more than 30 inches (762 mm) above the lower roof, the parapet shall extend not less than 30 inches (762 mm) above the lower roof surface.

Exception: A parapet is not required in the preceding two cases where the *roof assembly* ~~roof covering~~ complies with a minimum Class C classification ~~rating~~ as tested in accordance with ASTM E108 or UL 790 and the roofing decking or sheathing is of noncombustible materials or *approved* fire-retardant-treated wood for a distance of 4 feet (1219 mm) on each side of the wall or walls, or one layer of 5/8-inch (15.9 mm) Type X gypsum board is installed directly beneath the roof decking or sheathing, supported by not less than nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members, for a distance of not less than 4 feet (1219 mm) on each side of the wall or walls and any openings or penetrations in the roof are not within 4 feet (1219 mm) of the common walls.

3. A parapet is not required where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is more than 30 inches (762 mm) above the lower roof. The common wall construction from the lower roof to the underside of the higher roof deck shall have not less than a 1-hour fire-resistance rating. The wall shall be rated for exposure from both sides.

Page: 1

Mod11791_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

68

R11762

Date Submitted	02/04/2025	**Section**	806.5	**Proponent**	Aaron Phillips
Chapter	8	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Correct vapor diffusion port ratio.

Rationale

There is an error in the ratio of vapor diffusion port area to ceiling area. This error was present when these provisions were originally added into both the Building and Residential codes. The correction was made in the FBC, Building during the first phase by 11056. The original proponent's reason statement for the correction indicated, "I got it wrong in my original proposal. There was an error in converting the measurements. The original work was based on 1:300 and the intention was to double the vent area. Doubling the vent area is really 1:150 not 1:600."

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
Corrects an error in the code.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Corrects an error in the code.

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

Improves effectiveness of the code.

R11762Text Modification

Revise Section R806.5 as follows:

R806.5 Unvented attic and unvented enclosed rafter assemblies. Unvented *attics* and unvented enclosed roof framing assemblies created by ceilings that are applied directly to the underside of the roof framing members and structural roof sheathing applied directly to the top of the roof framing members/rafters, shall be permitted where all the following conditions are met:

[Items 1-4 are unchanged]

5. Insulation shall comply with Item 5.3 and Item 5.1. As an alternative, where air-permeable insulation is located on top of the attic floor or on top of the attic ceiling, insulation shall comply with Item 5.3 and Item 5.2.

[Items within 5.1 are unchanged]

5.2 In Climate Zones 1, 2 and 3, air-permeable insulation installed in unvented attics on the top of the attic floor or on top of the ceiling shall meet the following requirements:

5.2.1 An approved vapor diffusion port shall be installed not more than 12 inches (305 mm) from the highest point of the roof, measured vertically from the highest point of the roof to the lower edge of the port.

5.2.2 The port area shall be greater than or equal to 1/150~~1:600~~ of the ceiling area. Where there are multiple ports in the attic, the sum of the port areas shall be greater than or equal to the area requirement.

[Items 5.2.3, 5.2.4, 5.2.5, and 5.3 are unchanged]

Page: 1

Mod11762_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

69

R12201

Date Submitted	02/17/2025	**Section**	803.3	**Proponent**	Michael Silvers (FRSA)
Chapter	8	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language Yes**

Related Modifications

Summary of Modification

Adds clearances for lines, pipes, conduit and cables under roof decks to the Residential sub code that are currently only in Building.

Rationale

This provision was added in the FBC 8th edition Section 1510.12 but was not done in the FBC Residential. FBC 1510.12 Lines, pipes, conduit and cables under roof decks. Lines, pipes, conduit and cables installed below the roof deck shall have a minimum clearance of 11/2-inch (38 mm) from the lowest surface of the roof deck except where they penetrate the roof deck. Exclusion: Lines, pipes, conduit and cables installed under structural concrete decks.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No Impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not discriminate.

Alternate Language

1st Comment Period History

R12201-A1

Proponent Shane Gerwig **Submitted** 4/11/2025 5:57:52 PM **Attachments** No

Rationale:

This provision was added in the FBC 8th edition Section 1510.12 but was not done in the FBC Residential. FBC 1510.12 Lines, pipes, conduit and cables under roof decks. Lines, pipes, conduit and cables installed below the roof deck shall have a minimum clearance of 11/2-inch (38 mm) from the lowest surface of the roof deck except where they penetrate the roof deck. Exclusion: Lines, pipes, conduit and cables installed under structural concrete decks. The alternate language adds optional shield plate protection and provides for the same protection, however provides an alternative if the space near the roof deck is limited.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact.

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

No impact.

Impact to industry relative to the cost of compliance with code

No impact.

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

No Impact.

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

Does not discriminate

Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

R12201-A1Text Modification

R803.3. Lines, pipes, conduit and cables under roof decks.

Lines, pipes, conduit and cables installed below the roof deck shall have a minimum clearance of 1 ½ - inch (38mm) from the lowest surface of the roof deck except where they penetrate the roof deck.

Exceptions:

Lines, pipes, conduit and cables installed under structural concrete decks.

Protection provided by a 1/16" or greater shield plate and fastening pattern for sheathing and roof assemblies are maintained.

Page: 1

Mod12201_A1_TextOfModification.pdf

R12201Text Modification

R803.3. Lines, pipes, conduit and cables under roof decks.

Lines, pipes, conduit and cables installed below the roof deck shall have a minimum clearance of 1 ½ - inch (38mm) from the lowest surface of the roof deck except where they penetrate the roof deck.

Exceptions:

Lines, pipes, conduit and cables installed under structural concrete decks.

Page: 1

Mod12201_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

70

R12325

Date Submitted	02/18/2025	**Section**	806	**Proponent**	Nelson Conarroe
Chapter	8	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

R806.5 Unvented Attic and Unvented Enclosed Rafter Assemblies

Summary of Modification

R806.5.5.2 - language change to align with upcoming ICC language changes. R806.5.5.2 - adding necessary language to address the burying of ducts in attic insulation where installed in an unvented attic including a vapor diffusion vent located at the roof ridge.

Rationale

buried ducts when used in an unvented attic including a vapor diffusion vent and supply air has been proven as a safe, scalable and cost-effective method to achieve ducts in conditioned space. Work over the last 3+ years in conjunction with UCF/FSEC has proven efficacy of this application. This is a low-cost method to achieve Ducts in Conditioned Space compared to other builder options. This application does not provide any preferences or limit manufacturer choices.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Enforcment of the code is zero to minimal impact through basic visual inspection and the addition of duct rulers with insulation depth.

Impact to building and property owners relative to cost of compliance with code
considered one of the lowest cost options to meet Ducts in Conditioned Space

Impact to industry relative to the cost of compliance with code
considered one of the lowest cost options to meet Ducts in Conditioned Space

Impact to small business relative to the cost of compliance with code
considered one of the lowest cost options to meet Ducts in Conditioned Space

Requirements

Has a 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

provides an alternative, low-cost method to achieve Ducts in Conditioned Space

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

No discrimination. All insulations can participate.

Does not degrade the effectiveness of the code

Does not degrade. Provides an alternative, low-cost path to Energy Star and Net Zero Ready Home performance standards.

R12325Text Modification

R806.5 Unvented Attic and Unvented Enclosed Rafter Assemblies

Unvented *attics* and unvented enclosed roof framing assemblies created by ceilings that are applied directly to the underside of the roof framing members and structural roof sheathing applied directly to the top of the roof framing members/rafters, shall be permitted where all the following conditions are met:

1. The unvented *attic* space is completely within the *building thermal envelope*.
2. No interior Class I vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly or on the ceiling side of the unvented enclosed roof framing assembly.
3. Where wood shingles or shakes are used, a minimum $^{1}/_{4}$-inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing *underlayment* above the structural sheathing.
4. In *Climate Zones* 5, 6, 7 and 8, any *air-impermeable insulation* shall be a Class II vapor retarder, or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.
5. Insulation shall comply with Item 5.3 and Item 5.1. As an alternative, where air-permeable insulation is located on top of the attic floor or on top of the attic ceiling, insulation shall comply with Item 5.3 and Item 5.2.

   5.1. Item 5.1.1, 5.1.2, 5.1.3 or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.

   Where only *air-impermeable insulation* is provided, it shall be applied in direct contact with the underside of the structural roof sheathing.

   Where *air-permeable insulation* is provided inside the building thermal envelope, it shall be installed in accordance with Section 5.1.1. In addition to the *air-permeable insulation* installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing in accordance with the R-values in Table R806.5 for condensation control.

   Where both *air-impermeable* and *air-permeable insulation* are provided, the *air-impermeable insulation* shall be applied in direct contact with the underside of the structural roof sheathing in accordance with Item 5.1.1 and shall be in accordance with the R-values in Table R806.5 for condensation control. The *air-permeable insulation* shall be installed directly under the *air-impermeable insulation*.

   Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45°F (7°C). For calculation purposes, an interior air temperature of 68°F (20°C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.

   5.2. In Climate Zones 1, 2 and 3, air-permeable insulation installed in unvented attics on the top of the attic floor or on top of the ceiling shall meet the following requirements:

   An approved *vapor diffusion* ~~*port*~~ *vent* shall be installed not more than 12 inches (305 mm) from the highest point of the roof, measured vertically from the highest point of the roof to the lower edge of the port.

   The ~~port~~ vent area shall be greater than or equal to ~~1:600~~ 1:150 of the ceiling area. Where there are multiple ports in the *attic*, the sum of the port areas shall be greater than or equal to the area requirement.

   The vapor-permeable membrane in the *vapor diffusion* ~~*port*~~ *vent* shall have a vapor permeance rating of greater than or equal to 20 perms when tested in accordance with Procedure A of ASTM E96.

   The *vapor diffusion* ~~*port*~~ *vent* shall serve as an *air barrier* between the *attic* and the exterior of the building.

   The *vapor diffusion* ~~*port*~~ *vent* shall protect the *attic* against the entrance of rain and snow.

Page: 1

Mod12325_TextOfModification.pdf

R12325Text Modification

Framing members and blocking shall not block the free flow of water vapor to the vent. Not less than a 2-inch (51 mm) space shall be provided between any blocking and the roof sheathing.

The roof slope shall be greater than or equal to 3:12 (vertical/horizontal).

Air-permeable insulation shall be installed on top of the attic floor or on top of the ceiling.

Where supply and return ductwork is partially, completely, or deeply buried in ceiling or attic floor insulation:

Such ductwork shall comply with Section R403.3.2 of the Florida Building Code, Energy Conservation.

Air shall be supplied to the unvented attic at a flow rate greater than or equal to 50 CFM (23.6 L/s) per 1,000 square feet (93 m^2) of ceiling. The air shall be supplied from ductwork providing supply air to the occupiable space when the conditioning system is operating. Alternatively, conditioned air shall be supplied by a supply fan into the attic when the conditioning system is operating.

5.3. Where preformed insulation board is used as the *air-impermeable insulation* layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

Page: 2

Mod12325_TextOfModification.pdf

R806.5 Unvented Attic and Unvented Enclosed Rafter Assemblies

Unvented *attics* and unvented enclosed roof framing assemblies created by ceilings that are applied directly to the underside of the roof framing members and structural roof sheathing applied directly to the top of the roof framing members/rafters, shall be permitted where all the following conditions are met:

1. The unvented *attic* space is completely within the *building thermal envelope*.
2. No interior Class I vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly or on the ceiling side of the unvented enclosed roof framing assembly.
3. Where wood shingles or shakes are used, a minimum $^{1}/_{4}$-inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing *underlayment* above the structural sheathing.
4. In *Climate Zones* 5, 6, 7 and 8, any *air-impermeable insulation* shall be a Class II vapor retarder, or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.
5. Insulation shall comply with Item 5.3 and Item 5.1. As an alternative, where air-permeable insulation is located on top of the attic floor or on top of the attic ceiling, insulation shall comply with Item 5.3 and Item 5.2.

5.1. Item 5.1.1, 5.1.2, 5.1.3 or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.

5.1.1. Where only *air-impermeable insulation* is provided, it shall be applied in direct contact with the underside of the structural roof sheathing.

5.1.2. Where *air-permeable insulation* is provided inside the building thermal envelope, it shall be installed in accordance with Section 5.1.1. In addition to the *air-permeable insulation* installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing in accordance with the R-values in Table R806.5 for condensation control.

5.1.3. Where both *air-impermeable* and *air-permeable insulation* are provided, the *air-impermeable insulation* shall be applied in direct contact with the underside of the structural roof sheathing in accordance with Item 5.1.1 and shall be in accordance with the R-values in Table R806.5 for condensation control. The *air-permeable insulation* shall be installed directly under the *air-impermeable insulation*.

5.1.4. Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45°F (7°C). For calculation purposes, an interior air temperature of 68°F (20°C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.

5.2. In Climate Zones 1, 2 and 3, air-permeable insulation installed in unvented attics on the top of the attic floor or on top of the ceiling shall meet the following requirements:

5.2.1. An approved *vapor diffusion* ~~*port*~~ *vent* shall be installed not more than 12 inches (305 mm) from the highest point of the roof, measured vertically from the highest point of the roof to the lower edge of the port.

5.2.2. The ~~port~~ vent area shall be greater than or equal to ~~1:600~~ 1:150 of the ceiling area. Where there are multiple ports in the *attic*, the sum of the port areas shall be greater than or equal to the area requirement.

5.2.3. The vapor-permeable membrane in the *vapor diffusion* ~~*port*~~ *vent* shall have a vapor permeance rating of greater than or equal to 20 perms when tested in accordance with Procedure A of ASTM E96.

5.2.4. The *vapor diffusion* ~~*port*~~ *vent* shall serve as an *air barrier* between the *attic* and the exterior of the building.

5.2.5. The *vapor diffusion* ~~*port*~~ *vent* shall protect the *attic* against the entrance of rain and snow.

5.2.6. Framing members and blocking shall not block the free flow of water vapor to the vent. Not less than a 2-inch (51 mm) space shall be provided between any blocking and the roof sheathing.

5.2.7. The roof slope shall be greater than or equal to 3:12 (vertical/horizontal).

5.2.8. Air-permeable insulation shall be installed on top of the attic floor or on top of the ceiling.

5.2.9. Where supply and return ductwork is partially, completely, or deeply buried in ceiling or attic floor insulation:

5.2.9.1. Such ductwork shall comply with Section R403.3.2 of the Florida Building Code, Energy Conservation.

5.2.9.2. Air shall be supplied to the unvented attic at a flow rate greater than or equal to 50 CFM (23.6 L/s) per 1,000 square feet (93 m^2) of ceiling. The air shall be supplied from ductwork providing supply air to the occupiable space when the conditioning system is operating. Alternatively, conditioned air shall be supplied by a supply fan into the attic when the conditioning system is operating.

5.3. Where preformed insulation board is used as the *air-impermeable insulation* layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

71

R11748

Date Submitted	02/05/2025	**Section**	905.2.5	**Proponent**	Aaron Phillips
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11744 - coordinating mod for FBC, Building 11833 - coordinating mod for FBC, Building HVHZ section 11745 - adds pointer in RAS 115

Summary of Modification

Add new requirements for wind resistance of asphalt hip and ridge shingles.

Rationale

Areas of roofing systems where wind flow is diverted, such as at hips and ridges, may generate larger uplift pressures, making the products installed in these areas more vulnerable to damage in windstorms. Post-storm investigations conducted by the Federal Emergency Management Agency and other stakeholders document the vulnerability of these transition areas. Although post-storm investigations do not identify specific causes for damage to hip and ridge shingles during wind events, the associated observations that products are sometimes damaged in these areas is a reason to consider improved testing or installation options to reduce the likelihood of damage. This modification adds a new requirement that hip and ridge shingles used on asphalt shingle roofs either demonstrate compliance to a third-party test that evaluates wind resistance or be installed using a prescriptive method designed to increase resistance to uplift in wind events. The prescriptive alternative recognizes common roof cements which comply with ASTM standards or other adhesives which are specified by the hip or ridge shingle manufacturer. Also, it clarifies that fasteners used to install hip and ridge shingles are to comply with the existing asphalt shingle fastener requirements. UL 2375 is a fan-induced wind resistance test which is modified from ASTM D3161 specifically for testing hip and ridge shingles. Decks are constructed to simulate a roof ridge, and tests are conducted in two orientations (i.e., with fan-induced wind perpendicular or parallel to the ridge). Like ASTM D3161, UL 2375 is conducted at a fixed wind speed for two hours. As written, UL 2375 is performed at 60 mph. The proposal modifies the wind test speed to 110 mph to align with the Class F designation associated with ASTM D3161.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Introduces a new provision for enforcement.

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
Neutral or increase.
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
Improved performance of asphalt roofing systems in wind events.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improved performance of asphalt roofing systems in wind events.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Applies to hip and ridges on all asphalt shingle roofs.
Does not degrade the effectiveness of the code
Improves effectiveness of the code.

R11748Text Modification

Revise as follows:

R905.2.5 Fasteners. Fasteners for asphalt shingles, including hip and ridge shingles, shall be galvanized steel, stainless steel, aluminum or copper roofing nails, minimum 12-gage [0.105 inch (3 mm)] shank with a minimum 3/8-inch-diameter (9.5 mm) head, complying with ASTM F1667, of a length to penetrate through the roofing materials and not less than 3/4 inch (19.1 mm) into the roof sheathing. Where the roof sheathing is less than 3/4 inch (19.1 mm) thick, the fasteners shall penetrate through the sheathing.

Exception: If the architectural appearance is to be preserved from below, an alternate method of attachment complying with the wind load requirements of Chapter 16 of the *Florida Building Code, Building* may be proposed unless otherwise addressed in Chapter 9. The alternative attachment shall be prepared, signed and sealed by a Florida-registered architect or a Florida-registered engineer, which architect or engineer shall be proficient in structural design.

Add new sections as follows:

R905.2.6.2 Wind resistance of hip and ridge shingles. Hip and ridge shingles shall comply with Section R905.2.6.2.1 or R905.2.6.2.2.

R905.2.6.2.1 Testing of hip and ridge shingles. Hip and ridge shingles shall be tested and classified in accordance with the wind test requirements in UL 2375 modified to use a wind speed of 110 mph (177 km/hr). Hip and ridge shingle packaging shall bear a *label* to indicate compliance with the modified version of UL 2375.

R905.2.6.2.2 Prescriptive alternative for attaching hip and ridge shingles. Prior to installing each hip or ridge shingle, two minimum 1-inch diameter spots of roof cement complying with ASTM D3019 or ASTM D4586, or other adhesive specified by the hip or ridge shingle manufacturer, shall be placed on each side of the hip or ridge. The spots shall be placed near the leading edge and fully covered by the exposed portion of the hip or ridge shingle. Each hip or ridge shingle shall be fastened in accordance with the hip or ridge shingle manufacturer's installation instructions.

Add the following new standard in Chapter 46:

UL	UL LLC 333 Pfingsten Road Northbrook, IL 60062	
2375-2006	Outline for Hip and Ridge Shingles	

Page: 1

Mod11748_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

72

R11750

Date Submitted	02/11/2025	**Section**	905.2.8.5	**Proponent**	Aaron Phillips
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Mod 11749 makes changes for FBC, Building.

Summary of Modification

Clarify drip edge installation.

Rationale

Drip edge flashing is an important element of the roofing system, contributing to both proper water management and wind resistance of the roofing system in transitional areas. This proposal makes two important changes. First, it standardizes the spacing of drip edge fasteners for all conditions to a maximum of four inches. Second, it establishes minimum requirements for fasteners used to attach drip edge flashing by referring to the fasteners prescribed for installation of asphalt shingles. Inclusion of minimum requirements will help prevent use of improper fasteners which may contribute to issues. These changes are intended to improve wind resistance of asphalt shingle roofs in these important transitional areas.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Clarifies drip edge provisions.
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
Clarifies requirements.

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

Clarifies requirements.

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

No discrimination.

Does not degrade the effectiveness of the code

Effectiveness of code is improved.

R11750Text Modification

Revise as follows:

R905.2.8.5 Drip edge. Provide drip edge at eaves and gables of shingle roofs. Overlap is 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 shall be installed over the underlayment. Self-adhering ASTM D1970 underlayment may be installed over a primed drip edge flange. There shall be a minimum 4 inch (102 ~~51~~ mm) width of roof cement installed over the drip edge flange or the self-adhering underlayment. Drip edge shall be mechanically fastened a maximum of 4 ~~12~~ inches (102 ~~305~~ mm) on center with fasteners as specified in Section R905.2.5. ~~Where the *Vasd* 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.~~

Page: 1

Mod11750_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

73

R11755

Date Submitted	02/04/2025	**Section**	905.9.2	**Proponent**	Aaron Phillips
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11754 addresses FBC, Building. 11756 addresses FBC, Test Protocols.

Summary of Modification

Remove withdrawn standards.

Rationale

Two standards which are no longer used are removed by this modification. D2822 was withdrawn in 2016. D2823 was withdraw in 2014. There are no products in the market manufactured to these standards. Also, the continued presence of D2822 and D2823 implies that asbestos containing materials are still used on roofs, which has not been the case for many years.

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

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

Does not discriminate, since materials meeting these standards are no longer available.

Does not degrade the effectiveness of the code

Improves effectiveness of the code.

R11755Text Modification

Revise Table R905.9.2 as follows:

TABLE R905.9.2 BUILT-UP ROOFING MATERIAL STANDARDS

[only relevant table rows are shown]

Asphalt cements used in roofing	ASTM ~~D2822;~~ D3019; D4586
Asphalt coatings used in roofing	ASTM D1227; ~~D2823;~~ D2824; D4479

Revise Chapter 46 as follows:

~~D2822/D2822M-2005(2011) Specification for Asphalt Roof Cement, Asbestos Containing Table R905.9.2~~

~~D2823/D2823-05(2011)e1 Specification for Asphalt Roofing Coatings, Asbestos Containing Table R905.9.2~~

Page: 1

Mod11755_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

74

R11759

Date Submitted	02/04/2025	**Section**	903.5	**Proponent**	Aaron Phillips
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11758 addresses FBC, Building

Summary of Modification

Clarify roof ventilation.

Rationale

This modification adds a new section on roof ventilation into the Weather Protection portion of FBC, Residential Chapter 9. A primary purpose is to add a pointer in Chapter 9 to the roof ventilation provisions in Chapter 8. The new section parallels an existing section of the FBC, Building (1503.5) and uses language proposed as a modification to 1503.5 (see Mod 11758). In addition to providing a necessary pointer, it clarifies that attic and enclosed rafter assembly ventilation requires the presence of both intake and exhaust. An exception is added to direct users to Section R806.5 for provisions related to unvented attic and unvented enclosed rafter assemblies.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Improves understanding of roof ventilation provisions by providing a pointer from Chapter 9 to Chapter 8.

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
Increases likelihood of compliance with roof ventilation provisions by providing a pointer from Chapter 9 to the ventilation provisions in Chapter 8.

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

Improves ease of use of the code.

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

Improves effectiveness of the code.

R11759Text Modification

Add new section as follows:

R903.5 Roof ventilation. Intake and exhaust vents for ventilation of *attic* and enclosed rafter assemblies shall be provided in accordance with Sections R806.1 through R806.4 and the vent product manufacturer's installation instructions.

Exception: Unvented *attic* and unvented enclosed rafter assemblies in accordance with Section R806.5.

Page: 1

Mod11759_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

75

R11761

Date Submitted	02/04/2025	**Section**	905.2.6.1	**Proponent**	Aaron Phillips
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Mod 11760 addresses for FBC, Building.

Summary of Modification

Add units to the asphalt shingle classification table for wind resistance.

Rationale

Although the units for the table are implied by reference to the ultimate design wind speed figure in Chapter 3, which provides contours in miles per hour, making the units explicit in the table removes opportunity for confusion.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Improves clarity of the code.
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
Improves clarity of the code.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improves clarity of the code.
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
Improves effectiveness of the code.

R11761Text Modification

Revise the first and second column headings of Table R905.2.6.1 as follows:

TABLE R905.2.6.1 CLASSIFICATION OF ASPHALT SHINGLES

Maximum Basic Wind Speed, V*ult*, From Figure R301.2(4) (mph)	V*asd* as determined in accordance with Section R301.2.1.3 (mph)	ASTM D7158	ASTM D3161

Page: 1

Mod11761_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

76

R11789

Date Submitted	02/06/2025	**Section**	905.2.6	**Proponent**	Aaron Phillips
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11788 addresses for FBC, Building

Summary of Modification

Modify asphalt shingle attachment.

Rationale

This modification updates the asphalt shingle attachment section of the FBC, Residential code. The existing requirements for four fasteners per strip shingle and two fasteners per individual shingle harken back to a day when three-tab strip shingles were the primary asphalt shingle product offering and interlocking shingles, which only required two fasteners per "individual" shingle due to their different width to length proportions, were more common. The modification adds specific guidance for interlocking shingles in recognition of the purpose for the current "individual shingle" requirement. The changes proposed herein align better with products in use today. In addition, the section title of R905.2.4 is altered to align it with the section content and to differentiate it from the title of Section R905.2. Finally, the title of Section R905.2.6 is changed from "Attachment" to "Fastening" to make the title align better with the content.

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

Clarifies a code detail.

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

Clarifies a code detail.

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

Improves effectiveness of the code.

R11789Text Modification

Revise as follows:

R905.2.4 Material standards~~Asphalt shingles~~. Asphalt shingles shall comply with ASTM D3462.

R905.2.6 Fastening~~Attachment~~. Asphalt shingles shall have the minimum number of fasteners required by the manufacturer, but not less than four fasteners per ~~strip~~ shingle or two fasteners per partial ~~individual~~ shingle. Interlocking asphalt shingles shall have not less than two fasteners per shingle or partial shingle. Where the roof slope exceeds 21 units vertical in 12 units horizontal (21:12, 175-percent slope), shingles shall be installed as required by the manufacturer.

Page: 1

Mod11789_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

77

R11819

Date Submitted	02/07/2025	**Section**	903.2	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent. Currently this section deals mostly with parapet walls and coping. It needs to be much broader.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11819Text Modification

WEATHER PROTECTION

R903.2 Flashing.

Flashings shall be used to seal roofing systems, where the system is interrupted or terminated and shall be installed in a manner ~~that~~ to prevent~~s~~ moisture from entering ~~the wall and roof through joints in copings~~, through the roof system and components, ~~moisture permeable materials and~~ at intersections with ~~parapet~~ walls and ~~other~~ penetrations through the *roof* ~~plane~~ *system*.

Page: 1

Mod11819_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

78

R11820

Date Submitted	02/07/2025	**Section**	903.2.1	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11820Text Modification

R903.2.1 Locations.

Flashings shall be installed at wall and roof intersections, at roof edges, ~~wherever there is a change in roof slope or direction and~~ around roof openings,~~.~~ ~~P~~penetrations and where there is a change in roof slope or direction or a change of roof covering types. Where flashing or other components are ~~is~~ of metal, the metal shall be corrosion resistant with a thickness of not less than provided in Table R903.2.1 or in compliance with RAS 111.

Exceptions: Flashing is not required at hip and ridge junctions on steep slope roof coverings (2/12 or greater) unless they are on metal roof coverings.

This requirement does not apply where there is a change in direction or roof slope of less than 25 degrees in low slope roof coverings (less than 2/12).

Page: 1

Mod11820_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

79

R11821

Date Submitted	02/07/2025	**Section**	905.4.6.1	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11821Text Modification

R905.4.6.1 Flashing

Flashing shall comply with this Chapter and the metal roof covering manufacturer's installation instructions.

Mod11821_TextOfModification.pdf Page: 1

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

80

R11822

Date Submitted	02/07/2025	**Section**	905.5.6	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11822Text Modification

R905.5 Mineral-surfaced roll roofing.

R905.5.6 Flashing

Flashing shall comply with this Chapter and the mineral-surfaced roll roofing manufacturer's installation instructions.

Page: 1

Mod11822_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

81

R11823

Date Submitted	02/07/2025	**Section**	905.6.6.1	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11823Text Modification

R905.6 Slate and slate-type shingles

R905.6.6 Flashing.

Flashing and counterflashing shall be made with sheet metal. Valley flashing shall be a minimum of 16 inches (406 mm) wide. Valley and flashing metal shall be a minimum thickness as provided in Table R903.2.1 for nonferrous metal or stainless steel. Chimneys, stucco or brick walls shall have not less than two plies of felt for a cap flashing consisting of a 4-inch-wide (102 mm) strip of felt set in plastic cement and extending 1 inch (25 mm) above the first felt and a top coating of plastic cement. The felt shall extend over the base flashing 2 inches (51 mm).

R905.6.6.1 Flashing shall comply with this Chapter and the slate and slate type shingle manufacturer's installation instructions.

Page: 1

Mod11823_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

82

R11824

Date Submitted	02/07/2025	**Section**	905.7.6.1	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11824Text Modification

R905.7 Wood shingles.

R905.7.6 Valley flashing.

Reserved.

R905.7.6.1 Flashing.

Flashing shall comply with this Chapter and the *Cedar Shake and Shingle Bureau New Roof Construction Manual*.

Page: 1

Mod11824_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

83

R11825

Date Submitted	02/07/2025	**Section**	905.8.8.1	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.9.4, R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11825Text Modification

R905.8 Wood shakes.

R905.8.8 Valley flashing.

Reserved.

R905.8.8.1 Flashing.
Flashing shall comply with this Chapter and the *Cedar Shake and Shingle Bureau New Roof Construction Manual.*

Page: 1

Mod11825_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

84

R11826

Date Submitted	02/07/2025	**Section**	905.9.4	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R R905.11.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11826Text Modification

R905.9 Built-up roofs.

R905.9.4 Flashing

Flashing shall comply with this Chapter and the built-up roofing manufacturer’s installation instructions.

Page: 1

Mod11826_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

85

R11827

Date Submitted	02/07/2025	**Section**	905.11.4	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.15.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11827Text Modification

R905.11 Modified bitumen roofing

R905.11.4 Flashing

Flashing shall comply with this Chapter and the modified bitumen roofing manufacturer's installation instructions.

Mod11827_TextOfModification.pdf Page: 1

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

86

R11828

Date Submitted	02/07/2025	**Section**	905.15.4	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.16.8 and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11828Text Modification

R905.15 Liquid-applied roofing.

R905.15.4 Flashings.
Flashing shall be applied in accordance with this Chapter and the liquid-applied roofing manufacturer's installation instructions

Page: 1

Mod11828_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

87

R11829

Date Submitted	02/07/2025	**Section**	905.16.8	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4, and R905.17.5

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11829Text Modification

R905.16 Building-integrated photovoltaic roofing modules/shingles.

R905.16.8 Flashing

Flashing shall comply with this Chapter and the photovoltaic module/shingle manufacturer's installation instructions.

Page: 1

Mod11829_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

88

R11830

Date Submitted	02/07/2025	**Section**	905.17.5	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1503.2, 1503.2.1, 1507.3.9, 1507.4.6, 1507.5.7, 1507.6.6, 1507.7.1, 1507.8.8, 1507.9.9, 1507.10.4, 1507.11.3, 1507.12.4, 1507.16.2, 1507.17.9, 1507.18.2, R903.2, R903.2.1, R905.4.6.1, R905.5.6, R905.6.6.1, R905.7.6.1, R905.8.8.1, R905.9.4, R905.11.4, R905.15.4 and R905.16.8

Summary of Modification

This is one of 27 changes or additions to the roofing sections to address flashing. They will incorporate the many types of flashing and where they are required to be located. They will also add a flashing section to any roof covering type where one doesn't currently exist.

Rationale

The current code language addressing flashing can be confusing, conflicting, misleading and often lacking or nonexistent.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11830Text Modification

R905.17.4 Photovoltaic panels and modules.

R905.17.5 Flashing

Flashing shall comply with this Chapter and the photovoltaic module/shingle manufacturer's installation instructions.

Page: 1

Mod11830_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

89

R11856

Date Submitted	02/07/2025	**Section**	905.12	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1507.12

Summary of Modification

Modification is similar to IBC to FBC R11581 which was denied due to overlap. It aligns the language in FBC-B and FBC-R.

Rationale

Modification is similar to IBC to FBC R11581 which was denied due to overlap. It aligns the language in FBC-B and FBC-R with the current IBC.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11856Text Modification

R905.12 ~~Thermoset single-~~Single-ply roofing. The installation of ~~thermoset single-ply roofing~~ *single-ply membrane roof covering* shall comply with the provisions of this section.

R905.12.1 Slope.~~Thermoset single-~~*Single-ply membrane* ~~roofs~~ *roof coverings* shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope) for drainage.

R905.12.2 Material standards. ~~Thermoset single~~ *Single-ply membrane roof coverings* shall comply with ~~ASTM D4637 or ASTM D5019~~ the material standards in Table R905.12.

Add new text as follows:

TABLE R905.12 SINGLE-PLY ROOFING MATERIAL STANDARDS

MATERIAL	MATERIALSTANDARD
Chlorosulfonated polyethylene (CSPE) or polyisobutylene (PIB)	ASTM D5019
Ethylene propylene diene monomer (EPDM)	ASTM D4637
Ketone Ethylene Ester (KEE)	ASTM D6754
Polyvinyl chloride (PVC)	ASTM D4434
Thermoplastic polyolefin (TPO)	ASTM D6878

Revise as follows:

R905.12.3 Application. ~~Thermoset single~~ *Single-ply membrane roof* ~~roofs~~ *coverings* shall be installed in accordance with this chapter and the manufacturer's installation instructions. The approved allowable uplift resistance for the thermoset single-ply membrane roof shall be equal to or greater than the uplift resistance for the roof based on Table R301.2(2).

~~**R905.13 Thermoplastic single-ply roofing.** The installation of thermoplastic single-ply roofing shall comply with the provisions of this section.~~

~~**R905.13.1 Slope.** Thermoplastic single-ply membrane roofs shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope).~~

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

~~**R905.13.3 Application.** Thermoplastic single-ply roofs shall be installed in accordance with this chapter and the manufacturer's instructions. The approved allowable uplift resistance for the thermoplastic single-ply roof shall be equal to or greater than the uplift resistance for the roof based on Table R301.2(2).~~

Page: 1

Mod11856_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

90

R11860

Date Submitted	02/07/2025	**Section**	905.2.9	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

R908.3, EB706.3, B1507.2

Summary of Modification

Places existing language contained in R908.3 Recovering versus replacement Exceptions 5. concerning coating of asphalt shingles to the more appropriate R905.2.4 Asphalt Shingles section. The coating does not involve recovering or replacement.

Rationale

Places existing language contained in R908.3 Recovering versus replacement Exceptions 5. concerning coating of asphalt shingles to the more appropriate R905.2.4 Asphalt Shingles section. The coating does not involve recovering or replacement. Changes are proposed to address correlate this in Existing Building and Building sub codes

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11860Text Modification

R905.2.4 Asphalt shingles.

Asphalt shingles shall comply with ASTM D3462.

R905.2.9 Coating of Asphalt Shingles.

Application of elastomeric and or maintenance coating systems over existing asphalt shingles shall be in accordance with the shingle manufacturer's approved installation instructions.

R908.3 Recovering versus replacement.

New roof coverings shall not be installed without first removing all existing layers of roof coverings where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shingle or shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.
4. When blisters exist in any roofing, unless blisters are cut or scraped open and remaining materials secured down before applying additional roofing.
5. Where the existing roof covering is to be used for attachment fora new roof system and compliance with the securement provisions of Section R905 cannot be met.

Exceptions:

1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
2. Reserved.
3. The application of new protective coating over existing spray polyurethane foam roofing systems shall be permitted without tear-off of existing roof coverings.
4. Reserved.
5. ~~Roof coating. Application of elastomeric and/or maintenance coating systems over existing asphalt shingles shall be in accordance with the shingle manufacturer's approved installation instructions.~~

Page: 1

Mod11860_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

91

R11863

Date Submitted	02/07/2025	**Section**	908.3	**Proponent**	Michael Silvers (FRSA)
Chapter	9	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

1511.3, EB706.3

Summary of Modification

Provides options to remove the upper (second) roof covering or roof system only. To preserve insulation from the lower roof system without removing it down to the roof deck. To use LWIC (Lightweight Insulating Concrete) that has been previously applied over an existing roof system.

Rationale

This modification provides the option to remove the upper (second) roof covering or roof system only, when recovering. The option to preserve insulation from the lower roof system without removing it down to the roof deck. An option to use LWIC (Lightweight Insulating Concrete) that has been previously applied over an existing roof system without removal down to the original roof deck.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact.
Impact to building and property owners relative to cost of compliance with code
No impact.
Impact to industry relative to the cost of compliance with code
No impact.
Impact to small business relative to the cost of compliance with code
No impact.

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

Does not discriminate.

Does not degrade the effectiveness of the code

Does not degrade.

R11863Text Modification

908.3 Recovering versus replacement.

New roof coverings shall not be installed without first removing all existing layers of roof coverings down to the roof deck where any of the following conditions occur:

1. Where the existing roof covering or roof system components ~~covering is~~ are water soaked or ~~has~~ have deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.
4. When blisters exist in any roofing, unless blisters are cut or scraped open and remaining materials secured down before applying additional roofing.
5. Where the existing roof covering is to be used for attachment for a new roof system and compliance with the securement provisions of Section 1504.1 of the *Florida Building Code, Building* cannot be met.

Exceptions:

1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
2. ~~Reserved.~~ Where two roof covering applications exist, and the upper roof system or roof coverings are removed leaving an existing or repaired substrate that is adequate for installation of a new approved roof covering or roof system.
3. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.
4. Reserved
5. ~~Roof Coating. Application of elastomeric and or maintenance coating systems over existing asphalt shingles shall be in accordance with the shingle manufacturer's approved installation instructions~~.

Where the existing roof assembly includes a vapor barrier or self-adhering membrane is adhered to the roof deck, the existing membrane shall be permitted to remain in place and covered with an additional layer of membrane in accordance with Section R905.

Page: 1

Mod11863_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

92

R12071

Date Submitted	02/13/2025	**Section**	905	**Proponent**	T Stafford
Chapter	9	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Secures the edge of underlayment by requiring drip edge to be installed at eaves and rakes for all steep slope roof coverings and requires it to be installed over the underlayment.

Rationale

This proposal addresses underlayment securement at eave and rake locations for steep slope roof coverings as currently required for asphalt shingles. The roof underlayment methods required in FBCB are intended to provide a secondary barrier against water infiltration through the roof deck if the primary roofing material fails. Given its importance, properly securing underlayment is vital to this function. For many roof configurations, wind pressures are highest along the eave edge, particularly the eave and rake edge corners, due to the wind's interaction with the roof structure. Considering that underlayment is installed shingle fashion, inadequate securement at the eave and rake can lead to underlayment failure at these locations during high-wind events, potentially causing a cascading failure across other rows of underlayment and compromise the entire underlayment system. This proposal addresses this vulnerability by specifically requiring the use of a drip edge mechanically fastened at 4 inches on center to secure the edges of the underlayment. A separate proposal is being submitted by ARMA to change the drip edge fastener spacing for asphalt shingles from 6 inches or 12 inches on center to 4 inches on center applicable for any wind speed. This proposal will align the edge securement of other steep slope roof coverings with those being proposed for asphalt shingles by ARMA.

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
Minimal to no impact to building and property owners relative to the cost of compliance with the code.
Impact to industry relative to the cost of compliance with code
No impact to industry relative to the cost compliance with the code.
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.

Requirements

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

This proposal improves the water penetration resistance of roofs where the primary roof covering is damaged or is blown off.

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

This proposal improves and strengthens the code by requiring mechanically fastened underlayment to be secured at eaves and rakes for all roof covering types.

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 of demonstrated capabilities.

Does not degrade the effectiveness of the code

This proposal does not degrade the effectiveness of the code.

R12071Text Modification

R905.3.8.1 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

R905.4.6.1 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

R905.5.6 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

R905.6.6.1 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

R905.7.8 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

R905.8.10 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

R905.10.6 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

R905.11.4 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

R905.16.8 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

Page: 1

Mod12071_TextOfModification.pdf

R12071Text Modification

R905.17.5 Drip edge. Drip edge shall be installed at eaves and gables of steep slope roofs (2:12 and above). Drip edge shall be lapped 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 shall be installed over the underlayment. Self-adhering underlayment complying with ASTM D1970 is permitted to be installed over a primed drip edge flange. Drip edge shall be mechanically fastened a maximum of 4 inches (102 mm) on center.

Page: 2

Mod12071_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

93

R12073

Date Submitted	02/17/2025	**Section**	905.10	**Proponent**	Robert Zabcik
Chapter	9	**Affects HVHZ**	Yes	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments Yes **Alternate Language No**

Related Modifications

12077

Summary of Modification

Addition of ANSI/MCA FTS-1 in Hurricane-Prone and TAS-125 Alignment (FBC)

Rationale

Note: Proposed new reference standard, ANSI/MCA FTS-1 2019 is attached to Mod 12077. The purpose of this proposal is to add new requirements to determination of wind load resistance values of metal roof panel assemblies over solid or closely fitted deck in hurricane-prone regions. These changes are consistent with the recommendations of FEMA P-2342. This proposal also aligns panel testing requirements in hurricane-prone regions with Section 8 of the Florida Building Code (FBC) Test Application Standard TAS-125. This is necessary because UL 580 testing ceases at Class 90 (105 psf net uplift/52.5 psf design load) and will not produce results addressing wind loads in the edge and corner zones required by ASCE 7 2016 in hurricane-prone regions. While UL 1897 does not have this limitation, it lacks the two 1-hour-long oscillating load sequences required by UL 580 and is generally considered less rigorous for that reason. Section 8 of TAS-125 addresses these issues quite well and the resulting practice is already widely used in the metal roofing industry. See attachment for technical explanation.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This proposal will not create any additional cost on the local entity as the product approval listings will be updated with the new requirements once the code goes into effect, but the permit submission and approval processes remain the same as current state.

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

Property owners could see a very slight increase in cost if manufactures carry additional costs to the consumer. However, the attachment shows this impact to be less than one percent increase.

Impact to industry relative to the cost of compliance with code

This proposal will not impact industry other than as property owners covered above.

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

Requirements

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

This proposal increases the HSW of the people of Florida as it directly addresses the water ingress and windborne debris risks identified by FEMA and RICOWI in their Hurricane Ian investigations, as well as other storms.

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

This proposal strengthens and Improves the code as it directly and appropriately addresses the water ingress and windborne debris risks identified by FEMA and RICOWI in their Hurricane Ian investigations, as well as other recent storms.

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

This proposal does not discriminate against any existing materials, products or construction methods. It impacts only metal panel roofs over solid and closely fitted decks and is being proposed by a trade association representing companies which manufacture systems in that space.

Does not degrade the effectiveness of the code

This code change does not increase costs experienced by the consumer substantially, however it should result in an increase in the already long functional life span of metal roof over deck significantly. This will lower cost-of-ownership over the lifespan of the roof.

1st Comment Period History

R12073-G1

Proponent David Eng Submitted 4/16/2025 12:16:17 PM Attachments Yes

Comment:

Virtually every metal roofing panel tested to UL 580 is also tested to UL 1897—requiring Section 8 of TAS 125 is unnecessary and does not solve the indicated problem. Requiring metal trim to be tested to ANSI/MCA FTS-1 may be a helpful development, but as written is likely to be more disruptive and costly than currently assumed. A more thoroughly developed implementation plan is likely to deliver better results.

R12073Text Modification

R905.10.1 Deck Requirements. *Metal roof panel* roof coverings shall be applied to solid or spaced sheathing.~~, except where the roof covering is specifically designed to be applied to spaced supports.~~

Exception: *Metal roof panels* specifically designed to be applied to spaced supports.

R905.10.1.1 Wind Resistance. *Metal roof panels* and related hip, ridge and edge systems in *hurricane-prone* regions shall be tested in accordance with Section R905.10.1.1.1 and R905.10.1.1.2. A margin of safety of 2:1 shall be applied to all test results except when a margin of safety is specified in the test standard.

R905.10.1.1.1 Roof Coverings. *Metal roof panels* shall be tested in accordance with UL 580 as modified by Section 8 of TAS-125.

R905.10.1.2 Metal edge systems. Metal hip, ridge, and edge systems, excluding gutters, shall be tested for uplift resistance in accordance with ANSI/MCA FTS-1.

Page: 1

Mod12073_TextOfModification.pdf

15 April 2025

To the Florida Building Commission and related committees,

Thanks for the opportunity to submit comments on proposed code modifications. While I support continuing to refine code requirements to protect life and property, I have concerns with the proposed modifications 12064 and 12077.

For background, I work with over 30 metal roofing manufacturers that sell products in the state of Florida. I provide consultation on developing testing portfolios and prepare evaluation reports for Florida product approvals pursuant to method D of FL Rule 61G20-3. The manufacturers I work with range in size from small businesses with just a single machine and a single product approval to large national conglomerates with over 100 product approvals.

Having worked specifically in the metal roofing space, I would note that metal roofing is a potentially unique segment of the roofing industry. Unlike asphalt shingles or tile with just a few large national players, the build-to-order nature of metal roofing has kept the metal roofing industry in FL fragmented. While there are a few large national players, a large portion of the industry is represented by many small local businesses producing panels and trim. As a proxy for fragmentation, on https://floridabuilding.org/, there are 2 pages of product approvals for *Roofing Tiles* and 2 pages for *Asphalt Shingles*. *Metal Roofing* has 20 pages. As such, the impact of changing testing requirements on a GAF or a Ludowici with large corporate resources are markedly different than the impact on a small, local manufacturer with limited resources.

Succinctly, my concerns are: 1.) requiring section 8 of TAS 125 is unnecessary/redundant and does not solve the indicated problem. And, 2.) the proposed requirement of ANSI/MCA FTS-1 is unclear and is likely to be more burdensome than considered in the impact statements.

Less succinctly, my concerns are thus:

1. Extending the requirements of Section 8 of TAS 125 to virtually all of FL is unnecessary, does not solve the indicated problem, and would result in significant costs.
    a. <u>This change is unnecessary; testing to UL 1897 is the de facto requirement.</u> If a manufacturer publishes a product approval with only UL 580, it will be listed with that 52.5 psf as the max design pressure from the class 90. Since this pressure is not useful in much of Florida, virtually every UL 580 test run also runs UL 1897. From what I've seen, this is how all the major labs quote the test (UL 580/1897)—you would have to

explicitly ask to only do UL 580. In several hundred product approvals, I think I've seen only one with just UL 580. *The testing and product approval process functionally already requires UL 1897, because the pressure from UL 580 class 90 is generally insufficient.*

b. Section 8 of TAS 125 does not solve the indicated problem. The stated problem is that "*UL 580 testing ceases at Class 90 (105 psf net uplift/52.5 psf design load) and will not produce results addressing wind loads in the edge and corner zones required by ASCE 7 2016 in hurricane-prone regions*".
TAS 125 does NOT solve for this problem either, as it does NOT require the additional static pressures after the conclusion of Phase 5 of Class 90—
TAS 125
8.7.4 Subsequent to the completion of Phase 5 of the Class 90 test sequence, the test specimen ***may*** be subjected to additional static uplift pressures. ***Continuation of the test to increased pressure levels is the option of the manufacturer***.
(https://codes.iccsafe.org/content/FLTP2023P1/testing-application-standard-tas-125-03-standard-requirements-for-metal-roofing-systems
with emphasis added)

c. While unnecessary, if this change was to be implemented, a more targeted and effective solution would be to require UL 1897 when UL 580 is used instead of requiring TAS 125. As noted, TAS 125 does not solve the indicated problem, however requiring UL 1897 when UL 580 is used *would* present both the cyclic loading of UL 580, while also testing to failure under UL 1897 to get the higher maximum design pressures. This would reduce or nearly eliminate the cost burden described in item d.) below, as virtually every approval predicated on UL 580 also includes a max design pressure form a UL 1897 test.

d. The cost burden to retest to TAS 125 is likely to be more significant than assumed, and likely insurmountable for many small businesses. While the 8 profiles referenced in the cost impact writeup is reasonable (rib, 5V, PBR, 1" nailstrip, 1.5" clipped snaplock, 1.75" clipped snaplock, 1.5" mechanical, 2.0" mechanical), most manufacturers carry a diverse portfolio of metals (e.g. 24ga, 26ga, 29ga, 032 aluminum) on a range of substrates (e.g. 15/32" plywood, 7/16" OSB, 1x4 battens on plywood/OSB, B-deck, etc). This commonly creates at least *3-4 configuration permutations per profile*, sometimes as many as 8-10+.
Note also that section 8 of *TAS 125 requires a minimum of (3) tests*, while UL580/1897 does not. (I.e. each TAS 125 test is really 3 UL 580 uplift

tests.) *For many manufacturers, 8 profiles would result in a requirement to run 50-150+ test decks*.
In the past 12 months, I routinely have seen a single UL580/UL1897 test (TAS 125 modified or not) quoted closer to the range of $3500-$4500. This is before considering the costs of materials, shipment, and labor, and before considering the costs of engineering/validation/state fees for the product approval.
For many of the manufacturers that I work with, to retest their portfolios to TAS 125 would likely drive $250,000+ in costs, some much more. Particularly in a world with uncertainty around steel/aluminum tariffs, this would be an insurmountable regulatory burden for many small businesses that produce metal roof panels.

e. The TAS 125 retest timeframe would be infeasible. With typically 6 months from final code publication to the effective date, and accounting for processing time for product approvals, many manufacturers would need to complete dozens to hundreds of tests within just a few months. This would create significant turmoil and is likely infeasible. Many small businesses already struggle just to revise/renew their existing approvals to the new code each cycle, without any retesting required.
f. Use of the *Hurricane-Prone* region in FL is likely to create confusion and would create additional impact to enforcement of the code. From a procedural standpoint, to date, the FBC has largely not used the *Hurricane-Prone* region designation from IBC. *High Velocity Hurricane Zone* and *Wind-Borne Debris Regions* and their respective requirements are somewhat understood, but imperfectly. Adding another regional classification should be done thoughtfully where the distinction adds significant value. Inasmuch as the *Hurricane-Prone* region includes most of the populated areas of Florida, the exclusion of a handful of counties risks creating more confusion.
Few manufacturers limit their sales region to these counties—most would likely test to the *Hurricane Prone* requirement anyway, so the exclusion is of limited value. If this requirement were to be implemented, it should just apply to all of FL. Use of the *Hurricane Prone* region would require plans examiners to explicitly look for an additional item on every product approval and for manufacturers and roofers to understand and track an additional distinction and the appropriate requirements.

2. While more rigorous codes for metal trim may be beneficial/necessary, as written, the proposal for ANSI/MCA FTS-1 is unclear and overly burdensome.

a. Lack of clarity on which trim items would require testing: “hip, ridge, and edge systems, excluding gutters” creates opportunity for numerous questions of interpretation. If this were to be implemented, the code should explicitly indicate the trim items which require testing to avoid varying interpretations.
b. The cost burden is likely to be more substantial than assumed. The cost impact statement assumes 4-8 styles of edge metal and $1,500/test. Depending on which items this test will be required, I would anticipate at the top end of that range. I imagine the following items might be covered by this requirement: high side cap, ridge/hip cap, gable rake, eave drip, sidewall, endwall, gambrel (7 items).
   Virtually every manufacturer carries one or more exposed fastener version(s) that is/are direct fastened, AND one or more standing seam version(s) that is/are cleated, resulting in likely at least 14 trim styles to be tested.
   Most manufactures also carry a variety of materials (24ga, 26ga, 032 aluminum) on a variety of substrates (15/32 plywood, 7/16 OSB, B deck), which can quickly climb to 5-10 permutations per trim item, potentially now reaching 100’s of tests per manufacturer.
   This does not consider that many manufactures offer multiple styles of cleats and varying installation methods, which would further increase the number of permutations to test. Some combinations and redesigns could reduce the number of total tests, but assuming 4-8 tests per manufacturer likely significantly underestimates the testing burden.
c. The 4” and 2” face exclusions may lead to unintended consequences. FTS-1 does not apply to flashings with faces less than 4” if direct fastened, nor does it apply to other flashings with faces less than 2”. This may lead to manufacturers simply reducing their flashing face sizes to avoid the testing requirement. While these flashings may perform for wind uplift based on the smaller exposed faces, the resulting assembles may be less protected from water intrusion and otherwise result in unideal designs.
d. The testing timeframe would be infeasible. As noted for the TAS 125, this would be a challenging ask for many metal roofing manufacturers. It is also unclear if sufficient testing capacity exists for what appears to be a fairly new test with currently limited application.
e. Prescriptive options should be provided, especially for direct fastened options. It is not uncommon for roofers to have a brake and bend their own trim on-site, especially for direct fastened trim/exposed fastener panels. These shapes will realistically never be tested by the roofer, and simple prescriptive options should be provided, similar to FBC

1507.2.9/R905.2.8 for asphalt shingles. Alternatively, an external document could be created similar to FRSA-TRI with a series of prescriptive options that do not require testing.

Obviously, I have a bias as a service provider—I would personally benefit from the additional consulting work created by these proposed modifications in their current form. Further, I have an ethical obligation as an engineer to hold paramount the safety/health/welfare of the public. Those items notwithstanding, I am skeptical if the proposed modifications will result in the desired outcomes, and am concerned that the proposed implementation will result in significant cost and turmoil, especially for small businesses.

I fully support continued refinement of the code to ensure that Florida structures can sufficiently protect occupants from the destructive natural forces of a storm. However, I would ask that the Commission and the appropriate committees carefully consider the most targeted ways to reach the desired goals of these modifications, and/or consider delaying these items until a more effective and less disruptive implementation can be designed.

Thank you for the opportunity present comments on this modification. I am available for follow-up and/or further conversation at david.eng@timberlakecove.com.

Very respectfully,

David Eng, PE
Technical Director, Timberlake Cove

Technical Background for Mod 12073 and 12077

The technical changes for this proposal fall into the following areas and are discussed in detail as shown below:

1. Addressing limitations of UL 580, which terminates at Class 90 instead of progressing to failure, and UL 1897, which does not require oscillation, by citing UL 580 as modified by Section 8 of TAS-125.
2. Introduces new test requirements for edge, hip and roof systems to address issues observed by FEMA and RICOWI in their Hurricane Ian investigations.

Item 1

Item 1 requires UL 580 testing as modified by Section 8 of TAS-125 in hurricane-prone regions in lieu of UL 580 or UL 1897 alone to determine appropriate wind load resistance values as represented by common industry practice.

UL 580 and 1897 are very different tests. UL 1897 utilizes steady-state load sequencing progressing until system failure and often takes less than 20 minutes to complete. However, UL 580 is designed to evaluate overall system integrity using a cyclic load sequence and yields a performance rating (Classification) from a fixed set of options. UL 580 involves two separate hour-long periods of cyclic loading and is generally considered the more rigorous test, but the test standard does not allow for additional testing to failure once the highest classification (Class 90) is achieved. Class 90 provides a net uplift value of 105 psf, which equates to a safe working load of 52.5 psf. With the current version of ASCE 7 Chapter 30, this result is not useful in the extreme edge or corner zones of roofs in hurricane-prone regions of the US. Section 8 of TAS-125 addresses these issues quite well by hybridizing the UL tests and the resulting practice is already widely used in the metal roofing industry.

Item 2

Item 2 also only applies within hurricane-prone regions, as defined by IBC and adds requirements for testing of ridge, hip and edge metal systems similar to those currently in place for low-slope built-up, modified bitumen and single-ply roof systems in Section 1504.5 of FBC. It is being put forth to address issues observed by the Roofing Industry Committee on Weather Issues (RICOWI) through their Windstorm Investigation Program (WIP) as well as FEMA's Hurricane Ian investigation.

The test standard cited, ANSI/MCA FTS-1-2019, was developed by MCA through the Single Ply Roofing Institute's (SPRI) ANSI-accredited canvassing process. The RICOWI and FEMA WIP field studies revealed instances where metal ridge, hip and/or edge system with cleats (See Figures 1 and 2) were torn from the perimeter of a building with a metal roof, exposing a longer leading edge of the incorporated roof panel and initiating a partial failure of the roof system, particularly near the corners and gable edges of the roof. Although the damage was very localized, it did allow water to enter the building and in cases, the edge metal became a wind-borne debris threat. Most commonly, this occurred in two situations:

- Where a multi-piece edge trim assembly incorporating cleats deformed enough to disengage from the cleat. (Figures 1a and 2a)
- Where the metal edge trim assembly was fastened to a non-metal substrate such as wood or masonry, leaving to question the appropriateness of the fastener used since it would often not be provided by the edge system manufacturer for non-metal substrates. (Figures 1b and 2b)

These tendencies were also observed by FEMA in their Mitigation Assessment Team Report for Hurricane Ian. (https://tinyurl.com/mmrstxju) Section 6.3 of this report includes Conclusion FL-10, as shown in Figure 3, recommending that FEMA support industry stakeholders in supporting code change proposals to requiring testing of hip and ridge roof coverings. (FEMA P-2342, Page 6-9)

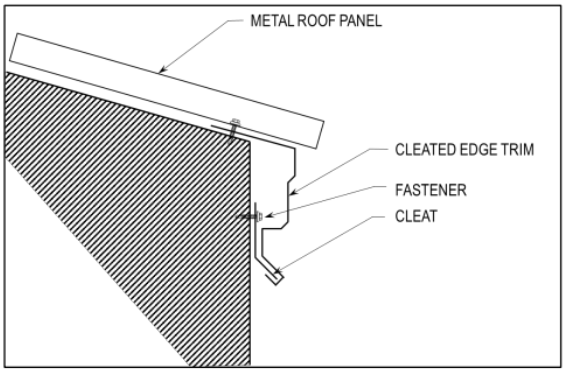

Figure 1 – Cleated Eave Edge Metal System

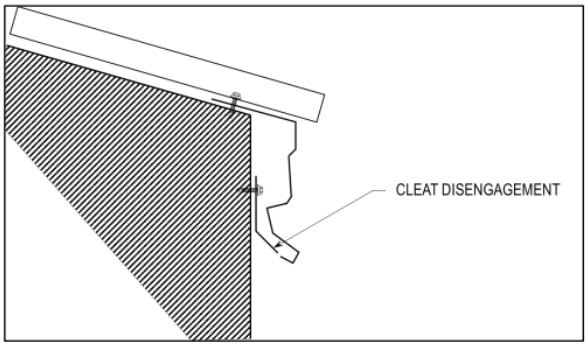

Figure 1a – Cleated Eave Edge Metal System – Cleat Disengagement

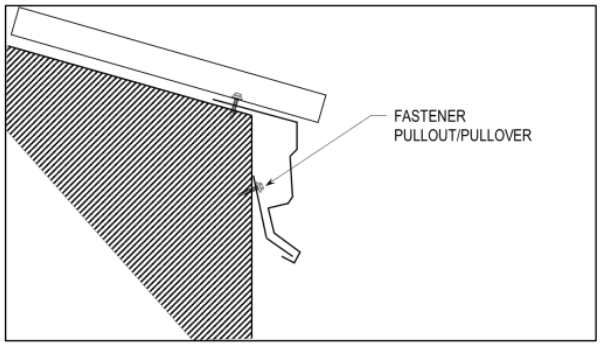

Figure 1b – Cleated Eave Edge Metal System – Fastener Failure

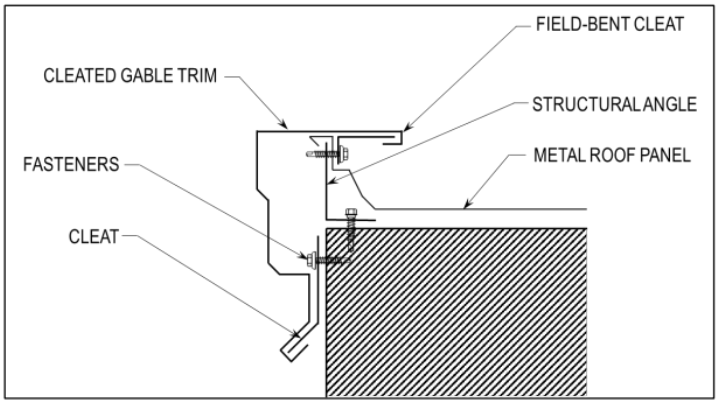

Figure 2 – Cleated Gable Edge Metal System

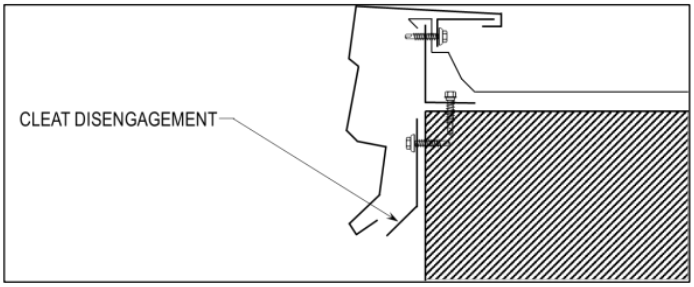

Figure 2a – Cleated Gable Edge Metal System – Cleat Disengagement

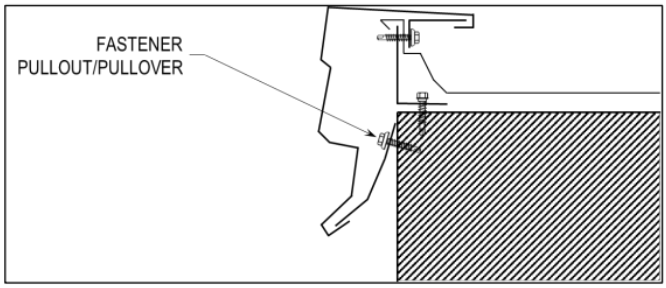

Figure 2b – Cleated Gable Edge Metal System – Fastener Failure

County to capture any lessons learned from the process as the damage assessment dashboard would be an effective tool to include in preparedness exercises and training. It would be highly beneficial to SLTTs to have access to street-level panoramic imagery and helicopter videography following an event like Hurricane Ian to support various response, recovery, mitigation, and preparedness efforts.

6.3. Wind-Related Building Codes, Standards, and Regulations Conclusions and Recommendations

Conclusion FL-10

Hip and ridge roof coverings for many residential buildings appeared to have inadequate resistance to wind loads. Failure of hip and ridge roof coverings on asphalt shingle and metal panel roof coverings was widespread and the most common roof covering failure observed by the MAT. While some asphalt shingle manufacturers test hip and ridge shingles to a modified version of ASTM D3161, the IBC, IRC, and FBC do not specifically require testing of hip and ridge asphalt shingles or metal panel roof coverings.

Recommendation FL-10a. **FEMA should consider submitting code change proposals or supporting code change proposals from other stakeholders—such as IBHS, Asphalt Roofing Manufacturers Association (ARMA), National Roofing Contractors Association (NRCA), and other aligned groups to the IBC, IRC, and the FBC—to require testing of hip and ridge roof coverings for asphalt shingle roof coverings.** The IBC, IRC, and the FBC require asphalt shingles to be tested for wind loads in accordance with ASTM D7158 or ASTM D3161. Underwriters Laboratories (UL) 2375, *Outline of Investigation for Hip and Ridge Shingles* (2016), provides a methodology to use a modified version of ASTM D3161 to test hip and ridge shingles for wind resistance. As an alternative to testing, a prescriptive solution that includes the use of an appropriate adhesive should be developed and included in the IBC, IRC, and FBC.

Recommendation FL-10b. **FEMA should consider submitting code change proposals or supporting code change proposals from other stakeholders—such as IBHS, Metal Construction Association (MCA), NRCA, and other aligned groups to the IBC, IRC, and the FBC—to require testing of hip and ridge roof coverings for metal panel roof coverings.** The ANSI/MCA FTS-1, *Test Method for Wind Load Resistance of Flashings Used with Metal Roof Systems* (2019), specifies wind load resistance testing of hip covers on metal panel roof systems in addition to other edge/flashing metal.

Recommendation FL-10c. **FEMA should consider submitting code change proposals or supporting code change proposals from other stakeholders—such as IBHS, ARMA, NRCA, and other aligned groups to the IBC, IRC, and the FBC—to require a minimum of 6 inches overlap of the roof underlayment to hip and ridges that do not have ventilation components.** Wrapping underlayment over hips and ridges that don't have ventilation components will

Figure 3 – Excerpt from FEMA P-2342

Metal Construction Association

This proposal is being brought forward by The Metal Construction Association. (MCA) Founded in 1983, the MCA is a 501(c)(6) organization promoting the use of metal in the building envelope by bringing together manufacturers and suppliers of metal products used in structures throughout the world to collaborate on marketing, education and advocacy. For more information, see the MCA website at www.metalconstruction.org.

Bibliography:

Federal Emergency Management Association (FEMA); Mitigation Assess Team Report Hurricane Ian in Florida; FEMA P-2342, December 2023; Page 6-9.

Roofing Industry Committee on Weather Issues (RICOWI); Wind Investigation Report: Hurricane Ian; September 2023; Pages 87-90.

R12073Impact Statement

Mod 12073 Cost Impact Statement Attachment

ANSI/MCA FTS-1 testing is estimated to be $1,500/test and most manufacturers carry 4-8 styles of edge metal systems different enough to test separately. Thus, total cost is estimated to be $36,000. Similarly, the TAS-125 testing required for wind resistance of the panel system is estimated as $2,500 per test over a product line of 8 profiles for $40,000. This is a total of $76,000 to carry both.

If this cost is accrued over the life of the product lines, assumed to be at least 2,000 buildings, it results in a nominal increase of at most $38 per building. A typical building of this construction is 2,500 square feet of roof area at $6/square foot and 300 lineal feet of edge/hip/ridge materials valued at $5/lineal foot, this represents a total cost of $16,500 installed. At a total cost of $20/square foot, the building would be $50,000, making the roof 33% of the total cost, which is consistent with industry estimation practices. The increase over the total building cost is 38/50,000, or 0.8%.

Note: Cost estimates are based on general experience of industry stakeholders and are not available publicly due to antitrust restrictions.

Page: 1

Mod_12073_Impact_Cost Impact Statement 12073.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

94

R12106

Date Submitted	02/14/2025	**Section**	908	**Proponent**	T Stafford
Chapter	9	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments Yes **Alternate Language Yes**

Related Modifications

Summary of Modification

Modifies the provisions regarding existing self-adhered underlayment during a roof replacement to ensure protection from water intrusion through the roof deck is maintained for roof replacements.

Rationale

This proposal addresses the use of existing self-adhered underlayment during a roof replacement. While the code requires roofing materials to removed down to the roof deck for roof replacements, removing existing self-adhered underlayment can be challenging. This proposal would permit an existing self-adhered underlayment to remain and be covered with mechanically attached underlayment provided the underlayment is installed using the double-layer method in Item 3 of Section R905. During reroofing, the self-adhered underlayment will likely be damaged in some areas and may not be suitable for resisting water intrusion through the roof deck in the event the primary roof covering is damaged or blown off. This proposal also permits one additional layer of self-adhered underlayment to be installed over a single existing layer of self-adhered underlayment provided the criteria specified is met. Approval of this proposal will ensure that roof replacement projects are protected from water intrusion as required for new construction. The full rationale is provided in the attached support file.

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.
Impact to industry relative to the cost of compliance with code
No impact to industry relative to the cost of compliance with the code.
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.

Requirements

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

This proposal ensures that roof replacement projects are protected from water intrusion as required for new construction.

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

This proposal strengthens and improves the code by ensuring that roof replacement projects are protected from water intrusion as required for new construction.

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 of demonstrated capabilities.

Does not degrade the effectiveness of the code

This proposal does not degrade the effectiveness of the code.

Alternate Language

1st Comment Period History

R12106-A1

Proponent Kelsey Archer **Submitted** 4/16/2025 5:51:46 PM **Attachments** No

Rationale:

This comment is on behalf of Polyglass USA, a manufacturer of residential and commercial roofing and waterproofing products and on behalf of Building Envelope Associates, a registered consulting/engineering firm and industry expert in roofing and waterproofing. SA = self-adhered Where the proposed mod language designates “one layer of self-adhered underlayment", it implies that it would not allow the recovering of a 2-ply SA underlayment system (2 self-adhered membranes applied on top of each other, directly over the wood deck). Several manufacturers have approved 2-ply SA systems with the intent of a redundant waterproofing and secondary barrier to provide extra protection of the roof. Also, for fire-rated SA underlayments such as Polyglass XFR, 2 layers is REQUIRED for aluminum roof coverings in order to meet the Class A Fire Rating. By limiting the option of a recover to only roofs that have 1 SA on the deck, it would force building owners that either chose a better, redundant underlayment initially or that have an aluminum roof covering, to have their decks torn off instead of recovered because they already have 2 layers on them. The proposed mod language “Item 3 of Section R905.1.1.1” references a Section for installing 2 layers of ASTM D226 Type II. It is my understanding that that is not the code intent, and that 1 layer is allowed if the pitch is 4:12 or greater. Therefore, it falls more in line with Item 2 of Section R905.1.1.1 and certainly lines up with the Table R905.1.1.1. Table R905.1.1.1 was created for the specific use of underlayment to be installed over an existing SA on the deck or over stripped-in plywood joints. It wouldn’t make any sense to require 2 layers of ASTM D226 Type II over an existing SA, especially for a tile roof.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Unknown

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

As modification is currently written, this would greatly impact the cost to replace a roof where an approved, self-adhered 2-ply system is installed.

Impact to industry relative to the cost of compliance with code

Unknown

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.

Requirements

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

The current mod as written would deter building owners from initially installing a 2-ply underlayment system despite it being a better system, and therefore is a negative connection with the public. My comments improve public welfare.

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

The modification as it reads now actually reinforces the use of inferior products and systems, as it limits self-adhered underlayments to only 1 layer. Allowing 2 layers without repercussions in the future when replacing the roof covering would improve the performance of the roof system as a whole.

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

The modification as it reads now DOES discriminate against underlayment manufacturers that innovated the best underlayment systems consisting of 2-plies, and that have gone through extensive testing for wind uplift and fire testing My changes to the modifications would mitigate the discrimination.

Does not degrade the effectiveness of the code

The mod as it reads now (relating to Item 3 of Section R905.1.1.1) degrades the effectiveness of the code, as it refers to a section that is not best practices and nor the code intent. My changes to the mod will improve the effectiveness of the code as it will then relate to the intended table.

1st Comment Period History

R12106-G1

Proponent Michael Silvers (FRSA) Submitted 4/16/2025 2:29:23 PM Attachments No

Comment:

The FBC has included methods to address self-adhering underlayment during reroofing for two code cycles (2020 and 2023). The provisions have been thoroughly vetted by the appropriate TACs and the Commission. The language incorporated in the FBC was produced and mutually agreed on by a work group comprised of those who represent FRSA, IBHS and ARMA. The application methods have been taught in numerous continuing education courses presented by FRSA and others for contractors, building officials, architects and engineers. These requirements are understood and have been widely accepted and implemented. They have been expanded to include all steep slope (2/12 and greater) roof coverings. Similar provisions have also been adopted in the HVHZ making the general methods applicable statewide. The FBC has dealt with an existing self-adhering underlayment in the same manner as self-adhering strips installed over the joints in the roof decking. The FBC sections that address existing self-adhering underlayment installed direct to deck specifically points to TABLE 1507.1.1 and R905.1.1 UNDERLAYMENT WITH SELF-ADHERING STRIPS OVER ROOF DECKING JOINTS to prescribe how the required additional underlayment is to be installed. The taped joint with additional nailed underlayment approach has been in the FBC since 2010. The suggested language in this modification that was incorporated into the IBC does not take the same approach as taken in the two previous versions of the FBC and will cause confusion and possible unintended consequences moving forward. We urge you to support maintaining the current FBC approach and respectfully request your support in urging denial of this modification.

1st Comment Period History

R12106-G2

Proponent Kelsey Archer Submitted 4/16/2025 6:05:59 PM Attachments No

Comment:

This comment is on behalf of Polyglass USA, a manufacturer of residential and commercial roofing and waterproofing products and on behalf of Building Envelope Associates, a registered consulting/engineering firm and industry expert in roofing and waterproofing. I believe this modification is misleading and/or degrades the effectiveness of the code because it implies that there are only 2 ways to recover an existing self-adhered underlayment: Option 1 being 2 layers of D226 Type II felt and Option 2 being applying another self-adhered over the existing. Option 1 will only work for non-tile applications because tile foams will not adhere to most D226 sheets. It is also overkill to install 2 layers over an already-adhered membrane, when the current code cycle allows just 1 layer of D226 over an existing SA if the pitch is 4:12 or greater. Option 2 seems like it will cause many issues and also would not work for tile applications. Since underlayments need to meet wind uplift pressures, installing an SA on top of an old SA (of any manufacturer) would not have a tested assembly or product approval with a pressure. I foresee issues arising because there is no added testing required to test the adhesion of the new SA to the existing. Manufacturers will not be able to go out to every job site to determine if the existing SA is suitable to apply a new SA over the top, so there will be a lot of roofers installing this without permission and without confirming good adhesion. Also, most underlayment manufacturers do not offer products that qualify for Option 2. In both options, a tile roof covering is not an option. There needs to be an option for a recover for tile roofs.

R12106-A1Text Modification

IBC-R Section R908.3, Exception 2:

Where the existing roof includes ~~one layer of~~ self-adhered underlayment(s) applied direct to the roof deck, and supplemental fastening of the roof deck has been performed where required by Section 706.7.1 of the *Florida Building Code, Existing Building*, the existing self-adhered underlayment(s) is permitted to remain in place in accordance with the following:

~~1.~~ Where the existing sheathing is not water soaked or deteriorated to the point that it is not adequate as a base for additional roofing, mechanically fastened underlayment is permitted to be installed over the existing self-adhered underlayment in accordance with Table R905.1.1.1~~Item 3 of Section R905.1.1.1.~~

Page: 1

Mod12106_A1_TextOfModification.pdf

R12106Text Modification

R905.1.1.1 Underlayment for asphalt shingles, metal roof panels or shingles, mineral surfaced roll roofing, slate and slate-type shingles, wood shakes and wood shingles. Underlayment for asphalt shingles, metal roof panels or shingles, mineral surfaced roll roofing, slate and slate-type shingles, wood shakes and wood shingles shall comply with one of the following methods:

1. 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. This method is not permitted for wood shingles or shakes.

   2. ~~An e~~Existing self-adhering modified bitumen underlayment is permitted to comply with Exception 2 to Section R908.3 ~~that has been previously installed over the roof decking and, where it is required, renailing off the roof sheathing in accordance with Section 706.7.1 of the Florida Building Code, Existing Building can be confirmed or verified. An approved underlayment in accordance with Table R905.1.1.1 for the applicable roof covering shall be applied over the entire roof over the existing self-adhered modified bitumen underlayment~~.

   (*no change to remainder of section*)

R908.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15.

Exceptions:

~~1.~~ Reroofing shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide positive roof drainage.

~~2. An existing self-adhering modified bitumen underlayment that has been previously installed over the roof decking and, where it is required, renailing off the roof sheathing in accordance with Section 706.7.1 of the Florida Building Code, Existing Building can be confirmed or verified. An approved underlayment in accordance with Table 1507.1.1.1 for the applicable roof covering shall be applied over the entire roof over the existing self-adhered modified bitumen underlayment.~~

R908.3 Recovering versus replacement. New roof coverings shall not be installed without first removing all existing layers of roof coverings down to the roof deck where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.

2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.

3. Where the existing roof has two or more applications of any type of roof covering.

4. When blisters exist in any roofing, unless blisters are cut or scraped open and remaining materials secured down before applying additional roofing.

5. Where the existing roof covering is to be used for attachment for a new roof system and compliance with the securement provisions of Section R905 cannot be met.

Exceptions:

Page: 1

Mod12106_TextOfModification.pdf

1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.

2. ~~Reserved.~~ Where the existing roof includes one layer of self-adhered underlayment applied direct to the roof deck, and supplemental fastening of the roof deck has been performed where required by Section R908.7.1, the existing self-adhered underlayment is permitted to remain in place in accordance with the following:

1. Where the existing sheathing is not water soaked or deteriorated to the point that it is not adequate as a base for additional roofing, mechanically fastened underlayment is permitted to be installed over the existing self-adhered underlayment in accordance with Item 3 of Section R905.1.1.1.

2. Where the existing layer of self-adhered underlayment cannot be removed without damaging the roof deck, a second layer of self-adhered underlayment is permitted to be installed over the existing self-adhered underlayment provided that the following conditions are met:

2.1 It is permitted by the roof covering manufacturer and self-adhered underlayment manufacturer.

2.2 The existing sheathing is not water-soaked or deteriorated to the point that it is not adequate as a base for additional roofing.

2.3 The second layer of self-adhered underlayment is installed such that buildup of material at walls, valleys, roof edges, end laps and side laps does not exceed two layers.

2.4 The existing self-adhered membrane is smooth and clean without granulation or other properties that interfere with adhesion.

3. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.

4. Reserved.

5. Roof coating. Application of elastomeric and/or maintenance coating systems over existing asphalt shingles shall be in accordance with the shingle manufacturer's approved installation instructions.

Rationale:

The use of a self-adhered polymer modified bitumen membrane complying with ASTM D1970 is one of several underlayment options permitted for roof coverings in the FBCR. ASTM D1970 self-adhered membranes were recognized as an underlayment option in the early editions of the FBC. After 20 years of code implementation, it remains approved by roof covering manufacturers, underlayment manufacturers and building codes, and has been consistently observed to perform very well as a method for preventing water intrusion in the event the roof covering is lost or damaged.

While the code requires materials and methods for roof replacement to comply with Chapter 15, it provides limited guidance for what to do where a roof is being replaced and there is an existing self-adhered underlayment. Exception 2 to Section R908.1 does provide some requirements but is missing a few key details.

This proposal is a collaboration between the Insurance Institute for Business and Home Safety (IBHS), the Asphalt Roofing Manufacturers Association (ARMA), and the National Roofing Contractors Association (NRCA). It provides specific requirements on acceptable methods for dealing with existing self-adhered membranes during a roof replacement. The underlayment methods in the FBC include specific methods for preventing water intrusion in the event the roof covering is damaged or lost in high wind regions. The changes proposed herein seek to maintain that level of protection during roof replacement.

ARMA provides guidance on the removal of self-adhered membrane in their Technical Bulletin, Self-Adhering Underlayment Removal Prior to Steep Slope Re-Roofing: "*Removal of self-adhering underlayment is always recommended in situations in which it can be removed without damaging the deck....If one layer of self-adhering underlayment is in place, and it is not possible to remove it without damaging the deck, installation of a second layer of underlayment over the existing membrane may be permissible: Check with the underlayment manufacturer's installation instructions and local building codes for details. Offset end and side laps in the new and existing underlayment to minimize thickness build-up and "feather in" the new underlayment by extending the new material a minimum of 8" up the slope onto the bare deck. This will reduce the likelihood of problems with drainage and aesthetics. If two or more layers of self-adhering underlayment are in place, all layers should be removed.*"

This proposal would permit an existing self-adhered underlayment to remain and be covered with mechanically attached underlayment provided the underlayment is installed using the double-layer method in Item 3 of Section R905.1.1.1. During reroofing, the self-adhered underlayment will likely be damaged in some areas and may not be suitable for resisting water intrusion through the roof deck in the event the primary roof covering is damaged or blown off.

This proposal also permits one additional layer of self-adhered underlayment to be installed over a single existing layer of self-adhered underlayment provided the criteria specified is met.

Approval of this proposal will ensure that roof replacement projects are protected from water intrusion as required for new construction.

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

95

R12164

Date Submitted	02/16/2025	**Section**	905.1.1	**Proponent**	T Stafford
Chapter	9	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

This proposal requires underlayment to be lapped over hips and ridges except where ventilation openings are provided.

Rationale

This proposal is submitted on behalf of the Insurance Institute for Business and Home Safety (IBHS). It requires underlayment to be lapped over hips and ridges except where ventilation openings are provided. See attached support file for the full rationale.

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
Minimal to no impact to building and property owners relative to the cost of compliance with the code.
Impact to industry relative to the cost of compliance with code
No impact to industry relative to the cost of compliance with the code.
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.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
This proposal will improve the water penetration resistance of roofs in the event that hip and ridge roof coverings are damaged or blown off.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This proposal strengthens the code by improving the water penetration resistance of roofs in the event that hip and ridge roof coverings are damaged or blown off.

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 of demonstrated capabilities.

Does not degrade the effectiveness of the code

This proposal does not degrade the effectiveness of the code.

R12164Text Modification

Revise as follows:

R905.1.1 Underlayment. Underlayment for roof slopes 2:12 and greater shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D226, D1970, D4869, D6757, or ASTM D8257, shall bear a label indicating compliance to the standard designation and, if applicable, type classification indicated. Underlayment for roof slopes 2:12 and greater shall be applied and attached in accordance with Section R905.1.1.1 or R905.1.1.2 as applicable. Underlayment shall lap over hips and ridges a minimum of 6 inches except where ventilation openings in accordance with Section R806 are provided.

Exception: Compliance with Section R905.1.1.1 is not required for structural metal panels that do not require a substrate or underlayment.

Page: 1

Mod12164_TextOfModification.pdf

R12164Text Modification

Rationale:

This proposal is submitted on behalf of the Insurance Institute for Business and Home Safety (IBHS).

This proposal seeks to provide an additional level of water intrusion protection for minimal effort in the event part of the roof covering is blown off. If approved, this proposal will align the code with IBHS's FORTIFIED Roof™ designation regarding underlayment application at hips and ridges. The FORTIFIED Home™ program was developed to reduce avoidable suffering and financial loss caused by hurricanes, high winds, and hail. The program requirements provide a systems-based, multi-tiered approach for improving the resistance of homes and their contents to damage caused by wind, wind-driven rain, and hail. There are three designation levels—FORTIFIED Roof™, FORTIFIED Silver™, and FORTIFIED Gold™—that build on each other and address different systems of the home.

Roof covering damage is typically the most observed damage in post-windstorm investigations. This has been observed in damage investigations by IBHS and FEMA Mitigation Assessment Team (MAT) deployments. While widespread roof covering damage was observed and documented in the Hurricane Ian MAT report, the report noted that the failure of hip and ridge roof coverings was the most common damage observed for all roof covering types. The following paragraph is an excerpt from Section 4.2.4 in the FEMA Hurricane Ian MAT Report (https://www.fema.gov/sites/default/files/documents/fema_rm-hurriance-ian-mat-report-12-2023.pdf):

“Although roof covering damage was widespread at all sites visited by the MAT, the degree of roof covering damage varied across the sites. The most common damage observed by the MAT for all roof coverings was displacement of hip and ridge roof coverings.”

The FEMA Hurricane Michael in Florida MAT Report (https://www.fema.gov/sites/default/files/2020-07/mat-report_hurricane-michael_florida.pdf) also noted that the failure of hip and ridge asphalt shingles was prevalent (see Section 4.2.1.1).

When hip and ridge roof coverings are blown off, the interior of the building is at risk of water intrusion due to gaps in the roof framing and decking. This water intrusion can result in costly damage to interior contents and furnishings. The observations from the FEMA Hurricane Ian in Florida MAT led to the report recommending the following in Recommendation FL-10c:

FEMA should consider submitting code change proposals or supporting code change proposals from other stakeholders—such as IBHS, ARMA, NRCA, and other aligned groups to the IBC, IRC, and the FBC—to require a minimum of 6 inches overlap of the roof underlayment to hip and ridges that do not have ventilation components. Wrapping underlayment over hips and ridges that don’t have ventilation components will improve the roof’s resistance to water intrusion in the event the hip and ridge coverings are damaged or blown off.

This proposal, if approved, would implement this recommendation by requiring roof underlayment to be lapped over hips and ridges a minimum of 6 inches and would also be consistent with IBHS requirements for a FORTIFIED Roof™ designation. An exception to this required lapping is provided for hips and ridges that have ventilation components. According to discussions with the Asphalt Roofing Manufacturer’s Association (ARMA), many of its members already recommend this

Page: 1

Mod_12164_Text_Underlayment lap at hips and ridges rationale.pdf

R12164Text Modification

practice in their installation instructions. This proposal would codify this requirement for asphalt shingles and expand this practice to all roof covering types.

Page: 2

Mod_12164_Text_Underlayment lap at hips and ridges rationale.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

96

R12166

Date Submitted	02/16/2025	**Section**	908.7.1.2	**Proponent**	T Stafford
Chapter	9	**Affects HVHZ**	Yes	**Attachments**	Yes
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments Yes **Alternate Language No**

Related Modifications

Summary of Modification

This proposal updates roof deck re-nailing table and strengthens the fastener spacing for higher wind speeds.

Rationale

This proposal is submitted on behalf of the Insurance Institute for Business and Home Safety (IBHS). It updates roof deck re-nailing table and strengthens the fastener spacing for higher wind speeds. See attached support file for the full rationale.

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
Minimal impact to building and property owners relative to the cost of compliance with the code.
Impact to industry relative to the cost of compliance with code
No impact to industry relative to the cost of compliance with the code.
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.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
This proposal will improve the attachment of the roof deck during a roof replacement on buildings built prior to the FBC.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This proposal strengthens the code by improving the attachment of the roof deck during a roof replacement on buildings built prior to the FBC.

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 of demonstrated capabilities.

Does not degrade the effectiveness of the code

This proposal does not degrade the effectiveness of the code.

1st Comment Period History

R12166-G1

Proponent T Stafford Submitted 4/16/2025 4:43:38 PM Attachments No

Comment:

There is a typographical error in the new Table R908.7.1.2. In the heading of the last column, change "Maximum Supplemental Fastener Spacing for VULT = 160 mph" to "Maximum Supplemental Fastener Spacing for VULT = 160 mph."

1st Comment Period History

R12166-G2

Proponent T Stafford Submitted 4/16/2025 4:49:38 PM Attachments No

Comment:

The BCIS will not recognize the "greater than equal to" symbol. The heading of the last column applies where the Vult wind speed is "equal to or greater than 160 mph."

R12166Text Modification

Delete Table R908.7.1.2 and replace with the following:

~~**TABLE R908.7.1.2**~~

~~**SUPPLEMENT FASTENERS AT PANEL EDGES AND INTERMEDIATE FRAMING**~~

~~EXISTING FASTENERS~~	~~EXISTING SPACING~~	~~V_{asd} 110 MPH OR LESS SUPPLEMENTAL FASTENER SPACING SHALL BE NO GREATER THAN~~	~~V_{asd} GREATER THAN 110 MPH SUPPLEMENTAL FASTENER SPACING SHALL BE NO GREATER THAN~~
~~Staples or 6d~~	~~Any~~	~~6 inches o.c.[b]~~	~~6 inches o.c.[b]~~
~~8d clipped head, round head, smooth or ring shank~~	~~6 inches o.c. or less~~	~~None necessary~~	~~None necessary~~
~~8d clipped head, round head, smooth or ring shank~~	~~Greater than 6 inches o.c.~~	~~6 inches o.c.[a]~~	~~6 inches o.c.[a]~~

~~a. Maximum spacing determined based on existing fasteners and supplemental fasteners.~~

~~b. Maximum spacing determined based on supplemental fasteners only.~~

~~c. V_{asd} shall be determined in accordance with Section 1609.3.1 of the *Florida Building Code, Building* or Section R301.2.1.3 of the *Florida Building Code, Residential*.~~

TABLE R908.7.1.2

SUPPLEMENT FASTENERS AT PANEL EDGES AND INTERMEDIATE FRAMING

Existing Fasteners	Existing fastener spacing (panel edges or intermediate framing)	Maximum Supplemental Fastener Spacing for V_{ULT} < 160 mph	Maximum Supplemental Fastener Spacing for V_{ULT} = 160 mph
Staples or 6d	Any	6” on center [a]	4” on center [a]
8d clipped head, round head, smooth or ring shank	6 inches o.c. or less	None necessary	4 inches o.c. [b]
8d clipped head, round head, smooth or ring shank	Greater than 6 inches o.c.	6 inches o.c. [b]	4 inches o.c. [b]

-

Page: 1

Mod12166_TextOfModification.pdf

R12166Text Modification

a. Maximum spacing determined based on supplemental fasteners only.

b. Maximum spacing determined based on existing fasteners and supplemental fasteners.

Page: 2

Mod12166_TextOfModification.pdf

R12166Text Modification

Rationale:

This proposal is submitted on behalf of the Insurance Institute for Business and Home Safety (IBHS).

This proposal updates the roof deck re-nailing requirements. This requirement was added to the 2007 FBCEB and has been unaltered since. There are several areas of this table that are in need of updating. The wind speed references are based on allowable stress design (V_{asd}). The FBC has been using strength design level wind speeds (V_{ult}) since the 2010 FBC and the wind speed references in this table should be updated accordingly.

Additionally, the current table contains 2 columns for supplemental fastener spacing requirements (V_{asd} 110 mph and less; and V_{asd} greater than 110 mph). However, the supplemental fastening requirements are exactly the same for both wind speed ranges. This proposal requires tighter spacing of the fasteners where wind speeds are 160 mph and greater. This fastener spacing is consistent with the roof deck renailing requirements in Appendix C of the International Existing Building Code and also consistent with the maximum nail spacing required for a Fortified Roof designation. The nail spacings are derived from research conducted in the 1990's at Clemson University tempered by the requirements for roof sheathing attachment for high winds in the Wood Frame Construction Manual.

The attachment of the roof deck to the roof framing is one of the more critical connections specified by the FBC. Failure of the roof decking can result in significant wind and water intrusion into the building causing significant damage to the interior contents and furnishings. Additionally, failure of the roof decking can also result in progressive failure of the roof framing and gable ends due to a lack of support. A securely attached roof deck is critical to the resilience of buildings impacted by windstorms.

Page: 1

Mod_12166_Text_Roof deck re-nailing rationale.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Residential

97

R11902

Date Submitted	02/04/2025	**Section**	46	**Proponent**	Aaron Phillips
Chapter	2712	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language Yes**

Related Modifications

Summary of Modification

Update editions of referenced standards.

Rationale

This modification updates roofing-related referenced standards to current editions.

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
Updates referenced standards to current editions.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Updates referenced standards to current editions.
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
Improves effectiveness of the code.

Alternate Language

1st Comment Period History

Proponent Aaron Phillips **Submitted** 4/3/2025 2:22:42 PM **Attachments** Yes

R11902-A1

Rationale:

This comment corrects two mistakes in standard designations which were not recognized until after the original modification was submitted.

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
Updates referenced standards to current editions.

Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Updates referenced standards to current editions.

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
Improves effectiveness of the code.

R11902-A1Text Modification

This comment corrects two mistakes in the standard designations, as follows:

~~D226/D226M-2017~~ D226/D226M-17(2023)

~~D3462/D3462M-19~~ D3462/D3462M-23

Changes to the original text are shown via yellow highlights.

A complete copy of the original modification with the changes shown above is included as an attachment to this comment.

Page: 1

Mod11902_A1_TextOfModification.pdf

R11902-A1Text Modification

Alternative language comment for 11902, correcting mistakes in two standard designations via additions as shown below with yellow highlights. All other details match the original modification.

Text of Modification

Update referenced standards editions as follows:

[Standard titles not shown do not change.]

ASTM

~~C208-2012(2017)E2~~ C208-22

~~C578-19~~ C578-23

~~C726-2017~~ C726-24

~~C728-2017a~~ C728-17a(2022)

~~C1177/C1177M-17~~ C1177/C1177M-24

~~C1289-21~~ C1289-23a

~~D41/D41M-2011(2016)~~ D41/D41M-11(2023)

Page: 1

Mod_11902_A1_Text_11902-Alt.pdf

~~D226/D226M-2017~~ D226/D226M-17(2023)

~~D312/D312M-2016a~~ D312/D312M-16a(2023)

~~D1863/D1863M-2005~~ D1863/D1863M-05(2024)

~~D2824/D2824M-2018~~ D2824/D2824M-18(2024)

~~D3019/D3091M-2017~~ D3019/D3019M-17(2024)

~~D3161/D3161M-20~~ D3161/D3161M-20(2025)

~~D3462/D3462M-19~~ D3462/D3462M-23

~~D3909/D3909M-14~~ D3909/D3909M-22

~~D4479M-2007(2018)~~ D4479/D4479M-07(2024)

~~D4586/D4586M-2007(2018)~~ D4586/D4586M-07(2024)

~~D4897/D4897M-2016~~ D4897/D4897M-16(2023)

~~D6162/D6162M-2016~~ D6162/D6162M-21

~~D6163/D6163M-2016~~ D6163/D6163M-21

~~D6164/D6164M-2016~~ D6164/D6164M-21

~~D6222/D6222M-2016~~ D6222/D6222M-16(2023)

~~D6223-2016~~ D6223/D6223M-21

~~D6298/D6298M-2016~~ D6298/D6298M-16(2023)

~~D6380/D6380-03(2018)~~ D6380/D6380M-03(2022)

~~D6509/D6509M-16~~ D6509/D6509M-16(2023) Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Base Sheet ~~Steel~~ Materials Using Glass Fiber Reinforcements

~~D6757/D6757M-2018~~ D6757/D6757M-18(2023)

~~D7158/D7158M-20~~ D7158/D7158M-24a

~~D7655/D7655M-12(2017)~~ D7655/D7655M-12(2022)

~~E84-2018B~~ E84-24

~~E96/E96M-2016~~ E96/E96M-24a

~~E108-20a~~ E108-25

~~F1667-21~~ F1667/F1667M-21a

UL

~~580-2006~~ 580-2006 Tests for Uplift Resistance of Roof Assemblies--with revisions through April 2024 ~~March 2019~~

~~790-2004~~ 790-2004 Standard Test Methods for Fire Tests of Roof Coverings--with revisions through February 2022 ~~October 2018~~

~~1897-2015~~ 1897-2015 Uplift Tests for Roof Covering Systems--with revisions through July 2023 ~~September 2020~~

R11902Text Modification

Update referenced standards editions as follows:

[Standard titles not shown do not change.]

ASTM

~~C208-2012(2017)E2~~ C208-22

~~C578-19~~ C578-23

~~C726-2017~~ C726-24

~~C728-2017a~~ C728-17a(2022)

~~C1177/C1177M-17~~ C1177/C1177M-24

~~C1289-21~~ C1289-23a

~~D41/D41M-2011(2016)~~ D41/D41M-11(2023)

~~D226/D226M-2017~~ D226/226M-17(2023)

~~D312/D312M-2016a~~ D312/D312M-16a(2023)

~~D1863/D1863M-2005~~ D1863/D1863M-05(2024)

~~D2824/D2824M-2018~~ D2824/D2824M-18(2024)

~~D3019/D3091M-2017~~ D3019/D3019M-17(2024)

~~D3161/D3161M-20~~ D3161/D3161M-20(2025)

~~D3462/D3462M-19~~ D3462D3462M-23

~~D3909/D3909M-14~~ D3909/D3909M-22

~~D4479M-2007(2018)~~ D4479/D4479M-07(2024)

~~D4586/D4586M-2007(2018)~~ D4586/D4586M-07(2024)

~~D4897/D4897M-2016~~ D4897/D4897M-16(2023)

~~D6162/D6162M-2016~~ D6162/D6162M-21

~~D6163/D6163M-2016~~ D6163/D6163M-21

~~D6164/D6164M-2016~~ D6164/D6164M-21

~~D6222/D6222M-2016~~ D6222/D6222M-16(2023)

~~D6223-2016~~ D6223/D6223M-21

~~D6298/D6298M-2016~~ D6298/D6298M-16(2023)

~~D6380/D6380-03(2018)~~ D6380/D6380M-03(2022)

~~D6509/D6509M-16~~ D6509/D6509M-16(2023) Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Base Sheet ~~Steel~~ Materials Using Glass Fiber Reinforcements

Page: 1

Mod11902_TextOfModification.pdf

R11902Text Modification

~~D6757/D6757M-2018~~ D6757/D6757M-18(2023)

~~D7158/D7158M-20~~ D7158/D7158M-24a

~~D7655/D7655M-12(2017)~~ D7655/D7655M-12(2022)

~~E84-2018B~~ E84-24

~~E96/E96M-2016~~ E96/E96M-24a

~~E108-20a~~ E108-25

~~F1667-21~~ F1667/F1667M-21a

UL

~~580-2006~~ 580-2006 Tests for Uplift Resistance of Roof Assemblies--with revisions through April 2024 ~~March 2019~~

~~790-2004~~ 790-2004 Standard Test Methods for Fire Tests of Roof Coverings--with revisions through February 2022 ~~October 2018~~

~~1897-2015~~ 1897-2015 Uplift Tests for Roof Covering Systems--with revisions through July 2023 ~~September 2020~~

Page: 2

Mod11902_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

98

R11745

Date Submitted	02/05/2025	**Section**	12	**Proponent**	Aaron Phillips
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11833 - contains provisions in FBC, Building HVHZ section referenced by this Mod 11744 - adds provisions in FBC, Building 11748 - adds provisions in FBC, Residential

Summary of Modification

Add new requirements for wind resistance of hip and ridge shingles.

Rationale

Areas of roofing systems where wind flow is diverted, such as at hips and ridges, may generate larger uplift pressures, making the products installed in these areas more vulnerable to damage in windstorms. Post-storm investigations conducted by the Federal Emergency Management Agency and other stakeholders document the vulnerability of these transition areas. Although post-storm investigations do not identify specific causes for damage to hip and ridge shingles during wind events, the associated observations that products are sometimes damaged in these areas is a reason to consider improved testing or installation options to reduce the likelihood of damage. This modification adds a pointer in RAS 115 to a new requirement which is being proposed in the HVHZ section of the Florida Building Code, Building via Mod 11833. The requirement is that hip and ridge shingles used on asphalt shingle roofs either demonstrate compliance to a third-party test that evaluates wind resistance or be installed using a prescriptive method designed to increase resistance to uplift in wind events.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Introduces a new provision for enforcement.
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
Neutral or increase.
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

Improved performance of asphalt shingle roofing systems in wind events.

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

Improved performance of asphalt shingle roofing systems in wind events.

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

Applies to hip and ridges on all asphalt shingle roofs.

Does not degrade the effectiveness of the code

Improves effectiveness of the code.

R11745Text Modification

Add new section to RAS 115, as follows:

12.2 Hip and ridge shingles shall comply with Section 1518.7.4 of the *Florida Building Code, Building*.

Page: 1

Mod11745_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

99

R11814

Date Submitted	02/06/2025	**Section**	1.1	**Proponent**	Aaron Phillips
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Clarify scope of RAS 115.

Rationale

The modification makes it clear that RAS 115 provides a prescriptive compliance approach for asphalt shingle installation by relocating the reference to "prescriptive" from the end to the beginning of the scope section.

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
Clarifies scope of RAS 115.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Clarifies scope of RAS 115.
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

Improves effectiveness of the code.

R11814Text Modification

Revise RAS 115 as follows:

1. Scope

1.1 This roofing application standard has been developed to provide a prescriptive ~~responsive~~ method of complying with the requirements of Chapters 15 and 16 (High-Velocity Hurricane Zones) of the *Florida Building Code, Building* specifically for ~~while providing a prescriptive method of~~ installing asphalt shingles.

Page: 1

Mod11814_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

100

R11998

Date Submitted	02/11/2025	**Section**	6.2	**Proponent**	Gaspar Rodriguez
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

To clarify that insulation can be applied over lightweight concrete decks, as long as the Product Approval does not prohibit the installation.

Rationale

Clarify that unless specifically prohibited, insulation can be installed directly over lightweight concrete.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No impact, just clarifying language.
Impact to building and property owners relative to cost of compliance with code
No impact, just clarifying language.
Impact to industry relative to the cost of compliance with code
No impact, just clarifying language.
Impact to small business relative to the cost of compliance with code
No impact, just clarifying language.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
No impact, just clarifying language.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
No impact, just clarifying language.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
No impact, just clarifying language.
Does not degrade the effectiveness of the code

No impact, just clarifying language.

R11998Text Modification

Roofing Application Standard (Ras) No. 117-20 Standard Requirements for Bonding or Mechanical Attachment Of insulation Panels and Mechanical Attachment of Anchor And/Or base Sheets to Substrates

6. Lightweight Insulating Concrete

6.2 Rigid roof insulation panels ~~shall~~ can be applied directly over lightweight concrete decks unless ~~specified~~ prohibited in the Product Approval.

Page: 1

Mod11998_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

101

R12014

Date Submitted	02/11/2025	**Section**	3	**Proponent**	Gaspar Rodriguez
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

This mod is removing the prescriptive language that allows 30/90 roof systems to be installed without uplift testing. A few editorial comments are also included.

Rationale

HVHZ will be requiring 30/90 roofing systems to be tested for uplift, this mod eliminates the prescriptive allowances currently in the code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Slight, just checking for more testing requirements.
Impact to building and property owners relative to cost of compliance with code
Slight, some extra fastening may be required.
Impact to industry relative to the cost of compliance with code
Slight, testing will be required.
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
Improved safety.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Improved safety.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not.

Does not degrade the effectiveness of the code
Improved safety.

R12014Text Modification

ROOFING APPLICATION STANDARD (RAS) No. 118-20
INSTALLATION OF MECHANICALLY FASTENED ROOF TILE SYSTEMS
Direct Deck & Counter Battens Only

2. Definitions

For definitions of terms used in this application standard, refer to ASTM 1079 and the Florida Building Code, Building.

NOTE #1: Reserved~~Table 1 provides the contractor with the choices available for underlayment systems. These systems can only be used on pitches designated in the table.~~

~~TABLE 1~~

~~Roof Pitch~~	~~Counter Battens or Direct Deck~~	~~Choice of Underlayment~~	~~Plastic or Compatible Roof Cement at Nails Penetrating Underlayment~~	~~Reference~~
~~4:12 or greater~~	~~Either~~	~~1. ASTM D226 Type II (#30) or ASTM D2626 (#43) organic base sheet nailed to deck, min. (#90) ASTM D6380, Class M or WS, Type II organic cap sheet set in Type IV hot asphalt.~~	~~Required~~	~~3.01A~~
	~~Either~~	~~2. Any Product Approval Approved underlayment system with a mechanically fastened base sheet, and cap sheet set in hot, cold or self-adhered.~~	~~Per Product Approval~~	~~3.01B, C or D~~
	~~Either~~	~~3. Product Approval Listed Approved single-ply underlayment.~~	~~Per Product Approval~~	~~3.01 E~~

-

NOTE #2: Allapproved tiles with integral batten-lugs, installed on counter battens may be installed on slopes 4:12 and greater up to and including 7:12. Above 7:12 horizontal battens are required unless restricted by product design (tile without batten lugs). When utilizing horizontal battens comply with RAS 119.

This roofing application standard covers Flat, Low and High profile roof tile, using a minimum 3-in. tile headlap, or design limited headlap as specified in the tile manufacturers Product Approval, on minimum $^{15}/_{32}$-in. solid decking nailed in compliance with Chapter 23 (High-Velocity Hurricane Zones) of the *Florida Building Code, Building*.

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 shall be copper, monel, aluminum or stainless steel.

2.All roof tile fasteners shall be of sufficient length to penetrate ~~a minimum $^{1}/_{2}$ in.~~ through the ~~thickness of the deck or batten, whichever is less~~, roof sheathing or ~~to penetrate into a 1 in. or greater, thickness of lumber~~ not less than ~~1~~ ¾ in. into the roof sheathing even when battens are used.

3.Storm clips and storm clip fasteners—refer to Product Approval with fastener penetration as above.

B. Underlayment Fasteners:

1.Fasteners shall be in compliance with this Section 1523 of the *Florida Building Code, Building* (Herein referred to as "Approved Fasteners").

(aa)Nails shall be minimum 12 gage, annular ring shank nails having not less than 20 rings per inch; heads not less than $^{3}/_{8}$ in. in diameter; and lengths sufficient 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.

Page: 1

Mod12014_TextOfModification.pdf

R12014Text Modification

Nails shall be hot dipped; electro or mechanically galvanized to a thickness sufficient to resist corrosion in compliance with Appendix E of TAS 114. All nails shall be Miami-Dade listed for corrosive resistance. All nail cartons or carbon labels shall be labeled to note compliance with corrosion resistance requirements. ~~No roof material shall be fully or partially adhered (not to include mechanically attached) directly to a nailable deck.~~

2.03 Asphaltic Adhesive:

A. Asphalt ~~plastic~~ roof cement—conforming to ASTM D4586, Type II, ~~nonasbestos, non-running, heavy body material composed of asphalt and other mineral ingredients~~.

3.01Underlayment Applications~~—CHOOSE ONE of the following:~~

All underlayment systems shall be tested and have Product Approval for use as a roof tile underlayment, Product Approval to include uplift resistance values.Installation of underlayment system shall be in accordance with the Product Approval and the underlayment manufacturer's installation instructions.

NOTE #3: Reserved ~~Anchor/base sheet shall have a minimum of two plies in the valleys. A No. 30 or No. 43 can be used as a dry in prior to installing the underlayment with this system.~~

~~A.Hot Mop 30/90, Hot Mop 43/90 (see Drawing 1). A No. 30 or No 43 anchor/base sheet ASTM D226, Type II, or ASTM D2626 shall be mechanically attached to the wood deck with approved fasteners spaced in a 12 in. grid staggered in two rows in the field, and 6 in. on center at the laps. Extend anchor/base sheet a minimum of 4 in. up vertical surfaces. Anchor/base sheet end laps shall be a minimum of 6 in. and head laps shall be a minimum of 4 in. Over installed anchor/base sheet, apply one layer of mineral surfaced cap sheet ASTM D6380 in full 25 lb./sq, ± 15 percent mopping of asphalt. End laps shall be a minimum of 6 in.; head laps shall be a minimum of 3 in. and backnailed 12 in. on center with approved nails through tineaps or by Miami-Dade listed for corrosion resistance prefabricated fasteners in accordance with *Florida Building Code, Building* Sections 1517.5.1 and 1517.5.2.~~

NOTE #4: Reserved ~~The above system may be upgraded by hot mopping an interply of ASTM-listed fiberglass or perforated organic felt to the anchor sheet before applying the cap sheet. Asphalt application shall be per above specifications.~~

~~B.Hot-Applied Product Approved underlayment system (see Drawing 1). An anchor/base sheet shall be mechanically attached to the wood deck (unless directed otherwise by Product Approval) with approved fasteners spaced in a 12 in. grid staggered in two rows in the field, and 6 in. on center at the laps or as specified in the underlayment manufacturer's 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 installed anchor/base sheet, apply one layer of cap sheet in a full 25#/sq. ± 15 percent mopping of asphalt. End laps shall be a minimum of 6 in. on center; head laps shall be a minimum of 3 in. and backnailed 12 in. on center with approved nails through tineaps or by prefabricated fasteners in accordance with *Florida Building Code, Building* Sections 1517.5.1 and 1517.5.2.~~

~~C.Cold-Applied Product Approved Underlayment System (see Drawing 1). An anchor/base sheet shall be mechanically attached to the wood deck with approved fasteners spaced in a 12 in. grid staggered in two 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 cap sheet in a continuous layer of cold process adhesive at the rate of 1.5 gallons per 100 sq. ft. or at the rate if so stated in the Product Approval. Adhesive shall be applied uniformly in accordance with the Product Approval with a squeegee or knotted brush. Cap sheet side laps shall be a minimum of 6 in.; head laps shall be a minimum of 3 in. and backnailed 12 in. on center with approved nails through tineaps or by prefabricated fasteners in accordance with *Florida Building Code, Building* Sections 1517.5.1 and 1517.5.2.~~

~~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 rows in the field and 6 in. on center at the laps or as specified in the underlayment manufacturer's 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.~~

~~E.Self-Adhered Underlayment (single ply). A single-ply underlayment system utilizing any Product Approved self-adhered underlayment. The roof cover is terminated at approved metal flashings. Apply one layer of any self-adhered underlayment in compliance with the underlayment manufacturer's approved/requirements.~~

Page: 2

Mod12014_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

102

R12035

Date Submitted	02/12/2025	**Section**	3	**Proponent**	Gaspar Rodriguez
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

This mod will remove sections of the code which allowed prescriptive installation of 30/90 tile underlayment. Also, some minor adjustments to current language.

Rationale

This mod aligns the RAS with the proposed mod that eliminates the prescriptive 30/90 underlayment system in the current code.

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
Correct.

Does not degrade the effectiveness of the code
Correct.

R12035Text Modification

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. Definitions

For definitions of terms used in this application standard, refer to ASTM 1079 and the Florida Building Code, Building.

NOTE #1: Reserved ~~Table 1 provides the contractor with the choices available for underlayment systems. These systems can only be used on pitches designated in the table.~~

~~TABLE 1~~

~~Roof Pitch~~	~~Battens or Direct Deck~~	~~Choice of Underlayment~~	~~Plastic Compatible Roof Cement at Nails Penetrating Underlayment~~	~~Reference~~
~~4:12 or greater~~	~~Either~~	~~1. ASTM D226 Type II (#30) or ASTM D2626 (#43) organic base sheet nailed to deck, min. ASTM D6380, Class M, or WS Type II (#90) organic cap sheet set in Type IV hot asphalt.~~	~~Required~~	~~3.01 A~~
	~~Either~~	~~2. Any Product Approved underlayment system with a mechanically fastened base sheet, and cap sheet set in hot, cold, or self-adhered.~~	~~Per Product Approval~~	~~3.01 B, C, or D~~
	~~Either~~	~~3. Product Approval listed single ply underlayment~~	~~Per Product Approval~~	~~3.01 E~~

NOTE #2: All tiles shall be interlocking with waterlocks.

NOTE #3: All approved tiles with integral batten-lugs used on slopes greater than 7:12 shall be installed on horizontal battens.

This Roofing Application Standard covers flat, low and high profile roof tiles, with 4:12 or greater roof pitch, using a minimum 3 in. tile headlap, or design limited headlap as specified in the tile manufacturers Product Approval, on minimum $^{15}/_{32}$ in. solid decking nailed in compliance with Chapter 23 (High-Velocity Hurricane Zones) of the *Florida Building Code, Building.*

2.01Fasteners:

A. Tiles 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 1000 hrs. Tile fasteners used within 1,500 feet landward of the reach of the mean high tide shall be copper, monel, aluminum, or stainless steel.

2.All roof tile fasteners shall be of sufficient length to penetrate ~~a minimum $^{1}/_{2}$ in.~~ through the ~~thickness of the deck or batten, whichever is less~~, roof sheathing or ~~to penetrate into a 1 in. or greater, thickness of lumber~~ not less than ~~1~~ ¾ in. into the roof sheathing even when battens are used.

3.Storm clips and storm clip fasteners—refer to Product Approval with fastener penetration as above.

B. Underlayment Fasteners:

1.Fasteners shall be in compliance with Section 1523 of the *Florida Building Code, Building.* (Herein referred to as "Approved Fasteners.")

(aa)Nails shall be minimum 12 gage, annular ring shank nails having not less than 20 rings per inch; heads not less than $^{3}/_{8}$ in. in diameter; and lengths sufficient 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

Page: 1

Mod12035_TextOfModification.pdf

less than 1 in. Nails shall be hot dipped; electro or mechanically galvanized to a thickness sufficient to resist corrosion in compliance with Appendix E of TAS 114. All nails shall be Miami-Dade listed for corrosion resistance. All nail cartons or carbon labels shall be labeled to note compliance with corrosion resistance requirements. ~~No roof material shall be fully or partially adhered (not to include mechanically attached) directly to a nailable deck.~~

2.03 Asphaltic Adhesive:

A. Asphalt ~~plastic~~ roof cement - conforming to ASTM D4586, type II, ~~nonasbestos, non-running, heavy body material composed of asphalt and other mineral ingredients.~~

B. Cold process modified bitumen roofing mastic—conforming to ASTM D3019, Type III.

C. Asphalt—conforming to ASTM D312, Type IV.

3.01Underlayment Applications. ~~CHOOSE ONE of the following:~~

All underlayment systems shall have Product Approval for use as a roof tile underlayment, Product Approval to include uplift resistance values. Installation of underlayment system shall be in accordance with the Product Approval and the underlayment manufacturer's installation instructions.

NOTE #4: Reserved ~~Anchor/base sheet shall have a minimum of two plies in the valleys. A No. 30 or No. 43 can be used as a dry in prior to installing the underlayment with this system.~~

~~A.Hot Mop 30/90, Hot Mop 43/90 (see Drawing 1). A No. 30 or No 43 anchor/base sheet ASTM D226, Type II, or ASTM D2626 Shall be mechanically attached to the wood deck with approved fasteners spaced in a 12 in. grid staggered in two rows in the field, and 6 in. on center at the laps. Extend anchor/base sheet a minimum of 4 in. up vertical surfaces. Anchor/base sheet end laps shall be a minimum of 6 in. and head laps shall be a minimum of 4 in. Over installed anchor/base sheet, apply one layer of mineral surfaced cap sheet ASTM D6380 in full 25 #/sq, ± 15% mopping of asphalt. End laps shall be a minimum of 6 in.; head laps shall be a minimum of 3 in. and backnailed 12 in. on center with approved nails through tin caps or by Miami-Dade listed prefabricated fasteners.~~

NOTE #5: Reserved ~~The above system may be upgraded by hot mopping an interply of ASTM listed fiberglass or perforated organic felt to the anchor sheet before applying the cap sheet. Asphalt application shall be per above specifications~~.

~~B. Hot Applied Product Approved Underlayment System (see Drawing 1). An anchor/base sheet shall be mechanically attached to the wood deck with approved fasteners spaced in a 12 in. grid staggered in two rows in the field, and 6 in. on center at the laps or as specified in the underlayment manufacturer's 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 installed anchor/base sheet, apply one layer of cap sheet in a full 25#/sq. ± 15 percent mopping of asphalt. End laps shall be a minimum of 6 in. on center; head laps shall be a minimum of 3 in. and backnailed 12 in. on center with approved nails through tineaps or by prefabricated fasteners in accordance with *Florida Building Code, Building* Sections 1517.5.1 and 1517.5.2.~~

~~C. Cold-Applied Product-Approved Underlayment System (See Drawing 1). An anchor/base sheet shall be mechanically attached to the wood deck with approved fasteners spaced in a 12 in. grid staggered in two rows in the field and 6 in. on center at the laps or as specified in the underlament 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 cap sheet in a continuous layer of cold process adhesive at the rate of 1.5 gallons per 100 sq. ft. or at the rate if so stated in the Product Approval. Adhesive shall be applied uniformly in accordance with the Product Approval with a squeegee or knotted brush. Cap sheet side laps shall be a minimum of 6 in.; head laps shall be a minimum of 3 in. and backnailed 12 in. on center with approved nails through tineaps or by prefabricated fasteners in accordance with *Florida Building Code, Building* Sections 1517.5.1 and 1517.5.1.~~

~~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 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~~

R12035Text Modification

~~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.~~

~~E. Self-Adhered Underlayment (Single Ply). A single ply underlayment system utilizing any Product approved self-adhered underlayment. The roof cover is terminated at approved metal flashings. Apply one layer of any self-adhered underlayment in compliance with the underlayment manufacturers' approved/requirements.~~

Page: 3

Mod12035_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

103

R12039

Date Submitted	02/12/2025	**Section**	3	**Proponent**	Gaspar Rodriguez
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Revise section 3 of the RAS to reflect the elimination of the prescriptive language that allow 30/90 as an underlayment. Also, some minor changes.

Rationale

Since the prescriptive allowance is being removed from the code, this mod removes the language from the RAS.

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
Correct.
Does not degrade the effectiveness of the code

Correct.

R12039Text Modification

ROOFING APPLICATION STANDARD (RAS) No. 120-20
MORTAR AND ADHESIVE SET TILE APPLICATION

2. Definitions

For definitions of terms used in this application standard, refer to ASTM 1079 and the Florida Building Code, Building.

NOTE #1: Reserved~~Table 1 provides the contractor with the choices available for underlayment systems. These systems can only be used on pitches designated in the table.~~

~~TABLE 1~~

~~Roof Pitch~~	~~Choice of Underlayment~~	~~Plastic or Compatible Roof Cement at Nails Penetrating Underlayment~~	~~Reference~~
~~2:12 or greater~~	~~1. ASTM D226 Type II #30 or ASTM D2626 (#43) organic base nailed to deck, min ASTM D6380, Class M or WS, Type II (#90) organic cap sheet set in Type IV hot asphalt.~~	~~Required~~	~~3.01 A~~
	~~2. Any product approved underlayment.~~	~~per Product Approval~~	~~3.01 B, C, D or E~~

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 1000 hours. Tile fasteners used within 1,500 feet landward of the reach of the mean high tide shall be copper, monel, aluminum, or stainless steel.

2.All roof tile fasteners shall be of sufficient length to penetrate ~~a minimum 1/2 in.~~ through the ~~thickness of the deck or batten, whichever is less~~, roof sheathing or ~~to penetrate into a 1 in. or greater, thickness of lumber~~ not less than ~~1~~ ¾ in. into the roof sheathing even when battens are used.

2.03 Asphaltic Adhesive:

A. Asphalt ~~plastic~~ roof cement - conforming to ASTM D4586, Type II, ~~nonasbestos, nonrunning, heavy body material composed of asphalt and other mineral ingredients.~~

3.01Underlayment Applications ~~CHOOSE ONE of the following:~~

All underlayment systems shall have Product Approval for use as a roof tile underlayment, Product Approval to include uplift resistance values. Installation of underlayment system shall be in accordance with the Product Approval and the underlayment manufacturer's installation instructions.

-

NOTE #2: Reserved ~~Anchor/base sheet shall have a minimum of two plies in the valleys. Cap sheets for mortar set systems shall be mineral surfaced. A No. 30 or No. 43 can be used as a dry-in prior to installing the underlayment with this system.~~

~~A.Hot Mop 30/90, Hot Mop 43/90 (See Drawing 1). A No. 30 or No 43 anchor/base sheet ASTM D226, Type II, or ASTM D2626 shall be mechanically attached to the wood deck with approved fasteners spaced in a 12 in. grid staggered in two rows in the field, and 6 in. on center at the laps. Extend anchor/base sheet a minimum of 4 in. up vertical surfaces. Anchor/base sheet end laps shall be a minimum of 6 in. and head laps shall be a minimum of 4 in. Over installed anchor/base sheet, apply one layer of mineral surfaced cap sheet ASTM D6380M in full 25 lb./sq, ± 15 percent mopping of asphalt. End laps shall be a minimum of 6 in.; head laps shall be a minimum of 3 in. and back nailed 12 in. on center with approved nails through tincaps or by Miami-Dade listed prefaebricated fasteners in accordance with *Florida Building Code, Building* 1517.5.1 and 1517.5.2.~~

Page: 1

Mod12039_TextOfModification.pdf

R12039Text Modification

NOTE #3: Reserved ~~The above system may be upgraded by hot mopping an interply of ASTM listed fiberglass or perforated organic felt to the anchor sheet before applying the cap sheet. Asphalt application shall be per above specifications.~~

~~B.Hot Applied Product Approved Underlayment System (see Drawing 1). An anchor/base sheet shall be mechanically attached to the wood deck (unless directed otherwise by Product Approval) with approved fasteners spaced in a 12 in. grid staggered in two rows in the field, and 6 in. on center at the laps or as specified in the underlayment manufacturer's 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 installed anchor/base sheet, apply one layer of cap sheet in a full 25# /sq. ±15 percent mopping of asphalt. End laps shall be a minimum of 6 in. on center; head laps shall be a minimum of 3 in. and backnailed 12 in. on center with approved nails through tincaps or by prefabricated fasteners in accordance with *Florida Building Code, Building* 1517.5.1 and 1517.5.2.~~

~~C.Cold Applied Product Approved Underlayment System (see Drawing 1). An anchor/base sheet shall be mechanically attached to the wood deck with approved fasteners spaced in a 12 in. grid staggered in two 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 cap sheet in a continuous layer of cold process adhesive at the rate of 1.5 gallons per 100 square feet or at the rate if so stated in the Product Approval. Adhesive shall be applied uniformly in accordance with Product Approval with a squeegee or knotted brush. Cap sheet side laps shall be a minimum of 6 in.; head laps shall be a minimum of 3 in. and backnailed 12 in. on center with approved nails through tincaps or by prefabricated fasteners in accordance with *Florida Building Code, Building* 1517.5.1 and 1517.5.2.~~

~~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 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 inch on center with approved nails through tincaps or by prefabricated fasteners in accordance with Sections 1517.5.1 and 1517.5.2 *Florida Building Code, Building*.~~

~~E.Self-Adhered Underlayment (Single Ply). A single-ply underlayment system utilizing any Product approved self-adhered underlayment. The roof cover is terminated at approved metal flashings. Apply one layer of any self-adhered underlayment in compliance with the underlayment manufacturers' approved/requirements.~~

Page: 2

Mod12039_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

104

R12120

Date Submitted	02/14/2025	**Section**	1	**Proponent**	Gaspar Rodriguez
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Insert language that clarifies this RAS can be used to provide the require uplift pressures for tile underlayments.

Rationale

HVHZ will now be requiring all tile underlayments systems meet ASCE 7 wind uplift requirements. this mod provides clarifying language.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
None. Clarifying language.
Impact to building and property owners relative to cost of compliance with code
None. Clarifying language.
Impact to industry relative to the cost of compliance with code
None. Clarifying language.
Impact to small business relative to the cost of compliance with code
None. Clarifying language.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Yes, make code easier to understand.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Yes, make code 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 degrade.

R12120Text Modification

1. Scope

This standard covers the procedure for determining the Moment of Resistance (M_r) and Minimum Characteristic Resistance Load (F') to install a tile system on buildings of a specified roof slope and height. Compliance with the requirements and procedures herein specified, where the design wind uplift pressures (P_{asd}) have been determined based on Tables 1-3 or Tables 4-6, Tables 7-9 or Tables 10-12 of this standard, as applicable, do not require additional signed and sealed engineering design calculation. The roof tile underlayment must meet the applicable design wind uplift pressures. All other calculations must be prepared, signed and sealed by a professional engineer or registered architect. Tables 1-3 are applicable to a wind speed of 175 mph, risk category II buildings with gable roofs, and Exposure Category C. Tables 4-6 are applicable to a wind speed of 175 mph, risk category II buildings with gable roofs, and Exposure Category D. Tables 7-9 are applicable to a wind speed of 175 mph, for Risk Category II buildings with hip roofs, and Exposure Category C. Tables 10-12 are applicable to a wind speed of 175 mph, for Risk Category II buildings with hip roofs, and Exposure Category D.

~~For steep slope roof systems other than tile,~~ Tables 1-3, Tables 4-6, Tables 7-9 or Tables 10-12 of this standard, as applicable, do not require additional signed and sealed engineering design calculation when determining the ~~use~~ compliance of any specific Product Approval which specifies a Maximum Design Pressure. All other calculations must be prepared, signed and sealed by a Professional Engineer or Registered Architect.

All calculations must be submitted to the building official at time of permitting.

Page: 1

Mod12120_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

105

R12300

Date Submitted	02/18/2025	**Section**	127	**Proponent**	Michael Silvers (FRSA)
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

12120

Summary of Modification

FRSA is submitting this updated modification in cooperation with M/D. It updates the RAS's title and as originally stated in modification 112120 inserts language that clarifies this RAS can be used to provide the required uplift pressures for tile underlayment.

Rationale

HVHZ will now be requiring all tile underlayment systems meet ASCE 7 wind uplift requirements. this mod provides clarifying language.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
None. Clarifying language.
Impact to building and property owners relative to cost of compliance with code
None. Clarifying language.
Impact to industry relative to the cost of compliance with code
None. Clarifying language.
Impact to small business relative to the cost of compliance with code
None. Clarifying language.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Yes, make code easier to understand.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Yes, make code 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 degrade.

R12300Text Modification

ROOFING APPLICATION STANDARD (RAS) No. 127-20

PROCEDURE FOR DETERMINING THEMOMENT OF RESISTANCE, AND THE MINIMUM CHARACTERISTIC RESISTANCE LOAD, AND THE UPLIFT RESISTANCE OF TILE UNDERLAYMENT TO INSTALL A TILE ROOF SYSTEM ON ABUILDING OF A SPECIFIED ROOF SLOPE AND HEIGHT USING ALLOWABLE STRESS DESIGN (ASD) IN ACCORDANCE WITH ASCE 7

1. Scope

This standard covers the procedure for determining the Moment of Resistance (Mr) and Minimum Characteristic Resistance Load (F') to install a tile system on buildings of a specified roof slope and height. Compliance with the requirements and procedures herein specified, where the design wind uplift pressures (Pasd) have been determined based on Tables 1-3 or Tables 4-6, Tables 7-9 or Tables 10-12 of this standard, as applicable, do not require additional signed and sealed engineering design calculation. The roof tile underlayment must meet the applicable design wind uplift pressures. All other calculations must be prepared, signed and sealed by a professional engineer or registered architect. Tables 1-3 are applicable to a wind speed of 175 mph, risk category II buildings with gable roofs, and Exposure Category C. Tables 4-6 are applicable to a wind speed of 175 mph, risk category II buildings with gable roofs, and Exposure Category D. Tables 7-9 are applicable to a wind speed of 175 mph, for Risk Category II buildings with hip roofs, and Exposure Category C. Tables 10-12 are applicable to a wind speed of 175 mph, for Risk Category II buildings with hip roofs, and Exposure Category D.

~~For steep slope roof systems other than tile,~~ Use of Tables 1-3, Tables 4-6, Tables 7-9 or Tables 10-12 of this standard, as applicable, does not require additional signed and sealed engineering design calculation when determining the ~~use~~ compliance of any specific Product Approval which specifies a Maximum Design Pressure. All other calculations must be prepared, signed and sealed by a Professional Engineer or Registered Architect.

All calculations must be submitted to the building official at time of permitting.

Page: 1

Mod12300_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

106

R12066

Date Submitted	02/13/2025	**Section**	7.6.3	**Proponent**	Alex Tigera
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

This modification is to allow tile manufactures to test with adhesive quantities that differ from the suggested quantities listed in the tile adhesive product approval due to tile shape and design.

Rationale

There are many tiles designs that require different adhesive quantities as well as adhesive placement other than what is listed in the tile adhesive product approvals. This will allow for tile manufactures the option of testing with an adhesive quantity and placement that is specific to their tile.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
None. This is a new option given to the tile manufactures for uplift testing of their tiles.
Impact to building and property owners relative to cost of compliance with code
None. This is a new option given to the tile manufactures for uplift testing of their tiles.
Impact to industry relative to the cost of compliance with code
None. This is a new option given to the tile manufactures for uplift testing of their tiles.
Impact to small business relative to the cost of compliance with code
None. This is a new option given to the tile manufactures for uplift testing of their tiles.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Yes, the roof tile installation will be more specific to what was tested.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Yes, it provides a more precise quantity of adhesive used with a specific tile when tested for uplift.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

No. It is adding an alternative installation method.

Does not degrade the effectiveness of the code

No.

R12066Text Modification

7.6.3 Adhesive set tile shall be applied in the quantity of adhesive specified on the adhesive manufacturer's roofing component Product Approval. Alternatively, the tile manufacturer may specify an adhesive quantity, which may be used in lieu of the adhesive manufacturer's specified quantity, provided it is in accordance with applicable standards and product approvals.

Page: 1

Mod12066_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

107

R12067

Date Submitted	02/13/2025	**Section**	11.1.1	**Proponent**	Alex Tigera
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

This modification requires the test labs to provide additional information in their test reports about the amount of adhesive used as well as the contact area of adhesive to the underlayment and to the tile.

Rationale

This modification would provide clarity to product approval entities, tile installers, and roofing inspectors as to the amount of adhesive used in a tile installation. The contact area of adhesive to the underlayment and the tile will be captured in the Miami-Dade Notice of Acceptance providing installers and inspectors measurements confirming proper adhesive application, reducing the risk of installation issues and ensuring reliable results.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None. This modification would provide clarity to product approval entities, tile installers, and roofing inspectors as to the amount of adhesive used in a tile installation.

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

None. It simply provides clarity to the specific amount of adhesive used in testing and how it should be installed on a job site.

Impact to industry relative to the cost of compliance with code

None. It simply provides clarity to the specific amount of adhesive used in testing and how it should be installed on a job site.

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

None. It simply provides clarity to the specific amount of adhesive used in testing and how it should be installed on a job site.

Requirements

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

This modification would provide clarity to product approval entities, tile installers, and roofing inspectors as to the amount of adhesive that was used in testing and ensures the same installation occurs on the jobsite.

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

The contact area of adhesive to the underlayment and the tile will be captured in the Miami-Dade Notice of Acceptance providing installers and inspectors measurements confirming proper adhesive application, reducing the risk of installation issues and ensuring reliable results.

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

No.

Does not degrade the effectiveness of the code

No.

R12067Text Modification

11.1.1 A description and sketch of the mortar or adhesive set tile, including the manufacturer and type of tile (i.e., flat or high profile), the average quantity of adhesive (in grams) or mortar used, and an average of the adhesive or mortar contact area with both the underlayment and the tile including measurements or diagrams showing the extent of adhesive coverage on both surfaces.

Page: 1

Mod12067_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

108

R11994

Date Submitted	02/11/2025	**Section**	6.1.2	**Proponent**	Gaspar Rodriguez
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Clarify outdated language that referred to field, perimeter and corner zones. This mod indicates pressure 1, pressure zone 2 and pressure zone 3 as used in ASCE7.

Rationale

Clarifying language.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Allows easier code interpretation.
Impact to building and property owners relative to cost of compliance with code
No additional cost.
Impact to industry relative to the cost of compliance with code
Allows easier code interpretation.
Impact to small business relative to the cost of compliance with code
No additional cost.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Allows easier code interpretation. Does not change code requirements.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Allows easier code interpretation. Does not change code requirements.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Allows easier code interpretation. Does not change code requirements.
Does not degrade the effectiveness of the code

Does not change code requirements. Allows easier code interpretation.

R11994Text Modification

TESTING APPLICATION STANDARD (TAS) No. 106 STANDARD PROCEDURE FOR FIELD VERIFICATION OF THE BONDING OF MORTAR OR ADHESIVE SET TILE SYSTEMS AND MECHANICALLY ATTACHED, RIGID~~,~~ DISCONTINUOUS ROOF SYSTEMS

6. General

6.1 The number of tiles which shall be tested in the field, perimeter and comer areas of the roof shall be as follows:

6.1.1 For roof areas less than 5 squares, one (1) uplift test is required.

6.1.2 For roof areas five (5) squares or ~~more~~ greater, a minimum of one (1) test per every two (2) squares in pressure zone 1 ~~the field~~: one (1) test per square in pressure zone 2 ~~the perimeter area~~ and one (1) test per square in pressure zone 3 ~~the corner~~ areas including one (1) test per every twenty (20) hip and ridge tiles.

Page: 1

Mod11994_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

109

R11734

Date Submitted	02/04/2025	**Section**	7.3.1	**Proponent**	Aaron Phillips
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language Yes**

Related Modifications

11733

Summary of Modification

Remove requirement for printed installation instructions.

Rationale

Manufacturer instructions are offered in media other than "printed" versions. This proposal removes the requirement that instructions be "printed" from TAS 114, Section 7.3.1. Removal of the word "printed" will permit alternative methods for providing instructions, including digital formats that support greater sustainability. The proposed change is important in light of events such as the COVID-19 pandemic, which brought attention to the need to be able to deliver information using alternative methods. This modification is consistent with work in the prior cycle (i.e., 9885, 9887) which removed "printed" as a requirement in specific sections of the FBC, Building and the FBC, Residential codes.

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
Neutral or reduction.
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

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

Improves opportunity for code compliance by ensuring the most up to date installation instructions are provided.

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

Applies to all items covered by TAS 114.

Does not degrade the effectiveness of the code

Will not degrade code effectiveness.

Alternate Language

1st Comment Period History

R11734-A3

Proponent Gaspar Rodriguez **Submitted** 4/14/2025 11:37:37 AM **Attachments** No

Rationale:

This additional language clarifies that the TAS 114 D small-scale test is not suitable as evidence for predicting the maximum design pressure performance of lightweight insulating concrete installed on a steel deck substrate. This is in addition to original mod language.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Provides clear testing requirements.

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

Provides testing requirements which are easier to follow.

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

Clarifies existing requirements.

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

Clarifies existing requirements.

Does not degrade the effectiveness of the code

Clarifies existing requirements.

R11734-A3Text Modification

Appendix D:

Scope:

1.2 This procedure is not applicable to roof~~ing~~ assemblies applied onto a steel deck substrate or lightweight insulating concrete over steel deck substrate.

Page: 1

Mod11734_A3_TextOfModification.pdf

R11734Text Modification

Revise TAS 114 as follows:

7.3.1 ~~Printed, p~~Published installation instructions shall be provided by the manufacturer.

Page: 1

Mod11734_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

110

R11792

Date Submitted	02/06/2025	**Section**	2	**Proponent**	Aaron Phillips
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Properly identify results of ASTM E108 or UL 790 tests as classifications.

Rationale

ASTM E108 and UL 790 fire tests are performed on roof assemblies to establish a classification (Class A, B, or C) based on exposure to simulated fire sources originating outside the building. The outcome of these tests is a classification of the assembly. In contrast, ASTM E119 or UL 263 tests evaluate the duration for which building elements contain a fire, retain their structural integrity, or exhibit both properties during a predetermined test exposure. The result of these tests is expressed as a fire resistance rating. This proposal adjusts language to clarify the distinction between these important fire tests.

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
Clarifies an important safety requirement.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Clarifies an important safety requirement.

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

Improves the effectiveness of the code.

R11792Text Modification

Revise TAS 114 Appendix A as follows:

2. Test Procedure:

2.1 The above deck combustibility tests shall be conducted in strict compliance with ASTM E108 test procedure.

2.2 Testing in compliance with ASTM E108 yields the following external fire classifications~~ratings~~:

- Class "A" external fire tests are applicable to roof coverings that are effective against severe exposure to external fire, afford a high degree of fire protection to the roof deck, do not slip from position, and do not present a flying brand hazard.
- Class "B" external fire tests are applicable to roof coverings that are effective against moderate exposure to external fire, afford a moderate degree of fire protection to the roof deck, do not slip from position, and do not present a flying brand hazard.

2.3 Reserved

2.4 Refer to Section 1516 of the *Florida Building Code, Building* for the fire resistance roof covering requirements.

3. Evaluation of Results

3.1 A minimum external fire classification ~~rating~~ of Class "B" is required for approval of any roofing assembly.

Page: 1

Mod11792_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

111

R11952

Date Submitted	02/12/2025	**Section**	114	**Proponent**	Aaron Phillips
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11949 - FBC, Building

Summary of Modification

Align roof assembly terminology across TAS 114, Appendix A.

Rationale

In TAS 114, Appendix A, this modification addresses a terminology discrepancy between the non-HVHZ and HVHZ sections of the FBC, Building. The non-HVHZ portion uses the term "roof assembly," while the HVHZ section uses the term "roofing assembly." Not only do the terms differ, the definitions differ as well, although the elements which may be incorporated in a roof/roofing assembly agree (i.e., roof deck, vapor retarder, insulation. roof covering). Within TAS 114 Appendix A, occurrences of "roofing assembly" are replaced with "roof assembly." Acceptance of these changes brings alignment on this important term.

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
Clarifies fire resistant provisions for roofing.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Clarifies fire resistant provisions for roofing.

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

Improves effectiveness of the code.

R11952Text Modification

Revise TAS 114, Appendix A as follows:

1. Scope

1.1 Flame propagation over the exterior surface of a roof assembly ~~roofing assembly~~ is dependent on the rate at which the fuel is liberated from the test sample. The extent of spread and speed of propagation is influenced not only by the roof cover, but also by the substrate insulation and slope. Therefore, it is necessary to select constructions for evaluation that will demonstrate the performance of the roof cover when applied to a variety of roof insulation materials.

1.2. The applicant shall submit in the initial application all roof assemblies ~~roofing assemblies~~ requested over combustible and noncombustible decks. From this submission the Authority Having Jurisdiction may list a limited number of roof assemblies ~~roofing assemblies~~ which will require external fire testing to represent all proposed roof assemblies.

1.3 Alternatively, the applicant may submit copies of its listing(s) from Underwriters Laboratories' Annual *Roofing Materials and Systems Guide.* Warnock Hersey's Annual *Certification Listing Guide,* and/or Factory Mutual Research Corporation's Annual *Approval Guide* to confirm those roof assemblies tested in compliance with ASTM E108 (or UL 790). Copies of test reports from these organizations, or any other approved testing agency, are also acceptable.

3. Evaluation of Results:

3.1 A minimum external fire rating of Class "B" is required for approval of any roof assembly~~roofing assembly~~.

Page: 1

Mod11952_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

112

R11752

Date Submitted	02/04/2025	**Section**	10.1.2	**Proponent**	Aaron Phillips
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

Summary of Modification

Clarify deflection break point.

Rationale

This modification corrects a logical inconsistency within TAS 124, Section 10.1.2. As currently written, Section 10.1.2 indicates initially that deflection must be greater than 1 inch to be considered failing and later in the same section implies that failure occurs at exactly 1 inch of deflection. The proposed change removes this inconsistency and also makes the section consistent with the note to Table 3, which states that a maximum deflection of 1 inch is a suspect sample.

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
Clarifies a test requirement.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Clarifies a test requirement.

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

Improves effectiveness of the code.

R11752Text Modification

Revise TAS 124 as follows:

10.1.2 Any roof system assembly which exhibits an upward deflection ~~greater than~~ of 1 inch (25 mm) or greater during any of the tests shall be considered as failing at the point where 1 inch (25 mm) of deflection is recorded. Refer to Table 3 for deflection limitations.

Page: 1

Mod11752_TextOfModification.pdf

TAC: Roofing

Total Mods for **Roofing** in **Pending Review : 113**

Total Mods for report: 113

Sub Code: Test Protocols

113

R11756

Date Submitted	02/04/2025	**Section**	5.2	**Proponent**	Aaron Phillips
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11754 addresses the FBC, Building 11755 addresses the FBC, Residential

Summary of Modification

Replace standard with correct reference.

Rationale

ASTM D2822 (Specification for Asphalt Roof Cement, Asbestos Containing) was withdrawn in 2016. It is referenced in the table in Section 5.2 of TAS 142 solely for the test method that it references for nonvolatile matter, which is D6511. This modification replaces the reference to D2822 with a direct reference to the standard which contains the nonvolatile matter test method (i.e., D6511). This is one step in an effort to remove withdrawn standard D2822 from Florida's codes. The continued presence of D2822 implies that asbestos containing materials are still used on roofs, which has not been the case for many years.

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

Improves clarity of the code.

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

Improves effectiveness of the code.

R11756Text Modification

Revise TAS 142 as follows:

Add new standard to Section 2.1

2.1 ASTM Standards

D6511 Standard Test Methods for Solvent Bearing Bituminous Compounds

Replace D2822 with D6511 in the table in Section 5.2:

[Other rows in table are not changed]

Nonvolatile Matter (Heat Dish and Contents in Oven at 221 to 230 F)	~~D2822~~D6511	Min. 65% mass

Page: 1

Mod11756_TextOfModification.pdf