TAC: Special Occupancy

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TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

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.

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

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.

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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.

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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.

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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

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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.

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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.

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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).

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- 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.

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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:

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- 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

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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.

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- 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.

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- 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).

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- 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.

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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.

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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.

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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.

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

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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]	

[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

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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.

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- 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.

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- 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:

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- 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:

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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*.

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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

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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.

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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

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.

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.

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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.

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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: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

2

SP11962

Date Submitted	02/13/2025	**Section**	107.3.5	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	1	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11963

Summary of Modification

Certain documentation is required for construction in flood hazard areas: elevation to which Lowest Floors are elevated, the elevation to which dry floodproofing will extend, and design of dry floodproofing. Proposal specifies use of FEMA certificates specifically designed for those purposes.

Rationale

Certain documentation is required to be submitted for construction in flood hazard areas: elevation to which Lowest Floors are elevated, the elevation to which dry floodproofing will extend, and design of dry floodproofing measures. The proposal specifies use of FEMA certificates that are specifically designed for those purposes. More than half of Florida NFIP communities participate in the NFIP Community Rating System (244 out of 469). A basic requirement for all CRS Communities is use of the FEMA Elevation Certificate. FDEM reports use of the Elevation Certificate by non-CRS Communities. FEMA requires use of the Dry Floodproofing Certificate when building owners obtain NFIP flood insurance policies that take into account the dry floodproofing measures. NFIP Elevation Certificate: FEMA Form FF-206-FY-22-152 (3/22) - fema_form-ff-206-fy-22-152.pdf NFIP Non-Residential Certificate for Non-Residential Structures: https://www.fema.gov/sites/default/files/documents/fema_form-ff-206-fy22-153.pdf

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Lessens burden caused when permittees use other forms of certification.
Impact to building and property owners relative to cost of compliance with code
None, because owners must submit the documentation in some form.
Impact to industry relative to the cost of compliance with code
The change does not affect the technical requirements of the code.
Impact to small business relative to the cost of compliance with code
The change does not affect the technical requirements of the code.

Requirements

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

Yes, especially the FEMA Dry Floodproofing Certificate because it requires certification of compliance with ASCE 24.

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

The change does not affect the technical requirements of the code.

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

The change does not affect the technical requirements of the code.

Does not degrade the effectiveness of the code

No; improves effectiveness because the FEMA Forms are designed to collect the information necessary to help determine compliance

SP11962Text Modification

107.3.5 [Examination of Documents] Minimum plan review criteria for buildings. The examination of the documents by the building official shall include the following minimum criteria and documents: a floor plan; site plan; foundation plan; floor/roof framing plan or truss layout; all fenestration penetrations; flashing; and rough opening dimensions; and all exterior elevations:

Commercial Buildings: ***[partial shown]***

Building

1. Site requirements:

Flood hazard areas, flood zones, base flood elevations, and design flood elevations

8. Structural requirements shall include:

Flood requirements in accordance with Section 1612, including proposed lowest floor elevations provided on a FEMA Elevation Certificate, enclosures, flood damage-resistant materials, and dry floodproofing design certification on a FEMA Dry Floodproofing Certificate

* * *

Residential (one- and two-family): ***[partial shown]***

6. Structural requirements shall include:

Flood hazard areas, flood zones, base flood elevations, design flood elevations, proposed lowest floor elevations provided on a FEMA Elevation Certificate, enclosures, equipment, and flood damage-resistant materials.

110.3 Required inspections. The building official upon notification from the permit holder or his or her agent shall make the following inspections, and shall either release that portion of the construction or shall notify the permit holder or his or her agent of any violations which must be corrected in order to comply with the technical codes. The building official shall determine the timing and sequencing of when inspections occur and what elements are inspected at each inspection.

Building *[partial shown]*

1. Foundation inspection. To be made after trenches are excavated and forms erected and shall at a minimum include the following building components:

·Stem-wall

·Monolithic slab-on-grade

·Piling/pile caps

·Footers/grade beams

1.1. In flood hazard areas, upon placement of the lowest floor, including basement, and prior to further vertical construction, the FEMA Elevation Certificate ~~elevation certification~~ shall be submitted to the building official ~~authority having jurisdiction~~.

6. Final inspection. To be made after the building is completed and ready for occupancy.

6.1. In flood hazard areas, as part of the final inspection, a final FEMA Elevation Certificate ~~certification~~ of the lowest floor elevation or an as-built FEMA Dry Floodproofing Certificate for the elevation to which a building is dry floodproofed, as applicable, shall be submitted to the building official ~~authority having jurisdiction~~.

111.2 [Certificate of Occupancy] Certificate issued. After the *building official* inspects the building or structure and does not find violations of the provisions of this code or other laws that are enforced by the department of building safety, the *building official* shall issue a certificate of occupancy that contains the following: ***[partial shown]***

6. For buildings and structures in flood hazard areas, a statement that documentation of the as-built lowest floor elevation has been provided and is retained in the records of the building official ~~authority having jurisdiction.~~

1612.5 Flood hazard documentation. The following documentation shall be prepared and sealed by a licensed professional surveyor and mapper or a registered design professional, as applicable, and submitted to the building official:

1. For construction in flood hazard areas other than coastal high hazard areas or coastal A zones:

> 1.1. The elevation of the lowest floor, including the basement, provided on a FEMA Elevation Certificate as required by the lowest floor elevation inspection in Section 110.3, Building, 1.1 and for the final inspection in Section 110.3, Building, 6.1.

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1.2 For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.

1.3. For dry floodproofed nonresidential buildings, construction documents shall include a statement provided on a FEMA Dry Floodproofing Certificate that the dry floodproofing is designed in accordance with ASCE 24 and shall include the flood emergency plan specified in Chapter 6 of ASCE 24.

1.4 For *dry floodproofed* nonresidential buildings, the elevation to which the building is *dry floodproofed* provided on a FEMA Dry Floodproofing Certificate as required for the final inspection in Section 110.3, Building, 6.1.

2. For construction in coastal high hazard areas and coastal A zones:

2.1. The elevation of the bottom of the lowest horizontal structural member provided on a FEMA Elevation Certificate as required by the lowest floor elevation inspection in Section 110.3, Building, 1.1 and for the final inspection in Section 110.3, Building, 5.1.

2.2. Construction documents shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.

2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m^2) determined using allowable stress design, construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

2.4 For breakaway walls where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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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.

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Mod11831_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP11934

Date Submitted	02/07/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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

Revise definition of day labor projects due to statutory change.

Rationale

Proposed SREF modification is required to match statutory change that resulted from the passage of SB 7002 (2024).

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
This proposed SREF modification requires day labor projects to be subject to the Florida Statutes, the Florida Building Code and the Florida Fire Prevention Code.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This SREF modification will strengthen this section by conforming with statute.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

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

Does not degrade the effectiveness of the code

This SREF modification does not degrade the effectiveness of the code.

SP11934Text Modification

453.3.5 Day labor projects. ~~Any one~~ Day labor projects are construction projects ~~estimated to cost $300,000 or less~~ where bonafide board employees or contracted labor provide the work. Day labor projects are subject to Section 1013.45, Florida Statutes and the ~~same~~ *Florida Building Code* and the *Florida Fire Prevention Code* as adopted by the State Fire Marshal as new construction.

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Mod11934_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP11935

Date Submitted	02/07/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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

Clarify definition of assembly.

Rationale

This proposed SREF modification removes interior courtyard, which is not defined and replaces it with enclosed courtyard, which is defined in section 453.5.5.2.

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
This proposed SREF modification clarifies the definition of assembly, which is needed to protect the health, safety, and welfare of the general public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This proposed SREF modification clarifies a definition which strengthens section 453.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

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

Does not degrade the effectiveness of the code

This proposed SREF modification does not degrade the effectiveness of the code.

SP11935Text Modification

453.5.1 ASSEMBLY. Assembly occupancies are buildings or portions of buildings used for gatherings of 50 or more persons, such as auditoriums, gymnasiums, multipurpose rooms, classrooms and labs, cafeterias, stadiums, media centers and ~~interior~~ enclosed courtyards. Assembly occupancies include adjacent and related spaces to the main seating area, such as stages, dressing rooms, workshops, lobbies, rest rooms, locker rooms, and store rooms. School board and Florida college facilities shall follow the requirements of *Florida Fire Prevention Code* as adopted by the State Fire Marshal for assembly spaces.

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Mod11935_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP11936

Date Submitted	02/07/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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 proposed SREF modification corrects a table number that was relocated in the previous code cycle and corrects a metric distance.

Rationale

To provide the correct table and metric distance.

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
This proposed SREF modification corrects a table number, that has specific fire-resistance rating requirements.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This proposed SREF modification strengthens the code by directing the user to the correct table location.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
These corrections do not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

The corrections do not degrade the effectiveness of the code.

SP11936Text Modification

453.5.5.1 "Exterior courtyard" is a courtyard that is not roofed, has a minimum width of 40 feet (1219 mm) and has an opening a minimum width of 40 feet (1219 mm) with no obstructions or fencing, on at least one end.

An exterior courtyard may be considered exterior space and used for exiting of adjacent spaces. For an exterior courtyard with an opening between 40 feet (1219 mm) and 60 feet wide (18 288 mm), the building walls and wall openings must meet the requirements of Florida Building Code, Building Tables 601 and ~~602~~ 705.5 and the maximum travel distance to the courtyard opening/ exit shall not exceed 150 feet (45 720 mm) from any point within the courtyard. If the minimum courtyard width exceeds 60 feet (18 288 mm), the travel distance to a courtyard opening/exit may exceed 150 feet ~~(945 720 mm)~~ (45 720 mm).

453.5.5.2 "Enclosed courtyard" is a courtyard not roofed by more than 50 percent of the courtyard area and that is substantially surrounded by a building(s) on two sides or more, has a minimum width of 40 feet (1219 mm) and each opening to the exterior is less than 40 feet (1219 mm) in width. The courtyard area shall be calculated for maximum occupancy as an assembly space and the number and size of remotely located exits shall be calculated for the maximum possible load. The maximum possible load is the greater of the calculated capacity of the courtyard or the load imposed by the surrounding spaces. An enclosed courtyard may be used as a component of exit access provided that the walls and wall openings meet the requirements of *Florida Building Code, Building,* Tables 601 and ~~602~~ 705.5 and the maximum travel to the exit discharge does not exceed 150 feet (45 720 mm) from any point within the enclosed courtyard. If the minimum courtyard width exceeds 60 feet (18 288 mm), the travel distance to a courtyard opening/exit may exceed 150 feet (45 720mm). An enclosed courtyard cannot serve as the exterior for exiting or for emergency rescue openings.

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Mod11936_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP11937

Date Submitted	02/07/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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 proposed SREF modification changes definition to conform to statute.

Rationale

To conform to section 1013.01, F.S.

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
This proposed SREF modification clarifies a definition that defines the occupancy of various spaces, which protects the health, safety, and welfare of the general public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This clarification strengthens the code, by removing conflicts with statute.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
This clarification does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

This clarification does not degrade the effectiveness of the code.

SP11937Text Modification

453.5.6.3"Auxiliary facility" ~~consists of~~ means the ~~support~~ spaces located at educational ~~facilities and~~ plants which ~~do~~ are not ~~contain~~ designed for student occupant stations ~~but are used by students, such as libraries, administrative offices, and cafeterias~~.

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Mod11937_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP11938

Date Submitted	02/07/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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

To correct conflict with Rule.

Rationale

This proposed SREF modification will remove conflict with School Safety Rule 6A-1.0018, F.A.C.

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
This proposed SREF modification will remove conflict with the School Safety Rule, which will protect the health, safety, and welfare of the general public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This proposed SREF modification will remove conflict with the School Safety Rule, which will strengthen the code.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

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

Does not degrade the effectiveness of the code

This proposed SREF modification does not degrade the effectiveness of the code.

SP11938Text Modification

453.7.3 Location of fire extinguishers and blankets. Fire extinguishers ~~may~~shall be located as required by NFPA 10~~inside student-occupied spaces provided they are placed adjacent to the primary exit door, and the room door remains unlocked when the facility is occupied, and a permanently affixed sign, with a red background and white letters, reading "FIRE EXTINGUISHER INSIDE" is placed on the outside adjacent to the door~~. Fire extinguisher cabinets shall not be locked. Fire blankets shall be located in each laboratory and each shop where a fire hazard may exist. Fire extinguishers and fire blankets shall be readily accessible and suitable for the hazard present and shall not be obstructed or obscured from view. Extinguishers and blankets shall be on hangers or brackets, shelves or cabinets so that the top of the extinguisher or blanket is not more than 48 inches (1220 mm) above finish floor (AFF) and complies with state and federal accessibility requirements. All extinguishers shall be installed and maintained in accordance with NFPA. Extinguishers shall remain fully charged and operable at all times and have a current tag to indicate compliance.

453.7.5 Fire alarm sending stations. Sending stations ~~may~~shall be located as required by NFPA 72.~~inside student-occupied spaces, adjacent to the primary exit door only if the door to the occupied space is unlocked at all times while the facility is occupied. When located inside a student-occupied space, a permanently affixed sign reading "FIRE ALARM PULL STATION INSIDE" shall be placed outside that space adjacent to the door. This sign shall have a red background with white letters.~~ Sending stations shall be mounted to meet accessibility requirements.

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Mod11938_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP11940

Date Submitted	02/07/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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

Clarify fire alarm requirements.

Rationale

To clarify when the voice feature is required in an existing campus fire alarm system project.

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
Clarification of fire alarm system requirements will protect 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
Clarification of fire alarm system requirements will strengthen the code.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
This clarification does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.
Does not degrade the effectiveness of the code

This clarification does not degrade the effectiveness of the code.

SP11940Text Modification

453.7.4 Common fire alarm. Buildings within 60 feet (18,288 mm) of each other shall have a common fire alarm system. On an existing campus, structures that meet the 60 foot (18,288 mm) requirement, any new structure, remodeled facility, or renovated facility, such as classrooms, labs, shops and cafeterias, gymnasiums, auditoriums (separate or combination functions) with assembly occupancy less than 300, shall be connected to the campus existing fire alarm system. An existing system without the voice feature shall not be required to include the voice feature required by Sections 907.2 and 907.2.3 of this code. A project that includes a new ~~total school~~ main fire alarm ~~system upgrade~~ panel ~~project~~ for an existing campus shall include the voice feature. Emergency shelters shall have the fire alarm panel located in the space identified as the shelter manager's office.

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Mod11940_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP11942

Date Submitted	02/07/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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

Correct metric distance.

Rationale

To correct metric distance.

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
This proposed SREF modification corrects the metric distance when Type V construction may be used, which protects the health, safety, and welfare of the general public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This correction strengthens the code.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
This correction does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

This correction does not degrade the effectiveness of the code.

Alternate Language

1st Comment Period History

SP11942-A1

Proponent Don Whitehead **Submitted** 4/11/2025 10:29:31 AM **Attachments** No

Rationale:

To correct a typo

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
Just corrects a typo.

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

Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Just corrects a typo.

Does not degrade the effectiveness of the code
Just corrects a typo.

SP11942-A1Text Modification

453.13.8.1 …Emergency access, emergency rescue, and secondary means of egress windows may_be included in the calculation to comply with this requirement.

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Mod11942_A1_TextOfModification.pdf

SP11942Text Modification

453.8.3.4 Exceptions to types of construction:

1. Covered walkways open on all sides may be Type V construction.

2. Single story dugouts, press boxes, concession stands, related public toilet rooms, detached covered play areas, and nonflammable storage buildings that are detached from the main educational facility by at least 60 feet (~~1829~~ 18 288 mm), may be Type V construction.

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Mod11942_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP11943

Date Submitted	02/07/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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

Clarify glazing requirements.

Rationale

Clarify when a built-in horizontal member or a permanent chair rail is required.

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
Clarification of when a built-in horizontal member or a permanent chair rail is required will protect the health, safety, and welfare of the general public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This clarification will strengthen the code.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
This clarification does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.

Does not degrade the effectiveness of the code

This clarification does not degrade the effectiveness of the code.

SP11943Text Modification

453.13.7.2 ~~Large glass~~ Glass panels shall be subdivided by a built-in horizontal member or a permanent chair rail not less than 11/2 inches (38 mm) in width, located between 24 and 36 inches (610 and 914 mm) above the floor.

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Mod11943_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP11944

Date Submitted	02/07/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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

Clarify where showers are required.

Rationale

To clarify where showers are required.

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
Clarification of where showers are required will protect 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
Clarification of where showers are required will strengthen the code.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
This clarification does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities.
Does not degrade the effectiveness of the code

This clarification does not degrade the effectiveness of the code.

SP11944Text Modification

453.16.8 Shower facilities. Showers shall be provided only where required by the college or district's educational program and, where provided, shall utilize energy saving concepts for hot water as required by Section 1013.44(2), Florida Statutes. When provided, shower areas shall comply with the following:

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Mod11944_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP11945

Date Submitted	02/07/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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

Clarify floor drain requirements.

Rationale

Clarify dousing shower and eye wash floor drain requirements.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

This clarification will have minimal impact, since it only effects the enforcement of dousing shower and eye wash floor drain pipe size.

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

This clarification will have zero to minimal impact, since it only effects the dousing shower and eye wash floor drain pipe size. A 3 inch pipe is required to handle the water flow of the dousing shower.

Impact to industry relative to the cost of compliance with code

This clarification will have zero to minimal impact, since it only effects the dousing shower and eye wash floor drain pipe size.

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

A 3 inch pipe trap will not dry up as quickly as a 2 inch pipe trap, releasing sewer gas and affecting the health, safety, and welfare of the general public.

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

This clarification strengthens the code.

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

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

Does not degrade the effectiveness of the code

This clarification does not degrade the effectiveness of the code.

SP11945Text Modification

453.16.10 Dousing shower and eye wash. Every science lab, or shop shall be provided with a dousing shower and eye wash for emergency use, including a floor drain with a minimum 3 inch drain pipe.

453.20.5 Custodial receiving. Custodial receiving where chemicals that are dangerous to human tissue are stored, handled, or mixed shall be equipped with a dousing shower and eye wash, including a floor drain with a minimum 3 inch drain pipe.

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Mod11945_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP11946

Date Submitted	02/11/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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

Allow the HVAC systems to be used for the EHPA, instead of 2 cfm per square foot ventilation.

Rationale

To provide an option to the 2 cfm per square foot requirement for an EHPA.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
None, because both options require a ventilation rate verification.
Impact to building and property owners relative to cost of compliance with code
Unknown, because the layout and design will affect which option is less expensive.
Impact to industry relative to the cost of compliance with code
Unknown, because the layout and design will affect which option is less expensive.
Impact to small business relative to the cost of compliance with code
Unknown, because the layout and design will affect which option is less expensive

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
The EHPA ventilation requirements have a substantial connection with the health, safety, and welfare of the general public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This modification provides an equivalent system of construction.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
This modification does not discriminate against materials, products, methods, or systems of construction.
Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code.

SP11946Text Modification

453.25.4.2 Mechanical ventilation. EHPAs shall have mechanical ventilation systems or HVAC systems. Ventilation shall be provided at a minimum rate of 2 cfm per square foot (0.6 m3/min. per square meter) of EHPA floor area or as required by section 453.15.5 for HVAC systems. The mechanical ventilation systems or the HVAC systems shall be connected to the EHPA's emergency power.

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Mod11946_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

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SP12015

Date Submitted	02/11/2025	**Section**	453	**Proponent**	Don Whitehead
Chapter	4	**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

Require an isolation room in the school clinic.

Rationale

To control the spread of contagious viruses in the school clinic.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Minimal impact, requiring code review of one additional small room.

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

Cost will increase approximately $6150 per school. This is less than one tenth of one percent of the cost of an average new school.

Impact to industry relative to the cost of compliance with code

Industry will have a very small benefit of approximately $6150 per school. This is less than one tenth of one percent of the cost of an average new school.

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

Very minimal impact, depending on the size of the businesses that provide and install the clinic isolation room.

Requirements

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

An isolation room will protect the health of the general public.

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

This modification improves the code by protecting against the spread of contagious viruses in the school clinic.

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

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

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code.

SP12015Text Modification

453.22.4 The bed area shall be designed to maintain constant visual supervision from the office. Space for student beds shall be provided in each clinic at 50 square feet (4.6 m2) per bed. Space for beds in secondary and VTC schools shall be equally divided for male and female students. An isolation room shall be provided for at least one bed with constant visual supervision from the office. Beds shall be provided based on student capacity in the following ratios:

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Mod12015_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

16

SP12049

Date Submitted	02/12/2025	**Section**	468	**Proponent**	Don Whitehead
Chapter	4	**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

Allow single-user shower rooms in place of male and female showers as authorized by HB 1521 (2023)

Rationale

Allow single-user shower rooms in place of male and female showers as authorized by HB 1521 (2023)

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
This proposed modification protects the health, safety, and welfare of the general public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
This modification strengthens the code by bringing it into compliance with statute.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
This modification does not discriminate against materials, products, methods, or systems of construction.
Does not degrade the effectiveness of the code
This modification does not degrade the effectiveness of the code.

SP12049Text Modification

468.3.5.8.4 Accessible single-user shower rooms with a changing area, as described in section 608, FBC, Accessibility and section 553.865, Florida Statutes, may be utilized in place of male and female showers.

Page: 1

Mod12049_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

17

SP12051

Date Submitted	02/12/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Revises section for clarity.

Rationale

This modification clarifies that this section includes all hospital facilities, not just the ones that are listed.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12051Text Modification

449.2 The following ~~A~~additional codes and standards ~~for~~ apply to the design and construction of ~~general, rehabilitative, and psychiatric hospitals~~ all hospital classes licensed by the Agency for Health Care Administration, including but not limited to general, rehabilitative, and psychiatric hospitals. These additional codes and standards also apply to the design and construction of intensive residential treatment facilities (IRTFs) for children and adolescents~~,~~ that are located inside of buildings or structures, and unless exempted by Chapter 395.0163, Florida Statutes, all hospital outpatient facilities and hospital owned or leased mobile and transportable units.

In addition to the minimum standards required by Section 449 of this code, Chapter 59A-3 Florida Administrative Code, or by Chapter 395, Florida Statutes, all new hospital facilities and all additions, alterations or renovations to an existing licensed hospital, as listed in Section 449.2 of this code shall also be in compliance with the following codes and standards on the effective date of this code, as described in Section 449.1.5 of this code.

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Mod12051_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

18

SP12053

Date Submitted	02/12/2025	**Section**	401	**Proponent**	James gregory
Chapter	4	**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

Adds language assure the requirements of this section are applied.

Rationale

Clarifies that the requirements of 449 through 469 specific requirements shall be applied. For instance Section 449.3.3.3 directly contradicts the FGI Guidelines (a reference of this code) in the review and approval of mobile units.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12053Text Modification

401.2.2 General.

Where in any specific case, Sections 449 through 469 specify different materials, methods of construction, design criteria or other requirements than found in this code, or this code's references, the requirements of Sections 449 through 469 shall be applicable.

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Mod12053_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

19

SP12054

Date Submitted	02/13/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Coordinates this section with 449.2 by using the same verbiage. Deletes redundant information that is now provided in 449.2.

Rationale

This modification clarifies the code, coordinates verbiage in two different sections and deletes duplicate verbiage now repositioned to 449.2.Deletes redundant language in the revised of 401.2.2.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
There is no impact on local entity relative to enforcement.
Impact to building and property owners relative to cost of compliance with code
There is no impact to building and property owners.
Impact to industry relative to the cost of compliance with code
Impact to industry relative to the cost of compliance with code (553.73(9)(b),F.S.)* There is no impact to industry.
Impact to small business relative to the cost of compliance with code
There is no impact to small business relative to the cost of compliance.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12054Text Modification

449.3 ~~Additional physical plant requirements for general, rehabilitation, and psychiatric hospitals, including intensive residential treatment facilities (IRTFs) for children and adolescents, and unless exempted by Chapter 395.0163, Florida Statutes, all hospital outpatient facilities and hospital mobile and transportable units.~~

In addition to the codes and standards referenced in Section 449.2 of this code, the following minimum standards of construction and specified minimum essential facilities, shall apply to all new hospitals and all additions, alterations or renovations to an existing licensed hospital, as described in Section 449.1 and 449.2 of this code. ~~and listed in Section 449.3 of this code~~. ~~Where there are conflicting specific requirements between The Guidelines and this code, the requirements of this code shall take precedence.~~

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Mod12054_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

20

SP12055

Date Submitted	02/13/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Exempts Class 1 Mobile Units from review under this section.

Rationale

The Class I mobile units provide imaging diagnostic and treatment services that do not require invasive procedures. These procedures are like those that take place in a doctor's office, unlike Class 2 and 3 mobile units where more invasive procedures are performed. As such, a patient in a Class 1 mobile unit is unlikely to be compromised by the physical environment. The FGI Guidelines has revised the name of the document to FGI Facility Code.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12055Text Modification

449.3.3.2

The Class 1 Mobile Unit itself is exempt from further review by this section.

The ~~mobile facility~~ hospital's utilities and architectural elements serving the Class 1 mobile unit and all Class 2 and 3 Mobile Units shall comply with the applicable requirements of the Florida Building Code, Building, The ~~Guidelines~~ FGI Facility Code including Part 1 General and Part 2, Chapter 2.7 *Specific Requirements for Mobile/Transportable Medical Units*.

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Mod12055_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

21

SP12056

Date Submitted	02/13/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Proves a new requirement for certain hospital outpatient facilities that render patients incapable of self-evacuation.

Rationale

This is already required by section 451 ambulatory surgical centers and should have been required for hospitals that operate similar outpatient surgical centers, pain management centers and cardiac catherization centers. These are the outpatient types that are not exempted from review by this section by Chapter 395.0163 FS. This will provide sprinkler coverage to this area of intensive medical treatment with patients unable to evacuate without the assistance from others while sprinkler work is being completed in other parts of a multiple occupancy building.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.

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

Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12056Text Modification

449.3.10 Fire protection.

Where a hospital outpatient center not exempted from review by this section, is located in a building with other building tenants and the building is protected by a fire protection sprinkler system, the hospital outpatient center shall be provided with a dedicated supply main serving only the space occupied by the hospital outpatient center. The supply main shall originate at the fire main piping riser serving the floor the hospital outpatient center is occupying. The hospital outpatient center supply main shall be equipped with an indicating control valve containing a tamper switch installed at the tap to the building fire riser in a readily accessible location. The valve shall have a permanent tag identifying the supply main as that of the hospital outpatient center.

449.3.10.1 Fire pump.

Where a fire pump is required by another section of this code, a new electric motor-driven fire pump shall be connected to the Emergency Power Supply System (EPSS) of the hospital. Where connection to existing EPSS equipment is technically infeasible, replacement fire pumps shall be exempt from this requirement. A fire pump that is not electric motor-driven shall meet the requirements of NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection, alternative power.

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Mod12056_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

22

SP12057

Date Submitted	02/13/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Revises verbiage for clarification of requirement.

Rationale

There has been constant confusion regarding the meaning of this paragraph. This revision clarifies what this paragraph is requiring.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12057Text Modification

449.4.2.2.4

~~Where an off-site public access route is available to the new facility at or above the base flood elevation, a minimum of one on-site emergency access route shall be provided that is located at the same elevation as the public access route.~~ An on-site access route designed to resist flooding shall be provided for all new hospitals. At a minimum, the route shall be located at or above the required elevation for the lowest level of the facility.

Exception: Where public roadways providing access to the facility site are below the required elevation of the lowest level of the facility, the on-site access route shall be at or above the elevation of the public access road

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Mod12057_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

23

SP12058

Date Submitted	02/13/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Add new section limiting the types of hospitals that can be designed or constructed in Florida.

Rationale

Provides a new section that adds information to the FBC found only in Florida Statutes to help direct and clarify the statue for those users who do are not familiar with all of the Florida statutes.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12058Text Modification

449.2.3

Hospital facilities shall not be design or constructed for the delivery of limited range(s) of service prohibited by Florida Statues 395.003(8).

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Mod12058_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

24

SP12059

Date Submitted	02/13/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Clarifies paragraph 449.4.2.2.6 and identifies the correct ASCE 7 adopted by the FBC.

Rationale

Clarifies the reference to Figure 26-1B is from ASCE 7. Provides the correct ASCE edition adopted by the FBC.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods
Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12059Text Modification

449.4.2.2.6

New light standards and their foundations used for lighting the on-site emergency access route shall be designed to meet the wind load criteria of ASCE 7 as referenced in this code with wind speeds determined from ASCE 7, Figure 26.5-1B with appropriate exposure category dependent on site location.

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Mod12059_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

25

SP12060

Date Submitted	02/13/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Revises this section to exclude exhaust fans from the impact and exclude items listed in 449.2.5.1 from the 30 feet restriction so that opening protection will include small missile impact requirements.

Rationale

Exhaust fans are not disabled when impacted but are subject to be blown off the roof so they require special anchoring systems but not impact protection. Opening protections should include protection from small missile impact above 30 feet.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12060Text Modification

449.4.2.5.4

~~Systems and~~ ~~u~~Utilities identified in Section 449.4.2 except exhaust fans, shall be protected from debris impact by an equipment housing or a screening enclosure complying with the impact protection standards in accordance with Section 1626 when located at or below 30 feet above the finished grade of the building. Where screening enclosures are used, the height of the enclosure shall be not less than the height of the protected equipment up to 30 feet above finished grade, and shall provide clearances required for the maintenance and continuous operation of the equipment. Where the housing and louvers are designed to provide the required equipment protection, sufficient standoff shall be provided to prevent damage to internal components from deflection of the cladding as a result of impact. Roof mounted equipment shall have fastening systems designed to meet the wind load requirements of the *Florida Building Code, Building*.

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Mod12060_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

26

SP12061

Date Submitted	02/13/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Revises this section to exclude exhaust fans from the impact.

Rationale

Exhaust fans are not disabled when impacted but are subject to be blown off the roof so they require special anchoring systems but not impact protection.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12061Text Modification

449.4.2.6.1

All new and replacement air-moving equipment, dx condensing units, through-wall units and other HVAC equipment, except exhaust fans, located outside of, or partially outside of the building, or on the roof of the facility at or below 30 feet above the finished grade of the building and providing service to the facility shall be permitted only when either of the following are met:

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Mod12061_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

27

SP12063

Date Submitted	02/13/2025	**Section**	468	**Proponent**	Don Whitehead
Chapter	4	**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

Require an automated external defibrillator at each campus as required by HB 865 (2024).

Rationale

To comply with statute as revised by HB 865 (2024).

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
Automated external defibrillators protect 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
Complying with statute improves the code.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
This modification does not discriminate against materials, products, methods, or systems of construction.
Does not degrade the effectiveness of the code
This modification does not degrade the effectiveness of the code.

SP12063Text Modification

468.3.3 Automated external defibrillator. Automated external defibrillators shall be provided ~~in public educational facilities that are a member of the Florida High School Athletic Association~~ at each campus.

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Mod12063_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

28

SP12068

Date Submitted	02/13/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Requires professional engineer or architect to design to meet wind load requirements of the FBC.

Rationale

Revises the name of the section to Roof not "Roofing" because it has to do more with other items than "roofing" . Revises the requirement for structural systems to be designed by a structural engineer for each location to meet wind load requirements.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12068Text Modification

449.4.2.4 ~~Roofing~~ Roof standards.

449.4.2.4.2.

All new roof appendages such as ducts, tanks, ventilators, receivers, dx condensing units and decorative mansard roofs and their attachment systems shall be ~~structurally engineered~~ designed to meet the wind load requirements of ~~the applicable building code~~ this code by a professional engineer or architect

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Mod12068_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

29

SP12072

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Revises verbiage for clarification of requirement.

Rationale

There has been constant confusion regarding the meaning of this paragraph. This revision clarifies what this paragraph is requiring.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12072Text Modification

450.4.2.2.4

~~Where an off-site public access route is available to the new facility at or above the base flood elevation, a minimum of one on-site emergency access route shall be provided that is located at the same elevation as the public access route.~~ An on-site access route designed to resist flooding shall be provided for all new nursing homes. At a minimum, the route shall be located at or above the required elevation for the lowest level of the facility.

Exception: Where public roadways providing access to the facility site are below the required elevation of the lowest level of the facility, the on-site access route shall be at or above the elevation of the public access road

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Mod12072_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

30

SP12076

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Clarifies paragraph 450.4.2.2.6 and identifies the correct ASCE 7 adopted by the FBC.

Rationale

Clarifies the reference to Figure 26-1B is from ASCE 7. Provides the correct ASCE edition adopted by the FBC.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
There is no impact on local entity relative to enforcement.
Impact to building and property owners relative to cost of compliance with code
There is no impact to building and property owners.
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Impact to small business relative to the cost of compliance with code
There is no impact to small business relative to the cost of compliance.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods
Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12076Text Modification

450.4.2.2.6

New light standards and their foundations used for lighting the on-site emergency access route shall be designed to meet the wind load criteria of ASCE 7 as referenced in this code with wind speeds determined from ASCE 7, Figure 26.5-1B with appropriate exposure category dependent on site location.

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Mod12076_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

31

SP12080

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Revises this section to exclude exhaust fans from the impact.

Rationale

Exhaust fans are not disabled when impacted but are subject to be blown off the roof so they require special anchoring systems but not impact protection.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
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Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12080Text Modification

450.4.2.6.1

All new and replacement air-moving equipment, dx condensing units, through-wall units and other HVAC equipment, except exhaust fans, located outside of, or partially outside of the building, or on the roof of the facility at or below 30 feet above the finished grade of the building and providing service to the facility shall be permitted only when either of the following are met:

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Mod12080_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

32

SP12081

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Revises this section to exclude exhaust fans from the impact requirements and limit the height of protective enclosures to 30 feet above finished grade.

Rationale

Exhaust fans are not disabled when impacted but are subject to be blown off the roof so they require special anchoring systems but not impact protection.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12081Text Modification

450.4.2.5.4

~~Critical systems and utilities identified in this section shall be protected from debris impact by a housing or enclosure complying with the impact protection standards in Sections 1626.2 through 16.26.4 when located at or below 30 feet above the finished grade of the building. Roof mounted equipment shall have fastening systems designed to meet the wind load requirements of the *Florida Building Code*.~~

Systems and utilities identified in section 450.4 for impact protection, except exhaust fans, shall be protected from damage by large missile impact by an equipment housing or a screening enclosure complying with the impact protection standards in accordance with Section 1626 when located at or below 30 feet above the finished grade of the building. Where screening enclosures are used, the height of the enclosure shall be not less than the height of the protected equipment up to 30 feet above finished grade, and shall provide clearances required for the maintenance and continuous operation of the equipment. Where the housing and louvers are designed to provide the required equipment protection, sufficient standoff shall be provided to prevent damage to internal components from deflection of the cladding as a result of impact. Roof mounted equipment shall have fastening systems designed to meet the wind load requirements of the *Florida Building Code*, *Building*.

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Mod12081_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

33

SP12082

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Requires professional engineer or architect to design to meet wind load requirements of the FBC.

Rationale

Revises the name of the section to Roof not "Roofing" because it has to do more with other items than "roofing" . Revises the requirement for structural systems to be designed by a structural engineer for each location to meet wind load requirements.

Fiscal Impact Statement

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There is no impact on local entity relative to enforcement.
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Impact to industry relative to the cost of compliance with code
There is no impact to industry.
Impact to small business relative to the cost of compliance with code
There is no impact to small business relative to the cost of compliance.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
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Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12082Text Modification

450.4.2.4 ~~Roofing~~ Roof standards.

450.4.2.4.2.

All new roof appendages such as ducts, tanks, ventilators, receivers, dx condensing units and decorative mansard roofs and their attachment systems shall be ~~structurally engineered~~ designed to meet the wind load requirements of ~~the applicable building code~~ this code by a professional engineer or architect

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Mod12082_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

34

SP12083

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Revises verbiage to delete unenforceable word.

Rationale

Removes unenforceable requirements.

Fiscal Impact Statement

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There is no impact on local entity relative to enforcement.
Impact to building and property owners relative to cost of compliance with code
There is no impact to building and property owners.
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Requirements

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Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12083Text Modification

450.3.4.3

Outdoor area(s) shall be provided for the use of all residents and shall include walking paths of durable materials, benches, shaded areas, and visual focusing element(s) such as landscaping, sculpture, or fountain(s). Security fencing if used shall be of a residential design and provide some visual connection to the exterior of the secured area. If an exterior visual connection is not possible or desirable then the interior of the outside area shall be landscaped~~. to be visually interesting. See *The Guidelines* for additional requirements~~

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Mod12083_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

35

SP12084

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Does not permit air ducts using fiberglass materials.

Rationale

With nursing homes taking more elderly and frail residents, fiberboard is subjective material that can shed microscopic fibers into the air, potentially irritating the respiratory tract and skin. This is particularly concerning for individuals with asthma or other respiratory conditions. In humid environments, the porous nature of duct board can harbor mold growth, releasing spores into the air and triggering allergies or respiratory problems. Duct board can be difficult to clean effectively, allowing dust, debris, and allergens to accumulate over time, further compromising indoor air quality.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
There is no impact on local entity relative to enforcement.
Impact to building and property owners relative to cost of compliance with code
There is no impact to building and property owners.
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Requirements

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Strengthens and improves the code by making it clearer and easier for the user to apply.

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

Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12084Text Modification

450.3.9.3

Air ducts and exhaust duct systems shall not be constructed of fiberglass duct board.

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Mod12084_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

36

SP12085

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Prohibits the use of the color red to designate critical circuit lighting inside a resident room.

Rationale

It is common practice to color light switches connected to the critical branch as red, But it has been notated that elders will not touch light switches that are colored red because they are afraid something bad will happen. As a result they lose control over their private environment. There is no real reason to color the critical branch circuits in a resident's room red because there is no life threatening instance to immediately know which switch that controls the lighting connected to the generator.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
There is no impact on local entity relative to enforcement.
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Requirements

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Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12085Text Modification

450.3.15.2

Resident bedrooms shall have general lighting from ceiling mounted fixtures, floor lamp fixtures or table mounted fixtures. Separate fixed night lighting shall be provided. The night-light shall have a switch at the entrance to each resident's room or separate sleeping area. A reading light shall be provided for each resident. Resident reading lights and other fixed lights not switched at the door shall have switch controls convenient for use at the luminaire. Wall-mounted switches for control of lighting in resident areas shall be of quiet operating type and the switch or wall plate shall not be of red color regardless of electrical branch designation. Other less intrusive designations are permitted to be used to identify the light switch connected to the critical branch such a small label or small colored dot on the wall plate.

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Mod12085_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

37

SP12086

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Revised verbiage that is duplicable and misleading.

Rationale

Removes language that would indicate this section is only for a new nursing home when in fact this section pertains to renovations and additions too.

Fiscal Impact Statement

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There is no impact to small business relative to the cost of compliance.

Requirements

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Strengthens and improves the code by making it clearer and easier for the user to apply.
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Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12086Text Modification

450.4 Physical plant requirements for disaster preparedness. ~~**of new nursing home construction**~~

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Mod12086_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

38

SP12087

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Removes definition no longer used in new construction.

Rationale

These areas are no longer used in new construction of nursing homes because the entire nursing home or addition must be designed and constructed to be a safe area.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
There is no impact on local entity relative to enforcement.
Impact to building and property owners relative to cost of compliance with code
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Requirements

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Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12087Text Modification

~~**450.4.1.4 OCCUPIED RESIDENT AREA(S).**~~

~~The location of residents inside of the new facility or in the addition of a wing or floor to an existing facility during and immediately following a disaster. If these residents are to be relocated into an area of the existing facility during and immediately following a disaster, then for these purposes, that location will be defined as the "occupied resident area~~."

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Mod12087_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

39

SP12088

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Removes areas that are no longer used in new construction.

Rationale

These areas are no longer used in new construction of nursing homes because the entire nursing home or addition must be designed and constructed to be a safe area. These areas are still used to meet the rules for existing nursing homes.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
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Strengthens and improves the code by making it clearer and easier for the user to apply.
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Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12088Text Modification

~~**450.4.2.1 Space standards.**~~

~~**450.4.2.1.1**~~

~~For planning purposes, each new facility shall provide a minimum of 30 net square feet (2.79 m^2) per resident served in the occupied resident area(s). The number of residents to be served is to be determined by the facility administration.~~

~~**450.4.2.1.2**~~

~~As determined by the facility, space for administrative and support activities shall be provided for use by facility staff to allow for care of residents in the occupied resident area(s).~~

~~**450.4.2.1.3**~~

~~As determined by the facility, space shall be provided for all staff and family members of residents and staff.~~

Page: 1

Mod12088_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

40

SP12089

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Removes the term of occupied resident areas.

Rationale

These areas are no longer used in new construction of nursing homes because the entire nursing home or addition must be designed and constructed to be a safe area.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
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Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12089Text Modification

450.4.2.6.2

~~As determined by the governing body of the facility, occupied~~ All resident areas and resident support areas shall be supplied with temperature and humidity control during and immediately following loss of normal utilities. At a minimum, these areas shall be maintained at a dry-bub temperature at or below 81°F (27.2°C). Vulnerable components of new mechanical equipment necessary to maintain safe indoor air temperature shall be protected from horizontal impact in accordance with Section 450.4.2.5.4 and shall be connected to the facility's essential electrical system described in Section 450.3.18.1 or connected to the optional standby generator described in 450.4.2.9.6.

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Mod12089_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

41

SP12090

Date Submitted	02/18/2025	**Section**	464	**Proponent**	James gregory
Chapter	4	**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

Updates reference code for this occupancy/

Rationale

Revises the name to fit with the reference chapter of the code.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12090Text Modification

464.3.1

Except as modified and required by this section of the code, Chapter 59A-36, *Florida Administrative Code* or Chapter 429 Part I, *Florida Statutes*, all new assisted living facilities and all additions, alterations, or renovations to existing assisted living facilities with more than 16 licensed beds shall also be in compliance with *The ~~Guidelines~~ FGI Facility Codefor the Design and Construction of Residential Health, Care, and Support Facilities (The ~~Guidelines~~ FGI)* Part 1 General, and Chapter 4.1 Special Requirements for Assisted Living Facilities as referenced in Chapter 35 of this code.

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Mod12090_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

42

SP12091

Date Submitted	02/13/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Updates code reference to Chapter 35.

Rationale

Revises the name to fit with the reference chapter of the code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
There is no impact on local entity relative to enforcement.
Impact to building and property owners relative to cost of compliance with code
There is no impact to building and property owners.
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Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
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Strengthens and improves the code by making it clearer and easier for the user to apply.
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Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12091Text Modification

449.2.2

The ~~Guidelines~~ FGI Facility Code for Design and Construction of Hospitals (The ~~Guidelines~~ FGI), as referenced in Chapter 35 of this code.

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Mod12091_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

43

SP12092

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Updates code reference to Chapter 35.

Rationale

Revises the name to fit with the reference chapter of the code.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12092Text Modification

450.2.2

The ~~Guidelines~~ FGI Facility Code for Design and Construction of Residential Health, Care, and Support Facilities (The ~~Guidelines~~ FGI), including Chapter 3.~~2~~1 Specific Requirements for Nursing Homes as referenced in Chapter 35 of this code

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Mod12092_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

44

SP12093

Date Submitted	02/13/2025	**Section**	451	**Proponent**	James gregory
Chapter	4	**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

Updates code reference to Chapter 35.

Rationale

Revises the name to fit with the reference chapter of the code.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12093Text Modification

451.2.2

The ~~Guidelines~~ FGI Facility Codefor Design and Construction of Outpatient Facilities (The ~~Guidelines~~ FGI), including Part 1 General, and Part 2 Outpatient Facility Types, Chapter 2.7 Specific Requirements for Outpatient Surgery Facilities as referenced in Chapter 35 of this code.

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Mod12093_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

45

SP12095

Date Submitted	02/13/2025	**Section**	469	**Proponent**	James gregory
Chapter	4	**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

Updates code reference to Chapter 35.

Rationale

Revises the name to fit with the reference chapter of the code.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12095Text Modification

469.2.1.2

Part 1 and Part 2: Outpatient Facility Types, Chapter 2.1, Common Elements for Outpatient Facilities of *The ~~Guidelines~~ FGI Facility Code for Design and Construction of Outpatient Facilities* (*The ~~Guidelines~~ FGI*), for those areas and details not described in this section as referenced in Chapter 35 of this code.

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Mod12095_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

46

SP12097

Date Submitted	02/13/2025	**Section**	450	**Proponent**	James gregory
Chapter	4	**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

Clarifies what kind of renovation allows reduction of space standards.

Rationale

Only allow space reductions when renovation takes place inside the resident room, not just anywhere in the facility.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Does not discriminate against materials or products or methods.
Does not degrade the effectiveness of the code
Does not degrade the effectiveness of the code.

SP12097Text Modification

450.3.2.3

Where renovation work is undertaken inside of an existing resident room that alters the room configuration, every effort shall be made to meet these minimum space standards. When this is not possible due to existing physical conditions or constraints, and with the approval of the Agency, a resident room shall have no less than 80 square feet (7.43 m^2) of clear floor area per bed in a double occupancy resident room and 100 square feet (9.29 m^2) of clear floor area in a single occupancy resident room.

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Mod12097_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

47

SP12178

Date Submitted	02/16/2025	**Section**	452	**Proponent**	scott waltz
Chapter	4	**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

Modification creates standards for Advanced Birth Centers. As directed by statute, it references to the codes for ambulatory surgery centers as minimum standards. Additionally, other reference standards provide appropriate requirements for the postpartum care of the mother and infant.

Rationale

Advance Birth Centers are newly created designation for birth centers which require additional physical plants to ensure the health, safety and welfare of the patients using these centers.

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

No

Does not degrade the effectiveness of the code

No

452.1.2

For state licensure purposes of birthing centers designated as advance birth centers, these codes and standards shall be applicable to the project on the effective date of this code at the time of Stage II preliminary plan approval by the Agency for Health Care Administration (the Agency) as described in Chapter 59A-5 *Florida Administrative Code* or at the first Stage III construction document review if there has been no previous Stage II preliminary plan approval for that project.

452.3 Additional codes and standards for the design and construction of advanced birth centers as described in 383.302, *Florida Statutes*.

In addition to the minimum standards required by Section 452 of this code, Chapter 59A-11 *Florida Administrative Code*, or by Chapter 383, *Florida Statutes*, all new advanced birth centers and all additions, alterations or renovations to an existing advanced birth centers, shall also be in compliance with the following referenced codes and standards on the effective date of this code, as described in Section 452.1.2 of this code:

452.3.1

Section 451, Ambulatory Surgery Centers, of this code and all referenced codes and standards therein.

452.3.2

Section 2.2-2.10 Obstetrical Unit, The Guidelines for Design and Construction of Hospitals (The Guidelines), as referenced in Chapter 35 of this code.

452.3.3

Dietary facilities to support the postpartum care unit shall be provided. These facilities shall comply with Section 2.1-4.3 *Food and Nutrition Services, The Guidelines for Design and Construction of Hospitals (The Guidelines)*, as referenced in Chapter 35 of this code.

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

48

SP12189

Date Submitted	02/16/2025	**Section**	456.4.1.1	**Proponent**	Jennifer Hatfield
Chapter	4	**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 modification provides consistency between Building Code Sections 456.4.1.1 and 2903.3, and Section 403.3 of the Plumbing Code with regard to toilet facilities.

Rationale

Currently 456.4.1.1 is not consistent with Section 2903.3 of the Building Code and Section 403.3 of the Plumbing Code when addressing public toilet facilities. This modification adds an exception for public toilet facilities in Section 456.4.1.1 to make it consistent with the other two code sections.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
No cost as a clarification to align with other code provisions.
Impact to building and property owners relative to cost of compliance with code
No cost as a clarification to align with other code provisions.
Impact to industry relative to the cost of compliance with code
No cost as a clarification to align with other code provisions.
Impact to small business relative to the cost of compliance with code
No cost as a clarification to align with other code provisions.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Yes, as it addresses an inconsistency among multiple code provisions.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Yes, as it addresses an inconsistency among multiple code provisions.
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.

SP12189Text Modification

456.4.1.1

Places serving food or drink on a take-out, carry-out or delivery basis only which provide no seating shall be required to provide a minimum of one bathroom accessible to the public.

Exception: Public toilet facilities shall not be required for structures and tenant spaces intended for quick transactions, including takeout, pickup and drop-off, having a public access area less than or equal to 300 square feet (28 m^2).

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Mod12189_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

49

SP12223

Date Submitted	02/17/2025	**Section**	449	**Proponent**	James gregory
Chapter	4	**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

Revises this section to exclude exhaust fans from the impact and exclude parts of equipment extending above the top of an enclosure that that is 30 feet above finish grade.

Rationale

Exhaust fans are not disabled when impacted but are subject to be blown off the roof so they require special anchoring systems but not impact protection. If equipment projects above the screen enclosure, it is not required to be protected any higher than 30 feet.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
It has a reasonable and substantial connection to HSW of the public.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens and improves the code by making it clearer and easier for the user to apply.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

SP12223Text Modification

449.4.2.5.4

Systems and utilities identified in Section 449.4.2, except exhaust fans, shall be protected from debris impact by an equipment housing or a screening enclosure complying with the impact protection standards in accordance with Section 1626 when located at or below 30 feet above the finished grade of the building. Where screening enclosures are used, the height of the enclosure shall be not less than the height of the protected equipment, up to 30 feet above finished grade, and shall provide clearances required for the maintenance and continuous operation of the equipment. Where the housing and louvers are designed to provide the required equipment protection, sufficient standoff shall be provided to prevent damage to internal components from deflection of the cladding as a result of impact. Roof mounted equipment shall have fastening systems designed to meet the wind load requirements of the *Florida Building Code, Building*.

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Mod12223_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

50

F12110

Date Submitted	02/14/2025	**Section**	903	**Proponent**	James gregory
Chapter	9	**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

Exemption for I-2 occupancies because they are already connected to the fire department or approved supervisory station and there is no mystery where the possible fire is located.

Rationale

The IBC Commentary of this section states in part: "The alarm is not intended to be an evacuation alarm. The requirement is also not intended to be an indirect requirement for a fire alarm system. Unless a fire alarm system is required by some other code provision, only the exterior alarm device is required. However, when a fire alarm system is installed, the sprinkler system must also be interconnected with the fire alarm system so that when the sprinkler system actuates, it sounds the evacuation alarms required for the fire alarm system. The primary purpose of the exterior alarm is to notify people outside the building that the sprinkler system is in operation. Originally, it was to act as a supplemental alert so that passersby could notify the fire department of the condition. However, because the code now requires electronic supervision of sprinkler systems, that function is mostly moot. The exterior notification now primarily serves the function of alerting the arriving fire department of which building or sprinkler system is in operation before staging fire-fighting activities for the building." Because all I-2 occupancies are required to be connected and monitored by the Fire Department or approved supervising station, the purpose of this alarm to help identify a building in which the sprinkler system has been activated, is already satisfied. This additional alarm is not needed for this type of occupancy.

Fiscal Impact Statement

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

Requirements

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

It has a reasonable and substantial connection to HSW of the public.

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

Strengthens and improves the code by making it clearer and easier for the user to apply.

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

Does not discriminate against materials or products or methods.

Does not degrade the effectiveness of the code

Does not degrade the effectiveness of the code.

F12110Text Modification

[F] 903.4.3Alarms. An *approved* audible and visual sprinkler water flow alarm device, located on the exterior of the building in an *approved* location, shall be connected to each *automatic sprinkler system*. Such sprinkler water flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Where a water flow switch is required by Section 903.4.1 to be electrically supervised, such sprinkler water flow alarm devices shall be powered by a fire alarm control unit or, where provided, a fire alarm system.Where a fire alarm system is provided installed, actuation of the *automatic sprinkler system* shall actuate the building fire alarm system.

Exception:

(1).*Automatic sprinkler systems* protecting one-and two-family dwellings.

(2) Automatic sprinkler systems protecting I-2 occupancies where the automatic sprinkler system and the building fire alarm system are required to be connected to and monitored by the Fire Department or an approved supervising station in accordance with NFPA 72.

Page: 1

Mod12110_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

51

SP11960

Date Submitted	02/13/2025	**Section**	1612.5	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	16	**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

Modify for alternate resistance units for ultimate load. Proposed by FEMA as S126-22. The companion RB142-22, which did the same for the IRC, was carried forward for the FBC Residential as 111475.

Rationale

FDEM stated at the TAC that it will submit this proposal. SP11186 incorrectly noted the section modified by S162-22 does not exist. The content of IBC 1612.4 is in the FBC as 1612.5. The IBC renumbered the subsections of Section 1612 after ICC removed the section that had definitions. Rather than remove that section, the FBC retains 1612.2 and lists the terms that are defined in Sec. 202. Also, the same change is carried forward in R322.3.5 (11475/RB142-22).

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
None, no change to technical requirements
Impact to building and property owners relative to cost of compliance with code
None, no change to technical requirements
Impact to industry relative to the cost of compliance with code
None, no change to technical requirements
Impact to small business relative to the cost of compliance with code
None, no change to technical requirements

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
The change does not affect the technical requirements of the code.

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

The change does not affect the technical requirements of the code.

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

The change does not affect the technical requirements of the code.

Does not degrade the effectiveness of the code

Clarifies resistance based on ultimate load.

SP11960Text Modification

1612.5 Flood hazard documentation. The following documentation shall be prepared and sealed by a licensed professional surveyor and mapper or a registered design professional, as applicable, and submitted to the building official:

* * * *

2. For construction in coastal high hazard areas and coastal A zones:

2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3, Building, 1.1 and for the final inspection in Section 110.3, Building, 5.1.

2.2. Construction documents shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.

2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m^2) determined using allowable stress design or a resistance to an ultimate load of more than 33 psf (1.58 kN/m^2), construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

2.4 For breakaway walls where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.7.2.2 of ASCE 24.

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Mod11960_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

52

SP11970

Date Submitted	02/13/2025	**Section**	1612.2	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	16	**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

Editorial change to list of flood terms defined in Chapter 2 by (1) add “Limit of Moderate Wave Action” that was added to Sec 202 in the 8th Ed; and (2) add “Local Floodplain Management Ordinance” which was omitted when definitions transferred to Sec 202 in 2014.

Rationale

This is an editorial change to modify the list of flood terms that are defined in Chapter 2 by (1) adding “Limit of Moderate Wave Action” that was added to Sec. 202 in the 8th Edition FBC Building; and (2) add “Local Floodplain Management Ordinance” which was omitted from the list in the 2014 FBC when the definitions were transferred to Sec. 202.

Fiscal Impact Statement

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

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
No impact; editorial change.

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

No impact; editorial change.

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

No impact; editorial change.

Does not degrade the effectiveness of the code

No impact; editorial change.

SP11970Text Modification

1612.2 Definitions

BASE FLOOD.

BASE FLOOD ELEVATION.

BASEMENT.

COASTAL A ZONE.

COASTAL HIGH HAZARD AREA.

DESIGN FLOOD.

DESIGN FLOOD ELEVATION.

DRY FLOODPROOFING.

EXISTING STRUCTURE.

FLOOD or FLOODING.

FLOOD DAMAGE-RESISTANT MATERIALS.

FLOOD HAZARD AREA.

FLOOD INSURANCE RATE MAP (FIRM).

FLOOD INSURANCE STUDY.

FLOODWAY.

LIMIT OF MODERATE WAVE ACTION.

LOCAL FLOODPLAIN MANAGEMENT ORDINANCE.

LOWEST FLOOR.

SPECIAL FLOOD HAZARD AREA.

START OF CONSTRUCTION.

SUBSTANTIAL DAMAGE.

SUBSTANTIAL IMPROVEMENT.

Page: 1

Mod11970_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

53

SP11972

Date Submitted	02/13/2025	**Section**	1612.3	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	16	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11974

Summary of Modification

Current phrasing of Sec. 1612.3 implies a study/map other than or in addition to the FEMA study/map could be adopted. Modify to be explicit and match phrasing proposed for the FBC Residential.

Rationale

Current phrasing of Sec. 1612.3 implies a study/map other than or in addition to the FEMA study/map could be adopted. Modify to be explicit and match phrasing proposed for the FBC Residential. The same section in the 2024 IBC does not call for listing of panel numbers and dates.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
None; clarifies flood studies and maps used to administer the code.
Impact to building and property owners relative to cost of compliance with code
None; clarifies flood studies and maps used to administer the code.
Impact to industry relative to the cost of compliance with code
None; clarifies flood studies and maps used to administer the code.
Impact to small business relative to the cost of compliance with code
None; clarifies flood studies and maps used to administer the code.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Clarifies flood studies and maps used to administer the code.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

Does not change the technical provisions of the code.

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

Clarifies flood studies and maps used to administer the code.

Does not degrade the effectiveness of the code

Clarifies flood studies and maps used to administer the code.

SP11972Text Modification

1612.3 Establishment of flood hazard areas. To establish *flood hazard areas*, the applicable governing authority shall, by local flood plain management ordinance, adopt the applicable Flood Insurance Study and Flood Insurance Rate Maps and any other flood hazard study and map when explicitly specified by the governing body. ~~a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency.~~

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Mod11972_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

54

SP11976

Date Submitted	02/13/2025	**Section**	1612.4	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	16	**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

Rectifies disconnect with the NFIP minimum requirements that was created in the 2024 IBC (see 11175/S116-22 AMPC4). ASCE 24 has provisions for temporary structures (less than 180 days), which are Flood Design Class 1. They may be at-grade and ‘wet floodproofed.’ FEMA proposing same for 2027 IBC.

Rationale

The 2024 IBC language completely circumvents all flood requirements for “public occupancy structures” (see 11175/S116-22 AMPC4). The “controlled occupancy procedures” have nothing to do with reducing flood damage, including collateral damage by debris generated by unregulated temporary structures. In addition to what ASCE 24 has for temporary structures, local floodplain management regulations have similar requirements for structures other than buildings. FEMA submitted a proposal to make the same changes in 2027 IBC (which would carry forward to the 10th Ed FBC). In addition, FEMA proposes, and FDEM concurs, to restrict temporary structures from high-risk areas, including floodway (thus no encroachment analysis required) and Zone V (which would require significant anchoring).

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Clarifies requirements for temporary structures in flood hazard areas.

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

There may be some cost impact for those who would proposing ‘public occupancy temporary structures” and those who would propose putting temporary structures in floodways and Zone V.

Impact to industry relative to the cost of compliance with code

None

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

There may be some cost impact for those who would otherwise propose putting temporary structures in floodways and Zone V (e.g., event planners)

Requirements

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

Yes, reduces damage and debris.

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

Yes, reduces damage and debris.

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

No change to flood damage-resistant material requirement.

Does not degrade the effectiveness of the code

No, code already allows temporary structures.

SP11976Text Modification

1612.4 Design and construction. The design and construction of *buildings* and *structures* located in *flood hazard areas*, including *coastal high hazard areas* and *coastal A zones*, shall be in accordance with Chapter5 of ASCE7 and ASCE24. Elevators, escalators, conveying systems and their components shall conform to ASCE 24 and ASME A17.1/CSA B44 as applicable.

~~**Exception:** *Temporary structures* complying with Section 3103.6.1.3.~~

Delete and substitute as follows:

3103.6.1.3 Flood loads. ~~*Public occupancy temporary structures* need not be designed for flood loads specified in Section 1612. Controlled occupancy procedures in accordance with Section 3103.8 shall be implemented.~~
Temporary structures shall not be located in floodways and coastal high hazard areas. Temporary structures located in flood hazard areas other than floodways and coastal high hazard areas shall comply with Section 1612.

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Mod11976_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

55

SP11980

Date Submitted	02/11/2025	**Section**	1612.4.2	**Proponent**	Dallas Thiesen
Chapter	16	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments Yes **Alternate Language No**

Related Modifications

Summary of Modification

Modifies the requirements for pool equipment installed in Special Flood Hazard Zones.

Rationale

Swimming pool and spa equipment is designed for outdoor use and is generally weather resistant. Pool and spa equipment is not designed to work at a substantially different elevation than the pool or spa that it is serving, requiring pool and spa equipment to be installed above grade can cause loss of prime, can damage to the equipment, and can shorten the service life of the equipment. Pool and spa equipment is also expressly excluded from flood insurance coverage under the National Flood Insurance Program (NFIP) and there is no duty to mitigate or minimize damage to such equipment.

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
This will save consumers the unnecessary cost of elevating swimming pool and spa equipment and by extending the service life of the equipment.
Impact to industry relative to the cost of compliance with code
This will save industry the unnecessary cost of elevating swimming pool and spa equipment and by extending the service life of the equipment.
Impact to small business relative to the cost of compliance with code
This will save industry the unnecessary cost of elevating swimming pool and spa equipment and by extending the service life of the equipment.

Requirements

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

This will save consumers the unnecessary cost of elevating swimming pool and spa equipment and by extending the service life of the equipment.

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

Allows swimming pool and spa equipment to be installed in a manner that maximizes its efficiency and design limitations.

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

This proposal does not specify a product or material.

Does not degrade the effectiveness of the code

Allows swimming pool and spa equipment to be installed in a manner that maximizes its efficiency and design limitations.

1st Comment Period History

SP11980-G1

Proponent Michael Weinbaum Submitted 4/9/2025 9:05:24 PM Attachments No

Comment:

Martin Aquatic Design and Engineering supports this code change.

SP11980Text Modification

1612.4.2 Modification of ASCE 24 9.6 Pools.

Modify Section 9.6 in ASCE 24 by adding an exception as follows:

9.6 Pools. In-ground and above-ground pools shall be designed to withstand all flood-related loads and load combinations. Mechanical equipment for pools such as pumps, heating systems and filtering systems, and their associated electrical systems, shall comply with Chapter 7.

Exception: Equipment for pools, spas and water features shall be permitted below the elevation required in Table 7-1, provided it ~~is elevated to the extent practical,~~ is anchored to prevent flotation and resist flood forces, and is supplied by branch circuits that have ground-fault circuit-interrupter protection.

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Mod11980_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

56

SP12017

Date Submitted	02/13/2025	**Section**	1612.4	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	16	**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

Add provisions for structures in flood hazard areas other than buildings, including structures that are roofed but not walled. Such structures include pole barns, gazebos, platforms, boat shelters, and RV shade structures.

Rationale

Fills an apparent gap in floodplain requirements for structures other than buildings. Adds provisions for those structures , including structures that are roofed but not walled. Such structures include pole barns, gazebos, platforms, boat shelters, and recreational vehicle shade structures. There are no elevation requirements for these structures because unlike buildings that shelter occupancies, they do not have ‘lowest floors.’ However, they must resist flooding to minimize damage to the structures and to minimize damage caused by battering debris when those structures do not resist loads.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Provides clarity for structures that do not have explicit requirements in the FBC when those structures are located in flood hazard areas.

Impact to building and property owners relative to cost of compliance with code
Some increase cost for structures that have mechanical, plumbing and electrical service.

Impact to industry relative to the cost of compliance with code
Clarifies general performance expectations for structures other than buildings.

Impact to small business relative to the cost of compliance with code
Clarifies general performance expectations for structures other than buildings.

Requirements

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

Yes, minimize damage.

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

Clarifies general performance expectations for structures other than buildings.

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

Repeats general expectation that materials below flood levels must resist flood damage.

Does not degrade the effectiveness of the code

Clarifies general performance expectations for structures other than buildings.

SP12017Text Modification

1612.4.3 Structures other than buildings. Structures other than buildings, including structures with roofs that are not fully walled, shall:
1. Be anchored to prevent flotation, collapse or lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of the base flood.
2. Be constructed of flood damage-resistant materials.
3. Have mechanical, plumbing, and electrical systems above the base flood elevation or meet the requirements of ASCE 24, except that minimum electric service required to address life safety and electric code requirements is permitted below the base flood elevation provided it conforms to the provisions of the electrical part of building code for wet locations.

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Mod12017_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

57

SP12034

Date Submitted	02/13/2025	**Section**	1612.4	**Proponent**	Jaime Gascon
Chapter	16	**Affects HVHZ**	Yes	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

12040

Summary of Modification

Provides reference to an acceptable test standard to qualify passive flood resistant products based on performance testing.

Rationale

Guidance to a flood testing protocol or approved flood resistance test for products being qualified for use in Special Flood Hazard Areas is needed. It will serve to properly qualify flood resistance performance of passive systems.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Saves time by making available an adopted standard that is acceptable for code compliance.
Impact to building and property owners relative to cost of compliance with code
Saves costs by knowing what is acceptable for code compliance.
Impact to industry relative to the cost of compliance with code
Saves costs by testing to an adopted standard that is acceptable for code compliance.
Impact to small business relative to the cost of compliance with code
Saves costs by testing to an adopted standard that is acceptable for code compliance.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Improves the code by use of an adopted standard that is acceptable for code compliance.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens the code by use of an adopted standard that is acceptable for code compliance.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

It does not discriminate since it allows for other approved testing to also be used.

Does not degrade the effectiveness of the code

It does not degrade the code, but serves to improve it by providing guidance with a standard.

SP12034Text Modification

1612.4 Design and construction.
The design and construction of buildings and structures located in flood hazard areas, including coastal high hazard areas and Coastal A Zones, shall be in accordance with Chapter 5 of ASCE 7 and with ASCE 24.

1612.4.1Modification of ASCE 24.
Table 6-1 and Section 6.2.1 in ASCE 24 shall be modified as follows:
1.The title of Table 6.1 shall be "Minimum Elevation of Floodproofing, Relative to Base Flood Elevation (BFE) or Design Flood Elevation (DFE), in Coastal A Zones and in Other Flood Hazard Areas that are not High Risk Flood Hazard Areas."
2.Section 6.2.1 shall be modified to permit dry floodproofing in Coastal A Zones, as follows: "Dry floodproofing of nonresidential structures and nonresidential areas of mixed-use structures shall not be allowed unless such structures are located outside of High Risk Flood Hazard areas and Coastal High Hazard Areas. Dry floodproofing shall be permitted in Coastal A Zones provided wave loads and the potential for erosion and local scour are accounted for in the design. Dry floodproofing of residential structures or residential areas of mixed-use structures shall not be permitted."

1612.4.2Modification of ASCE 24 9.6 Pools.
Modify Section 9.6 in ASCE 24 by adding an exception as follows:
9.6 Pools. In-ground and above-ground pools shall be designed to withstand all flood-related loads and load combinations. Mechanical equipment for pools such as pumps, heating systems and filtering systems, and their associated electrical systems, shall comply with Chapter 7.

Exception: Equipment for pools, spas and water features shall be permitted below the elevation required in Table 7-1, provided it is elevated to the extent practical, is anchored to prevent flotation and resist flood forces, and is supplied by branch circuits that have ground-fault circuit-interrupter protection.

1612.4.3 Flood Resistance Materials for Dry Flood Proofing of Special Flood Hazards Areas of A-zones shall meet TAS 204 or an approved flood resistant test.

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Mod12034_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

58

SP12022

Date Submitted	02/13/2025	**Section**	1805.1.2.1	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	18	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

12023

Summary of Modification

Remove exception that allows below-grade under-floor spaces that meet certain requirements and limitations in a FEMA bulleting that also requires local ordinance adoption of those requirements. Below-grade crawlspaces are rarely if ever used in Florida.

Rationale

The basic requirements of the National Flood Insurance Program prohibit areas of buildings that are below grade on all sides (except nonresidential buildings that are designed to be dry floodproofed). That limitation applies to crawlspaces that have the interior grade below the exterior grade on all sides. The exception in this section refers to FEMA Technical Bulletin 11, which outlines limitations to allow below-grade crawlspaces, specifically limitations on wall height and how far below grade the interior can extend. The Florida Division of Emergency Management, Office of Floodplain Management, notes that this below-grade crawlspace configuration has not been observed in Florida, but the office has responded to questions about it. Importantly, TB 11 requires jurisdictions to adopt the specified requirements in the exception to allow for construction of such below-grade spaces. Removing the exception relieves communities of that burden. If this code change proposal is successful, the codes will no longer refer to TB 11 and TB 11 should be removed from the list of referenced standards. Bibliography: FEMA Technical Bulletin 11, Crawlspace Construction for Buildings Located in Special Flood Hazard Areas, Interim Guidance (2001), https://www.fema.gov/emergency-managers/risk-management/building-science/national-flood-insurance-technicalbulletins

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Improves enforcement by removing provision rarely if ever seen in Florida that requires local adoption of specifics.

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

None; provision rarely if ever used in Florida.

Impact to industry relative to the cost of compliance with code

None; provision rarely if ever used in Florida.

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

None; provision rarely if ever used in Florida.

Requirements

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

Provision rarely if ever used in Florida.

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

Provision rarely if ever used in Florida.

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

Provision rarely if ever used in Florida.

Does not degrade the effectiveness of the code

Provision rarely if ever used in Florida.

SP12022Text Modification

1805.1.2.1 Flood hazard areas. For buildings and structures in flood hazard areas as established in Section 1612.3, the finished ground level of an under-floor space such as a crawl space shall be equal to or higher than the outside finished ground level on at least one side.

~~**Exception:** Under-floor spaces of Group R-3 buildings that meet the requirements of FEMA TB-11.~~

Chapter 35 Referenced Standards

~~FEMA TB-11-01 Crawlspace Construction for Buildings Located in Special Flood Hazard Areas~~

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Mod12022_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

59

SP11968

Date Submitted	02/10/2025	**Section**	3005	**Proponent**	Josh Phillips
Chapter	30	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

NA

Summary of Modification

Language clarification.

Rationale

Language clarification.

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
No

No

SP11968Text Modification

See attachment.

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Mod11968_TextOfModification.pdf

SP11968Text Modification

"**3005.5 Shunt trip.** Where elevator hoistways, elevator machine rooms, machinery spaces, control rooms and control spaces containing elevator control equipment are protected with automatic sprinklers, a means installed in accordance with Section 21.4 of NFPA 72 shall be provided to disconnect automatically the main line power supply to the affected elevator prior to the application of water. This means shall not be self-resetting. The activation of automatic sprinklers outside the hoistway, machine room, machinery space, control room or control space shall not disconnect the main line power supply."

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Mod_11968_Text_FBC 3005.5.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

60

SP12235

Date Submitted	02/17/2025	**Section**	3006.2	**Proponent**	Jennifer Hatfield
Chapter	30	**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), the intent of this modification is to further clarify the need to maintain the protection of exit access corridors when required to meet the fire-resistance rating provisions of Section 1020.2.

Rationale

The intent of this modification is to further clarify the need to maintain the protection of exit access corridors when required to meet the fire-resistance rating provisions of Section 1020.2. When exit access corridors are required to be protected, walls must meet the construction requirement of fire partitions in accordance with Section 708. And Section 708.6 required all openings in fire partitions to be protected in accordance with Section 716.

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 as it clarifies important fire resistant rating provisions.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Yes as it clarifies important fire resistant rating provisions.

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.

SP12235Text Modification

3006.2 ~~Hoistway opening protection~~ Elevator hoistway door required.

Elevator hoistway doors ~~door openings~~ shall be protected in accordance with Section 3006.3 where an elevator hoistway connects more than three stories, is required to be enclosed within a shaft enclosure in accordance with Section 712.1.1 and any of the following conditions apply:

1. The building is not protected throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
2. The building contains a Group I-1 Condition 2 occupancy.
3. The building contains a Group I-2 occupancy.
4. The building contains a Group I-3 occupancy.
5. The building is a high rise and the elevator hoistway is more than 75 feet (22 860 mm) in height. The height of the hoistway shall be measured from the lowest floor to the highest floor of the floors served by the hoistway.
6. The elevator hoistway door is located in the wall of a corridor required to be fire-resistance rated in accordance with Sections 1020.1 and 708.3.

Exceptions:

1. Protection of elevator hoistway doors ~~door openings~~ is not required where the elevator serves only open parking garages in accordance with Section 406.5.
2. Protection of elevator hoistway doors ~~door openings~~ is not required at the level(s) of exit discharge, provided the level(s) of exit discharge is equipped with an *automatic sprinkler system* in accordance with Section 903.3.1.1.
3. ~~Enclosed elevator lobbies and protection~~ Protection of elevator hoistway doors ~~door openings~~ are not required on levels where the elevator hoistway opens to the exterior.

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Mod12235_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Building

61

SP11923

Date Submitted	02/06/2025	**Section**	35	**Proponent**	Josh Phillips
Chapter	35	**Affects HVHZ**	No	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

469.4.9.1, 907.3.3, 911.1.6, 1607.10.1, 3001.2, 3001.1, Table 3001.2, 3001.4, 3001.6, 3002.5, 3002.10, 3003.2, 3006.3, 3007.1, 3008.1.3, 3008.1.4, 3008.7.1, 3010. 1.3, 3012.1 . 469.4.9.1, 3001.1, 3001.2, 3001.5.3, 3010. 1.3, 3012.1

Summary of Modification

See attachment.

Rationale

Bureau of Elevator Safety request.

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
Safety of the riding public on moving conveyances regulates under Florida Statute 399.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Allows for new construction to utilize the safest conveyance technology available.

No

Does not degrade the effectiveness of the code

No

SP11923Text Modification

CHAPTER 35 REFERENCED STANDARDS

Page: 1

Mod11923_TextOfModification.pdf

SP11923Impact Statement

Escalators Table 3001.2
A18.1—~~20202023~~2020 Safety Standard for Platform Lifts and Stairway Chairlifts . . . . . 3001.1, Table 3001.2, 3012.1 A90.1—2015 Safety Standard for Belt Manlifts . . . . . .Table 3001.2, 3001.6

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Mod_11923_Impact_A18.1-2020.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Existing Building

62

SP11959

Date Submitted	02/13/2025	**Section**	202	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	2	**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

Adds definition for “lowest floor” that was added to 2024 IEBC by EB50-22.

Rationale

The 8th Edition FBC incorporated changes based on the IEBC proposal EB50-22, but did not pick up this definition. The FBC Existing Building uses the term. Including the definition in the FBCEB means users do not have to go to the FBC Building to find the definitions.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
None, no change to technical requirements
Impact to building and property owners relative to cost of compliance with code
None, no change to technical requirements
Impact to industry relative to the cost of compliance with code
None, no change to technical requirements
Impact to small business relative to the cost of compliance with code
None, no change to technical requirements

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Yes, by improving clarity as to meaning of terms
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
The change does not affect the technical requirements of the code.

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

The change does not affect the technical requirements of the code.

Does not degrade the effectiveness of the code

Improves by clarifying meaning of a term

SP11959Text Modification

LOWEST FLOOR. The lowest floor of the lowest enclosed area, including *basement*, but excluding any unfinished or flood-resistant enclosure, usable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the structure in violation of Section 1612 of the *Florida Building Code, Building*, or Section R322 of the *Florida Building Code, Residential*, as applicable.

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Mod11959_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Existing Building

63

SP12018

Date Submitted	02/13/2025	**Section**	401.5	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	4	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

12019, 12020

Summary of Modification

For clarity, carry into other codes the change made in 8th to require elevation of exterior equipment and exterior appliances that are damaged by flood (see FBC EB Sec. 701.3 and FBCR Sec. R322.1.6).

Rationale

Many buildings in floodplains were built before communities started regulating and requiring buildings to be elevated and constructed to minimize exposure to flooding. During floods, exterior equipment that serves those buildings gets damaged, even when the building itself is not substantially damaged. When buildings are flooded and elevated exterior equipment remains functional, clean up and drying out are easier and faster. This means dangerous mold conditions are less likely to develop and buildings can more quickly be reoccupied. The code change clarifies the existing requirement in FBCEB Sec. 701.3 and FBCR Sec. R322.1.6) by adding it to FBCEB Repairs, FBC Mechanical, and FBC Fuel Gas so that it is clear that the requirement that is already in the code applies, whether it is called an alteration or repair, and whether a permit is issued under only the Mechanical or Fuel Gas codes. Methods used to raise the replacement exterior equipment are the same as the methods used when equipment is installed to serve new construction (pedestal, platforms, platforms that are cantilevered from or knee braced to the structure; wall brackets for mini-splits). FEMA's Mitigation Assessment Team reports prepared after some significant flood events document widespread damage to non-elevated exterior equipment. Elevating equipment at the time of replacement also saves building owners from having to pay for replacement equipment after the subsequent flood event.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

Impact to industry relative to the cost of compliance with code

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

Requirements

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

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

Does not degrade the effectiveness of the code

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

SP12018Text Modification

401.5 Flood hazard areas. In *flood hazard areas*~~, repairs~~

1. Repairs that constitute *substantial improvement* shall require that the building comply with Section 1612 of the *Florida Building Code, Building* or Section R322 of the *Florida Building Code, Residential*, as applicable.

2. Replacement of exterior equipment and exterior appliances damaged by *flood* shall meet the requirements of Section 1612 of the *Florida Building Code, Building* or Section R322 of the *Florida Building Code, Residential*, as applicable.

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Mod12018_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Fuel Gas

64

SP12020

Date Submitted	02/13/2025	**Section**	301.11	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	3	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

12018, 12019

Summary of Modification

For clarity, carry into other codes the change made in 8th to require elevation of exterior equipment and exterior appliances that are damaged by flood (see FBC EB Sec. 701.3 and FBCR Sec. R322.1.6).

Rationale

Many buildings in floodplains were built before communities started regulating and requiring buildings to be elevated and constructed to minimize exposure to flooding. During floods, exterior equipment that serves those buildings gets damaged, even when the building itself is not substantially damaged. When buildings are flooded and elevated exterior equipment remains functional, clean up and drying out are easier and faster. This means dangerous mold conditions are less likely to develop and buildings can more quickly be reoccupied. The code change clarifies the existing requirement in FBCEB Sec. 701.3 and FBCR Sec. R322.1.6) by adding it to FBCEB Repairs, FBC Mechanical, and FBC Fuel Gas so that it is clear that the requirement that is already in the code applies, whether it is called an alteration or repair, and whether a permit is issued under only the Mechanical or Fuel Gas codes. Methods used to raise the replacement exterior equipment are the same as the methods used when equipment is installed to serve new construction (pedestal, platforms, platforms that are cantilevered from or knee braced to the structure; wall brackets for mini-splits). FEMA's Mitigation Assessment Team reports prepared after some significant flood events document widespread damage to non-elevated exterior equipment. Elevating equipment at the time of replacement also saves building owners from having to pay for replacement equipment after the subsequent flood event.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

Impact to industry relative to the cost of compliance with code

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

Requirements

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

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

Does not degrade the effectiveness of the code

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

SP12020Text Modification

301.11 Flood hazard. For structures located in flood hazard areas, the appliance, equipment and system installations regulated by this code shall be located at or above the elevation required by Section 1612 of the International Building Code for utilities and attendant equipment. Replacement of exterior equipment and exterior appliances damaged by flood shall meet the requirements of this section.

Exception: The *appliance*, *equipment* and system installations regulated by this code are permitted to be located below the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to such elevation.

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Mod12020_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Mechanical

65

SP12019

Date Submitted	02/13/2025	**Section**	301.16	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	3	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

12018, 12020

Summary of Modification

For clarity, carry into other codes the change made in 8th to require elevation of exterior equipment and exterior appliances that are damaged by flood (see FBC EB Sec. 701.3 and FBCR Sec. R322.1.6).

Rationale

Many buildings in floodplains were built before communities started regulating and requiring buildings to be elevated and constructed to minimize exposure to flooding. During floods, exterior equipment that serves those buildings gets damaged, even when the building itself is not substantially damaged. When buildings are flooded and elevated exterior equipment remains functional, clean up and drying out are easier and faster. This means dangerous mold conditions are less likely to develop and buildings can more quickly be reoccupied. The code change clarifies the existing requirement in FBCEB Sec. 701.3 and FBCR Sec. R322.1.6) by adding it to FBCEB Repairs, FBC Mechanical, and FBC Fuel Gas so that it is clear that the requirement that is already in the code applies, whether it is called an alteration or repair, and whether a permit is issued under only the Mechanical or Fuel Gas codes. Methods used to raise the replacement exterior equipment are the same as the methods used when equipment is installed to serve new construction (pedestal, platforms, platforms that are cantilevered from or knee braced to the structure; wall brackets for mini-splits). FEMA's Mitigation Assessment Team reports prepared after some significant flood events document widespread damage to non-elevated exterior equipment. Elevating equipment at the time of replacement also saves building owners from having to pay for replacement equipment after the subsequent flood event.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

Impact to industry relative to the cost of compliance with code

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

None; the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

Requirements

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

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

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

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

Does not degrade the effectiveness of the code

No change because the 8th Ed requirements already apply to exterior equipment/appliances replaced because of flood damage.

SP12019Text Modification

301.16 Flood hazard. For structures located in flood hazard areas, mechanical systems, *equipment* and *appliances* shall be located at or above the elevation required by Section 1612 of the *International Building Code* for utilities and attendant *equipment*. Replacement of exterior equipment and exterior appliances damaged by *flood* shall meet the requirements of this section.

Exception: Mechanical systems, *equipment* and *appliances* are permitted to be located below the elevation required by Section 1612 of the *International Building Code* for utilities and attendant equipment provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding up to such elevation.

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Mod12019_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Residential

66

SP11950

Date Submitted	02/13/2025	**Section**	202	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	2	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

None

Summary of Modification

Add two definitions used in the FBCR that were added to 2027 IRC by RB16-22.

Rationale

At the TAC meetings, FDEM. explained that RB16-22 included a chapter 1 amendment to a section in the IRC that is not in the FBC, and it also included these definitions which are not defined or explained in the FBC Residential. The FBC Residential uses both terms. Including the definitions in the FBCR means users do not have to go to the FBC Building to find the definitions.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
None, no change to technical requirements
Impact to building and property owners relative to cost of compliance with code
None, no change to technical requirements
Impact to industry relative to the cost of compliance with code
None, no change to technical requirements
Impact to small business relative to the cost of compliance with code
None, no change to technical requirements

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Yes, by improving clarity as to meaning of terms
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction

The change does not affect the technical requirements of the code.

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

The change does not affect the technical requirements of the code.

Does not degrade the effectiveness of the code

The change does not affect the technical requirements of the code. Improves by clarifying meaning of terms.

SP11950Text Modification

SUBSTANTIAL DAMAGE. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

-

SUBSTANTIAL IMPROVEMENT. Any repair, reconstruction, rehabilitation, alteration, addition or other improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either:

1. Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that is the minimum necessary to assure safe living conditions.

2. Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

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Mod11950_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Residential

67

SP11963

Date Submitted	02/13/2025	**Section**	322.1.10	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	3	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11962

Summary of Modification

Certain documentation is required to be submitted for residential construction in flood hazard areas to document the elevation to which Lowest Floors are elevated. The proposal specifies use of the FEMA Elevation Certificate that is specifically designed for those purposes.

Rationale

Certain documentation is required to be submitted for residential construction in flood hazard areas to document the elevation to which Lowest Floors are elevated. The proposal specifies use of the FEMA Elevation Certificate that is specifically designed for those purposes. More than half of Florida NFIP communities participate in the NFIP Community Rating System (244 out of 469). A basic requirement for all CRS Communities is use of the FEMA Elevation Certificate. NFIP Elevation Certificate: FEMA Form FF-206-FY-22-152 (3/22) - fema_form-ff-206-fy-22-152.pdf

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Lessens burden caused when permittees use other forms of certification.
Impact to building and property owners relative to cost of compliance with code
None, because owners must submit the documentation in some form.
Impact to industry relative to the cost of compliance with code
The change does not affect the technical requirements of the code.
Impact to small business relative to the cost of compliance with code
The change does not affect the technical requirements of the code.

Requirements

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

Yes, provide information needed for final inspection.

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

The change does not affect the technical requirements of the code.

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

The change does not affect the technical requirements of the code.

Does not degrade the effectiveness of the code

No; improves effectiveness because the FEMA Forms are designed to collect the information necessary to help determine compliance.

SP11963Text Modification

R322.1.10 As-built elevation documentation. A licensed professional surveyor and mapper or registered design professional shall prepare and seal the FEMA Elevation Certificate to document the as-built ~~documentation of the~~ elevations specified in Section R322.2 or R322.3.

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Mod11963_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Residential

68

SP11974

Date Submitted	02/13/2025	**Section**	302.1	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	3	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

11972

Summary of Modification

Remove expectation to list FIRM panel numbers/dates (not in FBCB 1612.3). FEMA-approved Model ordinance does not require listing panels/ dates. Specify the governing body (council/ commission) must adopt other study/maps, not AHJ (building official).

Rationale

Remove the expectation that local floodplain ordinances will list FIRM panel numbers and dates (which is not called for in FBCB Sec. 1612.3). The FEMA-approved Model Ordinance that is the basis for which 98% of Florida's local floodplain management ordinances does not require listing panels and dates. FDEM is aware that a very small number of communities do list panels. Also, modify to specify that the governing body (e.g., council or commission) must adopt any other study/maps, not the AHJ (i.e., the building official). The footnote in the 2024 IRC Table R301.2 does not call for listing of panel numbers and dates.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
None; clarifies flood studies and maps used to administer the code.
Impact to building and property owners relative to cost of compliance with code
None; clarifies flood studies and maps used to administer the code.
Impact to industry relative to the cost of compliance with code
None; clarifies flood studies and maps used to administer the code.
Impact to small business relative to the cost of compliance with code
None; clarifies flood studies and maps used to administer the code.

Requirements

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

Clarifies flood studies and maps used to administer the code.

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

Does not change the technical provisions of the code.

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

Clarifies flood studies and maps used to administer the code.

Does not degrade the effectiveness of the code

Clarifies flood studies and maps used to administer the code.

SP11974Text Modification

TABLE R301.2(1) CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

g. The applicable governing body shall, by local floodplain management ordinance, adopt the applicable Flood Insurance Study and Flood Insurance Rate Maps and any other flood hazard study and map when explicitly specified by the governing body. ~~specify (a) the date of the *jurisdiction's* entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas), (b) the date(s) of the Flood Insurance Study and (c) the panel numbers and dates of the currently effective FIRMs and FBFMs or other flood hazard map adopted by the authority having *jurisdiction*, as amended.~~

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Mod11974_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Residential

69

SP11984

Date Submitted	02/11/2025	**Section**	322.1.6	**Proponent**	Dallas Thiesen
Chapter	3	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments Yes **Alternate Language No**

Related Modifications

Summary of Modification

Updates requirements for pool and spa equipment installed in special flood hazard zones.

Rationale

Swimming pool and spa equipment is designed for outdoor use and is generally weather resistant. Pool and spa equipment is not designed to work at a substantially different elevation than the pool or spa that it is serving, requiring pool and spa equipment to be installed above grade can cause loss of prime, can damage to the equipment, and can shorten the service life of the equipment. Pool and spa equipment is also expressly excluded from flood insurance coverage under the National Flood Insurance Program (NFIP) and there is no duty to mitigate or minimize damage to such equipment.

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
This will save consumers the unnecessary cost of elevating swimming pool and spa equipment and by extending the service life of the equipment.

Impact to industry relative to the cost of compliance with code
This will save industry the unnecessary cost of elevating swimming pool and spa equipment and by extending the service life of the equipment.

Impact to small business relative to the cost of compliance with code
This will save industry the unnecessary cost of elevating swimming pool and spa equipment and by extending the service life of the equipment.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Simplifies enforcement by eliminating potential confusion.

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

Simplifies enforcement by eliminating potential confusion.

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

This proposal does not specify a product or material.

Does not degrade the effectiveness of the code

Simplifies enforcement by eliminating potential confusion.

1st Comment Period History

FP11984-G1

Proponent Michael Weinbaum Submitted 4/9/2025 9:06:22 PM Attachments No

Comment:

Martin Aquatic Design and Engineering supports this code change.

SP11984Text Modification

R322.1.6 Protection of mechanical, plumbing and electrical systems.

Electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall be located at or above the elevation required in Section R322.2 or R322.3. Replacement of exterior equipment and exterior appliances damaged by flood shall meet the requirements of this section. If replaced as part of a substantial improvement, electrical systems, equipment and components; heating, ventilating, air conditioning and plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall meet the requirements of this section. Systems, fixtures, and equipment and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

Exception: Locating electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment is permitted below the elevation required in Section R322.2 or R322.3 provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the required elevation in accordance with ASCE 24. Equipment for pools, spas and water features shall be permitted below the elevation required in Section R322.2 or R322.3 provided it ~~is elevated to the extent practical,~~ is anchored to prevent flotation and resist flood forces, and is supplied by branch circuits that have ground-fault circuit-interrupter protection. Electrical wiring systems are permitted to be located below the required elevation provided that they conform to the provisions of the electrical part of this code for wet locations.

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Mod11984_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Residential

70

SP12023

Date Submitted	02/13/2025	**Section**	408.7	**Proponent**	Rebecca Quinn obo FL Div Emerg Mgnt
Chapter	4	**Affects HVHZ**	No	**Attachments**	No
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

12022

Summary of Modification

Remove exception that allows below-grade under-floor spaces that meet certain requirements and limitations in a FEMA bulletin that also requires local ordinance adoption of those requirements. Below-grade crawlspaces are rarely if ever used in Florida.

Rationale

The basic requirements of the National Flood Insurance Program prohibit areas of dwellings that are below grade on all sides. That limitation applies to crawlspaces that have the interior grade below the exterior grade on all sides. The exception in this section refers to FEMA Technical Bulletin 11, which outlines limitations to allow below-grade crawlspaces, specifically limitations on wall height and how far below grade the interior can extend. The Florida Division of Emergency Management, Office of Floodplain Management, notes that this below-grade crawlspace configuration has not been observed in Florida, but the office has responded to questions about it. Importantly, TB 11 requires jurisdictions to adopt the specified requirements in the exception to allow for construction of such below-grade spaces. Removing the exception relieves communities of that burden. If this code change proposal is successful, the codes will no longer refer to TB 11 and TB 11 should be removed from the list of referenced standards. Bibliography: FEMA Technical Bulletin 11, Crawlspace Construction for Buildings Located in Special Flood Hazard Areas, Interim Guidance (2001), https://www.fema.gov/emergency-managers/risk-management/building-science/national-flood-insurance-technicalbulletins

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Improves enforcement by removing provision rarely if ever seen in Florida that requires local adoption of specifics.

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

None; provision rarely if ever used in Florida.

Impact to industry relative to the cost of compliance with code
None; provision rarely if ever used in Florida.
Impact to small business relative to the cost of compliance with code
None; proposal is for residential.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Provision rarely if ever used in Florida.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Provision rarely if ever used in Florida.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities
Provision rarely if ever used in Florida.
Does not degrade the effectiveness of the code
Provision rarely if ever used in Florida.

SP12023Text Modification

R408.7 Flood resistance. For buildings located in flood hazard areas as established in Table R301.2(1):

1. Walls enclosing the under-floor space shall be provided with flood openings in accordance with Section R322.2.2.
2. The finished ground level of the under-floor space shall be equal to or higher than the outside finished ground level on at least one side.

   ~~**Exception:** Under-floor spaces that meet the requirements of FEMA TB-11-1.~~

Chapter 46 Referenced Standards

~~FEMA TB-11-01 Crawlspace Construction for Buildings Located in Special Flood Hazard Areas~~

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Mod12023_TextOfModification.pdf

TAC: Special Occupancy

Total Mods for **Special Occupancy** in **Pending Review : 71**

Total Mods for report: 71

Sub Code: Test Protocols

71

SP12040

Date Submitted	02/13/2025	**Section**	204	**Proponent**	Jaime Gascon
Chapter	1	**Affects HVHZ**	Yes	**Attachments**	**Yes**
TAC Recommendation	Pending Review				
Commission Action	Pending Review				

Comments

General Comments No **Alternate Language No**

Related Modifications

12034

Summary of Modification

New Testing Application Standard (TAS) 204 - Flood Resistant Test Procedures for passive in place system.

Rationale

This protocol serves to cover the procedures for conducting the flood resistance test of materials as required by the FBC Building Section 1612 and is applicable to Dry Flood Proofing in special hazard areas of A-Zone.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code
Saves the local entity time by having a standard to reference for compliance.
Impact to building and property owners relative to cost of compliance with code
Saves cost by knowing what standard is acceptable for code compliance.
Impact to industry relative to the cost of compliance with code
Saves cost by having an available test standard to use to show code compliance.
Impact to small business relative to the cost of compliance with code
Saves cost by having an available test standard to use to show code compliance.

Requirements

Has a reasonable and substantial connection with the health, safety, and welfare of the general public
Improves the code by use of an adopted standard that is acceptable for code compliance.
Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction
Strengthens the code by providing a standard to reference for code compliance.
Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities

Does not degrade the effectiveness of the code

It does not degrade the code, but improves it by supplementing the code with an additional TAS.

SP12040Text Modification

See attached file.

Mod12040_TextOfModification.pdf

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TESTING APPLICATION STANDARD (TAS) 204-26

FLOOD RESISTANT TEST PROCEDURES (FOR PASSIVE IN PLACE SYSTEMS)

1. Scope:

1.1 This protocol covers procedures for conducting the flood resistance test of materials as required by Section 1612 of the *Florida Building Code, Building*. This protocol is applicable to *Dry Flood Proofing* in *Special Flood Hazards Areas* (*SFHAs*) of A-zone (A, AE, A1-30, AH, AO or AR on FEMA's *FIRM* maps), other Coastal High Hazard Areas (V, VO, VE or VI-30) or Coastal A-zones, are not covered under this protocol.

2. Referenced Documents:

2.1 *The Florida Building Code, Building*

2.2 ASCE 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures

2.3 ASCE 24: Flood Resistant Design and Construction

2.4 FEMA: Federal Emergency Management Agency

2.5 USACE: (US Army Corps of Engineers)

2.6 NFIP: National Flood Insurance Program

3. Terminology:

3.1 *Specimen*—The entire assembled unit containing all the parts needed to install the product onto a building's substrate submitted for testing.

3.2 *Test Chamber*—A watertight enclosure (flood simulation tank) of sufficient depth to allow proposed flood water design height (H_D), capable of resisting imposed flood loads, and capable of accommodating the debris impact load fixture and the impactor movement to the specified level.

3.3 *Exposed linear foot of perimeter* (ft) – the linear distance along the test chamber's submerged perimeter in contact with the specimen.

3.4 *L*eakage *P*erimeter (ft): The exposed perimeter of test specimen with total base lineal width + 2X flood water design height (H_D).

3.5 *Maximum Deflection*—The maximum displacement of the specimen measured to the nearest $^1/_8$ of an inch attained from the original position, while the maximum Hydro Static Load is being applied.

3.6 *Permanent Deformation*—The permanent displacement of the specimen measured to the nearest $^1/_8$ of an inch from the original position to the final position that remains after the maximum Hydro Static Load has been removed.

3.7 *Flood water design height* (H_D) (ft) – The depth of the water in the chamber used to simulate the flood design depth corresponding to FBC Section 1612.

3.8 *Special Flood Hazards Area* (*SFHA*): Land in flood plain subjected to 1% or greater chance of flooding in any given year.

3.9 *Design Flood Elevation* (*DFE*) – Elevation of design flood, including wave height, relative to datum specified the community's flood hazard map.

3.10 *Hydro Static Load* – Load imposed on an object by the standing mass of water.

3.11 *Hydro Dynamic Loads* – Loads imposed on an object by the water flowing against and around it.

3.12 *Impact loads* - Loads that result from the debris, ice, or any debris transported by the flood water striking against structure or parts thereof.

3.13 *Flood glazing* – A passive permanent in-place, flood resistant system constructed of single or multiple glazed panels, where reinforced glass is set, captured or sealed in a frame with structural silicone or other adhesive, gaskets, glazing beads and/or flood water resistant materials to prevent flood water into the interior (dry side) of the glazed system.

3.14 *Design flood height (ft)* – Manufacturer selected *design flood height* (HD) or *DFE* +1 ft, whichever is greater.

3.15 *Flood Insurance Rate Map* (*FIRM*) – An official map of the community on which Federal Management Agency (FEMA) has delineated *Special Flood Hazards Areas* (*SFHAs*) and the risk premium zones applicable to the community.

3.16 *Floodproofing* – Any combination of structure and non-structure addition, changes or adjustment to structure which reduces or eliminate flood damage to real estate or improved real property, water and sanitary facilities structure and contents (Title 44 code of Federal Regulations (CFR) 59.1.)

3.17 *Specimen F*ailure – A change in condition of the specimen indicative of deterioration under flood load or incipient failure, such as material cracking, fastener loosening, local yielding, or loss of adhesive bond. For a glazed system that resists flood loads and dynamic impact loads, a crack forming larger than 5 inches by 1/16 inch in width through which air and water can pass constitutes failure.

4. Significance and Use:

4.1 The test procedures outlined in this protocol provide a means of determining whether a particular product used as *flood glazing*; window walls, curtain walls, storefront, exterior fixed windows, sidelites, glass blocks and any other similar devices (passive permanent in place systems) used as external protection to maintain the envelope of the building, provides sufficient resistance to flood loads and flood debris, as required per Section 1612 of the *Florida Building Code, Building*, ASCE 24 and ASCE-7.

5. Test Specimen:

5.1 *Test specimen* – All parts of the test *specimen* shall be full size, using the same materials, components, details, methods of construction and methods of attachment as proposed for actual use. The *specimen* shall consist of the entire assembled unit attached to a given type of structural framing of the building and shall contain all devices used to resist flood induced forces and flood debris. Such substrates shall become part of the approval. The test *specimen* must be fully assembled in a factory or in the field per the manufacturer's installation instructions. The test *specimen* must be secured and sealed to the test frame/stand/chamber.

6 Apparatus:

6.1 The description of the apparatus is general in nature. Any equipment, properly certified, calibrated, and approved by the Authority Having Jurisdiction (AHJ) capable of performing this test within the allowable tolerance is permitted.

6.2 Major Components:

6.2.1 Hydrostatic Load Test

6.2.1.1 The *test chamber*, as defined in 3.2.

6.2.1.2 A water collection device capable of capturing and measuring the total amount of water managing to seep through the installed *specimen* must be provided. Water collected for a prescribed period must be quantified. The measuring devices shall have a +/- 2% accuracy.

6.2.2 Debris Impact Load Test Fixture (see Figure 1).

6.2.2.1 A flood test chamber with removable frame used to attach test *specimen* is required to simulate the *flood water design height* (HD) and accommodate the debris impact load test fixture in Figure 1.

6.2.2.2 The impactor for the debris impact load test fixture consists of a 12-inch+/- ½ inch diameter by 30 inch long Southern Pine #2 wood log having a density of 36-41 lbs./ft^3 at 19-20% moisture contents. The impactor must have a 25-degree cut on the impact leading edge and be suspended from a carriage and support system using two 1/8-inch diameter steel cables or other suitable device as shown in Figure 1. The total weight of the impactor assembly must be 111 lbs. +/- 1 lb. and capable of delivering 444 ft-lb (600 J) energy from a height of 4 feet. The impactor must

be conditioned at room temperature for 1 hour before the test and must impact the test specimen when it reaches 0.25 to 1 inch off the surface of the water in the flood test chamber. See Figure 2 for impactor assembly design construction details.

6.2.2.3 A suitable timing device with +/- 2% accuracy is required.

6.2.2.4 Test temperature – The test shall be conducted at a test temperature range of 59° F to 95° F.

6.2.2.5 Deflection-Measuring System—The deflection-measuring system must measure the deflection within a tolerance of 0.01 of an inch.

7. Calibration:

7.1 All pressure, temperature, deflection, impactor, timing, scales and water head measuring devices, shall be calibrated to be within the tolerance provided, and be no more than six months prior to testing.

7.2 The calibration report shall include: the date of the calibration, the name of the agency conducting the calibration, methods and equipment used in the calibration process, the equipment being calibrated and any pertinent comments.

8. Acceptance Requirements

8.1 Flood resistant glazed systems shall withstand *Hydro Static Loads* as specified for the test. The maximum leakage rate shall not exceed 0.011 ft^3/hr. (0.08 gph) of flood water *per exposed lineal foot of perimeter*.

8.2 Glass edge support systems must be sufficiently stiff to limit the lateral Hydro Static Load deflections of the glazed flood systems per ASTM E-1300 requirements. The *Permanent deformation* shall not exceed 0.2% of the glass frame supporting members or spans.

8.3 The *specimen* shall be capable of withstanding impactor energy per 6.2.2.2 without damage that may affect intended functions.

8.4 The measured *leakage rates*, after the Hydro Static Test, Dynamic Impact Test and Post Hydro Static test, shall not exceed *leakage rate* per section 8.1 per *exposed lineal foot of perimeter*.

8.5 The *specimen* does not exhibit failure criteria per 3.17.

9 Test Procedures

9.1 Hydro Static Load Test:

9.1.1 Install the test *specimen* in the *test chamber*.

9.1.2 Apply and maintain *Hydro Static Load* at 1/3 *design flood height* H_D (ft) +/-0.5" for 2 hr. duration.

9.1.3 Repeat *Hydro Static Load* at 2/3 design flood height (ft) +/-0.5" for 4-hr duration.

9.1.4 Repeat *Hydro Static Load* Test at the design flood height (ft) +/-0.5" for 24 hours duration.

9.1.5 Water leakage to be measured at 1-hour, 2-hours, 4-hours, 6-hours and at end of the 24-hour periods.

9.1.6 *Permanent deformation* and *maximum deflection* must be measured at the end of 24 hours *Hydro Static Load* Test with *design flood height* at the center of vertical and horizontal mullion spans or the glazing supporting frame members, as applicable.

9.1.7 The *specimen* is deemed compliant to the *Hydro Static Load* Test requirements if it does not exceed the *maximum leakage rate* specified in section 8.1, the *permanent deformation* of the framing system is no greater than 0.2% where measured, *maximum deflection* of the specimen mullions (if used) was no greater than span/180 criteria and the specimen did not exhibit any *specimen failure* per section 3.17.

9.2 Hydro Dynamic Impact Load Test:

9.2.1 Upon completion of the *Hydro Static Load* Test, the *Hydro Dynamic Impact Load* Test is to be conducted.

9.2.2 Keep the chamber flood tank water level up to the specified *design flood height* H_D (ft).

9.2.3 Apply the first impact at the center of the *specimen* using impact energy as defined in 6.2.2.2, and as shown in Figure 1.

9.2.4 Lower the flood water level to 2/3 of the *design flood height* (HD).

9.2.5 Apply the second impact to the specimen at 2/3 of the *design flood height* (HD) as shown in Figure 1.

9.2.6 Measure the total water leakage, the *maximum deflection* and *permanent deformation* upon completion of the test.

9.2.7 The *specimen* is deemed compliant to the Hydro Dynamic Impact Load Test requirements if it does not exceed the *maximum leakage rate* specified in section 8.1, the *permanent deformation* of the framing system is no greater than 0.2% where measured, *maximum deflection* of the specimen mullions (if used) is no greater than span/180 criteria and did not exhibit any *specimen failure* per section 3.17.

9.3 Post Hydro Static Load Test:

9.3.1 This test is to be performed upon completion of the Hydro Static Load Test and Hydro Dynamic Impact Load Tests.

9.3.2 Apply Post Hydro Static Load at 100% *design flood height* (HD) +/-0.5" for 4-HRS duration.

9.3.3 Measure the total water leakage, the maximum *deflection* and *permanent deformation* upon completion of the test.

9.3.4 The *specimen* is deemed compliant to the Post Hydro Static Load Test requirements if it does not exceed the *maximum leakage rate* specified in section 8.1, the *permanent deformation* of the framing system is no greater than 0.2% where measured, *maximum deflection* of the specimen mullions (if used) is no greater than span/180 criteria and did not exhibit any *specimen failure* per section 3.17.

10. Test Notification

The manufacturer shall notify the Authority Having Jurisdiction seven (7) working days prior to the per- forming of the test. The Authority Having Jurisdiction reserves the right to observe the test. The Authority Having Jurisdiction must be notified of the place and time the test will take place. The test must be recorded on video and retained by the laboratory per TAS 301.

11 Test Report

The following minimum information shall be included in the submitted report:

11.1 Date of the test, date of the report, and the report number.

11.2 The name and address of the requester of the test.

11.3 Identification of the *specimen* (manufacturer, source of supply, dimension, model types, material, procedure of selection and any other pertinent information).

11.4 Detailed drawings of the *specimen* showing dimensioned section profiles, type of framing to which the *specimen* was attached to, panel arrangement, installation and spacing of anchorage, sealants, adhesive, hardware, product markings and their location, and any other pertinent construction details. Any deviation from the drawings or any modifications made to the *specimen* to obtain the reported values shall be noted in the drawings and in the report.

11.5 *Maximum deflection* recorded.

11.6 *Permanent deformation* (identify measurement locations).

11.7 Name, address, signature and seal of Florida professional engineer, witnessing the test and preparing the report.

11.8 The results of the testing shall be reported for each tested *specimen.*

11.9 Result of *leakage* and *deflection/deformation*, as applicable and locations after Hydro Static Load Test.

11.10 Location of dynamic impacts on the test *specimen*.

11.11 Result of *leakage*, *deflection/deformation* after Hydro Dynamic Impacts Load Test.

11.12 Result of *leakage* and *deflection/deformation*, as applicable and locations, after Post Hydro Static Test.

11.13 A description of the condition of the *test specimens* after testing, including details of any damage and any other

pertinent observations.

11.14 A statement that the tests were conducted in accordance with this test protocol.

11.15 A statement of whether, upon completion of all testing, the *specimen* meets the acceptance requirements per Section 8.

11.16 Signatures of persons responsible for supervision of the tests and a list of official observers.

11.17 All data not required herein, but useful for a better understanding of the test results, conclusion, or recommendations, should be appended to the report.

12 Additional Testing

The Authority Having Jurisdiction reserves the right to require any additional testing necessary to assure full compliance with the intent of the *Florida Building Code, Building*.

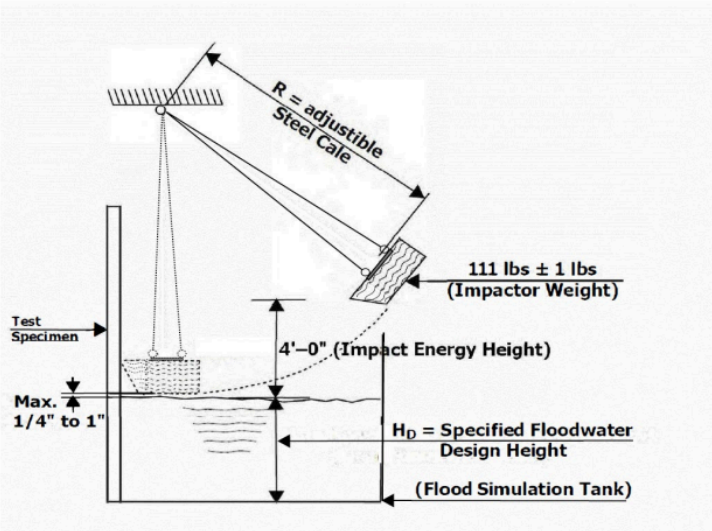
13 Flood Hazards Documentation

Compliance with this standard serves to document flood resistance performance of the tested *specimen* pursuant to FBC 1612.4.

14 Product Marking

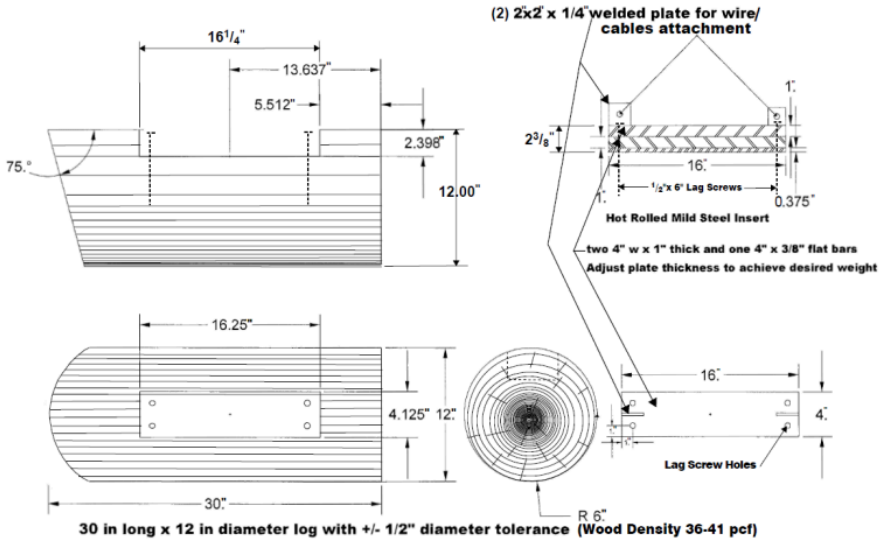
14.1 All approved products shall be permanently labeled with the manufacturer's name, city, state, and the following statement: "Miami-Dade County Product Approved."

14.2 Permanently labeled shall be a metallic label fixed permanently to the frame of the specimen by rivets or permanent adhesive.



Dynamic Impact Test (Flood Debris Impact Load Simulation)

Fig. 1



30 in long x 12 in diameter log with +/- 1/2" diameter tolerance (Wood Density 36-41 pcf)

Weight of Wood Impactor: 67.11 lbs @0.023 lbs/in3
Weight of mild steel plates: 43.74 nominal density 0.284 lbs/in3
Weight of 1/2" x 6" lag bolt to attach steel plates to wood impactor:1.1 lbs (Total of 4)

Fig. 2 (Impactor Design)