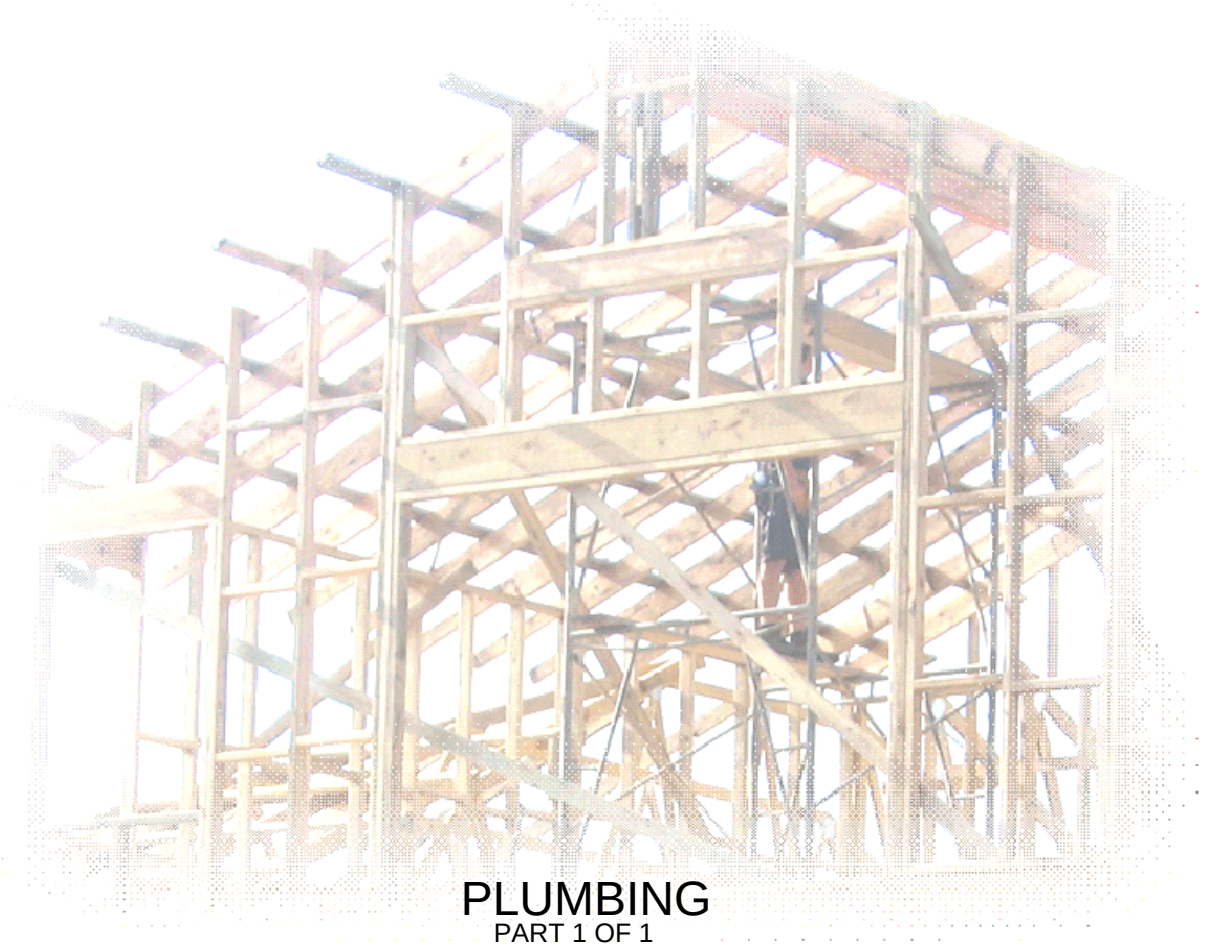

PLUMBING

PART 1 OF 1

WITHOUT COMMENTS

Proposed Code Modifications

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

Total Mods for **Plumbing** in **Approved as Submitted: 7**

Total Mods for report: 12

Sub Code: Fuel Gas

Date Submitted	7/5/2012	**Section**	Chapter 8	**Proponent**	Suzanne Davis
Chapter	8	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No **Alternate Language** No

Related Modifications

Summary of Modification

Update Chapter 8 Referenced Standards to be consistent with FBC plans for the 2013 code

Rationale

To correlate the IFGC with the FBC and subcodes. Also to implement FBC policies for the 2013 code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact. Currently used under the 2010 FBC. no new requirements established.

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

No impact. Currently used under the 2010 FBC. no new requirements established.

Impact to industry relative to the cost of compliance with code

No impact. Currently used under the 2010 FBC. no new requirements established.

Requirements

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

Does not degrade the effectiveness of the code

Carried over from previous field tested code. Proven to be effective.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exihibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

Explanation of Choice

To correlate the IFGC with the FBC and subcodes. Also to implement FBC policies for the 2013 code.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

1st Comment Period History 08/09/2012 - 09/23/2012

Proponent Ken Cureton **Submitted** 9/21/2012 **Attachments** No

Comment:

The proposal provides for code correlation.

P4951-G1

Chapter 8 Referenced Standards

Change to add as shown.

Florida Codes Florida Building Commission

c/o Florida Department of Business and Professional Regulation

Building Codes and Standards

1940 North Monroe Street

Tallahassee, Florida 32399.

Standard reference number	Title	Referenced in code section number
FBC-B—13	Florida Building Code, Building	101.1, 201.3, 301.14, 302.1, 302.2, 305.6, 306.6, 401.1.1, 412.6, 413.3, 413.3.1, 501.1, 501.3, 501.12, 501.15.4, 609.3, 614.2, 706.1, 706.3
Chapter 13	Florida Building Code, Energy Conservation	301.2
Chapter 27	Florida Building Code, Building: Electrical (NEC/NFPA 70)	201.3, 306.3.1, 306.4.1, 306.5.2, 309.1, 309.2, 413.8.2.4, 703.6, 706.3.6,
FBC-M—13	Florida Building Code, Mechanical	201.3, 301.10, 301.13, 304.11, 501.1, 614.2, 618.5, 621.1, 624.1, 631.2, 632.1, 703.1.2, 706.3.2
FBC-P—13	Florida Building Code, Plumbing	201.3, 301.6, 624.1.1, 624.2
FRC—13	Florida Residential Code	703.2.1

FFPC—13	Florida Fire Prevention Code	201.3, 303.4, 401.2, 412.1, 412.6, 412.7, 412.7.3, 412.8, 413.1, 413.3, 413.3.1, 413.4, 413.8.2.5, 701.1, 701.2, 703.2, 703.2.2, 703.3.8, 703.4, 703.5, 704.1.2, 704.3, 704.4, 706.2, 706.3.4, 706.3.5, 707.1, 707.2, 708.1

Date Submitted	7/9/2012	**Section**	312	**Proponent**	Suzanne Davis
Chapter	3	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No **Alternate Language** No

Related Modifications

Summary of Modification

Update section 312.10.1 and 312.10.2 Plumbing. Change to read as shown to implement FBC approved plan for 2013 code

Rationale

The proposed code change carries forward a declaratory statement issued by the Commission. Also implements FBC approved plan for the 2013 Code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact. Currently used under the 2010 FBC. No new requirements being established.

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

No impact. Currently used under the 2010 FBC. No new requirements being established.

Impact to industry relative to the cost of compliance with code

No impact. Currently used under the 2010 FBC. No new requirements being established.

Requirements

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

Does not degrade the effectiveness of the code

Carried over from previous field tested code. Proven to be effective.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exihibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

Explanation of Choice

The proposed code change carries forward a declaratory statement issued by the Commission. Also implements FBC approved plan for the 2013 Code.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

1st Comment Period History 08/09/2012 - 09/23/2012

P5041-G1

Proponent	Ken Cureton	Submitted	9/21/2012	Attachments	No

Comment:

The proposal implements DCA04-DEC-040 which provides that the Commission has no authority to regulate annual inspection and testing of backflow preventer devices. Such inspection is within the authority of DEP.

1st Comment Period History 08/09/2012 - 09/23/2012

P5041-G2

Proponent	BOAF CDC	Submitted	9/23/2012	Attachments	No

Comment:

The provision this is based upon has sunset with the other Florida Changes to the 2010 FBC

This code change is unnecessary as the provisions contained in the proposed amendment are adequately addressed in the applicable international code. Per FS 553.73 (7) (g)

The amendment does not demonstrate by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variations addressed by the foundation code. Per FS 553.73 (7) (g)

312.10.1 Inspections. Change to read as shown.

312.10.1 Inspections. Inspections~~Annual~~ shall be made of all backflow prevention assemblies and air gaps to determine whether they are operable.

312.10.2 Testing. Change to read as shown.

312.10.2 Testing.
Reduced pressure principle, double check, pressure vacuum breaker, reduced pressure detector fire protection, double check detector fire protection, and spill-resistant vacuum breaker backflow preventer assemblies and hose connection backflow preventers shall be tested at the time of installation~~,~~ and immediately after repairs or relocation ~~and at least annually~~. The testing procedure shall be performed in accordance with one of the following standards: ASSE 5013, ASSE 5015, ASSE 5020, ASSE 5047, ASSE 5048, ASSE 5052, ASSE 5056, CSA B64.10 or CSA B64.10.1.

Date Submitted	7/9/2012	**Section**	318 Irrigation	**Proponent**	Suzanne Davis
Chapter	3	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No **Alternate Language** No

Related Modifications

Summary of Modification

Update section 318.1 Plumbing to implement FBC approved plan for 2013 code

Rationale

This is part of a state agency regulation related to termite regulation. To implement the fBC process for the 2013 FBC.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact. Currently used under the 2010 FBC. No new requirements being established.

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

No impact. Currently used under the 2010 FBC. No new requirements being established.

Impact to industry relative to the cost of compliance with code

No impact. Currently used under the 2010 FBC. No new requirements being established.

Requirements

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

Does not degrade the effectiveness of the code

Carried over from previous field tested code. Proven to be effective.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exihibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

Explanation of Choice

This is part of a state agency regulation related to termite regulation. To implement the fBC process for the 2013 FBC.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

1st Comment Period History 08/09/2012 - 09/23/2012

P5043-G1

Proponent Ken Cureton **Submitted** 9/21/2012 **Attachments** No

Comment:

The proposal provides for continuation of provisions for termite protection.

Proponent BOAF CDC **Submitted** 9/23/2012 **Attachments** No

P5043-G2

Comment:

The provision this is based upon has sunset with the other Florida Changes to the 2010 FBC

What is the state agency regulation? What are there requirements?

The amendment does not demonstrate by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variations addressed by the foundation code. Per FS 553.73 (7) (g)

Section 318 Irrigation

318.1 General. Add to read as shown.

318.1 General. Irrigation/sprinkler systems and risers for spray heads shall not be installed within 1 foot (305 mm) of the building sidewall.

Date Submitted	7/10/2012	**Section**	403	**Proponent**	Suzanne Davis
Chapter	4	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No **Alternate Language** No

Related Modifications

Summary of Modification

Update section 404.1 Plumbing to implement FBC approved plan for 2013 code

Rationale

Consistent with FS with regard to Potty Parity and to also implement FBC approved plan for 2013 code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact. Currently used under the 2010 FBC. No new requirements being established.

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

No impact. Currently used under the 2010 FBC. No new requirements being established.

Impact to industry relative to the cost of compliance with code

No impact. Currently used under the 2010 FBC. No new requirements being established.

Requirements

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

Does not degrade the effectiveness of the code

Carried over from previous field tested code. Proven to be effective.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exihibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

Explanation of Choice

Consistent with FS with regard to Potty Parity and to also implement FBC approved plan for 2013 code.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

1st Comment Period History 08/09/2012 - 09/23/2012

P5061-G1

Proponent Ken Cureton **Submitted** 9/21/2012 **Attachments** No

Comment:

The proposal provides for provisions for “Potty Parity” as per 553.86 FS.

403.1.3 Potty parity. Add to read as shown.

403.1.3 Potty parity. In assembly occupancies, restrooms which are open to the public must have a ratio of 3:2 water closets provided for women as the combined total of water closets and urinals provided for men, unless these are two or fewer such fixtures for men, in accordance with §553.86, *Florida Statutes*.

Exception: This section does not apply to establishments licensed under Chapter 509, *Florida Statutes*, if the establishment does not provide meeting or banquet rooms which accommodate more than 150 people, and the establishment has at least the same number of water closets for women as the combined total of water closets and urinals for men.

403.1.3.1 Definitions.

1. **New construction.** Means new construction, building, alteration, rehabilitation or repair that equals or exceeds 50 percent of the replacement value existing on October 1, 1992, unless the same was under design or construction, or under construction contract before October 1, 1992.

2. **Assembly occupancy.** The use of a building or structure, or any portion thereof, for the gathering together of people for purposes such as civic, social or religious functions or for recreation, or for food **or drink consumption, or awaiting transportation.**

3. Historic building. A building which is (a) listed on the National Register of Historic Places; (b) listed on the State Register of Historic Places; (c) listed on a municipal register of historic property, designated according to local ordinance; or (d) included in a district which is listed on a municipal, state or national register of historic property and which has been determined to contribute to the historic significance of the district.

403.1.3.2 Occupancy content calculation. The occupancy content of a building, which determines the number of water closets required for men, shall be calculated using the square footage per person requirements established by the *Florida Building Code, Building.*

[Florida law]

Date Submitted	7/10/2012	**Section**	403	**Proponent**	Suzanne Davis
Chapter	4	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No **Alternate Language** No

Related Modifications

Summary of Modification

Update section 403.1.4 Plumbing to implement FBC approved plan for 2013.

Rationale

Implement the FBC process for the 2013 code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact. Currently used under the 2010 FBC. No new requirements being established.

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

No impact. Currently used under the 2010 FBC. No new requirements being established.

Impact to industry relative to the cost of compliance with code

No impact. Currently used under the 2010 FBC. No new requirements being established.

Requirements

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

Does not degrade the effectiveness of the code

Carried over from previous field tested code. Proven to be effective.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exihibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

Explanation of Choice

Implement the FBC process for the 2013 code.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

1st Comment Period History 08/09/2012 - 09/23/2012

Proponent Ken Cureton **Submitted** 9/21/2012 **Attachments** No

Comment:

The proposal clarifies the calculation of minimum number of facilities in accordance with DCA05-DEC-215.

P5062-G1

403.1.4 Add to read as shown.

403.1.4 For the purposes of calculating the minimum number of required plumbing facilities, the requirements of Table 403.1 shall apply to any areas outside of the building that are used as part of the building's designated occupancy (single or mixed). Where additional seating is also utilized in these areas, the actual number of seats shall be added to the number of persons calculated by Table 403.1 to obtain the total additional facilities required.

Date Submitted	7/10/2012	**Section**	611	**Proponent**	Suzanne Davis
Chapter	6	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No **Alternate Language** No

Related Modifications

Summary of Modification

Update section 611.1, 611.2, 611.3 and 611.4 Plumbing to implement FBC approved plan for 2013 code.

Rationale

To be consistent with state agencies regulations and to implement the FBC process for the 2013 code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact. Currently used under the 2010 FBC. No new requirements being established.

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

No impact. Currently used under the 2010 FBC. No new requirements being established.

Impact to industry relative to the cost of compliance with code

No impact. Currently used under the 2010 FBC. No new requirements being established.

Requirements

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

Does not degrade the effectiveness of the code

Carried over from previous field tested code. Proven to be effective.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exihibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

Explanation of Choice

To be consistent with state agencies regulations and to implement the FBC process for the 2013 code.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

Proponent BOAF CDC **Submitted** 9/23/2012 **Attachments** No

P5068-G1

Comment:

What State Agencies and where are the specific requirements, statute, rule, guide?

This code change is unnecessary as the provisions contained in the proposed amendment are adequately addressed in the applicable international code. Per FS 553.73 (7) (g)

The amendment does not demonstrate by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variations addressed by the foundation code. Per FS 553.73 (7) (g)

The proposed amendment was does not appear to have been submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process.

Section 611 Drinking Water Treatment Units. Change to read as shown.

Section 611 ~~DRINKING~~ WATER TREATMENT UNITS

611 Replace IPC language 611.1, 611.2 and 611.3 with the following:

611.1 When reduction of aesthetic contaminants, such as chlorine, taste, odor or sediment are claimed, the drinking water treatment units must meet the requirements of NSF 42, Drinking Water Treatment Units-Aesthetic Effects, or Water Quality Association Standard S-200, Household and Commercial Water Filters (In-Line). When reduction of regulated health contaminants is claimed, such as inorganic or organic chemicals or radiological substances, the drinking water treatment unit must meet the requirements of NSF 53, Drinking Water Treatment Units-Health Effects.

611.2 Reverse osmosis drinking water treatment systems shall meet the requirements of NSF 58, Reverse Osmosis Drinking Water Treatment Units, or Water Quality Association Standard S-300, Point-of-Use Low Pressure Reverse Osmosis Drinking Water Systems.

611.3 When reduction of regulated health contaminants is claimed, such as inorganic or organic chemicals, or radiological substances, the reverse osmosis drinking water treatment unit must meet the requirements of NSF 58, Reverse Osmosis Drinking Water Treatment Systems.

611.4 Waste or discharge from reverse osmosis or other types of water treatment units must enter the drainage system through an air gap or be equipped with an equivalent backflow-prevention device.

[Florida law]

Date Submitted	7/25/2012	**Section**	1106.7	**Proponent**	Michael Goolsby
Chapter	11	**Affects HVHZ**	No	**Attachments**	Yes

TAC Recommendation Approved as Submitted
Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Simplified scupper sizing table.

Rationale

This Table provides guidance regarding the proper sizing and associated hydraulic head of water for primary and secondary scuppers. Chapter 15 of the base building code provides guidance to Section P1106 and P1108 for scupper sizing; however, the Plumbing Code then refers one back to Chapter 15 for compliance. Consequently, this Table is necessary to provide minimum guidance in scupper design which is otherwise not contained in the referenced sections. The data contained in this table is based upon ASCE 7 and is in compliance with the structural drainage requirements contained in Section 1611 of the base building code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None. Modification does not alter minimum drainage compliance, only provides a simplified Table.

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

None. Modification does not alter minimum drainage compliance, only provides a simplified Table.

Impact to industry relative to the cost of compliance with code

None. Modification does not alter minimum drainage compliance, only provides a simplified Table.

Requirements

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

Yes. Continues an existing FBC Table, which makes compliance with complex drainage requirement easier to comply with.

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

Yes. Continues an existing FBC Table, which makes compliance with complex drainage requirement easier to comply with.

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

Does not discriminate merley provides guidance for compliance.

Does not degrade the effectiveness of the code

Improves effectivness of the code by ensuring scupper sizing is compliant and structural loads are not exceeded.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exihibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

P5661-G1

Proponent	BOAF CDC	Submitted	9/23/2012	Attachments	No

Comment:

The provision this is based upon has sunset with the other Florida Changes to the 2010 FBC

The amendment does not demonstrate by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variations addressed by the foundation code. Per FS 553.73 (7) (g)

The proposed amendment was does not appear to have been submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process.
This code change is unnecessary as the provisions contained in the proposed amendment are adequately addressed in the applicable international code. Per FS 553.73 (7) (g)

1106.7 Scupper sizing.

Scuppers shall be sized in accordance with Table 1106.7.

TABLE 1106.7

SIZING SCUPPERS FOR A 5 INCH PER HOUR RATE OF RAINFALL

HEAD IN INCHES	HORIZONTALLY PROJECTED ROOF AREA (SQUARE FEET) LENGTH OF WEIR IN INCHES						
	4	6	8	12	16	20	24
1	230	346	461	692	923	1153	1384
2	641	961	1282	1923	2564	3205	3846
3	1153	1730	2307	3461	4615	5769	6923
4	1794	2692	3589	5384	7179	8974	10,769

Note:

To adjust this table for other than a 5-inch design rain fall rate, multiply the square footage on the table by 5 then divide by the local design rain fall rate.

Example:

For 4 inches of design rainfall rate, a 4-inch long scupper with a 1 inch head would accommodate 287 square feet. (230 x 5) ÷4 = 287.

This Table provides guidance regarding the proper sizing and associated hydraulic head of water for primary and secondary scuppers. Chapter 15 of the base building code provides guidance to Section P1106 and P1108 for scupper sizing; however, the Plumbing Code then refers one back to Chapter 15 for compliance. Consequently, this Table is necessary to provide minimum guidance in scupper design which is otherwise not contained in the referenced sections. The data contained in this table is based upon ASCE 7 and is in compliance with the structural drainage requirements contained in Section 1611 of the base building code.

Total Mods for **Plumbing** in **No Affirmative Recommendation with a Second: 5**

Total Mods for report: 12

Sub Code: Fuel Gas

Date Submitted	7/5/2012	**Section**	306.3.2 Air-handling units.	**Proponent**	Suzanne Davis
Chapter	3	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation No Affirmative Recommendation with a Second

Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Update section 306.3.2 IFGC.

Rationale

Update section 306.3.2 IFGC to be consistent with the Energy Code and was part of a settlement agreement established with the Home Builders Association. This modification will also implement Commission plans for the 2013 code changes.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact. currently used under the 2010 FBC. No new requirements being established.

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

No impact. currently used under the 2010 FBC. No new requirements being established.

Impact to industry relative to the cost of compliance with code

No impact. currently used under the 2010 FBC. No new requirements being established.

Requirements

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

Carried forward from previous field tested code. Proven to be effective.

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

Carried forward from previous field tested code. Proven to be effective.

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

Carried forward from previous field tested code. Proven to be effective.

Does not degrade the effectiveness of the code

Carried forward from previous field tested code. Proven to be effective.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exihibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

Explanation of Choice

Update section 306.3.2 IFGC to be consistent with the Energy Code and was part of a settlement agreement established with the Home Builders Association. This modification will also implement Commission plans for the 2013 code changes.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

306.3.2 Air-handling units. Add to read as shown:

306.3.2 Air-handling units. Air-handling units shall be allowed in residential attics if the following conditions are met:

1. The service panel of the equipment is located within 6 feet (1829 mm) feet of an attic access.

2. A device is installed to alert the owner or shut the unit down when the condensation drain is not working properly.

3. The attic access opening is of sufficient size to replace the air handler.

4. A notice is posted on the electric service panel indicating to the homeowner thatthe air handler is located in the attic. Said notice shall be in all capitals, in 16-point type, with the title and first paragraph in bold:

NOTICE TO HOMEOWNER

A PART OF YOUR AIR-CONDITIONING SYSTEM, THE AIR HANDLER, IS LOCATED IN THE ATTIC. FOR PROPER, EFFICIENT, AND ECONOMIC OPERATION OF THE AIR-CONDITIONING SYSTEM, YOU MUST ENSURE THAT REGULAR MAINTENANCE IS PERFORMED. YOUR AIR-CONDITIONING SYSTEM IS EQUIPPED WITH ONE OR BOTH OF THE FOLLOWING: 1) A DEVICE THAT WILL ALERT YOU WHEN THE CONDENSATION DRAIN IS NOT WORKING PROPERLY, OR 2) A DEVICE THAT WILL SHUT THE SYSTEM DOWN WHEN THE CONDENSATION DRAIN IS NOT WORKING. TO LIMIT POTENTIAL DAMAGE TO YOUR HOME, AND TO AVOID DISRUPTION OF SERVICE, IT IS RECOMMENDED THAT YOUENSURE PROPER WORKING ORDER OF THESE DEVICES BEFORE EACH SEASON OF PEAK OPERATION.

Date Submitted	7/3/2012	**Section**	310.1.1	**Proponent**	Robert Torbin
Chapter	3	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation No Affirmative Recommendation with a Second

Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

modify current 310.1.1: Permit the use of a listed arc-resistant CSST as an alternate method and material in lieu of direct electrical bonding.

Rationale

The use of a CSST product with a protective, arc-resistant jacket is an alternate method of protection against electrical arcing damage caused by high voltage transient events such as a nearby lightning strike. An arc-resistant jacket does not rely on direct bonding to the grounding electrode system to reduce or eliminate damage from electrical arcing. Instead, the protective jacket acts as a resistor and is designed to locally absorb and dissipate the arcing energy over a short length of the jacket. The jacket, in essence, disrupts the focus of the arc and reduces the energy level below the threshold value that can cause a perforation of the tubing wall. This dynamic action is equally effective compared to the current CSST bonding method regardless of the bonding conductor size or length. The protection against arcing is provided uniformly throughout the piping system, and is not affected by close proximity to other metallic systems that may not be similarly bonded. The ICC Evaluation Service has developed listing criteria for arc-resistant jackets to verify that this design approach will provide an ability to resist damage from transient arcing currents under a wide range of conditions without the need for additional bonding as prescribed currently in 310.1.1 of the 2012 edition of the IFGC.

CSST with arc-resistant jacket has been commercially installed since 2004, and at the present time, three different (black-jacketed) products are commercially available. Field experience has been very favorable with no known cases of indirect lightning damage to CSST piping systems using these arc-resistant jackets. Currently, at least 10 states permit the installation of the arc-resistant CSST without the need for additional bonding. Given that both conventional (yellow) and advanced (black) CSST products will continue to be commercially available, both methods of electrical protection of CSST systems should be recognized and permitted within the Code.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

There will be no impact to the local code enforcement agency as the electrical inspection of bonding required for yellow CSST systems would not be required. There are no additional bonding or installation requirements for arc-resistant CSST products.

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

There will be a minimal cost impact to property owners relative to the cost of code compliance. While the bonding of the CSST will not be required (saving an estimated $45), the arc-resistant CSST is 5% more expensive than conventional yellow CSST. The change should be cost-neutral.

Impact to industry relative to the cost of compliance with code

There will be no impact on the industry relative to the cost of compliance with the code change as this work would be fully accounted for at the time of construction, and there are no associated operational costs as the arc-resistant jacket is a passive protective measure.

Requirements

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

Since 2004, field experience with arc-resistant jackets has been very favorable with no known cases of indirect lightning damage to CSST piping using the arc-resistant jackets. Currently, at least 10 states permit the installation of the arc-resistant CSST without the need for additional bonding.

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

The protection against arcing is provided uniformly throughout the piping system, and does not depend on the level or quality of bonding provided for the gas piping system. The jacket is not affected by close proximity to other metallic systems that may not be equally bonded.

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

The proposed change does not alter or discriminate against any code approved gas piping material, and only seeks to elevate the level of protection to the whole house based on known problems with lightning induced arcing from non-bonded metallic systems.

Does not degrade the effectiveness of the code

The code already addresses the need for protection against electrical insults and the proposed change makes the code more effective by expanding the coverage for this requirement by offering an alternative method of protection.

Is the proposed code modification part of a prior code version? No

1st Comment Period History 08/09/2012 - 09/23/2012

P4925-G1

Proponent	Robert Torbin	Submitted	9/21/2012	Attachments	No

Comment:

Delete Section 309.1 Grounding in its entirety as it would be redundant with the proposed Section 310.1.1 CSST and, therefore, unnecessary. Proposed Section 310.1.1 is more comprehensive with specific instructions on how to install bonding connections for CSST.

1st Comment Period History 08/09/2012 - 09/23/2012

P4925-G2

Proponent	BOAF CDC	Submitted	9/23/2012	Attachments	No

Comment:

This code change is unnecessary as the provisions contained in the proposed amendment are adequately addressed in the applicable international code. Per FS 553.73 (7) (g)

The amendment does not demonstrate by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variations addressed by the foundation code. Per FS 553.73 (7) (g)

The proposed amendment was does not appear to have been submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process.

Add the following paragraph to the existing section 310.1.1:

310.1.1 CSST.
Corrugated stainless steel tubing (CSST) gas piping systems shall be bonded to the electrical service grounding electrode system. The bonding jumper shall connect to a metallic pipe or fitting between the point of delivery and the first downstream CSST fitting. The bonding jumper shall be not smaller than 6 AWG copper wire or equivalent. Gas piping systems that contain one or more segments of CSST shall be bonded in accordance with this section.

CSST with an arc-resistant jacket listed by an approved agency for installation without the direct bonding, as prescribed in this section, shall be installed in accordance with section 310.1 and the manufacturer's installation instructions.

Date Submitted	7/9/2012	**Section**	311 CARBON MONOXIDE CONTR	**Proponent**	Suzanne Davis
Chapter	3	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation No Affirmative Recommendation with a Second

Commission Action Pending Review

Comments

General Comments No

Alternate Language No

Related Modifications

Summary of Modification

Update section 311 IFGC to implement fBC approved plan for 2013 code.

Rationale

To clarify the scope of the FBC in accordance with the FS and to also implement the FBC process for the 2013 FBC.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

No impact. Currently used under the 2010 FBC. No new requirements being established.

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

No impact. Currently used under the 2010 FBC. No new requirements being established.

Impact to industry relative to the cost of compliance with code

No impact. Currently used under the 2010 FBC. No new requirements being established.

Requirements

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

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

Carried over from previous field tested code. Proven to be effective.

Does not degrade the effectiveness of the code

Carried over from previous field tested code. Proven to be effective.

Is the proposed code modification part of a prior code version?

YES

The provisions contained in the proposed amendment are addressed in the applicable international code?

NO

The amendment demonstrates by evidence or data that the geographical jurisdiction of Florida exihibits a need to strengthen the foundation code beyond the needs or regional variation addressed by the foundation code and why the proposed amendment applies to the state?

OTHER

Explanation of Choice

To clarify the scope of the FBC in accordance with the FS and to also implement the FBC process for the 2013 FBC.

The proposed amendment was submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process?

NO

1st Comment Period History 08/09/2012 - 09/23/2012

Proponent Ken Cureton **Submitted** 9/21/2012 **Attachments** No

Comment:

The proposal provides for carbon monoxide control provisions as per 553.885 FS.

P5036-G1

P5036-G2

Proponent	BOAF CDC	Submitted	9/23/2012	Attachments	No

Comment:

BOAF CDC:
IBC 2012 Section 908.7 and IRS 2012 Section 315 cover Carbon Monoxide Alarms with better language than the 2010 FBC. This code change is unnecessary as the provisions contained in the proposed amendment are adequately addressed in the applicable international code. Per FS 553.73 (7) (g)

The amendment does not demonstrate by evidence or data that the geographical jurisdiction of Florida exhibits a need to strengthen the foundation code beyond the needs or regional variations addressed by the foundation code. Per FS 553.73 (7) (g)

The proposed amendment was does not appear to have been submitted or attempted to be included in the foundation codes to avoid resubmission to the Florida Building Code amendment process.

Section 311 CARBON MONOXIDE CONTROL SYSTEMS. Add text to read as follows:

SECTION 311

CARBON MONOXIDE CONTROL SYSTEMS

311 Carbon monoxide control systems. See Section 916 of the Florida Building Code, Building.

P4985

Date Submitted	7/6/2012	**Section**	3301.1	**Proponent**	Michael Goolsby
Chapter	41	**Affects HVHZ**	No	**Attachments**	No

TAC Recommendation No Affirmative Recommendation with a Second
Commission Action Pending Review

Comments

General Comments No **Alternate Language** No

Related Modifications

Summary of Modification

Section formatting

Rationale

While this entire Chapter is applicable for the HVHZ it makes reference and provides direction to sections which are not applicable. The purpose of this proposed modification is to provide guidance to the applicable and equivalent HVHZ sections. In this way, compliance with the intent of these provisions can be maintained in all jurisdictions.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

Removes confusion by providing accurate direction regarding application of applicable code sections.

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

Removes confusion by providing accurate direction regarding application of applicable code sections.

Impact to industry relative to the cost of compliance with code

Removes confusion by providing accurate direction regarding application of applicable code sections.

Requirements

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

It does so by ensuring direction to applicable sections of the code are provided.

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

It does so by ensuring direction to applicable sections of the code are provided.

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

This modification provides guidance to the applicable code sections and does not limit the use or compliance of materials.

Does not degrade the effectiveness of the code

This modification provides guidance to the applicable code sections and does not limit the use or compliance of materials.

Is the proposed code modification part of a prior code version? No

1st Comment Period History 08/09/2012 - 09/23/2012

Proponent Jack Glenn **Submitted** 9/23/2012 **Attachments** No

P4985-G1

Comment:

This change is not necessary as Section R301.1 directs users to the provisions of Chapter 44 for structures located in the High Velocity Hurricane Zone.

P3301.1 Scope. The provisions of this chapter shall govern the materials, design, construction and installation of storm drainage.

Exception: Buildings and structures located within the High Velocity Hurricane Zone shall comply with the provisions of Chapter 44.

P5020

Date Submitted	7/9/2012	**Section**	4413	**Proponent**	Michael Goolsby
Chapter	44	**Affects HVHZ**	Yes	**Attachments**	Yes

TAC Recommendation No Affirmative Recommendation with a Second
Commission Action Pending Review

Comments

General Comments No **Alternate Language** No

Related Modifications

Summary of Modification

Eliminating unnecessary duplication of Chapter 44 HVHZ provisions

Rationale

Since the inception of the FBC, the content of Chapter 44 of the FBC, R has been a duplication of the sections contained in the FBC, Building volume. This proposed modification is intended to maintain the continuation of the current level of safety for the protection of life and property unchanged. Importantly, the proposed modification eliminates the need to unnecessarily duplicate more than one-hundred pages into the FBC, R volume, thereby reducing the size of the text contained in the FBC. Additionally, the proposed modification prevents the need to replace all of the non-wind related sections which were removed by legislative directive with dozens of individual modifications, each requiring review and approval; this process would otherwise be unavoidable in order to create a crucial integration of applicable and relevant building code sections into Chapter 44 requirements. In short, this proposed modification is a simplified approach resulting in identical code requirements but through a less time consuming, less complicated and less duplicative process.

Fiscal Impact Statement

Impact to local entity relative to enforcement of code

None. The end result is a continuation of the applicability of base building code requirements for HVHZ residences as has existed in all previous editions of the Florida Building Code.

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

None. The end result is a continuation of the applicability of base building code requirements for HVHZ residences as has existed in all previous editions of the Florida Building Code.

Impact to industry relative to the cost of compliance with code

None. The end result is a continuation of the applicability of base building code requirements for HVHZ residences as has existed in all previous editions of the Florida Building Code.

Requirements

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

It does so by ensuring direction to applicable sections of the code are provided.

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

It does so by eliminating the need to unnecessarily duplicate building code provisions and affects a reduction in the number of code pages to be compiled, reviewed, edited and printed.

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

This modification does not curtail the use of any material, products, methods or systems of construction already deemed acceptable by the Florida Building Code or any alternate materials, design and methods of construction and equipment acceptable to the code official.

Does not degrade the effectiveness of the code

This modification does not degrade the effectiveness of the code; instead, it maintains the applicability of relevant base code requirements as has been the case since the first edition of the Florida Building Code.

Is the proposed code modification part of a prior code version? No

1st Comment Period History 08/09/2012 - 09/23/2012

P5020-G1

Proponent Jack Glenn **Submitted** 9/23/2012 **Attachments** No

Comment:

Creates a reference to the FBC-B and FBC-P. The FBC-R was created to be a free standing document and as such should include the language if it meets the criteria for a Florida specific amendment.

SECTION R4413

HIGH-VELOCITY HURRICANE ZONES — STORM DRAINAGE

R4413.1 ~~General~~ Refer to the Florida Building Code, Building and the Florida Building Code, Plumbing.

~~**R4413.1.1 Scope**. The provisions of this section shall govern the materials, design, construction and installation of storm drainage.~~

~~**R4413.1.2 Where required**. All roofs, paved areas, yards, courts and courtyards shall drain into a separate storm sewer system, or a combined sewer system, or to an approved place of disposal. For one- and two-family dwellings, and where approved, storm water is permitted to discharge onto flat areas, such as streets or lawns, provided that the storm water flows away from the building.~~

~~**R4413.1.3 Prohibited drainage.** Storm water shall not be drained into sewers intended for sewage only.~~

~~**R4413.1.4 Tests.** The conductors and the building storm drain shall be tested in accordance with Section 312 of the Florida Building Code, Plumbing .~~

~~**R4413.1.5 Continuous flow**. The size of a drainage pipe shall not be reduced in the direction of flow.~~

~~**R4413.1.6 Fittings and connections**. All connections and changes in direction of the storm drainage system shall be made with approved drainage-type fittings in accordance with Table R4413.1.6 herein. The fittings shall not obstruct or retard flow in the system.~~

~~**TABLE R4413.1.6**~~

~~**FITTINGS FOR CHANGE IN DIRECTION**~~

~~TYPE OF FITTING PATTERN CHANGE IN DIRECTION~~

~~Horizontal to vertical Vertical to horizontal Horizontal to horizontal~~

~~Sixteenth bend X X X~~

~~Eighth bend X X X~~

~~Sixth bend X X X~~

~~Quarter bend X Xa Xa~~

~~Short sweep X Xa,b Xa,b~~

~~Long sweep X X X~~

~~Sanitary tee Xc~~

~~Wye X X X~~

~~Combination wye and eighth bend X X X~~

~~For SI: 1 inch = 25.4 mm.~~

~~a. The fittings shall only be permitted for a 2-inch or smaller fixture drain.~~

~~b. Three inches and larger.~~

~~c. For a limitation on double sanitary tees, see Section 706.3 of the Florida Building Code, Plumbing.~~

~~**R4413.1.7 Roof design**. Roofs shall be designed for the maximum possible depth of water that will pond thereon as determined by the relative levels of roof deck and overflow weirs, scuppers, edges or serviceable drains in combination with the deflected structural elements. In determining the maximum possible depth of water, all primary roof drainage means shall be assumed to be blocked.~~

~~**R4413.1.8 Cleanouts required.** Cleanouts shall be installed in the storm drainage system and shall comply with the provisions of this code for sanitary drainage pipe cleanouts.~~

~~**SECTION R4413.2**~~

~~**HIGH VELOCITY HURRICANE ZONES—MATERIALS**~~

~~**R4413.2.1 General.** The materials and methods utilized for the construction and installation of storm drainage systems shall comply with this section.~~

R4413.2.2 Inside storm drainage conductors. Inside storm drainage conductors installed above ground shall conform to one of the standards listed in Table R4413.2.2 herein.

TABLE R4413.2.2

ABOVE-GROUND DRAINAGE AND VENT PIPE

MATERIAL STANDARD

Acrylonitrile butadiene

styrene (ABS) plastic pipe ASTM D 2661; ASTM F 628; CSA B181.1

Brass pipe ASTM B 43

Cast iron pipe ASTM A 74; CISPI 301;

ASTM A 888

Copper or copper alloy pipe ASTM B 42; ASTM B 302

Copper or copper alloy tubing (Type K, L, M or DWV) ASTM B 75; ASTM B 88;

ASTM B 251; ASTM B 306

Galvanized steel pipe ASTM A 53

Glass pipe ASTM C 1053

Polyolefin pipe CSA CAN/CSA B181.3

Polyvinyl chloride (PVC) plastic pipe (Type DWV) ASTM D 2665; ASTM D 2949; ASTM F 891;

CSA CAN/CSA B181.2

R4413.2.3 Underground building storm drain pipe. Underground building storm drain pipe shall conform to one of the standards listed in Table R4413.2.3 herein.

TABLE R4413.2.3

UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

~~MATERIAL STANDARD~~

~~Acrylonitrile butadiene styrene (ABS) plastic pipe ASTM D 2661; ASTM F 628; CSA B181.1~~

~~Asbestos cement pipe ASTM C 428~~

~~Cast iron pipe ASTM A 74; CISPI 301;~~

~~ASTM A 888~~

~~Copper or copper alloy tubing (Type K or L) ASTM B 75; ASTM B 88;~~

~~ASTM B 251~~

~~Polyolefin pipe CSA CAN/CSA B181.3~~

~~Polyvinyl chloride (PVC) plastic pipe (Type DWV) ASTM D 2665; ASTM D 2949; ASTM F 891;~~

~~CSA CAN/CSA B181.2~~

~~**R4413.2.4 Building storm sewer pipe**. Building storm sewer pipe shall conform to one of the standards listed in Table R4413.2.4.~~

~~**R4413.2.5 Subsoil drain pipe.** Subsoil drains shall be open jointed, horizontally split or perforated pipe conforming to one of the standards listed in Table R4413.2.5.~~

~~**R4413.2.6 Roof drain**s. Roof drains shall conform to ASME A112.21.2.~~

~~**R4413.2.7 Fitting**s. Pipe fittings shall be approved for installation with the piping material installed, and shall conform to the respective pipe standards or one of the standards listed in Table R4413.2.7. The fittings shall not have ledges, shoulders or reductions capable of retarding or obstructing flow in the piping. Threaded drainage pipe fittings shall be of the recessed drainage type.~~

~~**TABLE R4413.2.4**~~

~~**BUILDING STORM SEWER PIPE**~~

~~MATERIAL STANDARD~~

~~Acrylonitrile butadiene styrene (ABS) plastic pipe ASTM D 2661; ASTM D 2751; ASTM F 628~~

~~Asbestos-cement pipe ASTM C 428~~

~~Cast iron pipe ASTM A 74; CISPI 301;~~

~~ASTM A 888~~

~~Concrete pipe ASTM C 14; ASTM C 76;~~

~~CSA A257.1;~~

~~CSA CAN/CSA A257.2~~

~~Copper or copper-alloy tubing (Type K, L, M or DWV) ASTM B 75; ASTM B 88;~~

~~ASTM B 251; ASTM B 306~~

~~Polyvinyl chloride (PVC) plastic pipe (Type DWV, SDR26, SDR35, SDR41, PS50 or PS100) ASTM D 2665; ASTM D 2797; ASTM D 3034; ASTM F 891; CSA B182.2;~~

~~CSA CAN/CSA B182.4~~

~~Vitrified clay pipe ASTM C 4; ASTM C 700~~

~~TABLE R4413.2.5~~

~~SUBSOIL DRAIN PIPE~~

~~MATERIAL STANDARD~~

~~Asbestos-cement pipe ASTM C 508~~

~~Cast iron pipe ASTM A 74; CISPI 301;~~

~~ASTM A 888~~

~~Polyethylene (PE) plastic pipe ASTM F 405~~

~~Polyvinyl chloride (PVC) plastic pipe (Type Sewer Pipe, PS25, PS50 or PS100) ASTM D 2729; ASTM F 891; CSA B182.2;~~

~~CSA CAN/CSA B182.4~~

~~Vitrified clay pipe ASTM C 4; ASTM C 700~~

~~TABLE R4413.2.7~~

~~PIPE FITTINGS~~

~~MATERIAL STANDARD~~

~~Acrylonitrile-butadiene-styrene (ABS) plastic pipe ASTM D 2468~~

~~Cast iron ASME B16.4; ASME B16.12; ASTM A 888~~

~~Chlorinated polyvinyl chloride (CPVC) plastic ASTM F 437; ASTM F 438; ASTM F 439~~

~~Copper or copper alloy ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.23; ASME B16.26; ASME B16.29; ASME B16.32~~

~~Gray iron and ductile iron AWWA C110~~

~~Malleable iron ASME B16.3~~

~~Plastic, general ASTM F 409~~

~~Polyethylene (PE) plastic ASTM D 2609~~

~~Polyvinyl chloride (PVC) plastic ASTM D 2464; ASTM D 2466; ASTM D 2467;~~

~~CSA CAN/CSA B137.2~~

~~Steel ASME B16.9; ASME B16.11; ASME B16.28~~

~~SECTION R4413.3~~

~~RESERVED~~

~~SECTION R4413.4~~

~~HIGH-VELOCITY HURRICANE ZONES CONDUCTORS AND CONNECTIONS~~

~~R4413.4.1 Prohibited use~~. ~~Conductor pipes shall not be used as soil, waste or vent pipes, and soil, waste or vent pipes shall not be used as conductors.~~

~~R4413.4.2 Combining storm with sanitary drainage.~~ ~~The sanitary and storm drainage systems of a structure shall be entirely separate except where combined sewer systems are utilized. Where a combined sewer is utilized, the building storm drain shall be connected in the same horizontal plane through a single wye fitting to the combined sewer at least 10 feet (3048 mm) downstream from any soil stack.~~

~~**R4413.4.3 Floor drains**. Floor drains shall not be connected to a storm drain.~~

~~**SECTION R4413.5**~~

~~**HIGH-VELOCITY HURRICANE ZONES- ROOF DRAINS**~~

~~**R4413.5.1 Strainers.** Roof drains shall have strainers extending not less than 4 inches (102 mm) above the surface of the roof immediately adjacent to the roof drain. Strainers shall have an available inlet area, above roof level, of not less than one and one-half times the area of the conductor or leader to which the drain is connected.~~

~~**R4413.5.2 Flat decks**. Roof drain strainers for use on sun decks, parking decks and similar areas that are normally serviced and maintained shall comply with Section R4413.5.1 or shall be of the flat-surface type, installed level with the deck, with an available inlet area not less than two times the area of the conductor or leader to which the drain is connected.~~

~~**R4413.5.3 Roof drain flashings.** The connection between roofs and roof drains which pass through the roof and into the interior of the building shall be made water tight by the use of approved flashing material.~~

~~**SECTION R4413.6**~~

~~**HIGH VELOCITY HURRICANE ZONES- SIZE OF CONDUCTORS, LEADERS AND STORM DRAINS**~~

~~**R4413.6.1 General.** The size of the vertical conductors and leaders, building storm drains, building storm sewers, and any horizontal branches of such drains or sewers shall be based on the 100-year hourly rainfall rate indicated in Figure R4413.6.1 or on other rainfall rates determined from approved local weather data.~~

~~**R4413.6.2 Vertical conductors and leaders**. Vertical conductors and leaders shall be sized for the maximum projected roof area, in accordance with Table R4413.6.2.~~

~~**R4413.6.3 Building storm drains and sewers.** The size of the building storm drain, building storm sewer and their horizontal branches having a slope of one-half unit or less vertical in 12 units horizontal (4-percent slope) shall be based on the maximum projected roof area in accordance with Table R4413.6.3. The minimum slope of horizontal branches shall be one-eighth unit vertical in 12 units horizontal (1-percent slope) unless otherwise approved.~~

R4413.6.4 Vertical walls. In sizing roof drains and storm drainage piping, one-half of the area of any vertical wall that diverts rainwater to the roof shall be added to the projected roof area for inclusion in calculating the required size of vertical conductors, leaders and horizontal storm drainage piping.

R4413.6.5 Parapet wall scupper location. Parapet wall roof drainage scupper and overflow scupper location shall comply with the requirements of the Florida Building Code, Residential .

R4413.6.6 Size of roof gutters. The size of semicircular gutters shall be based on the maximum projected roof area in accordance with Table R4413.6.6.

SECTION R4413.7

HIGH-VELOCITY HURRICANE ZONES- SECONDARY (EMERGENCY) ROOF DRAINS

R4413.7.1 Secondary drainage required. Secondary (emergency) roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason.

R4413.7.2 Separate systems required. Secondary roof drain systems shall have piping the end point of discharge separate from the primary system. Discharge shall be above grade, in a location which would normally be observed by the building occupants or maintenance personnel.

FIGURE R4413.6.1

100-YEAR, 1-HOUR RAINFALL (inches)

EASTERN UNITED STATES

For SI: 1 inch = 25.4 mm.

Source: National Weather Service, National Oceanic and Atmospheric Administration, Washington, D.C.

TABLE R4413.6.2

SIZE OF VERTICAL CONDUCTORS AND LEADERS

~~DIAMETER OF LEADER (inches)a HORIZONTALLY PROJECTED ROOF AREA (square feet)~~

~~Rainfall Rate (inches per hour)~~

~~1 2 3 4 5 6 7 8 9 10 11 12~~

~~2 2,880 1,440 960 720 575 480 410 360 320 290 260 240~~

~~3 8,800 4,400 2,930 2,200 1,760 1,470 1,260 1,100 980 880 800 730~~

~~4 18,400 9,200 6,130 4,600 3,680 3,070 2,630 2,300 2,045 1,840 1,675 1,530~~

~~5 34,600 17,300 11,530 8,650 6,920 5,765 4,945 4,325 3,845 3,460 3,145 2,880~~

~~6 54,000 27,000 17,995 13,500 10,800 9,000 7,715 6,750 6,000 5,400 4,910 4,500~~

~~8 116,000 58,000 38,660 29,000 23,200 19,315 16,570 14,500 12,890 11,600 10,545 9,660~~

~~For SI: 1 inch = 25.4 mm,1 square foot = 0.0929 m2.~~

~~a. Sizes indicated are the diameter of circular piping. This table is applicable to piping of other shapes provided the cross sectional shape fully encloses a circle of the diameter indicated in this table.~~

~~TABLE R4413.6.3~~

~~SIZE OF HORIZONTAL STORM DRAINAGE PIPING~~

~~SIZE OF HORIZONTAL PIPING (inches) HORIZONTALLY PROJECTED ROOF AREA (square feet)~~

~~Rainfall Rate (inches per hour)~~

~~1 2 3 4 5 6~~

~~1/8unit vertical in 12 units horizontal (1 percent slope)~~

~~3 3288 1644 1096 822 657 548~~

~~4 7520 3760 2506 1800 1504 1253~~

~~5 13360 6680 4453 3340 2672 2227~~

~~6 21400 10700 7133 5350 4280 3566~~

~~8 46000 23000 15330 11500 9200 7600~~

~~10 82800 41400 27600 20700 16580 13800~~

~~12 133200 66600 44400 33300 26650 22200~~

~~15 218000 109000 72800 59500 47600 39650~~

~~1/4unit vertical in 12 units horizontal (2 percent slope)~~

~~3 4640 2320 1546 1160 928 773~~

~~4 10600 5300 3533 2650 2120 1766~~

~~5 18800 9440 6293 4720 3776 3146~~

~~6 30200 15100 10066 7550 6040 5033~~

~~8 65200 32600 21733 16300 13040 10866~~

~~10 116800 58400 38950 29200 23350 19450~~

~~12 188000 94000 62600 47000 37600 31350~~

~~15 336000 168000 112000 84000 67250 56000~~

~~1/2unit vertical in 12 units horizontal (4 percent slope)~~

~~3 6576 3288 2295 1644 1310 1096~~

~~4 15040 7520 5010 3760 3010 2500~~

~~5 26720 13360 8900 6680 5320 4450~~

~~6 42800 21400 13700 10700 8580 7140~~

~~8 92000 46000 30650 23000 18400 15320~~

~~10 171600 85800 55200 41400 33150 27600~~

~~12 266400 133200 88800 66600 53200 44400~~

~~15 476000 238000 158800 119000 95300 79250~~

~~For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m2.~~

~~TABLE R4416.6.6~~

~~SIZE OF SEMICIRCULAR ROOF GUTTERS~~

~~DIAMETER OF GUTTERS (inches)~~	~~HORIZONTALLY PROJECTED ROOF AREA (square feet)~~					
~~Rainfall rate (inches per hour)~~						
~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	
~~1/16 unit vertical in 12 units horizontal (0.5 percent slope)~~						
~~3~~	~~680~~	~~340~~	~~226~~	~~170~~	~~136~~	~~113~~
~~4~~	~~1440~~	~~720~~	~~480~~	~~360~~	~~288~~	~~240~~
~~5~~	~~2500~~	~~1250~~	~~834~~	~~625~~	~~500~~	~~416~~
~~6~~	~~3840~~	~~1920~~	~~1280~~	~~960~~	~~768~~	~~640~~
~~7~~	~~5520~~	~~2760~~	~~1840~~	~~1380~~	~~1100~~	~~918~~
~~8~~	~~7960~~	~~3980~~	~~2655~~	~~1990~~	~~1590~~	~~1325~~
~~10~~	~~14400~~	~~7200~~	~~4800~~	~~3600~~	~~2880~~	~~2400~~
~~1/8 unit vertical in 12 units horizontal (1 percent slope)~~						
~~3~~	~~960~~	~~480~~	~~320~~	~~240~~	~~192~~	~~160~~
~~4~~	~~2040~~	~~1020~~	~~681~~	~~510~~	~~408~~	~~340~~
~~5~~	~~3520~~	~~1760~~	~~1172~~	~~880~~	~~704~~	~~587~~
~~6~~	~~5440~~	~~2720~~	~~1815~~	~~1360~~	~~1085~~	~~905~~
~~7~~	~~7800~~	~~3900~~	~~2600~~	~~1950~~	~~1560~~	~~1300~~
~~8~~	~~11200~~	~~5600~~	~~3740~~	~~2800~~	~~2240~~	~~1870~~
~~10~~	~~20400~~	~~10200~~	~~6800~~	~~5100~~	~~4080~~	~~3400~~
~~1/4 unit vertical in 12 units horizontal (2 percent slope)~~						
~~3~~	~~1360~~	~~680~~	~~454~~	~~340~~	~~272~~	~~226~~
~~4~~	~~2880~~	~~1440~~	~~960~~	~~720~~	~~576~~	~~480~~

~~5 5000 2500 1668 1250 1000 834~~

~~6 7680 3840 2560 1920 1536 1280~~

~~7 11040 5520 3860 2760 2205 1840~~

~~8 15920 7960 5310 3980 3180 2655~~

~~10 28800 14400 9600 7200 5750 4800~~

~~1/2 unit vertical in 12 units horizontal (4 percent slope)~~

~~3 1920 960 640 480 384 320~~

~~4 4080 2040 1360 1020 816 680~~

~~5 7080 3540 2360 1770 1415 1180~~

~~6 11080 5540 3695 2770 2220 1850~~

~~7 15600 7800 5200 3900 3120 2600~~

~~8 22400 11200 7460 5600 4480 3730~~

~~10 40000 20000 13300 10000 8000 6660~~

~~For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m2.~~

~~**R4413.7.3 Sizing of secondary drains**. Secondary (emergency) roof drain systems shall be sized in accordance with Section R4413.6 based on the rainfall rate for which the primary system is sized in Tables R4416.6.2, R4413.6.3 and R4413.6.6. Scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section R4413.1.7. Scuppers shall not have an opening dimension of less than 4 inches (102 mm). The flow through the primary system shall not be considered when sizing the secondary roof drain system.~~

~~TABLE R4413.7~~

~~SIZING SCUPPERS FOR A 5 INCHES PER HOUR RATE OF RAINFALL~~

~~HORIZONTALLY PROJECTED ROOF AREA (SQUARE FEET)~~

HEAD IN INCHES	LENGTH OF WEIR IN INCHES					
4	6	8	12	16	20	24
1	230	346	461	692	923	1153	1384
2	641	961	1282	1923	2564	3205	3846
3	1153	1730	2307	3461	4615	5769	6923
4	1794	2692	3589	5384	7179	8974	10769

For SI: 1 inch = 25.4 mm, 1 square foot = .0929 m2.

Note: to adjust this table for other than a 5-inch design rainfall rate multiply the square footage on the table by 5 then divide by the local design rainfall rate.

Example: For 4 inches of design rainfall rate a 4-inch long scupper with a 1-inch head would accommodate 287 square feet. 230 x 5.4 = 287.

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SECTION R4413
HIGH-VELOCITY HURRICANE ZONES — STORM DRAINAGE

R4413.1 ~~General~~ Refer to the Florida Building Code, Building and the Florida Building Code, Plumbing.

~~**R4413.1.1 Scope**. The provisions of this section shall govern the materials, design, construction and installation of storm drainage.~~

~~**R4413.1.2 Where required**. All roofs, paved areas, yards, courts and courtyards shall drain into a separate storm sewer system, or a combined sewer system, or to an approved place of disposal. For one- and two-family dwellings, and where approved, storm water is permitted to discharge onto flat areas, such as streets or lawns, provided that the storm water flows away from the building.~~

~~**R4413.1.3 Prohibited drainage.** Storm water shall not be drained into sewers intended for sewage only.~~

~~**R4413.1.4 Tests.** The conductors and the building storm drain shall be tested in accordance with Section 312 of the Florida Building Code, Plumbing .~~

~~**R4413.1.5 Continuous flow**. The size of a drainage pipe shall not be reduced in the direction of flow.~~

~~**R4413.1.6 Fittings and connections.** All connections and changes in direction of the storm drainage system shall be made with approved drainage type fittings in accordance with Table R4413.1.6 herein. The fittings shall not obstruct or retard flow in the system.~~

~~**TABLE R4413.1.6**~~
~~**FITTINGS FOR CHANGE IN DIRECTION**~~

TYPE OF FITTING PATTERN	CHANGE IN DIRECTION		
Horizontal to vertical	Vertical to horizontal	Horizontal to horizontal	
Sixteenth bend	X	X	X
Eighth bend	X	X	X
Sixth bend	X	X	X
Quarter bend	X	Xa	Xa
Short sweep	X	Xa,b	Xa,b
Long sweep	X	X	X
Sanitary tee	Xc		
Wye	X	X	X
Combination wye and eighth bend	X	X	X

~~For SI: 1 inch = 25.4 mm.~~
~~a. The fittings shall only be permitted for a 2-inch or smaller fixture drain.~~
~~b. Three inches and larger.~~
~~c. For a limitation on double sanitary tees, see Section 706.3 of the Florida Building Code, Plumbing.~~

R4413.1.7 Roof design. Roofs shall be designed for the maximum possible depth of water that will pond thereon as determined by the relative levels of roof deck and overflow weirs, scuppers, edges or serviceable drains in combination with the deflected structural elements. In determining the maximum possible depth of water, all primary roof drainage means shall be assumed to be blocked.

R4413.1.8 Cleanouts required. Cleanouts shall be installed in the storm drainage system and shall comply with the provisions of this code for sanitary drainage pipe cleanouts.

SECTION R4413.2
HIGH VELOCITY HURRICANE ZONES — MATERIALS

R4413.2.1 General. The materials and methods utilized for the construction and installation of storm drainage systems shall comply with this section.

R4413.2.2 Inside storm drainage conductors. Inside storm drainage conductors installed above ground shall conform to one of the standards listed in Table R4413.2.2 herein.

TABLE R4413.2.2
ABOVE-GROUND DRAINAGE AND VENT PIPE

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe	ASTM D 2661; ASTM F 628; CSA B181.1
Brass pipe	ASTM B 43
Cast iron pipe	ASTM A 74; CISPI 301; ASTM A 888
Copper or copper alloy pipe	ASTM B 42; ASTM B 302
Copper or copper alloy tubing (Type K, L, M or DWV)	ASTM B 75; ASTM B 88; ASTM B 251; ASTM B 306
Galvanized steel pipe	ASTM A 53
Glass pipe	ASTM C 1053
Polyolefin pipe	CSA CAN/CSA-B181.3
Polyvinyl chloride (PVC) plastic pipe (Type DWV)	ASTM D 2665; ASTM D 2949; ASTM F 891; CSA CAN/CSA-B181.2

R4413.2.3 Underground building storm drain pipe. Underground building storm drain pipe shall conform to one of the standards listed in Table R4413.2.3 herein.

TABLE R4413.2.3
UNDERGROUND BUILDING DRAINAGE AND VENT PIPE

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe	ASTM D 2661; ASTM F 628; CSA B181.1
Asbestos cement pipe	ASTM C 428
Cast-iron pipe	ASTM A 74; CISPI 301;

ASTM A 888

Copper or copper alloy tubing (Type K or L) ASTM B 75; ASTM B 88;
ASTM B 251

Polyolefin pipe CSA CAN/CSA-B181.3

Polyvinyl chloride (PVC) plastic pipe (Type DWV) ASTM D 2665; ASTM D 2949; ASTM F 891;
CSA CAN/CSA-B181.2

R4413.2.4 Building storm sewer pipe. Building storm sewer pipe shall conform to one of the standards listed in Table R4413.2.4.

R4413.2.5 Subsoil drain pipe. Subsoil drains shall be open jointed, horizontally split or perforated pipe conforming to one of the standards listed in Table R4413.2.5.

R4413.2.6 Roof drains. Roof drains shall conform to ASME A112.21.2.

R4413.2.7 Fittings. Pipe fittings shall be approved for installation with the piping material installed, and shall conform to the respective pipe standards or one of the standards listed in Table R4413.2.7. The fittings shall not have ledges, shoulders or reductions capable of retarding or obstructing flow in the piping. Threaded drainage pipe fittings shall be of the recessed drainage type.

TABLE R4413.2.4
BUILDING STORM SEWER PIPE

MATERIAL STANDARD

Acrylonitrile butadiene styrene (ABS) plastic pipe ASTM D 2661; ASTM D 2751; ASTM F 628

Asbestos-cement pipe ASTM C 428

Cast-iron pipe ASTM A 74; CISPI 301;
ASTM A 888

Concrete pipe ASTM C 14; ASTM C 76;
CSA A257.1;
CSA CAN/CSA A257.2

Copper or copper alloy tubing (Type K, L, M or DWV) ASTM B 75; ASTM B 88;
ASTM B 251; ASTM B 306

Polyvinyl chloride (PVC) plastic pipe (Type DWV, SDR26, SDR35, SDR41, PS50 or PS100)
ASTM D 2665; ASTM D 2797; ASTM D 3034; ASTM F 891; CSA-B182.2;
CSA CAN/CSA-B182.4

Vitrified clay pipe ASTM C 4; ASTM C 700

TABLE R4413.2.5
SUBSOIL DRAIN PIPE

MATERIAL STANDARD

Asbestos-cement pipe ASTM C 508

Cast iron pipe ASTM A 74; CISPI 301;
ASTM A 888

Polyethylene (PE) plastic pipe ASTM F 405

Polyvinyl chloride (PVC) plastic pipe (Type Sewer Pipe, PS25, PS50 or PS100) ASTM D 2729; ASTM F 891; CSA-B182.2;

~~CSA CAN/CSA-B182.4~~
~~Vitrified clay pipe ASTM C 4; ASTM C 700~~

~~**TABLE R4413.2.7**~~
~~**PIPE FITTINGS**~~

~~MATERIAL STANDARD~~
~~Acrylonitrile butadiene styrene (ABS) plastic pipe ASTM D 2468~~
~~Cast iron ASME B16.4; ASME B16.12; ASTM A 888~~
~~Chlorinated polyvinyl chloride (CPVC) plastic ASTM F 437; ASTM F 438; ASTM F 439~~
~~Copper or copper alloy ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.23; ASME B16.26; ASME B16.29; ASME B16.32~~
~~Gray iron and ductile iron AWWA C110~~
~~Malleable iron ASME B16.3~~
~~Plastic, general ASTM F 409~~
~~Polyethylene (PE) plastic ASTM D 2609~~
~~Polyvinyl chloride (PVC) plastic ASTM D 2464; ASTM D 2466; ASTM D 2467; CSA CAN/CSA-B137.2~~
~~Steel ASME B16.9; ASME B16.11; ASME B16.28~~

~~**SECTION R4413.3**~~
~~**RESERVED**~~

~~**SECTION R4413.4**~~
~~**HIGH-VELOCITY HURRICANE ZONES CONDUCTORS AND CONNECTIONS**~~

~~**R4413.4.1 Prohibited use**. Conductor pipes shall not be used as soil, waste or vent pipes, and soil, waste or vent pipes shall not be used as conductors.~~

~~**R4413.4.2 Combining storm with sanitary drainage.** The sanitary and storm drainage systems of a structure shall be entirely separate except where combined sewer systems are utilized. Where a combined sewer is utilized, the building storm drain shall be connected in the same horizontal plane through a single wye fitting to the combined sewer at least 10 feet (3048 mm) downstream from any soil stack.~~

~~**R4413.4.3 Floor drains**. Floor drains shall not be connected to a storm drain.~~

~~**SECTION R4413.5**~~
~~**HIGH-VELOCITY HURRICANE ZONES- ROOF DRAINS**~~

~~**R4413.5.1 Strainers.** Roof drains shall have strainers extending not less than 4 inches (102 mm) above the surface of the roof immediately adjacent to the roof drain. Strainers shall have an available inlet area, above roof level, of not less than one and one-half times the area of the conductor or leader to which the drain is connected.~~

~~**R4413.5.2 Flat decks**. Roof drain strainers for use on sun decks, parking decks and similar areas that are normally serviced and maintained shall comply with Section R4413.5.1 or shall be of the flat surface type, installed level with the deck, with an available inlet area not less than two times the area of the conductor or leader to which the drain is connected.~~

R4413.5.3 Roof drain flashings. The connection between roofs and roof drains which pass through the roof and into the interior of the building shall be made water tight by the use of approved flashing material.

SECTION R4413.6
HIGH VELOCITY HURRICANE ZONES- SIZE OF CONDUCTORS, LEADERS AND STORM DRAINS

R4413.6.1 General. The size of the vertical conductors and leaders, building storm drains, building storm sewers, and any horizontal branches of such drains or sewers shall be based on the 100 year hourly rainfall rate indicated in Figure R4413.6.1 or on other rainfall rates determined from approved local weather data.

R4413.6.2 Vertical conductors and leaders. Vertical conductors and leaders shall be sized for the maximum projected roof area, in accordance with Table R4413.6.2.

R4413.6.3 Building storm drains and sewers. The size of the building storm drain, building storm sewer and their horizontal branches having a slope of one-half unit or less vertical in 12 units horizontal (4 percent slope) shall be based on the maximum projected roof area in accordance with Table R4413.6.3. The minimum slope of horizontal branches shall be one-eighth unit vertical in 12 units horizontal (1-percent slope) unless otherwise approved.

R4413.6.4 Vertical walls. In sizing roof drains and storm drainage piping, one-half of the area of any vertical wall that diverts rainwater to the roof shall be added to the projected roof area for inclusion in calculating the required size of vertical conductors, leaders and horizontal storm drainage piping.

R4413.6.5 Parapet wall scupper location. Parapet wall roof drainage scupper and overflow scupper location shall comply with the requirements of the Florida Building Code, Residential .

R4413.6.6 Size of roof gutters. The size of semicircular gutters shall be based on the maximum projected roof area in accordance with Table R4413.6.6.

SECTION R4413.7
HIGH-VELOCITY HURRICANE ZONES- SECONDARY (EMERGENCY) ROOF DRAINS

R4413.7.1 Secondary drainage required. Secondary (emergency) roof drains or scuppers shall be provided where the roof perimeter construction extends above the roof in such a manner that water will be entrapped if the primary drains allow buildup for any reason.

R4413.7.2 Separate systems required. Secondary roof drain systems shall have piping the end point of discharge separate from the primary system. Discharge shall be above grade, in a location which would normally be observed by the building occupants or maintenance personnel.

FIGURE R4413.6.1
100 YEAR, 1 HOUR RAINFALL (inches)
EASTERN UNITED STATES

For SI: 1 inch = 25.4 mm.

~~Source: National Weather Service, National Oceanic and Atmospheric Administration, Washington, D.C.~~

~~TABLE R4413.6.2~~
~~SIZE OF VERTICAL CONDUCTORS AND LEADERS~~

~~DIAMETER OF LEADER (inches)a HORIZONTALLY PROJECTED ROOF AREA (square feet)~~

~~Rainfall Rate (inches per hour)~~

~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~	~~7~~	~~8~~	~~9~~	~~10~~	~~11~~	~~12~~
~~2~~	~~2,880~~	~~1,440~~	~~960~~	~~720~~	~~575~~	~~480~~	~~410~~	~~360~~	~~320~~	~~290~~	~~260~~	~~240~~
~~3~~	~~8,800~~	~~4,400~~	~~2,930~~	~~2,200~~	~~1,760~~	~~1,470~~	~~1,260~~	~~1,100~~	~~980~~	~~880~~	~~800~~	~~730~~
~~4~~	~~18,400~~		~~9,200~~	~~6,130~~	~~4,600~~	~~3,680~~	~~3,070~~	~~2,630~~	~~2,300~~	~~2,045~~	~~1,840~~	~~1,675~~ ~~1,530~~
~~5~~	~~34,600~~		~~17,300~~		~~11,530~~		~~8,650~~	~~6,920~~	~~5,765~~	~~4,945~~	~~4,325~~	~~3,845~~ ~~3,460~~ ~~3,145~~ ~~2,880~~
~~6~~	~~54,000~~		~~27,000~~		~~17,995~~		~~13,500~~		~~10,800~~		~~9,000~~	~~7,715~~ ~~6,750~~ ~~6,000~~ ~~5,400~~ ~~4,910~~ ~~4,500~~
~~8~~	~~116,000~~		~~58,000~~		~~38,660~~		~~29,000~~		~~23,200~~		~~19,315~~	~~16,570~~	~~14,500~~	~~12,890~~	~~11,600~~	~~10,545~~	~~9,660~~

~~For SI: 1 inch = 25.4 mm,1 square foot = 0.0929 m2.~~
~~a. Sizes indicated are the diameter of circular piping. This table is applicable to piping of other shapes provided the cross-sectional shape fully encloses a circle of the diameter indicated in this table.~~

~~TABLE R4413.6.3~~
~~SIZE OF HORIZONTAL STORM DRAINAGE PIPING~~

~~SIZE OF HORIZONTAL PIPING (inches) HORIZONTALLY PROJECTED ROOF AREA (square feet)~~

~~Rainfall Rate (inches per hour)~~

~~1~~	~~2~~	~~3~~	~~4~~	~~5~~	~~6~~
~~1/8unit vertical in 12 units horizontal (1-percent slope)~~					
~~3~~	~~3288~~	~~1644~~	~~1096~~	~~822~~	~~657~~ ~~548~~
~~4~~	~~7520~~	~~3760~~	~~2506~~	~~1800~~	~~1504~~ ~~1253~~
~~5~~	~~13360~~	~~6680~~	~~4453~~	~~3340~~	~~2672~~ ~~2227~~
~~6~~	~~21400~~	~~10700~~	~~7133~~	~~5350~~	~~4280~~ ~~3566~~
~~8~~	~~46000~~	~~23000~~	~~15330~~	~~11500~~	~~9200~~ ~~7600~~
~~10~~	~~82800~~	~~41400~~	~~27600~~	~~20700~~	~~16580~~ ~~13800~~
~~12~~	~~133200~~		~~66600~~	~~44400~~	~~33300~~ ~~26650~~ ~~22200~~
~~15~~	~~218000~~		~~109000~~		~~72800~~ ~~59500~~ ~~47600~~ ~~39650~~
~~1/4unit vertical in 12 units horizontal (2-percent slope)~~					
~~3~~	~~4640~~	~~2320~~	~~1546~~	~~1160~~	~~928~~ ~~773~~
~~4~~	~~10600~~	~~5300~~	~~3533~~	~~2650~~	~~2120~~ ~~1766~~
~~5~~	~~18800~~	~~9440~~	~~6293~~	~~4720~~	~~3776~~ ~~3146~~
~~6~~	~~30200~~	~~15100~~	~~10066~~	~~7550~~	~~6040~~ ~~5033~~
~~8~~	~~65200~~	~~32600~~	~~21733~~	~~16300~~	~~13040~~ ~~10866~~

10	116800	58400	38950	29200	23350	19450
12	188000	94000	62600	47000	37600	31350
15	336000	168000	112000	84000	67250	56000
1/2unit vertical in 12 units horizontal (4-percent slope)						
3	6576	3288	2295	1644	1310	1096
4	15040	7520	5010	3760	3010	2500
5	26720	13360	8900	6680	5320	4450
6	42800	21400	13700	10700	8580	7140
8	92000	46000	30650	23000	18400	15320
10	171600	85800	55200	41400	33150	27600
12	266400	133200	88800	66600	53200	44400
15	476000	238000	158800	119000	95300	79250

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m2.

TABLE R4416.6.6
SIZE OF SEMICIRCULAR ROOF GUTTERS

DIAMETER OF GUTTERS (inches) HORIZONTALLY PROJECTED ROOF AREA (square feet)

Rainfall rate (inches per hour)					
1	2	3	4	5	6
1/16 unit vertical in 12 units horizontal (0.5 percent slope)					
3	680	340	226	170	136	113
4	1440	720	480	360	288	240
5	2500	1250	834	625	500	416
6	3840	1920	1280	960	768	640
7	5520	2760	1840	1380	1100	918
8	7960	3980	2655	1990	1590	1325
10	14400	7200	4800	3600	2880	2400
1/8 unit vertical in 12 units horizontal (1 percent slope)						
3	960	480	320	240	192	160
4	2040	1020	681	510	408	340
5	3520	1760	1172	880	704	587
6	5440	2720	1815	1360	1085	905
7	7800	3900	2600	1950	1560	1300
8	11200	5600	3740	2800	2240	1870
10	20400	10200	6800	5100	4080	3400
1/4 unit vertical in 12 units horizontal (2-percent slope)						
3	1360	680	454	340	272	226
4	2880	1440	960	720	576	480
5	5000	2500	1668	1250	1000	834
6	7680	3840	2560	1920	1536	1280
7	11040	5520	3860	2760	2205	1840
8	15920	7960	5310	3980	3180	2655
10	28800	14400	9600	7200	5750	4800
1/2 unit vertical in 12 units horizontal (4-percent slope)						
3	1920	960	640	480	384	320
4	4080	2040	1360	1020	816	680

5	7080	3540	2360	1770	1415	1180
6	11080	5540	3695	2770	2220	1850
7	15600	7800	5200	3900	3120	2600
8	22400	11200	7460	5600	4480	3730
10	40000	20000	13300	10000	8000	6660

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m2.

R4413.7.3 Sizing of secondary drains. Secondary (emergency) roof drain systems shall be sized in accordance with Section R4413.6 based on the rainfall rate for which the primary system is sized in Tables R4416.6.2, R4413.6.3 and R4413.6.6. Scuppers shall be sized to prevent the depth of ponding water from exceeding that for which the roof was designed as determined by Section R4413.1.7. Scuppers shall not have an opening dimension of less than 4 inches (102 mm). The flow through the primary system shall not be considered when sizing the secondary roof drain system.

TABLE R4413.7
SIZING SCUPPERS FOR A 5 INCHES PER HOUR RATE OF RAINFALL

	HORIZONTALLY PROJECTED ROOF AREA (SQUARE FEET)						
HEAD IN INCHES	LENGTH OF WEIR IN INCHES						
4	6	8	12	16	20	24	
1	230	346	461	692	923	1153	1384
2	641	961	1282	1923	2564	3205	3846
3	1153	1730	2307	3461	4615	5769	6923
4	1794	2692	3589	5384	7179	8974	10769

For SI: 1 inch = 25.4 mm, 1 square foot = .0929 m2.
Note: to adjust this table for other than a 5-inch design rainfall rate multiply the square footage on the table by 5 then divide by the local design rainfall rate.
Example: For 4 inches of design rainfall rate a 4 inch long scupper with a 1 inch head would accommodate 287 square feet. 230 x 5.4 = 287.