2014 Advanced Significant Code Changes – FBC – P, M & FG 5th Edition (2014) Module III

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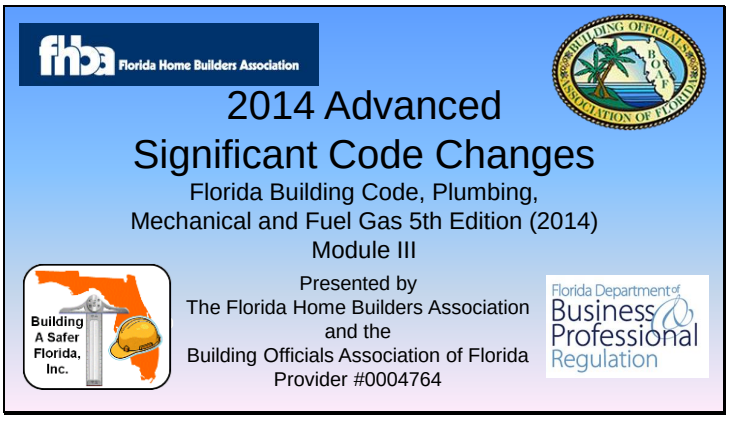

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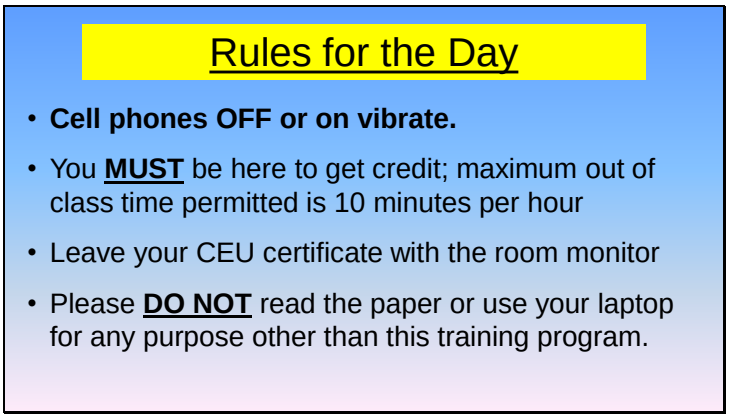


Slide 4

Rules for the Day

- Be respectful of others
- Keep the chatter down
- **Be sure** you have signed the sign-in sheet

Most Important Rule

Don't throw anything at the instructor !

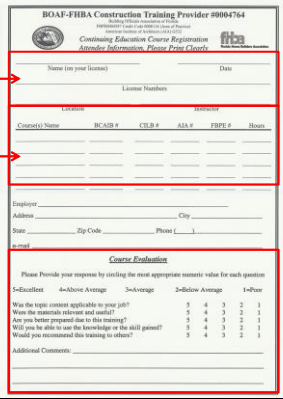
Slide 5

BOAF-FHBA CEU Certificate

First Name, Last Name and License number

One Course Per Line

BCAIB: Building Code Administrators and Inspectors Board
CILB: Construction Industry Licensing Board
AIA: Board of Architecture and Interior Design
FBPE: Florida Board of Professional Engineers


BOAF-FHBA Construction Training Provider #0004764
Continuing Education Course Registration
Attendee Information, Please Print Clearly
Course Evaluation

Slide 6

Florida Home Builders Association

Course Title: 2014 Advanced Significant Code Changes Florida Building Code, Plumbing, Mechanical and Fuel Gas 5th Edition (2014) Module III

Date:
Hours: 1.0 hours
Location:
Instructors:

Approval Numbers
Contractors: CILB #
Building Dept.: BCAIB #
Engineers: FBPE
Architects: AIA #

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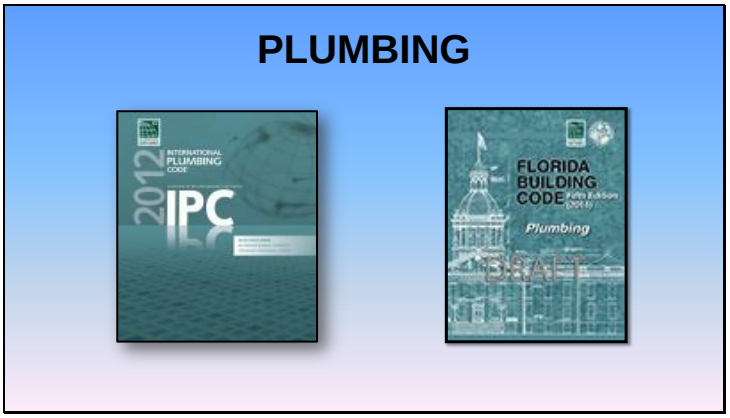
Slide 8



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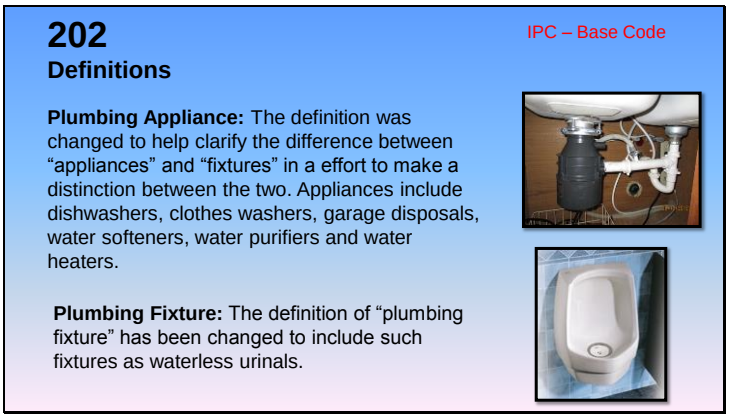

Plumbing Appliance. ~~Any one of a special class of plumbing fixtures~~ Water-connected or drain-connected devices intended to perform a special function. ~~Included are fixtures having the~~ These devices have their operation or control dependent on one or more energized components, such as motors, controls, or heating elements ~~or pressure or temperature sensing elements~~. Such ~~fixtures~~ devices are manually adjusted or controlled by the owner or operator, or are operated automatically through one or more of the following actions; a time cycle, a temperature range, a pressure range, a measured volume or weight.

Plumbing Fixture. A receptacle or device that is either ~~permanently or temporarily~~ connected to ~~the~~ a water ~~distribution~~ supply system or ~~of the premises and demands a supply of water therefrom; discharges wastewater, liquid-borne waste materials or sewage either directly or indirectly~~ to a ~~the~~ drainage system ~~of the premises;~~ or ~~requires~~ both. Such receptacles or devices require a water supply of water; connection and a or discharge liquid waste or liquid-borne solid waste; or require a supply of water and discharge waste to a ~~the~~ drainage system ~~of the premises~~.

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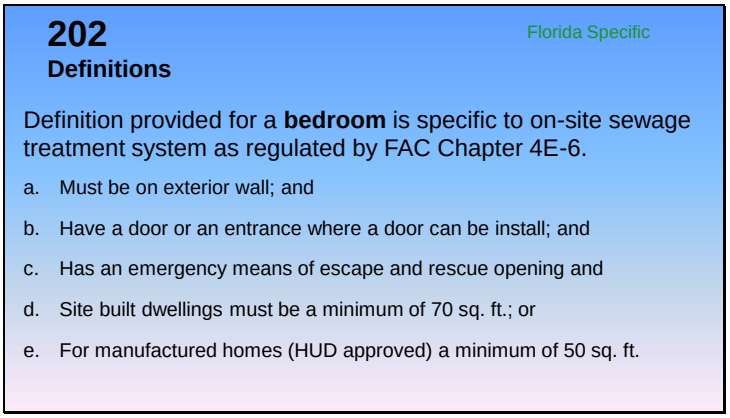

BEDROOM. A room that can be used for sleeping and that:
a. For site-built dwellings has a minimum of 70 square feet of conditioned space;
b. For manufactured homes is constructed according to the standards of the United States Department of Housing and Urban Development and has a minimum of 50 square feet of floor area;
c. Is located along an exterior wall;
d. Has a closet and a door or an entrance where a door could be reasonably installed; and
e. Has an emergency means of escape and rescue opening to the outside in accordance with the Florida Building Code.
This definition is specific to on-site sewage treatment system as regulated by Chapter 4E-6 FAC for onsite sewage treatment and Disposal System - See Section 701.2

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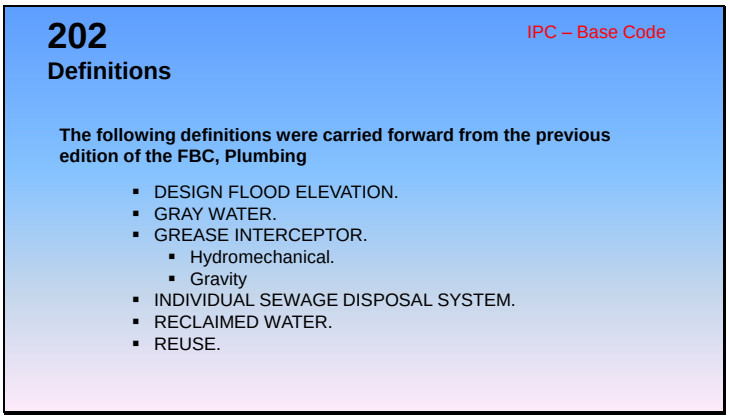

DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the *design flood elevation* shall be the elevation of the highest existing grade of the *building's* perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm). **(P5285 AS)**

GRAY WATER..As defined by 381.0065(2)(b) and (d) *Florida Statutes*, "Graywater" means that part of domestic sewage that is not blackwater, including waste from the bath, lavatory, laundry, and sink, except kitchen sink waste. "Blackwater" means that part of domestic sewage carried off by toilets, urinals, and kitchen drains. ~~Waste discharged from lavatories, bathtubs, showers, clothes washers and laundry trays~~ **(SP5997 AS)**

GREASE INTERCEPTOR.

Hydromechanical. Plumbing appurtenances that are installed in the sanitary drainage system to intercept free-floating fats, oils and grease from waste water discharge. Continuous separation is accomplished by air entrainment, buoyancy and interior baffling.

Gravity. Plumbing appurtenances of not less than 75~~50~~0 gallons (2839~~1893~~ L) capacity that are installed in or at the end of the sanitary drainage system to intercept free-floating fats, oils and grease from waste water discharge. Separation is accomplished by gravity during a retention time of not less than 30 minutes. **(SP5997 AS)(S5999 AS)**

INDIVIDUAL SEWAGE DISPOSAL SYSTEM. An approved onsite sewage treatment and disposal system in accordance with Sections 381.0065 and 381.00655, *Florida Statutes* and Chapter 64E-6, *Florida Administrative Code*, Standards for Onsite Sewage Treatment and Disposal Systems. Synonymous with private sewage disposal system and private septic system. ~~A system for disposal of domestic sewage by means of a septic tank, cesspool or mechanical treatment, designed for utilization apart from a public *sewer* to serve a single establishment or building.~~

RECLAIMED WATER. Water that has received treatment and is reused after flowing out of a domestic wastewater treatment facility.

REUSE. The deliberate application of reclaimed water for beneficial purpose.

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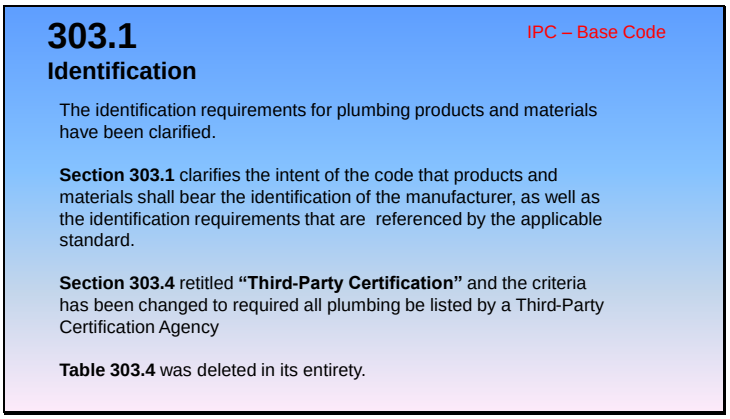

303.1 Identification. Each length of pipe and each pipe fitting, trap, fixture, material, and device utilized in a plumbing system shall bear the identification of the manufacturer and any markings required by the applicable referenced standards.

303.4 Third-Party Testing and Certification. All plumbing products and materials shall ~~comply~~ be listed by a third-party certification agency as complying with the referenced standards~~, specifications and performance criteria of this code. and shall be identified in accordance with Section 303.1. When required by Table 303.4, plumbing products and materials shall either be tested by an approved third–party testing agency or certified by an approved third–party certification agency.~~ Products and materials shall be identified in accordance with Section 303.1.

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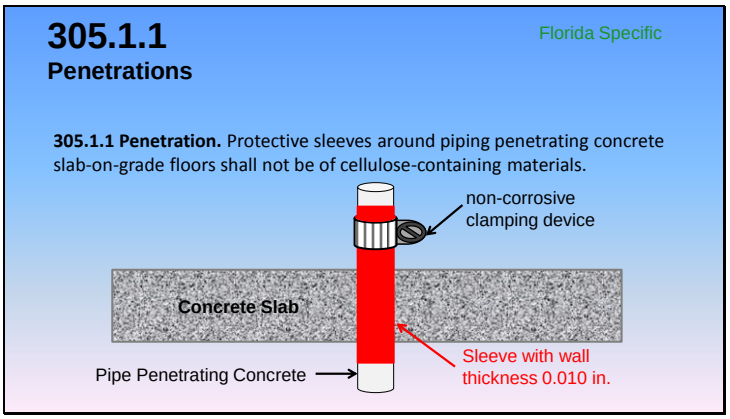

Carry forward Florida Specific Amendment

305.1.1 Penetration. Protective sleeves around piping penetrating concrete slab-on-grade floors shall not be of cellulose-containing materials. If soil treatment is used for subterranean termite protection, the sleeve shall have a maximum wall thickness of 0.010 inch, and be sealed within the slab using a non-corrosive clamping device to eliminate the annular space between the pipe and the sleeve. No termiticides shall be applied inside the sleeve.

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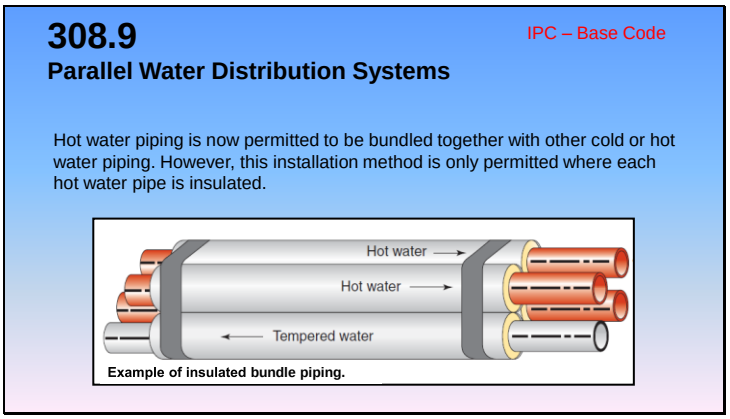

308.9 Parallel Water Distribution Systems. Piping bundles for manifold systems shall be supported in accordance with Table 308.5. Support at changes in direction shall be in accordance with the manufacturer's installation instructions. Where ~~H~~hot ~~and cold~~ water piping ~~shall not be grouped in the same~~ is bundled with cold or hot water piping, each hot water pipe shall be insulated.

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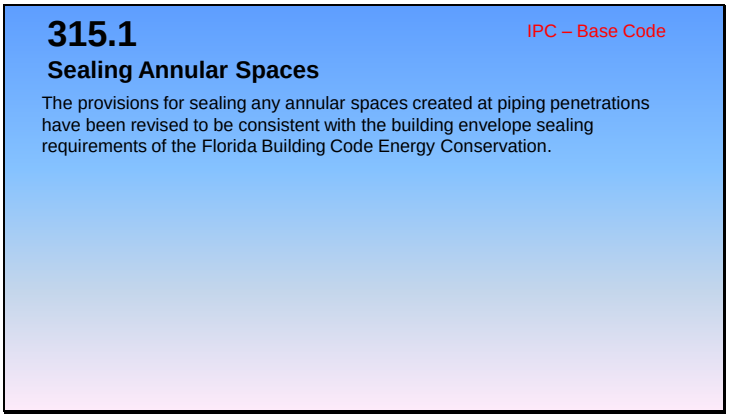

~~305.4~~ 315.1 ~~Sleeves~~ Sealing of Annular Spaces. The annular spaces between the outside of a pipe and the inside of a pipe sleeve~~s~~, ~~and pipes~~ or between the outside of a pipe and an opening in a building envelope wall, floor, or ceiling assembly penetrated by a pipe shall be ~~filled or tightly caulked~~ sealed in an approved manner with caulking material or closed with a gasketing system. The caulking material, foam sealant, or gasketing system shall be designed for the conditions at the penetration location and shall be compatible with the pipe, sleeve and building materials in contact with the sealing materials. Annular spaces ~~between~~ created by pipes penetrating ~~sleeves and pipes in~~ fire resistance-rated assemblies or membranes of such assemblies shall be ~~filled or tightly caulked~~ sealed or closed in accordance with Section 714 of the Florida ~~International~~ Building Code, Building

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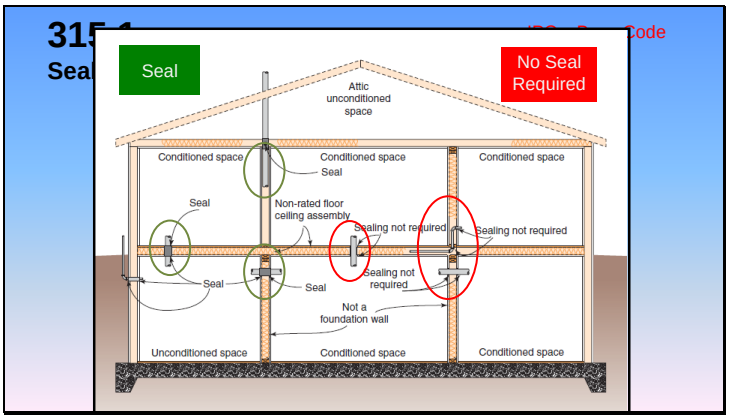

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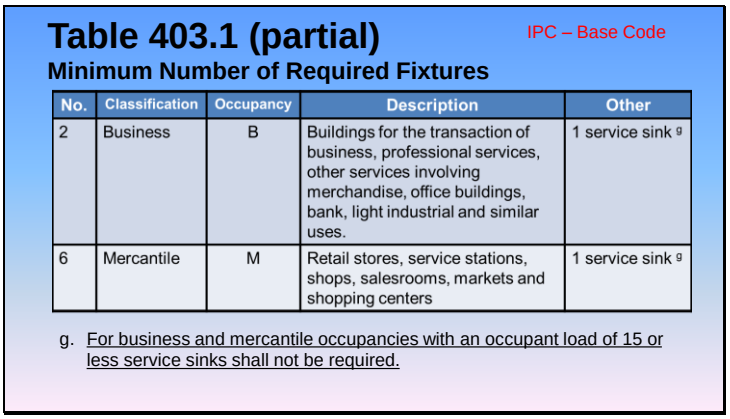

A new allowance limited to business and mercantile occupancies permits the omission of a service sink where the occupant load of the establishment is 15 or less persons. The basis for the exception is that there are other thresholds established within the code that provide for reduced requirements where the maximum occupancy is very low. For example, the requirement for separate male and female restrooms (separate facilities for each sex) is only applicable where there are more than 15 occupants, increasing to 100 occupants in mercantile sales occupancies. The allowance granted by footnote "g" eliminates the mandate for a service sink in small business and mercantile occupancies. In a small facility, such as a retail store with a sales area of not more than 3,000 square feet or an office with a maximum floor area of 1,500 square feet, a service sink and the associated closet can occupy a disproportionate amount of floor space. Typically, service sinks in these small occupancies are rarely, if ever, used.

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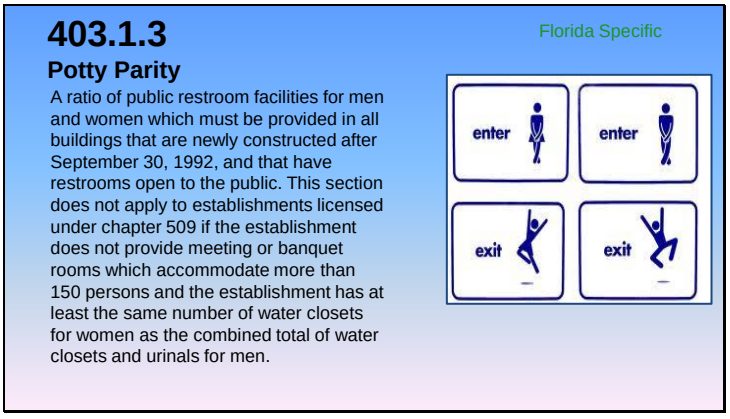

403.1.3 Potty parity. In assembly occupancies, restrooms which are open to the public must have a ratio of 3:2 water closets provided for women as the combined total of water closets and

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.*

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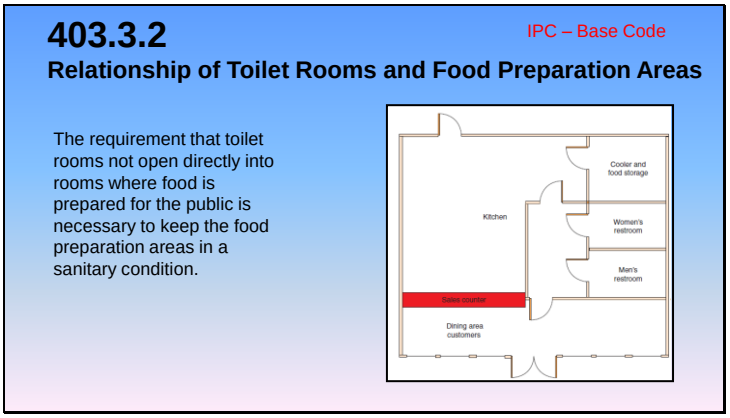

403.3.2 Toilet Room Ingress and Egress. Toilet rooms shall not open directly into a room used for the preparation of food for service to the public.

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403.2 Separate Facilities. Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:

1. Separate facilities shall not be required for dwelling units and sleeping units.

2. Separate facilities shall not be required in structures or tenant spaces with a total occupant load, including both employees and customers, of 15 or less.

3. Separate facilities shall not be required in mercantile occupancies in which the maximum occupant load is ~~50~~ 100 or less.

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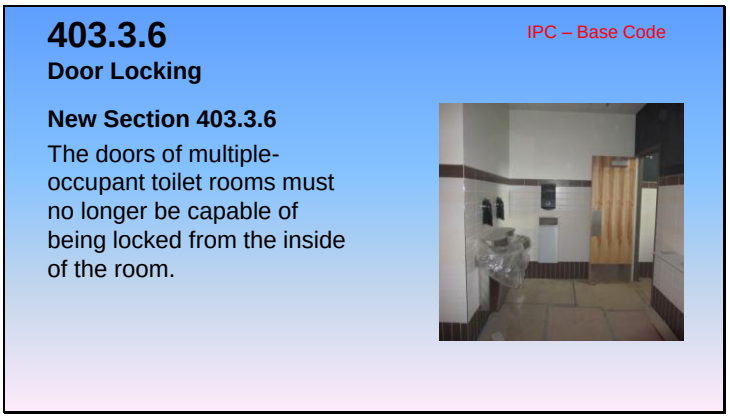

403.3.6 Door Locking. Where a toilet room is designed for multiple occupants, the egress door for the room shall not be lockable
from the inside of the room. This section does not apply to family or assisted-use toilet rooms.

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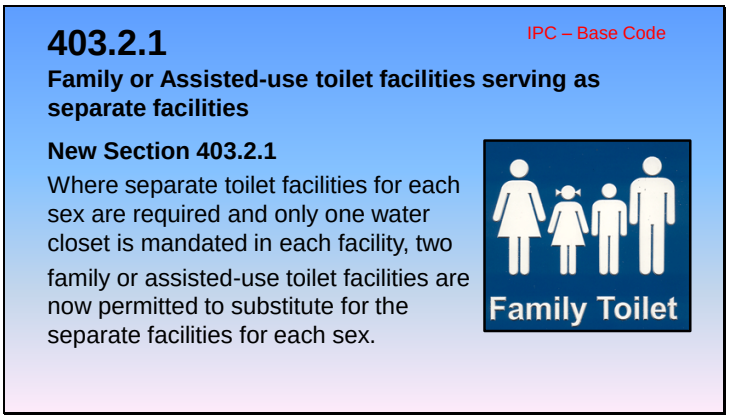

403.2.1 Family or Assisted-Use Toilet Facilities Serving as Separate Facilities. Where a building or tenant space requires a separate toilet facility for each sex and each toilet facility is required to have only one water closet, two family/assisted-use toilet facilities shall be permitted to serve as the required separate facilities. Family or assisted use toilet facilities shall not be required to be identified for exclusive use by either sex as required by Section 403.4.

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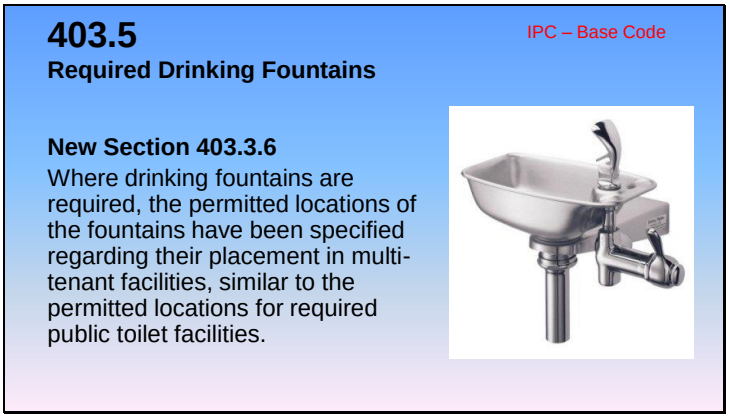

403.5 Required Drinking Fountains. Drinking fountains shall not be required to be located in individual tenant spaces provided
that public drinking fountains are located within a travel distance of 500 feet of the most remote location in the tenant space and not more than one story above or below the tenant space. Where the tenant space is in a covered or open mall, such distance shall not exceed 300 feet. Drinking fountains shall be located on an accessible route.

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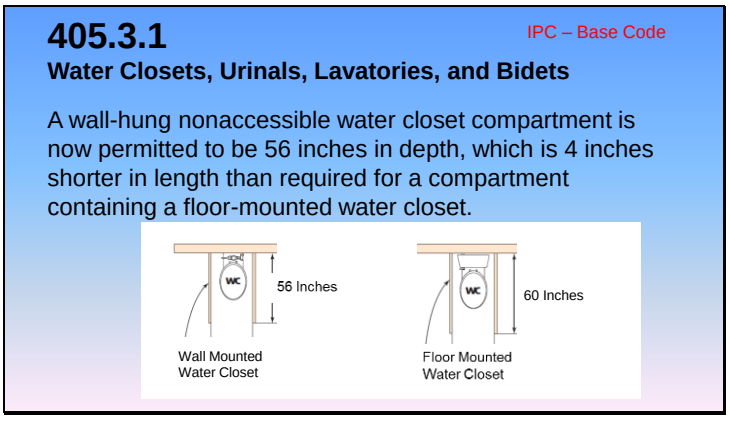

405.3.1 Water Closets, Urinals, Lavatories, and Bidets. A water closet, urinal, lavatory or bidet shall not be set closer
than 15 inches (381 mm) from its center to any side wall, partition, vanity or other obstruction, or closer than 30 inches (762 mm) center to center between adjacent fixtures. There shall be at least a 21-inch (533-mm) clearance in front of the water closet, urinal, lavatory or bidet to any wall, fixture or door. Water closet compartments shall be not less than 30 inches (762 mm) in width and 60 inches (1524 mm) in depth for floor mounted water closets and not less than 30 inches (762 mm) in width and 56 inches (1422 mm) in depth for wall hung water closets ~~(see Figure 405.3.1)~~.

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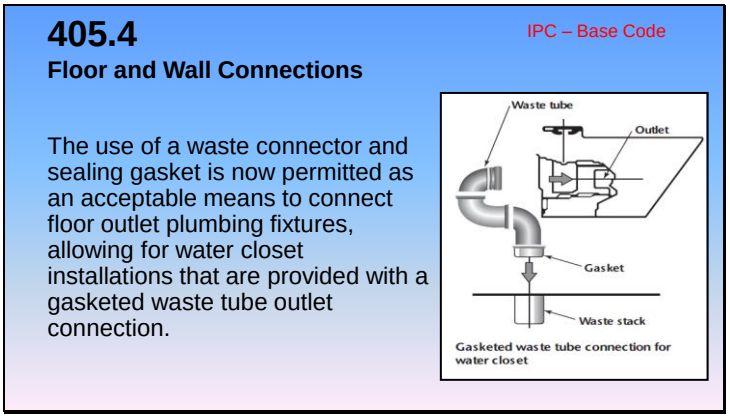

405.4 Floor and Wall Drainage Connections. Connections between the drain and floor outlet plumbing fixtures shall be made
with a floor flange or a waste connector and sealing gasket. The waste connector and sealing gasket joint shall comply with the joint tightness test of ASME A112.4.3 and shall be installed in

accordance with the manufacturer's installation instructions. The flange shall be attached to the drain and anchored to the structure. Connections between the drain and wall-hung water closets shall be made with an *approved* extension nipple or horn adaptor. The water closet shall be bolted to the hanger with corrosion-resistant bolts or screws. Joints shall be sealed with an *approved* elastomeric gasket, flange-to-fixture connection complying with ASME A112.4.3 or an *approved* setting compound.

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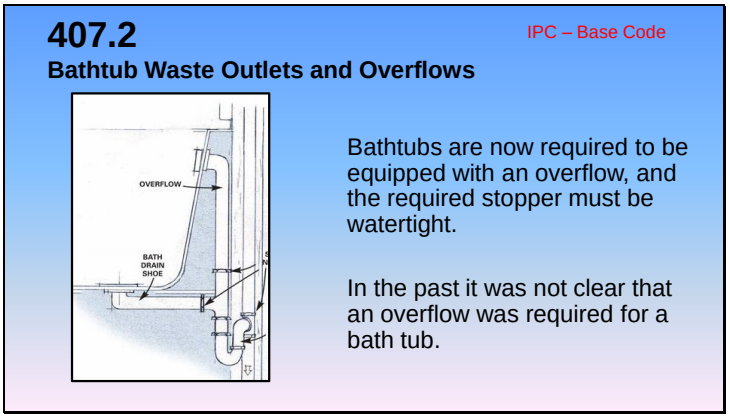
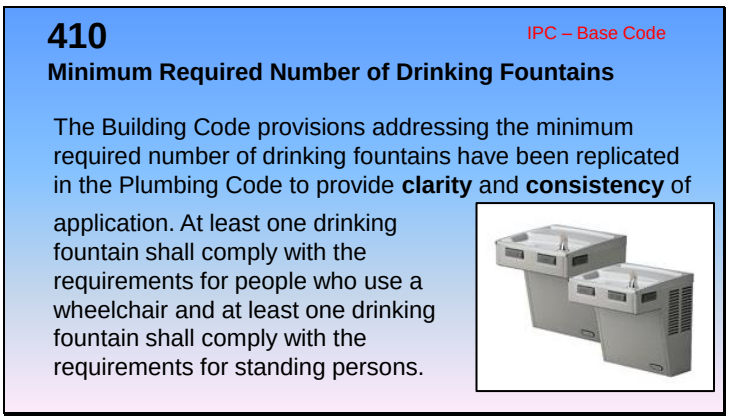


407.2 Bathtub Waste Outlets and Overflows. Bathtubs shall ~~have~~ be equipped with a waste outlets and an overflow outlet. The ~~minimum~~ outlets shall ~~of~~ be connected to waste tubing or piping not less than 1 ½ inches (38 mm) in diameter. , and the waste outlet shall be equipped with an approved watertight stopper.

Slide 27



410.1 Approval. Drinking fountains shall conform to ASME A112.19.1~~M~~/CSA B45.2 ~~or ASME A112.19.2M~~/CSA B45.1 ~~or ASME A112.19.9M~~ and water coolers shall conform to ARI 1010.

Drinking fountains and water coolers shall conform to NSF 61, Section 9. ~~Where water is served in restaurants, drinking fountains shall not be required. In other occupancies, where drinking fountains are required, water coolers or bottled water dispensers shall be permitted to be substituted for not more than 50 percent of the required drinking fountains.~~

410.2 Minimum Number. Not fewer than two drinking fountains shall e provided. One drinking fountain shall comply with the requirements for people who use a wheelchair and one drinking fountain shall comply with the requirements for standing persons.

Exception: A single drinking fountain that complies with the requirements for people who use a wheelchair and standing persons shall be permitted to be substituted for two separate drinking fountains.

410.3 Substitution. Where restaurants provide drinking water in a container free of charge, drinking fountains shall not be required in those restaurants. In other occupancies, where drinking fountains are required, water coolers or bottled water dispensers shall be permitted to be substituted for not more than 50 percent of the required number of drinking fountains.

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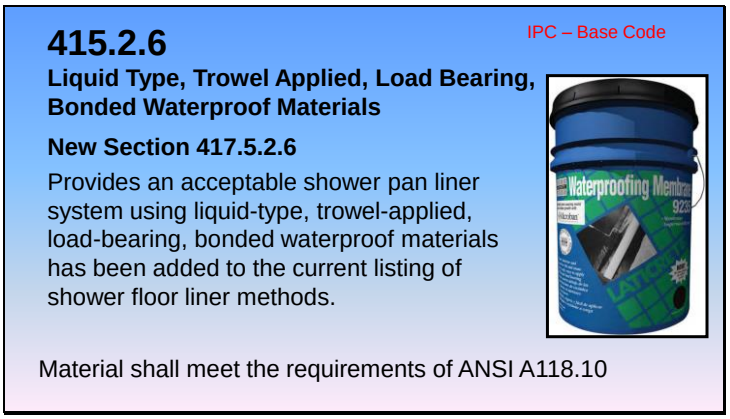

417.5.2.6 Liquid Type, Trowel Applied, Load Bearing, Bonded Waterproof Materials. Liquid type, trowel applied load bearing, bonded waterproof materials shall meet the requirements of ANSI A118.10 and shall be applied in accordance with the manufacturer's installation instructions.

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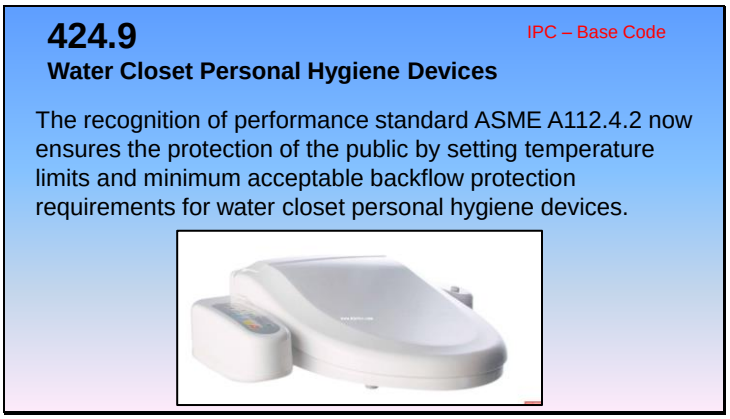

NEW SECTION

424.9 Water Closet Personal Hygiene Devices. Personal hygiene devices integral to water closets or water closet seats shall conform to the requirements of ASME A112.4.2.

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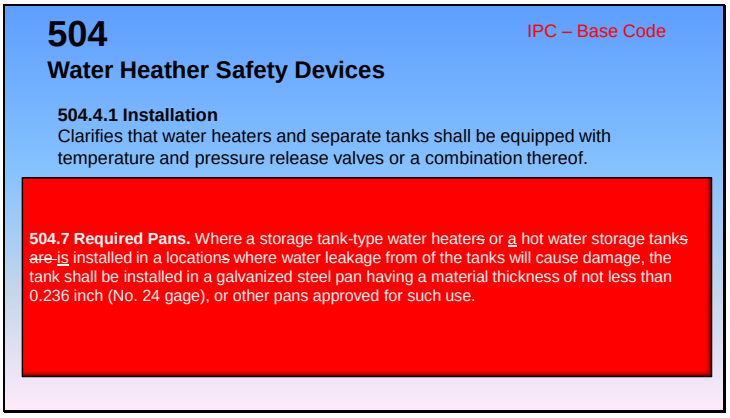

504.4.1 Installation. Such valves shall be installed in the shell of the water heater tank. Temperature relief valves shall be so located in the tank as to be actuated by the water in the top 6 inches (152 mm) of the tank served. For installations with separate storage tanks, the approved, self-closing (levered) pressure relief valve and temperature relief valve or combination thereof conforming to ANSI Z21.22 valves shall be installed on ~~the tank and there shall not be any type of valve installed between the water heater and the storage tank.~~ both the storage water heater and storage tank. There shall not be a check valve or shutoff valve between a relief valve and the heater or tank served.

504.7 Required Pans. Where a storage tank-type water heaters or a hot water storage tanks are installed in a locations where water leakage from of the tanks ~~or connections~~ will cause

damage, the tank ~~or water heater~~ shall be installed in a galvanized steel pan having a material thickness of not less than 0.236 inch (0.6010 mm) (No. 24 gage), or other pans approved for such use.

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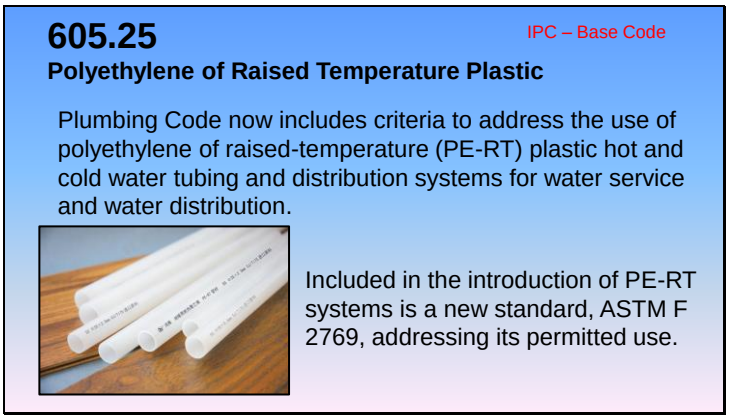

605.25 Polyethylene of Raised Temperature Plastic. Joints between polyethylene of raised temperature plastic tubing and fittings shall be in accordance with Section 605.25.1 and Section 605.25.2.

605.25.1 Flared Joints. Flared pipe ends shall be made by a tool designed for that operation.

605.25.2 Mechanical Joints. Mechanical joints shall be installed in accordance with the manufacturer's instructions. Fittings for polyethylene of raised temperature plastic tubing shall comply with the applicable standards listed in Table 605.5 and shall be installed in accordance with the manufacturer's installation instructions. Polyethylene of raised temperature plastic tubing shall be factory marked with the applicable standards for the fittings that the manufacturer of the tubing specifies for use with the tubing.

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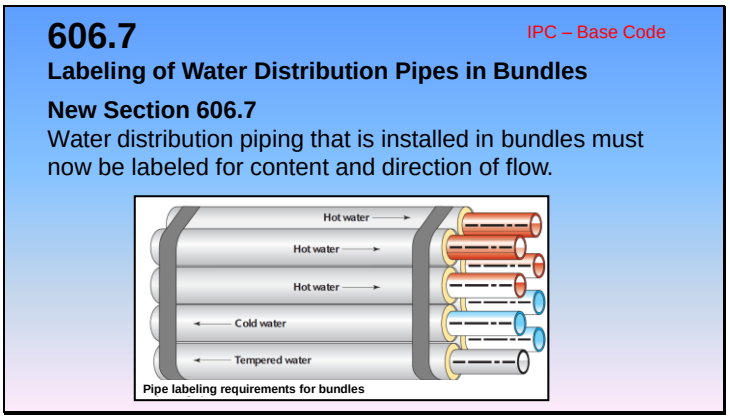

606.7 Labeling of Water Distribution Pipes in Bundles. Where water distribution piping is bundled at installation, each pipe in the bundle shall be identified using stenciling or commercially available pipe labels. The identification shall indicate the pipe contents and the direction of flow in the pipe. The interval of the identification markings on the pipe shall not exceed 25 feet. There shall be not less than one identification label on each pipe in each room, space, or story.

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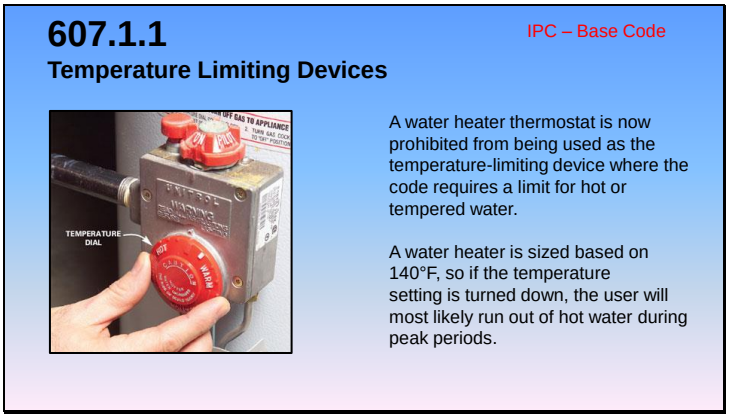

607.1.1 Temperature Limiting Means. A thermostat control for a water heater shall not serve as the temperature-limiting means for the purposes of complying with the requirements of this code for maximum allowable hot or tempered water delivery temperatures at fixtures.

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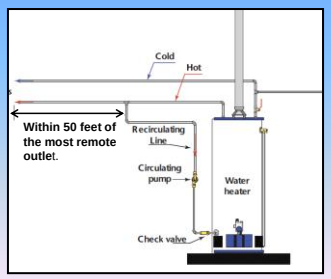
607.2

IPC – Base Code

Hot or Tempered Water Supply to Fixtures

The maximum distance between a hot water supply source and all fixtures served by the supply source has been reduced from 100 feet to 50 feet



607.2 Hot or Tempered Water Supply to Fixtures ~~Supply Temperature Maintenance~~. ~~Where~~ The developed length of hot or tempered water piping, from the source of hot water to the ~~farthest~~ fixtures that require hot or tempered water, shall not exceeds ~~100~~ 50 feet (~~30 480~~ 15240 mm). , the hot water supply system shall be provided with a method of maintaining the temperature in accordance with the Florida Building Code, I~~nternational~~ Energy Conservation ~~Code~~. Recirculating system piping and heat traced piping shall be considered to be sources of hot or tempered water.

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1106.7

Florida Specific

Scupper Sizing

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.

Section 1106.7 Add new section to read as shown:

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

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.
(P5661 AS)

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1107

IPC – Base Code

Siphonic Roof Drainage Systems

The new technology of siphonic roof drainage systems has been found that cost benefits over traditional roof drainage methods can be significant depending on the material used, project size, and project complexity. Siphonic roof drainage systems are made up of roof drains with air baffles complying with ASME A112.6.9. The air baffle prevents vortex flow while restricting air from entering the vertical tailpipe and horizontal collector piping.

ADVANTAGE:
An engineered system which results in flexibility in the placement of stacks, smaller pipe diameters providing equivalent flow rates, and no pitch requirement of piping to induce flow.

SECTION 1107 SIPHONIC ROOF DRAINAGE SYSTEMS
1107.1 General. Siphonic roof drainage systems shall be designed in accordance with ASME A112.6.9 and ASPE 45.

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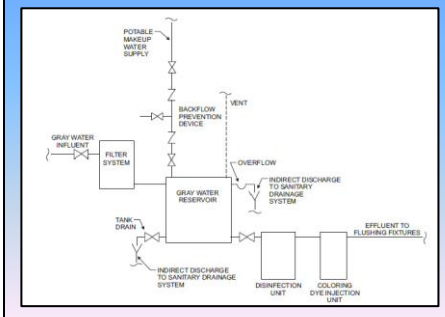
Chapter 13

Florida Specific

Greywater Recycling Systems



Chapter 13 provides criteria for use of “Gray Water” for flushing water closets and urinals only.

Section 1303 Subsurface Landscaping Irrigation Systems. Reserved.

1301.1 Scope. The provisions of Chapter 13 shall govern the materials, design, construction and installation of gray water systems for flushing of water closets and urinals ~~and for subsurface landscape irrigation~~. See Figure~~s~~ 1301.1(1) ~~and 1301.1(2)~~.

FIGURE 1301.1(1~~2~~) GRAY WATER RECYCLING SYSTEM FOR FLUSHING WATER CLOSETS AND URINALS

Section 1301.2 Installation. Change to read as shown:

1301.2 Installation. In addition to the provisions of Section 1301, systems for flushing of water closets and urinals shall comply with Section 1302 ~~and systems for subsurface landscape irrigation shall comply with Section 1303~~. Except as provided for in this chapter, all systems shall comply with the provisions of the other chapters of this code.

1301.3 Materials.

Above-ground drain, waste and vent piping for gray water systems shall conform to one of the standards listed in Table 702.1. Gray water underground building drainage and vent pipe shall conform to one of the standards listed in Table 702.2.

1301.4 Tests.

Drain, waste and vent piping for gray water systems shall be tested in accordance with Section 312.

1301.5 Inspections.

Gray water systems shall be inspected in accordance with Section 107.

1301.6 Potable water connections.

Only connections in accordance with Section 1302.3 shall be made between a gray water recycling system and a potable water system.

1301.7 Waste water connections.

Gray water recycling systems shall receive only the waste discharge of bathtubs, showers, lavatories, clothes washers or laundry trays.

1301.8 Collection reservoir.

Gray water shall be collected in an approved reservoir constructed of durable, nonabsorbent and corrosion-resistant materials. The reservoir shall be a closed and gas-tight vessel. Access openings shall be provided to allow inspection and cleaning of the reservoir interior.

1301.9 Filtration.

Gray water entering the reservoir shall pass through an approved filter such as a media, sand or diatomaceous earth filter.

1301.9.1 Required valve.

A full-open valve shall be installed downstream of the last fixture connection to the gray water discharge pipe before entering the required filter.

1301.10 Overflow.

The collection reservoir shall be equipped with an overflow pipe having the same or larger diameter as the influent pipe for the gray water. The overflow pipe shall be trapped and shall be indirectly connected to the sanitary drainage system.

1301.11 Drain.
A drain shall be located at the lowest point of the collection reservoir and shall be indirectly connected to the sanitary drainage system. The drain shall be the same diameter as the overflow pipe required in Section 1301.10.
1301.12 Vent required.
The reservoir shall be provided with a vent sized in accordance with Chapter 9 and based on the diameter of the reservoir influent pipe.
SECTION 1303 SUBSURFACE LANDSCAPE IRRIGATION SYSTEMS. Reserved.
[Note: Delete and reserve Section 1303 in its entirety]

1303.1 Collection reservoir.-Reserved.

1303.1.1 Identification. Reserved.

1303.2 Valves required. Reserved.

1303.3 Makeup water. Reserved.

1303.4 Disinfection. Reserved.

1303.5 Coloring. Reserved.

1303.6 Estimating gray water discharge. Reserved.

1303.7 Percolation tests. Reserved.

1303.7.1 Percolation tests and procedures. Reserved.

1303.7.1.1 Percolation test hole. Reserved.

1303.7.1.2 Test procedure, sandy soils. Reserved.

1303.7.1.3 Test procedure, other soils. Reserved.

1303.7.1.4 Mechanical test equipment. Reserved.

1303.7.2 Permeability evaluation. Reserved.

1303.8 Subsurface landscape irrigation site location. Reserved.

TABLE 1303.8 LOCATION OF GRAY WATER SYSTEM. Reserved.

1303.9 Installation. Reserved.

1303.9.1 Absorption area.-Reserved.

TABLE 1303.9.1 DESIGN LOADING RATE. Reserved.

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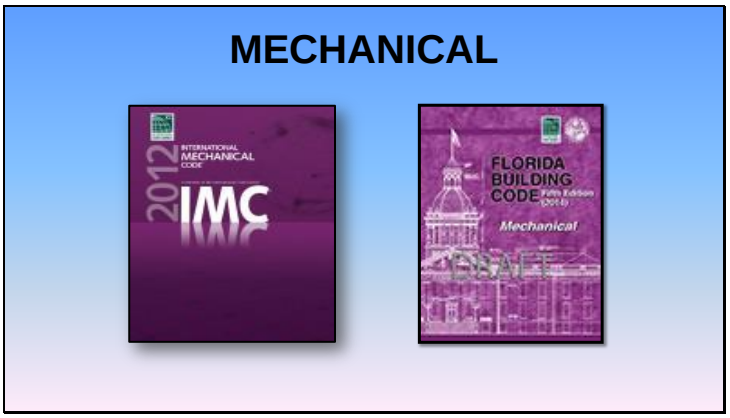

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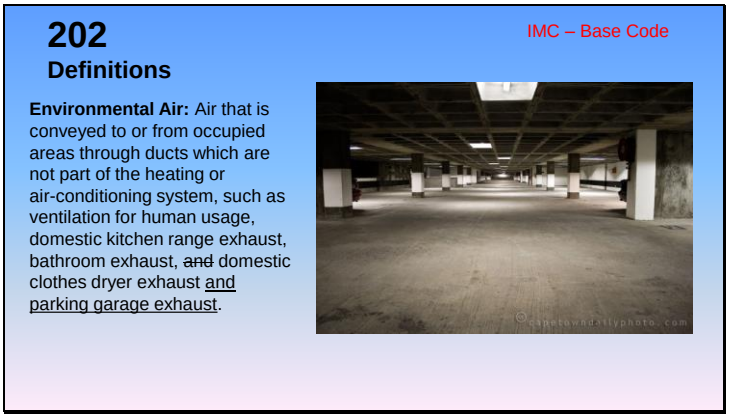

202 Environmental Air: Air that is conveyed to or from occupied areas through ducts which are not part of the heating or air-conditioning system, such as ventilation for human usage, domestic kitchen range exhaust, bathroom exhaust, ~~and~~ domestic clothes dryer exhaust and parking garage exhaust.

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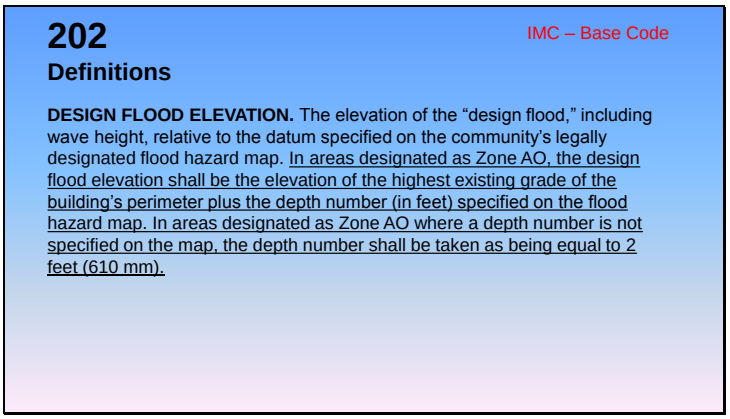

DESIGN FLOOD ELEVATION. The elevation of the "design flood," including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).

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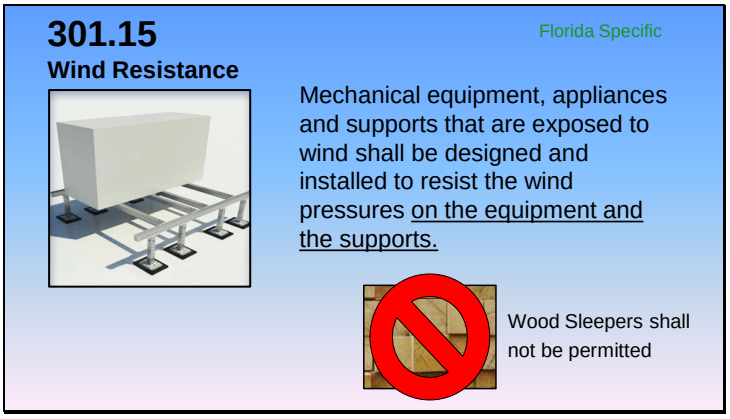

301.15 Wind resistance. Mechanical equipment, appliances and supports that are exposed to wind shall be designed and installed to resist the wind pressures on the equipment and the supports as determined in accordance with the *Florida Building Code, Building*. Roof-mounted mechanical units and supports shall be secured to the structure. The use of wood "sleepers" shall not be permitted.

IMC

301.15 Wind resistance. Mechanical *equipment,* appliances and supports that are exposed to wind shall be designed and installed to resist the wind pressures determined in accordance with the *International Building Code.*

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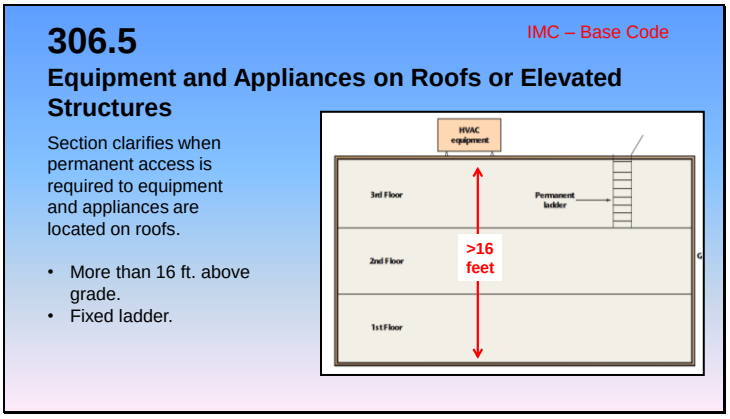

306.5 Equipment and appliances on roofs or elevated structures.
Where equipment requiring access or appliances are located on an elevated structure or the roof of a building such that personnel will have to climb higher than 16 feet (4877 mm) above grade to access such equipment or appliances, an interior or exterior means of access shall be provided. Such access shall not require climbing over obstructions greater than 30 inches (762 mm) in height or walking on roofs having a slope greater than 4 units vertical in 12 units horizontal (33-percent slope). Such access shall not require the use of portable ladders. Where access involves climbing over parapet walls, the height shall be measured to the top of the parapet wall.

Permanent ladders installed to provide the required access shall comply with the following minimum design criteria:

1. The side railing shall extend above the parapet or roof edge not less than 30 inches (762 mm).
2. Ladders shall have rung spacing not to exceed 14 inches (356 mm) on center. The uppermost rung shall be a maximum of 24 inches (610 mm) below the upper edge of the roof hatch, roof or parapet, as applicable.
3. Ladders shall have a toe spacing not less than 6 inches (152 mm) deep.
4. There shall be a minimum of 18 inches (457 mm) between rails.
5. Rungs shall have a minimum 0.75-inch (19 mm) diameter and be capable of withstanding a 300-pound (136.1kg) load.6. Ladders over 30 feet (9144 mm) in height shall be provided with offset sections and landings capable of withstanding 100 pounds per square foot (488.2 kg/m^2).

Landing dimensions shall be not less than 18 inches (457 mm) and not less than the width of the ladder served. A guard rail shall be provided on all open sides of the landing.
7. Climbing clearance. The distance from the centerline of the rungs to the nearest permanent object on the climbing side of the ladder shall be a minimum of 30 inches (762 mm) measured perpendicular to the rungs. This distance shall be maintained from the point of ladder access to the bottom of the roof hatch. A minimum clear width of 15-inches (381 mm) shall be provided on both sides of the ladder measured from the midpoint of and parallel with the rungs except where cages or wells are installed.
8. Landing required. The ladder shall be provided with a clear and unobstructed bottom landing area having a minimum dimension of 30 inches (762 mm) by 30 inches (762 mm) centered in front of the ladder.
9. Ladders shall be protected against corrosion by approved means.
10. Access to ladders shall be provided at all times.

Catwalks installed to provide the required access shall be not less than 24 inches (610 mm) wide and shall have railings as required for service platforms.
Exception: This section shall not apply to Group R-3 occupancies.

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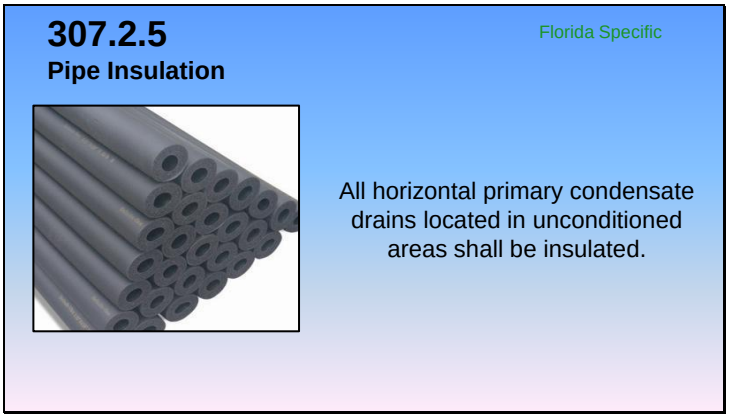

307.2.5 Pipe insulation. All horizontal primary condensate drains within unconditioned areas shall be insulated to prevent condensation from forming on the exterior of the drain pipe.

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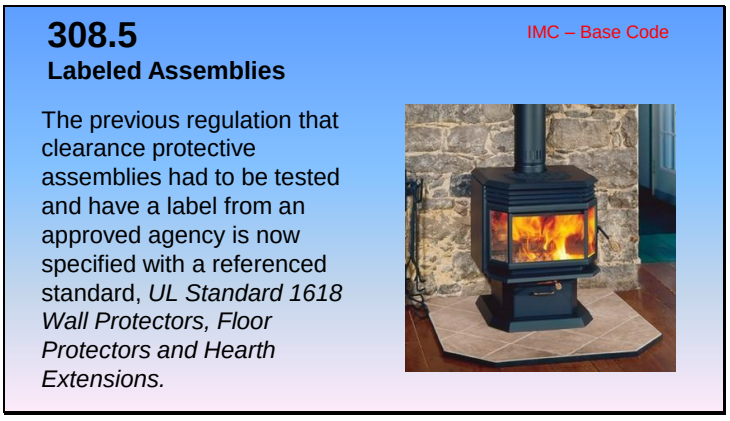

308.5 Labeled Assemblies: The allowable clearance reduction shall be based on an approved reduced clearance protective
Assembly that ~~has been tested and bears the label of an approved agency~~ is listed and labeled in accordance with UL 1618.

This section shall govern the reduction in required clearances to combustible materials and combustible assemblies for chimneys, vents, kitchen exhaust equipment, mechanical appliances, and mechanical devices and equipment.

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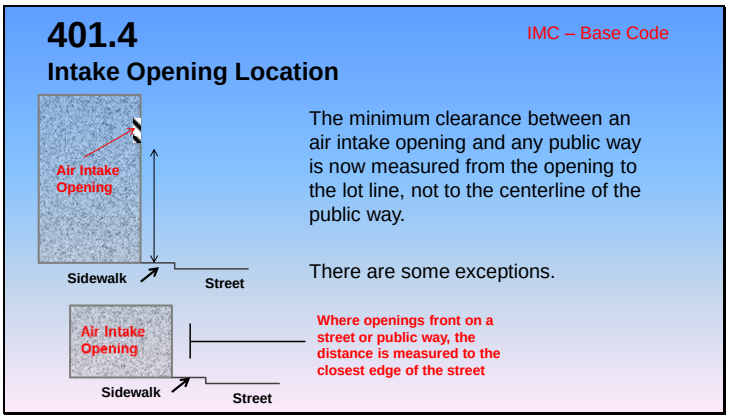

401.4 Intake Opening Location. Air intake openings shall comply with all of the following:
1. Intake openings shall be located a minimum of 10 feet (3048 mm) from lot lines or buildings on the same lot. ~~Where openings front on a street or public way, the distance shall be measured to the centerline of the street or public way.~~

2. Mechanical and gravity outdoor air intake openings shall be located not less than 10 feet (3048 mm) horizontally from any hazardous or noxious contaminant source, such as vents, streets, alleys, parking lots and loading docks, except as specified in Item 3 or Section 501.2.1. Outdoor air intake openings shall be permitted to be located less than 10 feet (3048 mm) horizontally from streets, alleys, parking lots and loading docks provided that the openings are located not less than 25 feet (7620 mm) vertically above such locations. Where openings front on a street or public way the distance shall be measured from the closest edge of the street or public way.
3. Intake openings shall be located not less than 3 feet (914 mm) below contaminant sources where such sources are located
within 10 feet (3048 mm) of the opening.
4. Intake openings on structures in flood hazard areas shall be at or above the ~~design flood level~~ elevation required by Section 1612 of the Florida Building Code, Building for utilities and attendant equipment.

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403.3 IMC – Base Code

Outdoor Airflow Rates

Table 403..3 (Partial)
Minimum Ventilation Rates

Occupancy Classification	Occupant Density #/1000 ft²	People Outdoor Airflow Rate In Breathing Zone R_a CFM/Person	Area Outdoor Airflow Rate In Breathing Zone R_a CFM/FT²[a]	Exhaust Airflow Rate CFM/FT²
Beauty Salons	20	0.12	25	0.6
Nail Salons	25	20	0.12	0.6

e. Rates are per room unless otherwise indicated. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.

h. For nail salons, each nail station shall be provided with a source capture system capable of exhausting not less than 50 cfm per station.

403.3 Outdoor airflow rate.
Ventilation systems shall be designed to have the capacity to supply the minimum outdoor airflow rate determined in accordance with this section. The occupant load utilized for design of the ventilation system shall not be less than the number determined from the estimated maximum occupant load rate indicated in Table 403.3. Ventilation rates for occupancies not represented in Table 403.3 shall be those for a listed occupancy classification that is most similar in terms of occupant density, activities and building construction; or shall be determined by an approved engineering analysis. The ventilation system shall be designed to supply the required rate of ventilation air continuously during the period the building is occupied, except as otherwise stated in other provisions of the code.

With the exception of smoking lounges, the ventilation rates in Table 403.3 are based on the

absence of smoking in occupiable spaces. Where smoking is anticipated in a space other than a smoking lounge, the ventilation system serving the space shall be designed to provide ventilation over and above that required by Table 403.3 in accordance with accepted engineering practice.
Exception: The occupant load is not required to be determined based on the estimated maximum occupant load rate indicated in Table 403.3 where approved statistical data document the accuracy of an alternate anticipated occupant density.

Table 403.3 footnotes
Based upon net occupiable floor area.
Mechanical exhaust required and the recirculation of air from such spaces is prohibited (see Section 403.2.1, Item 3).
Spaces unheated or maintained below 50°F are not covered by these requirements unless the occupancy is continuous.
Ventilation systems in enclosed parking garages shall comply with Section 404.
Rates are per water closet or urinal. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.
Rates are per room unless otherwise indicated. The higher rate shall be provided where the exhaust system is designed to operate intermittently. The lower rate shall be permitted only where the exhaust system is designed to operate continuously while occupied.
Mechanical exhaust is required and recirculation is prohibited except that recirculation shall be permitted where the resulting supply airstream consists of not more than 10 percent air recirculated from these spaces (see Section 403.2.1, Items 2 and 4).
For nail salons, each nail station shall be provided with a source capture system capable of exhausting not less than 50 cfm per station.

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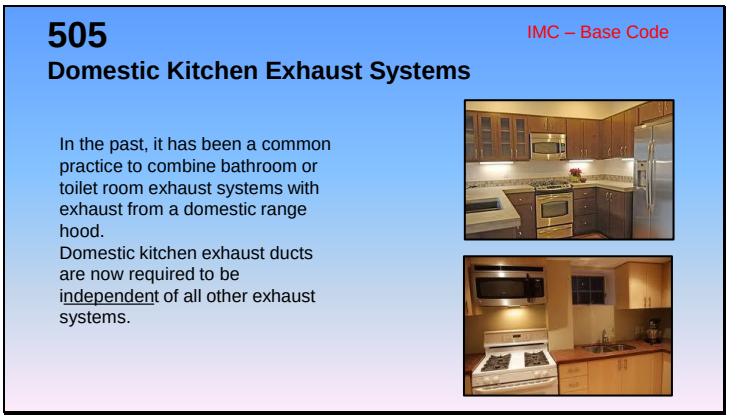

505.1 Domestic Systems. Where domestic range hoods and domestic appliances equipped with downdraft exhaust are located within dwelling units, such hoods and appliances shall discharge to he outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or copper. Such ducts shall have smooth inner walls, ~~and~~ shall be air tight, and shall be equipped with a back-draft damper, and shall be independent of all other exhaust systems.

Exceptions:

1. Where installed in accordance with the manufacturer's installation instructions and where mechanical or natural
ventilation is otherwise provided in accordance with Chapter 4, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.

2. Ducts for domestic kitchen cooking appliances equipped with downdraft exhaust systems shall be permitted to be constructed of Schedule 40 PVC pipe and fittings provided that the installation complies with all of the following:

2.1. The duct shall be installed under a concrete slab poured on grade.

2.2. The under floor trench in which the duct is installed shall be completely backfilled with sand or gravel.

2.3. The PVC duct shall extend not more than 1 inch (25 mm) above the indoor concrete floor surface.

2.4. The PVC duct shall extend not more than 1 inch.

2.5. The PVC ducts shall be solvent cemented.

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MAUSOLEUM RELIEF VENT

515.1 General. A pressure relief vent shall be provided for each crypt. Niches shall not require pressure relief systems.
515.2 Materials. The pressure relief vent pipe and fittings shall conform to one of the standards listed in Table M515.2A and Table M515.2B.

TABLE 515.2A
CRYPT PRESSURE RELIEF PIPE

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe	ASTM D 2661 ASTM F 628 CSA B181.1
Polylefin pipe	CSA CAN/CSA - B181.3
Polyvinyl chloride (PVC) plastic pipe (Type DWV)	ASTM D 2665 ASTM D 2949, ASTM F 891

Table 515.2B
CRYPT PRESSURE RELIEF FITTINGS

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic pipe	ASTM D 3311, CSA B181.1
Polyvinyl chloride (PVC) plastic pipe (Type DWV)	STM D 3311, ASTM D 2949, ASTM F 891
Plastic, general	ASTM F 409

515.3 Pressure Relief Vent. For family mausoleum units where all crypts are bordering an exterior wall, pressure relief ventilation shall be provided from the crypt to the outside of the mausoleum through the exterior wall or roof. For all other mausoleum units, each crypt shall

have a pressure relief vent from the crypt to the roof of the mausoleum. The minimum nominal pipe size shall be 1 inch (25 mm). The system shall have a minimum of one-eighth unit vertical to 12 units horizontal (1-percent slope). The piping shall not be trapped or installed to trap water or condensate.

515.4 Termination. Except for family mausoleum units where all crypts are bordering an exterior wall, crypt pressure relief system shall extend through the roof and terminate at least 6 inches (152 mm) above the roof and at least 10 feet (3048 mm) from any openable opening, air intake, or property line. The termination of the relief system pipe shall be done by a roof and vent cap compatible with the relief pressure pipe. The roof and vent cap shall be waterproof. For family mausoleum units where all crypts are bordering an exterior wall, pressure relief ventilation shall be provided from the crypt to the outside of the mausoleum through the exterior wall or roof.

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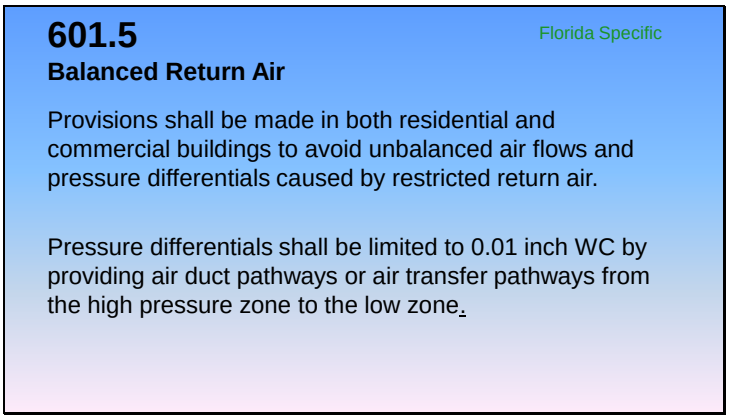

601.5 Balanced Return Air. Restricted return air occurs in buildings when returns are located in central zones and closed interior doors impede air flow to the return grill or when ceiling spaces are used as return plenums and fire walls restrict air movement from one portion of the return plenum to another. Provisions shall be made in both residential and commercial buildings to avoid unbalanced air flows and pressure differentials caused by restricted return air. Pressure differentials across closed doors where returns are centrally located shall be limited to 0.01 inch WC (2.5 pascals) or less. Pressure differentials across fire walls in ceiling space plenums shall be limited to 0.01 inch WC (2.5 pascals) by providing air duct pathways or air transfer pathways from the high pressure zone to the low zone.

Exceptions:

1. Transfer ducts may achieve this by increasing the return transfer 1½ times the cross sectional area (square inches) of the supply duct entering the room or space it's serving and the door having at least an unrestricted 1 inch undercut to achieve proper return air balance.

2. Transfer grilles shall use 50 square inches (of grille area) to 100 cfm (of supply air) for sizing through-the-wall transfer grilles and using an unrestricted 1 inch undercutting of doors to achieve proper return air balance.
3. Habitable rooms only shall be required to meet these requirements for proper balanced return air excluding bathrooms, closets, storage rooms and laundry rooms, except that all supply air into the master suite shall be included.

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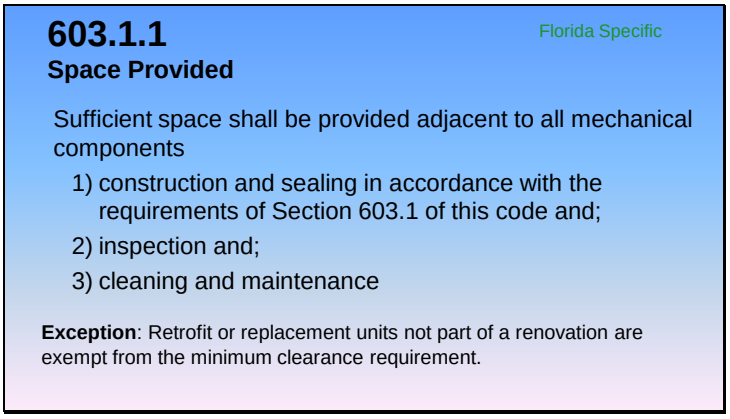

603.1.1 Space provided. Sufficient space shall be provided adjacent to all mechanical components located in or forming a part of the air distribution system to assure adequate access for (1) construction and sealing in accordance with the requirements of Section 603.1 of this code; (2) inspection; and (3) cleaning and maintenance. A minimum of 4 inches (102 mm) is considered sufficient space around air handling units.
Exception: Retrofit or replacement units not part of a renovation are exempt from the minimum clearance requirement.

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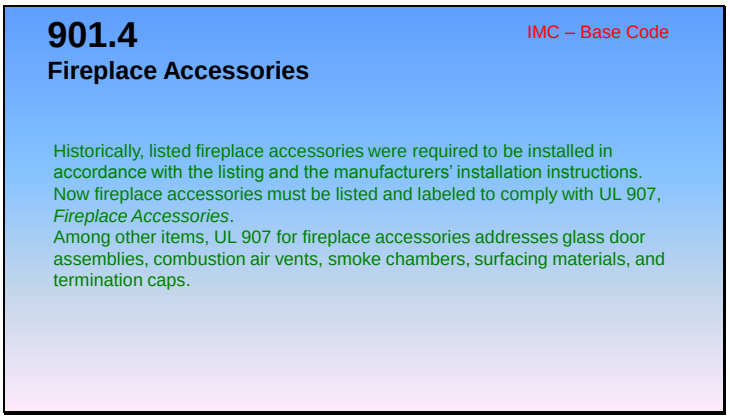

901.4 Fireplace Accessories. Listed and labeled fireplace accessories shall be installed in accordance with the conditions of the listing and the manufacturer's installation instructions. Fireplace accessories shall comply with UL 907.

Chapter 15
UL
907-94 Fireplace Accessories–with revisions through July 2006

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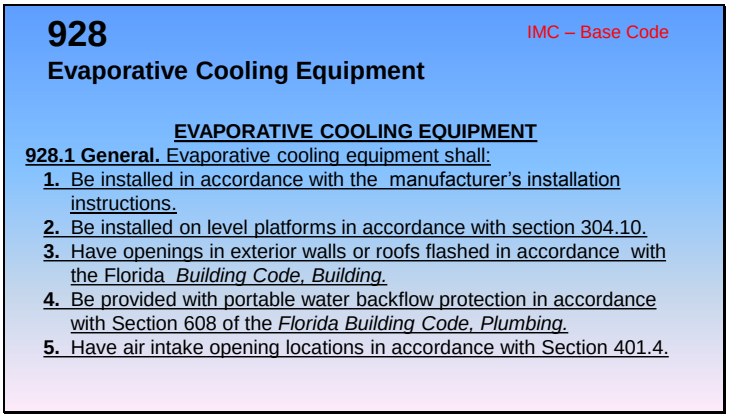

SECTION 928
EVAPORATIVE COOLING EQUIPMENT
928.1 General. Evaporative cooling equipment shall:
1. Be installed in accordance with the manufacturer's installation instructions.
2. Be installed on level platforms in accordance with section 304.10.

3. Have openings in exterior walls or roofs flashed in accordance with the Florida *Building Code, Building.*
4. Be provided with portable water backflow protection in accordance with Section 608 of the *Florida Building Code, Plumbing.*
5. Have air intake opening locations in accordance with Section 401.4.

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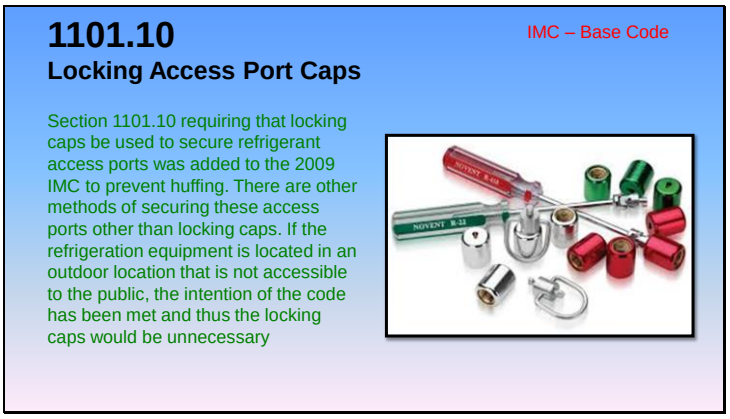

1101.10 Locking Access Port Caps. Refrigerant circuit access ports located outdoors shall be fitted with locking-type tamper-resistant caps or shall be otherwise secured to prevent unauthorized access.

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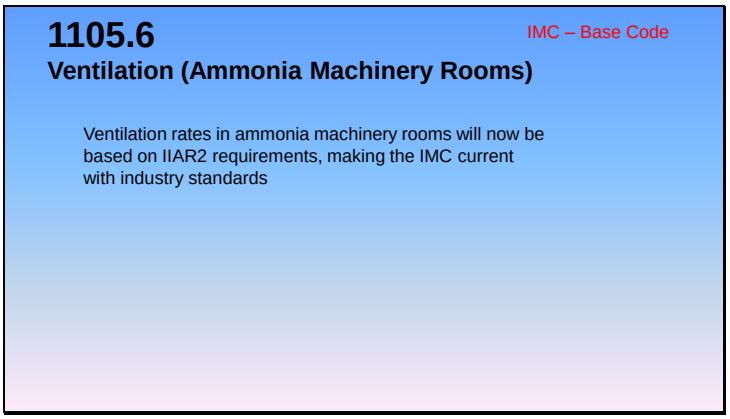

1105.6 Ventilation. Machinery rooms shall be mechanically ventilated to the outdoors. Mechanical ventilation shall be capable of exhausting the minimum quality of air both at the normal operating and emergency conditions. Multiple fans or multispeed fans shall be allowed

in order to produce the emergency ventilation rate and to obtain a reduced airflow for normal ventilation.
Exception: (no changes to text)
1105.6.3 Ventilation Rate. For the other than ammonia systems, the mechanical ventilation systems shall be capable of exhausting the minimum quantity of air both at normal operating and emergency conditions, as required by Sections 1105.6.3.1 and 1105.6.3.2. The minimum required ventilation rate for ammonia shall be 30 air changes per hour, in accordance with IIAR2. Multiple fans or multispeed fans shall be allowed to produce the emergency ventilation rate and to obtain a reduced airflow for normal ventilation.
CHANGE SIGNIFICANCE: Ventilation caps or shall be otherwise secured to prevent unauthorized access.

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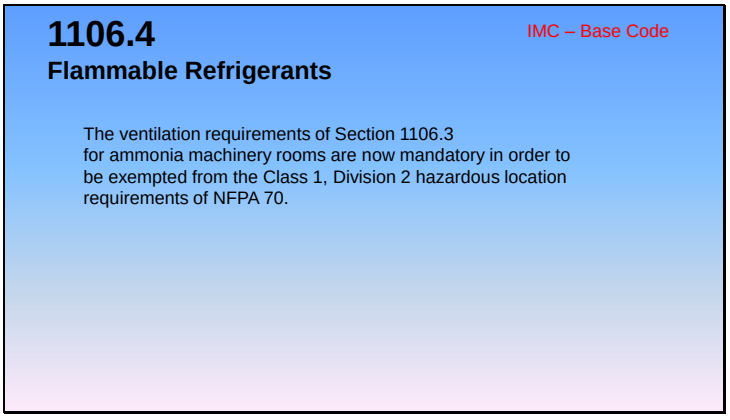

1106.4 Flammable refrigerants.
Where refrigerants of Groups A2, A3, B2 and B3 are used, the *machinery room* shall conform to the Class 1, Division 2, *hazardous location* classification requirements of NFPA 70.

Exception: Ammonia machinery rooms that are provided with ventilation in accordance with Section 1106.3.

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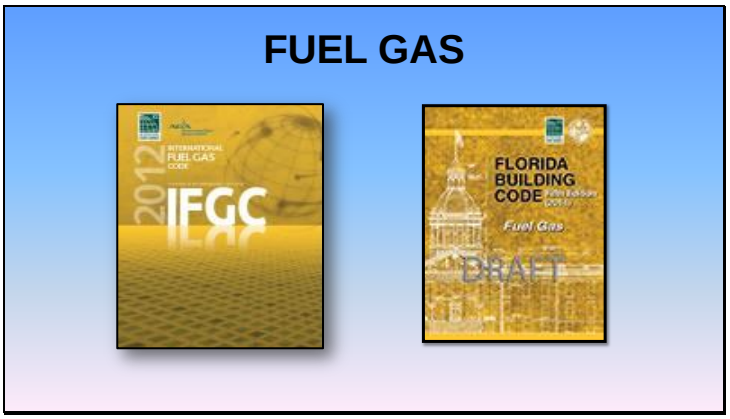

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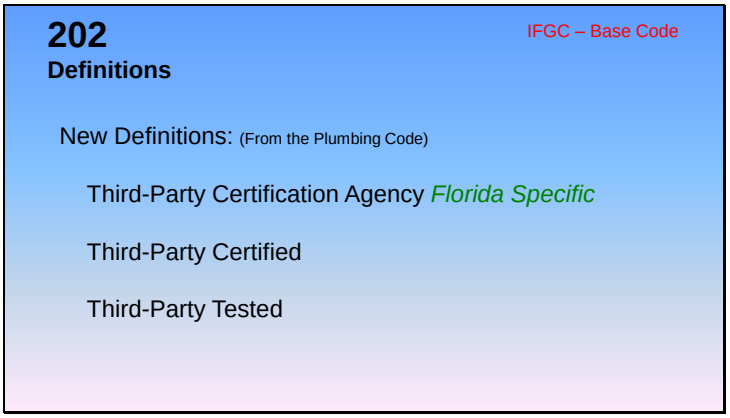

THIRD-PARTY CERTIFICATION AGENCY. An approved agency operating a product or material certification system that incorporates initial product testing, assessment and surveillance of a manufacturer's quality control system.

THIRD-PARTY CERTIFIED. Certification obtained by the manufacturer indicating that the function and performance characteristics of a product or material have been determined by testing and ongoing surveillance by an approved third-party certification agency. Assertion of certification is in the form of identification in accordance with the requirements of the third-party certification agency.

THIRD-PARTY TESTED. Procedure by which an approved testing laboratory provides documentation that a product, material or system conforms to specified requirements.

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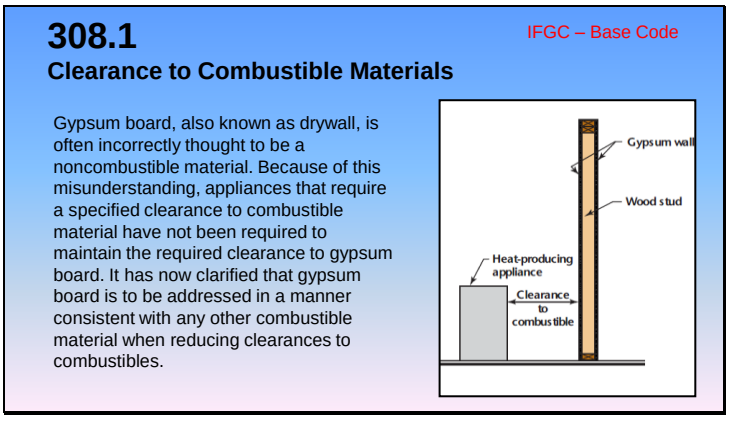

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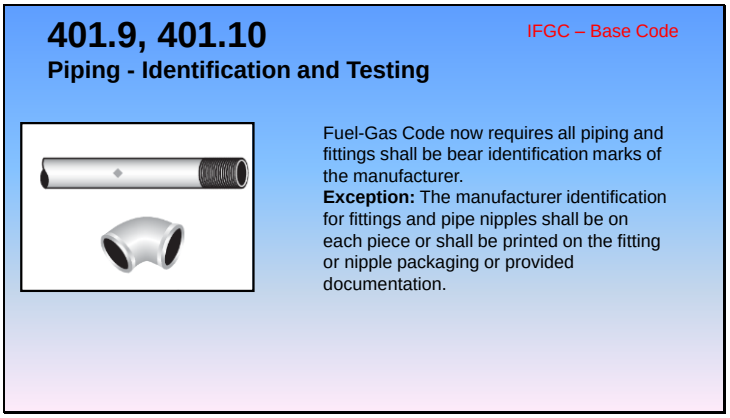

401.9 Identification. Each length of pipe and tubing and each pipe fitting, utilized in a fuel gas system, shall bear the identification of the manufacturer.
Exception: The manufacturer identification for fittings and pipe nipples shall be on each piece or shall be printed on the fitting or nipple packaging or provided documentation.

401.10 Third-party testing and certification.
All piping, tubing and fittings shall comply with the applicable referenced standards, specifications and performance criteria of this code and shall be identified in accordance with Section 401.9. Piping, tubing and fittings shall either be tested by an approved third-party testing agency or certified by an approved *third-party certification agency.*

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404.2 CSST. CSST piping systems shall be installed in accordance with the terms of their approval, the conditions of listing, the
manufacturer's installation instructions and this code.
~~**404.16**~~ **404.18 Prohibited Devices.** A device shall not be placed inside the piping or fittings that will reduce the cross-sectional
area or otherwise obstruct the free flow of gas.
Exceptions:
1. Approved gas filters.
2. An approved fitting or device where the gas piping system has been sized to accommodate the pressure drop of the fitting or device.

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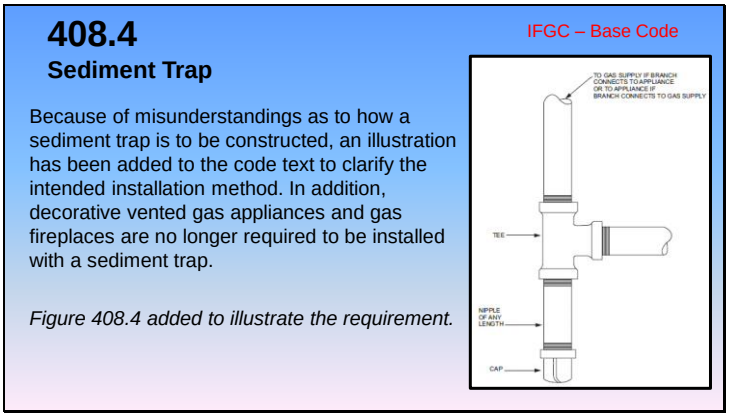

408.4 Sediment Trap. Where a sediment trap is not incorporated as part of the appliance, a sediment trap shall be installed

downstream of the appliance shutoff valve as close to the inlet of the appliance as practical. The sediment trap shall be either a tee fitting having a capped nipple of any length installed vertically in the bottommost opening of the tee as illustrated in Figure 408.4 or other device approved as an effective sediment trap. Illuminating appliances, ranges, clothes dryers, decorative vented appliances for installation in vented fireplaces, gas fireplaces and outdoor grills need not be so equipped.

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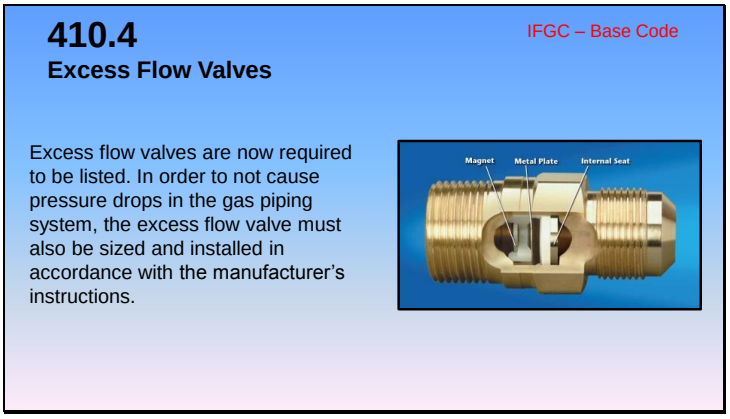

410.4 Excess Flow Valves. Where automatic excess flow valves are installed, they shall be listed for the application and shall be
sized and installed in accordance with the manufacturers' instructions.

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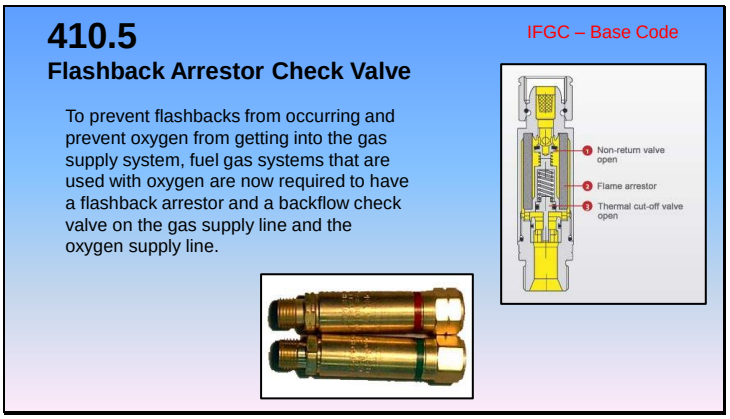

Flashback Arrestor Check Valve. A device that will prevent the backflow of one gas into the supply system of another gas, and prevent the passage of flame into the gas supply system.

410.5 Flashback Arrestor Check Valve. Where fuel gas is used with oxygen in any hot work operation, a listed protective device that serves as a combination flashback arrestor and backflow check valve shall be installed at an approved location on both the fuel gas and oxygen supply lines. Where the pressure of the piped fuel gas supply is insufficient to ensure such safe operation, approved equipment shall be installed between the gas meter and the appliance that increases pressure to the level required for such safe operation.