



# BROWARD COUNTY BOARD OF RULES AND APPEALS

March 29, 2012

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## **Local Technical Amendment County of Broward**

**Code Version:** 2010 Florida Building Code  
**Sub Code:** Residential  
**Chapter & Topic:** Chapter 29 – Water Supply and Distribution  
**Section:** Section P2903 Water-Supply System  
**Short Description:** Modifications to Maximum Flow and Water Consumption  
**Effective Date:** 6/01/2012  
**Number of paragraphs with changes:** 1

Reviewed and Legally Adopted: 3/15/2012

**TABLE P2902.3.1  
MINIMUM AIR GAPS**

FIXTURE	MINIMUM AIR GAP	
	Away from a wall <sup>a</sup> (inches)	Close to a wall (inches)
Effective openings greater than 1 inch	Two times the diameter of the effective opening	Three times the diameter of the effective opening
Lavatories and other fixtures with effective opening not greater than 1/2 inch in diameter	1	1.5
Over-rim bath fillers and other fixtures with effective openings not greater than 1 inch in diameter	2	3
Sink, laundry trays, gooseneck back faucets and other fixtures with effective openings not greater than 3/4 inch in diameter	1.5	2.5

For SI: 1 inch = 25.4 mm.

- a. Applicable where walls or obstructions are spaced from the nearest inside edge of the spout opening a distance greater than three times the diameter of the effective opening for a single wall, or a distance greater than four times the diameter of the effective opening for two intersecting walls.

introduced into the system, the potable water connection shall be protected by an air gap or a reduced pressure principle backflow preventer complying with ASSE 1013, CSA B64.4 or AWWA C511.

**P2902.5.2 Heat exchangers.** Heat exchangers using an essentially toxic transfer fluid shall be separated from the potable water by double-wall construction. An air gap open to the atmosphere shall be provided between the two walls. Heat exchangers utilizing an essentially nontoxic transfer fluid shall be permitted to be of single-wall construction.

**P2902.5.3 Lawn irrigation systems.** The potable water supply to lawn irrigation systems shall be protected against backflow by an atmospheric-type vacuum breaker, a pressure-type vacuum breaker or a reduced pressure principle backflow preventer. A valve shall not be installed downstream from an atmospheric vacuum breaker. Where chemicals are introduced into the system, the potable water supply shall be protected against backflow by a reduced pressure principle backflow preventer.

**P2902.5.4 Connections to automatic fire sprinkler systems.** The potable water supply to automatic fire sprinkler systems shall be protected against backflow by a double check-valve assembly or a reduced pressure principle backflow preventer.

**Exception:** Where systems are installed as a portion of the water distribution system in accordance with the requirements of this code and are not provided with a fire department connection, isolation of the water supply system shall not be required.

**P2902.5.4.1 Additives or nonpotable source.** Where systems contain chemical additives or antifreeze, or where systems are connected to a nonpotable secondary water supply, the potable water supply shall be protected against backflow by a reduced pressure principle

backflow preventer. Where chemical additives or anti-freeze is added to only a portion of an automatic fire sprinkler or standpipe system, the reduced pressure principle backflow preventer shall be permitted to be located so as to isolate that portion of the system.

**P2902.5.5 Solar systems.** The potable water supply to a solar system shall be equipped with a backflow preventer with intermediate atmospheric vent complying with ASSE 1012 or a reduced pressure principle backflow preventer complying with ASSE 1013. Where chemicals are used, the potable water supply shall be protected by a reduced pressure principle backflow preventer.

**Exception:** Where all solar system piping is a part of the potable water distribution system, in accordance with the requirements of the *Florida Building Code, Plumbing*, and all components of the piping system are listed for potable water use, cross-connection protection measures shall not be required.

**P2902.6 Location of backflow preventers.** Access shall be provided to backflow preventers as specified by the manufacturer's installation instructions.

**P2902.6.1 Outdoor enclosures for backflow prevention devices.** Outdoor enclosures for backflow prevention devices shall comply with ASSE 1060.

**P2902.6.2 Protection of backflow preventers.** Backflow preventers shall not be located in areas subject to freezing except where they can be removed by means of unions, or are protected by heat, insulation or both.

**P2902.6.3 Relief port piping.** The termination of the piping from the relief port or air gap fitting of the backflow preventer shall discharge to an *approved* indirect waste receptor or to the outdoors where it will not cause damage or create a nuisance.

**SECTION P2903  
WATER-SUPPLY SYSTEM**

**P2903.1 Water supply system design criteria.** The water service and water distribution systems shall be designed and pipe sizes shall be selected such that under conditions of peak demand, the capacities at the point of outlet discharge shall not be less than shown in Table P2903.1. Table P2903.2b shall be permitted to be used to size the water service or water distribution system.

**TABLE P2903.1  
REQUIRED CAPACITIES AT  
POINT OF OUTLET DISCHARGE**

FIXTURE AT POINT OF OUTLET	FLOW RATE (gpm)	FLOW PRESSURE (psi)
Bathtub, pressure-balanced or thermostatic mixing valve	4	20
Bidet, thermostatic mixing	2	20
Dishwasher	2.75	8
Laundry tub	4	8
Lavatory	2	8
Shower, pressure-balancing or thermostatic mixing valve	3	20
Silcock, hose bibb	5	8
Sink	2.5	8
Water closet, flushometer tank	1.6	20
Water closet, tank, close coupled	3	20
Water closet, tank, one-piece	6	20

For SI: 1 gallon per minute = 3.785 L/m,  
1 pound per square inch = 6.895 kPa.

**P2903.2 Maximum flow and water consumption.** The maximum water consumption flow rates and quantities for all plumbing fixtures and fixture fittings shall be in accordance with Table P2903.2.

**TABLE P2903.2  
MAXIMUM FLOW RATES AND CONSUMPTION FOR  
PLUMBING FIXTURES, AND FIXTURE FITTINGS<sup>a</sup> AND APPLIANCES**

PLUMBING FIXTURE OR FIXTURE FITTING	PLUMBING FIXTURE OR FIXTURE FITTING
Lavatory faucet	2-2-1.5 gpm at 60psi
Shower head <sup>a</sup>	2-2-1.5 gpm at 80psi
Sink faucet	2-2-1.5 gpm at 80psi
Water Closet	4-6-1.28 gallons per flushing cycle
Dishwasher (Residential)	6.5 gallons per cycle or less (Energy Star/Water Sense Certified) <sup>(c) *</sup>
Washing Machine	Water factor of 8 or lower (Energy Star/Water Sense Certified) (c) *

For SI: 1 gallon per minute = 3.785 L/m,  
1 pound per square inch = 6.895 kPa. \* If Installed

- a. A handheld shower spray is also a shower head.
- b. Consumption tolerances shall be determined from referenced standards.
- c. Water factor in gallons per cycle per cubic foot

**TABLE P2903.2b  
MINIMUM WATER SERVICE SIZE<sup>a</sup>**

NO. OF FIXTURE UNITS FLUSH TANK WC <sup>b</sup>	DIAMETER OF WATER PIPE <sup>c</sup>	RECOMMENDED METER SIZE (inches) <sup>d</sup>	APPROX. PRESSURE LOSS METER + 100' PIPE (psi) <sup>e</sup>	NO. OF FIXTURE UNITS FLUSH VALVE WC <sup>b</sup>
18	3/4	5/8	30	—
19-55	1	1	30	—
—	1	1	30	9
56-85	1 1/4	1	30	—
—	1 1/4	1	30	10-20
86-225	1 1/2	1 1/2	30	—
—	1 1/2	1 1/2	30	21-77
226-350	2	1 1/2	30	—
—	2	1 1/2	30	78-175
351-550	2	2	30	—
—	2	2	30	176-315
551-640	2 1/2	2	30	—
—	2 1/2	2	30	316-392
641-1340	3	3	22	—
—	3	3	22	393-940

- a. Table is applicable for both copper and plastic water piping.
- b. See Table P3004.1 for fixture unit values.
- c. Minimum water service shall be 3/4" to control valve.
- d. All secondary submeters and backflow assemblies shall be at least the same size as the line in which they are installed.
- e. Table based on minimum water main pressure of 50 psi.

**P2903.3 Minimum pressure.** Minimum static pressure (as determined by the local water authority) at the building entrance for either public or private water service shall be 40 psi (276 kPa).

**P2903.3.1 Maximum pressure.** Maximum static pressure shall be 80 psi (551 kPa). When main pressure exceeds 80 psi (551 kPa), an approved pressure-reducing valve conforming to ASSE 1003 shall be installed on the domestic water branch main or riser at the connection to the water-service pipe.

**P2903.4 Thermal expansion control.** A means for controlling increased pressure caused by thermal expansion shall be installed where required in accordance with Sections P2903.4.1 and P2903.4.2.

**P2903.4.1 Pressure-reducing valve.** For water service system sizes up to and including 2 inches (51 mm), a device for controlling pressure shall be installed where, because of thermal expansion, the pressure on the downstream side of a pressure-reducing valve exceeds the pressure-reducing valve setting.

**P2903.4.2 Backflow prevention device or check valve.** Where a backflow prevention device, check valve or other device is installed on a water supply system using storage water heating equipment such that thermal expansion



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### BROWARD COUNTY LOCAL AMENDMENT Proposed Modification to the Florida Building Code

Per Section 553.73, Fla Stat

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Code: Florida Building Code – Residential \_\_\_\_\_

Section #: P2903 Water Supply System, Table P2903.2 b \_\_\_\_\_

Text of Modification (additions underlined; deletion ~~stricken~~):

Please see attachment.

#### Respond to the following questions:

1. How is the local amendment more stringent than the minimum standards described in the FBC?

*This Amendment exceeds minimum standards by reducing plumbing fixture water flow rates currently required by the Florida Building Code "Plumbing" thereby increasing water conservation standards.*

2. Demonstrate or provide evidence or data that the geographical jurisdiction governed by the local governing body exhibits a local need to strengthen the FBC beyond the needs or regional variation addressed by the FBC.

*Water conservation is an essential part of the Broward water supply plan and implementation of high efficiency plumbing requirements is supported by the Broward County Board of County Commissioners, the Broward League of Cities and the Broward Water Resources Task Force. The Biscayne Aquifer is the primary source of drinking water for all of Broward County and offers the lowest cost water supply for the region. However, concerns about future water availability resulted in the permanent restrictions on withdrawals from this Aquifer while saltwater intrusion limits withdrawals from two coastal well fields and threatens several others. Efforts to conserve water are essential to preserving the capacity of existing water sources while reducing the need to develop alternative water supplies which will impose a substantial cost to rate payers.*



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3. Explain how the local need is addressed by the proposed local amendment.

*This modification will help reduce the water demands on our Biscayne Aquifer while not creating a health or inconvenience problem for the residents of this area.*

4. Explain how the local amendment is no more stringent than necessary to address the local need.

*The local need of water conservation is very serious as mandated by the Broward Commission. The establishment of this amendment is only one of the means to help prevent a water shortage situation.*

5. Are the additional requirements discriminatory against materials, products, or construction techniques of demonstrated capabilities?

*Due to the advancement in technology by all Plumbing Fixture manufacturers and the need for additional water conservation, this amendment would have little to no recognizable impact on materials, products or construction developments.*

6. Indicate whether or not additional requirements introduce a new subject not already addressed in the FBC.

*This amendment is modifying existing verbiage of the Florida Building Code "Plumbing", therefore it does not address a new subject.*

7. Include a fiscal impact statement which documents the costs and benefits of the proposed amendment. Criteria for the fiscal impact statement shall include a, b, and c:

- a) Impact to local government, relative to enforcement.
- b) Impact to property and building owners relative to cost of compliance.
- c) Impact to industry relative to the cost of compliance

- a) *No impact.*
- b) *This modification will reduce impact fees charged by Broward County.*
- c) *No impact.*

**Broward BORA Public hearing and Vote 3/15/2012**

**Amendment Effective date: 6/1/2012**