

Plumbing Changes

Summary of Costs increases and decreases

Item No	Increase		Decrease	
	Material	Labor	Material	Labor
1	\$40.00	\$20.00		
2	\$5.00	\$0.00		
3	\$40.00	\$0.00		
4	\$10.00	\$20.00		
5			(20.00)	0.00
6			(30.00)	0.00
7			(15.00)	0.00
8			(20.00)	(20.00)

Total	\$95.00	\$40.00	-\$85.00	-\$20.00
	\$135.00		-\$105.00	

Net increase:	\$30.00
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November 8, 2001

State of Florida
Department of Community Affairs
2555 Shumard Oak Boulevard
Tallahassee, FL 32399-2100

ATTN: Mo Madani

RE: Plumbing Code Review

Dear Mo:

I have reviewed the requirements of the Florida Building Code – Plumbing. The purpose of my review was to determine the cost impact on single-family homes. I have identified several areas that may affect costs, and have attempted to quantify them, based on a typical single-story, 2-1/2-bath house.

1. Pipe protection (305.8) The new code requires all pipes to be protected when passing through studs, as well as at the floor and the top plates. These shield plates will be larger, thicker and more numerous than before.

Additional cost \$40 material, \$20 labor

2. Purple primer (705.12.2) Purple primer must be used on all PVC joints. The color is an indicator for the inspector. Purple primer will result in a sloppy-looking job, and extra care must be taken to prevent staining of floors, cabinets, etc.

Additional cost \$5 material, \$0 labor

3. Water hammer arrestors (604.9) Traditional air chambers are ineffective. The new code requires ASSE 1010 water hammer arrestors on all quick closing (i.e. solenoid) valves. This means the washing machine (2), dishwasher (1) and icemaker (1).

Additional material costs \$40, \$0 labor

4. Thermal expansion control (607.3) Every water supply system that is protected by a backflow preventer (practically all of them) will require a thermal expansion device to



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limit system pressure to 80 psi. Options include a small bladder tank, or an adjustable pressure relief valve, set at 80 psi.

Additional cost \$10 material, \$20 labor

5. Relief valve discharge (504.7.1) Water heater relief lines will not be permitted to loop underground. They will discharge to an observable point (the floor, outside the building, or to an indirect waste). An air gap must be located in the same room as the water heater. As a result, most plumbers will opt to pipe the relief line directly to the floor, or to the water heater pan if one is installed.

Cost savings \$20 material, \$0 labor

6. Reduced drainage and vent sizing (Chapters 7 and 9) Drainage sizing tables have been adjusted to reflect reduced flow rates. Venting requirements are relaxed; a 3" VTR is no longer required. Typical three and four-bath houses can be piped entirely in 3-inch, instead of 4-inch – right out to the sewer connection.

Cost savings \$30 material, \$0 labor

7. Tub/shower shutoff valves (606.2) The new code deletes the requirement for individual shutoff valves as tubs and showers. However, many plumbers find them useful and may continue to install them.

Cost savings \$15 material, \$0 labor

8. Recessed showers (417.5.2) Shower pans will not be required on recessed showers.

Cost savings \$20 material, \$20 labor

These figures are approximate, and based on my personal experience and opinions. Additional costs or savings may vary, depending on design/layout, owner/contractor preference, and level of enforcement.

I hope you will find this review useful. If I may be of any other assistance, please feel free to call.

Sincerely,

RIDGEWAY PLUMBING, INC.


Gary Kozan
Vice President

Plumbing Code:

- N/C 1. S. 303.4.1, Identification. Requires that mark to be cast, embossed, stamped on each length of pipe and each pipe fitting, trap, etc. in accordance with the approved applicable standards.
- N/C 2. S. 303.3 Plastic pipe, fittings and component. Requires identification with the mark of an approved agency as conforming to NSF Standard 14.
- N/C 3. S. 303.4 Labeled. Extends labeling requirements to appliances.
- N/C 4. S. 304, Rodentproofing. Adds requirements for strainer plates with opening not greater than 1/2 inch on drain inlets. Adds requirements to make meter boxes rodent proof. Revises SPC 1994, to require metal collars for penetration of all walls, floors, and ceilings whether interior walls or exterior.
- N/C 5. S. 705.16 Caulking ferrules. Caulking ferrules are limited to red brass.
- N/C 6. S. 405.4.1 Floor flanges. Adds plastic floor flanges and the minimum thickness for plastic floor flanges. Also, adds provisions for hard lead floor flanges.
- N/C 7. S. 708.2 Cleanout plugs. Limits use of brass cleanout plugs to metallic drain, waste, and vent piping only.
- N/C 8. S. 305.5 Pipes through or under footings or foundation walls. Extends provisions to any pipe. Applies the requirements to all foundation wall, not just masonry foundation walls.
- N/C 9. S. 305.6 Freezing. Adds attics or crawl spaces to list of pipe locations which must be protected. Also, adds requirement that protection be by insulation, heat or both.
- F 60 10. S. 305.8 Protection against physical damage. Stipulates provisions apply in concealed locations. Also, adds new requirement that shield plates extend a minimum of two inches above sole plates and below top plates.
- N/C 11. S. 306.2 Trenching and bedding. New sections provide detailed provisions addressing trenching, bedding, overexcavation, rock removal, and soils with poor loadbearing characteristics. Requires bottom of trench forming bed for pipe to provide solid and continuous loadbearing support between joints. Requires the use of bell holes, hub holes, and coupling holes at joints. Requires support of pipe on blocks. Requires overexcavation to be backfilled with sand or gravel to the installation level of the bottom of the pipe in layers of 6 inches with compaction between layers. Requires rock be removed to a minimum of 3 inches below bottom of pipe and trench to be backfilled with sand. Prohibits pipe or joints from resting on rock. Requires overexcavation a minimum of two pipe diameters below bottom of pipe with backfilling of fine gravel, crushed stone, or a concrete foundation. Concrete foundations are

required to be bedded with tamped sand to provide uniform loadbearing support for pipe between joints. Requires backfill to be loose earth free from rocks and any other debris. Requires backfilling under and beside pipe.

N/C

12. S 307.3 Penetration of floor-ceiling assemblies and fire-resistance-rated assemblies. Add requirements to protect penetrations of floor - ceiling assemblies in accordance with the Florida Building Code.

N/C

13. S 605.22 Joint between different materials. Revises section to specify the requirements for specific materials and applicable standards for joints between different materials.

N/C

14. S. 705.15 Drainage slip joints. Requires use of elastomeric gasket. Deletes provision allowing use of slip joints for water piping.

N/C

15. S. 309.6 Expansion joints. Adds requirements that expansion joint fittings be of a material suitable for the type of piping used.

N/C

16. S. 305.3 Stress and strain. Adds provision requiring installation to prevent strains and stresses in excess of the strength of the pipe. Revises requirement to protect pipes from expansion, contraction and structural settlement in all cases to those "where necessary".

N/C

17. S 308.3 Materials. Specifies hangers, anchors, and supports are required to support piping and contents. Adds requirement for materials to be such that galvanic corrosion is not promoted.

N/C

18. S. 308. Adds new table, Table 308.5, Hanger Spacing for pipes.

N/C

19. S. 308.9 Stacks. Stipulates how the bases of stacks are to be supported.

N/C

20. S. 308.6 Sway bracing. Requires sway bracing at changes of direction greater than 45 degrees for pipe sizes of 4 inches or greater. Requires restraint from axial movement for all drainage piping. Stipulates restraints are to be placed at changes of direction for pipes greater than 4 inches and at all changes of diameter greater than two pipe sizes. Requires restraints to be as specified by the coupling manufacturer.

N/C

21. S. 309 Floodproofing. Specific requirements for floodproofing.

N/C

22. S. 311.1 General. Adds requirement for toilet facilities for construction workers.

N/C

23. S. 310.3 Interior finish. Adds reference to FBC -B for interior finish in toilet rooms.

N/C

24. 312.2 Drainage and vent water test. Decreases 10 - foot head test to 5-foot head test (feet of water).

N/C

25. S. 312.5 Water supply system test. Deletes requirement to test at 25 psi over a water supply system's working pressure. Provides option for testing with air at 50 psi for all but plastic

pipng. Revises section to require pressure to be maintained at least 15 minutes. Specifies sewer is to be water tight at all points.

N/C 26. S. 312.7 Forced sewer test. Revises section to required pressure to be maintained at least 15 minutes.

N/C 27. S. 312.9 Inspection and testing of backflow prevention assemblies. Required periodic testing and inspection.

N/C 28. S. 409.3.2 Revised backflow protection requirements for dishwashing machines.

-340 29. S. 417.5.2 Shower pans are not required under recessed showers.

N/C 30. S. 424.4 Requires all showers and tub/shower combinations to have anti-scald devices. Deleted the exception for residential applications.

N/C 31. S. 504.7.2 Deleted the requirement for the relief valve discharge to have an air break before leaving the room where the water heater is installed.

N/C 32. S. 504.8 Required pan. Deleted "in locations where leakage of the tanks or connections will cause damage" and added instead "above the ground floor space, on in attics or in ceilings".

N/C 33. S. 504.8.1 Pan size and drain. Deleted "or the outlet diameter of the required relief valve, whichever is larger" with out substitution.

N/C 34. S. 603.1 Added simple table for sizing water service line based on fixture units served. 601.1 also allows the water distribution system to be sized with Table 603.1. (Note: the provisions of this table is less stringent that the 1994 SPC.)

N/C 35. S. 605.16 Allows solvent cementing of CPVC with primer (orange cement) and without primer (yellow cement). Cementing without primer is only permitted for tube and fittings manufactured per ASTM D2846.

+5 36. S. 705.12.2 Purple primer required for PVC joints.

N/C 37. S. 706.3 Table for allowable fittings for change in direction.

N/C 38. S. Cleanouts. All building sewers and horizontal drains mut have cleanouts every 100 feet (94 SPC only required this for 8" and larger sewers). Required at each change in direction greater than 45 degree. Required at the base of soil or waste stacks.

-307 39. Table 709.1 Some changes in DFUs for fixtures (1.6 gpf bathroom group - 5 dfu (6 in 94). Kitchen sink w/DW and disposal - 2 dfu (3). Residential clothes washer - 2 dfu (3).

40. S. 710 Drainage system sizing. No limit on water closets on a 3" building sewer of drain.

More dfus allowed on 3" building drain.

N/C 41. S. 802.1 Air breaks required for food handling fixtures.

77/40 } 42. S. 903.1 Main vent may be smaller than 3".

43. Wet venting permitted. Any combination of fixtures within 2 bathroom groups. Fixtures may be connected in any order. 3" wet vent can receive 12 dfus.

N/C 44. S. 911 Circuit venting (Battery venting or circuit loop venting in 94 SPC) simplified requirements.

N/C 45. S. 916 Vent sizing. Minimum vent size is one-half the diameter of the drain.

N/C 46. S. 1002.4 Traps subject to evaporation must be either deep seal type or have a trap primer.

N/C 47. S. 1106 Sizing tables are simpler to use, already have different rainfalls included. Secondary roof drain - sizing based on table 1106 with roof areas divided by two.