

*2000 Standard Plumbing Code
Online Classes*

**Chapter 9
Venting of Plumbing Systems**

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Venting Requirements

The requirements set forth by the 2000 Standard Plumbing Code for the venting of plumbing systems are some what different than what was found in the earlier editions.

When the International Plumbing Code was developed as a national code, they reviewed the three major plumbing codes used across the nation. What they found was that the venting requirements used in the southeastern area of the U.S. were, for the most parts, outdated. Other plumbing codes had been updated because of new data and products but the code used in Georgia was not. We used the philosophy that “If it ain’t broke don’t fix It “.

Many of the changes in this chapter have been used in other parts of our nation and over seas for decades without any problems. This class will look at many of the changes and the major requirements for venting plumbing systems.

Understand that venting and air flow is necessary throughout the system. Venting is used to equalize air pressure to insure the proper movement of waste and fluids from the point where it is introduced into the system to its place of disposal.

DRAIN LINE OR SEWER

Lower half is for the movement of waste and the top half allows the movement of air.

VENT	Air	VENT
DRAIN	Waste	DRAIN

**DRAIN SHOULD NEVER BE MORE THAN
HALF UNDER MAXIMUM USE
CONDITIONS.**

901.2 Trap seal protection.

The plumbing system shall be provided with a system of vent piping that will permit the admission or emission of air so that the seal of any fixture trap shall not be subjected to a pneumatic pressure differential of more than 1 inch of water.

- (Trap seals are generally 2 inches and more than 1 inch water column pressure can cause loss of trap seals)

SECTION 903

VENT STACKS AND STACK VENTS

1994 STANDARD PLUMBING CODE

SECTION: 904 VENT STACKS

■ 904.3 Main Stack

904.3.1 Every building in which plumbing is installed shall have at least one main vent stack or vent stack, of not less than 3 inch diameter, for each building drain when connect separately to a building sewer or septic tank. Such stack shall run undiminished in size and as directly as possible from the building drain through to the open air or to vent header that extends to the open air.

This is the wording found in the 1994 Standard Plumbing Code. A three inch stack was required on all plumbing systems. This was first introduced in areas where they had combined storm water and sewer system and the pressure in the pipes would greatly increase when ever there was a rain storm. The three inch vents acted as relief valves for the system. These systems are now outlawed and other plumbing codes have dropped the requirement for the three inch vent unless the fixture load required a vent of this size. On the following slide you find the wording of the new code.

2000 STANDARD PLUMBING CODE

SECTION: 903 VENT STACKS & STACK VENTS

■ **903.1 Stack Required**

■ Every building in which plumbing is installed shall have at least one stack the size of which is not less than one-half of the required size of the building drain. Such stack shall run undiminished in size and as directly as possible from the building drain through to the open air or to vent header that extends to the open air.

As the code now only requires the a vent to be one half the size of the drain it is connected to, a three inch vent would only be required where the fixture load required a six inch drain. It is highly unlike that a drain of this size and a three inch vent would be necessary on a residential plumbing system because of the small fixture load.

Because some jurisdictions still have combined sewer systems, the State of Georgia added the following appendix to the code so local governments could adopt it for enforcement and require a three inch vent. Several jurisdiction have adopted this appendix even though they do not have combined sewers. They still feel that this vent is necessary for the systems to work properly even though it has been proven that they work just as well with a smaller vent.

Georgia Amendments to the 2000 Standard Plumbing Code

APPENDIX J GENERAL AMENDMENTS

***** Local Jurisdictions are permitted to adopt specific sections from this Appendix without adopting the entire Appendix. *****

CHAPTER 9 VENTS

SECTION 903

VENT STACKS AND STACK VENTS

903.1 Stack required. Every building in which plumbing is installed shall have at least one stack a minimum of 3 inches (75 mm) diameter except accessory buildings, which shall have at least one stack a minimum of 1 ½ inch (37.5 mm) diameter. Such stack shall run undiminished in size and as directly as possible from the building drain through to the open air or to vent header that extends to the open air.
(Effective January 1, 2001)

901.3 Chemical Waste Vent System.

- The vent system for a chemical waste system shall be independent of the sanitary vent system and shall terminate separately through the roof to the open air.

To protect the environment and to keep contaminated material from entering the sewer and waste system, the code requires and systems where harmful chemicals and waste are produced or used must be vented separately from the main plumbing system.

901.6 Engineered systems.

Engineered venting systems shall conform to the provisions of Section 918.

- Engineer Stamped Drawing
- Computer Design
- Table 918.2 allows 1/2, 3/4, 1 inch venting on engineered systems

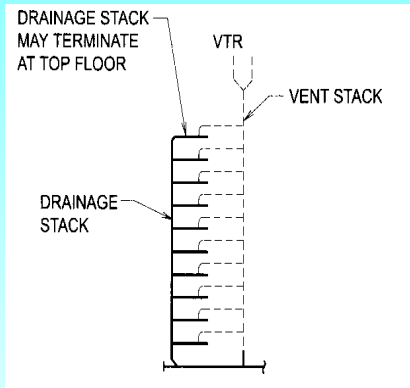
Engineered systems can reduce vent sizes even smaller as shown in Table 918.2. Plumbing systems installed over seas have used vents as small as 1 inch to vent an entire plumbing system. This practice is not new and has been used for over a hundred years.

903.1.1 Connection to Drainage System.

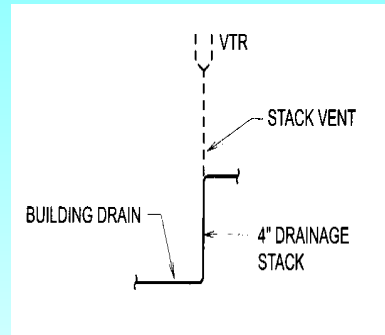
- A main vent that is a vent stack shall connect to the building drain or to the base of a drainage stack in accordance with Section 903.4. A main vent that is a stack vent shall be an extension of the drainage stack.

The difference between a Vent stack and a stack vent is illustrated on the following page

The difference between a Vent Stack and a Stack Vent



A vent stack carries no waste and is strictly a stack for venting



A Stack Vent is an extension of a soil or waste stack to provide venting

903.2 Vent Stack Required.

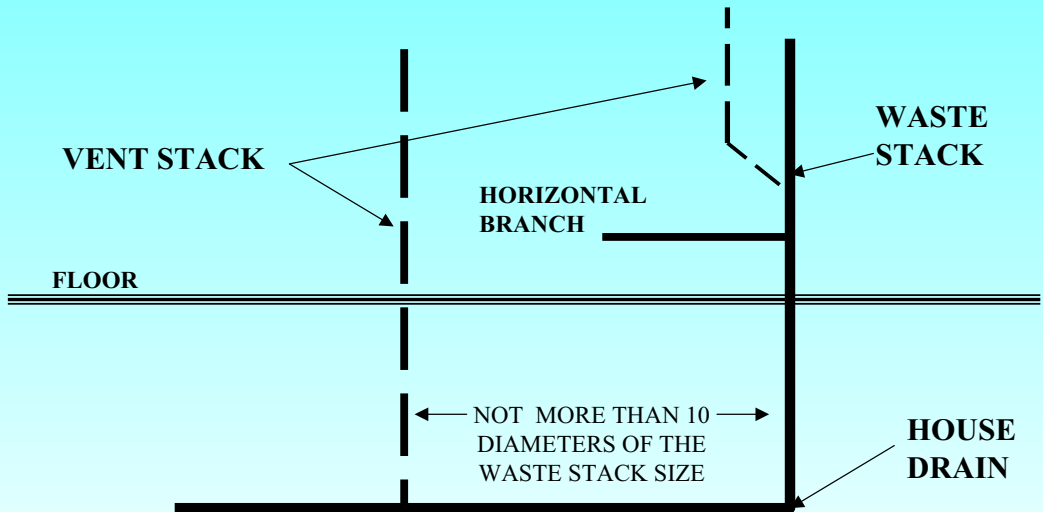
- A vent stack shall be required for every drainage stack that is five branch intervals or more.
- 1994 SPC stated: A vent stack or main vent shall be installed with a soil or waste stack when ever back vents, relief vents, or other branch vents are required in two or more branch intervals

Again you can see the new code requires less venting

903.4 Vent Connection at Base.

- Every vent stack shall connect to the base of the drainage stack. The vent stack shall connect at or below the lowest horizontal branch. Where the vent stack connects to the building drain, the connection shall be located downstream of the drainage stack and within a distance of ten times the diameter of the drainage stack.

903.4 Vent Connection at Base.



Keeping the vent stack within 10 pipe diameters of the waste stack connection eliminates the possibility of pressure effects on the system's traps.

SECTION 904

VENT TERMINALS

904.1 Roof Extension.

- All open vent pipes that extend through a roof shall be terminated at least 6 inches above the roof, except that where a roof is to be used for any purpose other than weather protection, the vent extensions shall be run at least 7 feet (2134 mm) above the roof.
- Ga. Amendment requires 6 inches
- Extension above roof was changed to from 5' to 7'

904.4 Prohibited Use.

- Vent terminals shall not be used as a flag pole or to support flag poles, television aerials or similar items, except when the piping has been anchored in an approved manner.

904.5 Location of Vent Terminal.

- An open vent terminal from a drainage system shall not be located directly beneath any door, openable window, or other air intake opening of the building or of an adjacent building, and any such vent terminal shall not be within 10 feet (3048 mm) horizontally of such an opening unless it is at least 2 feet (610 mm) above the top of such opening.

SECTION 905

VENT CONNECTIONS AND GRADES

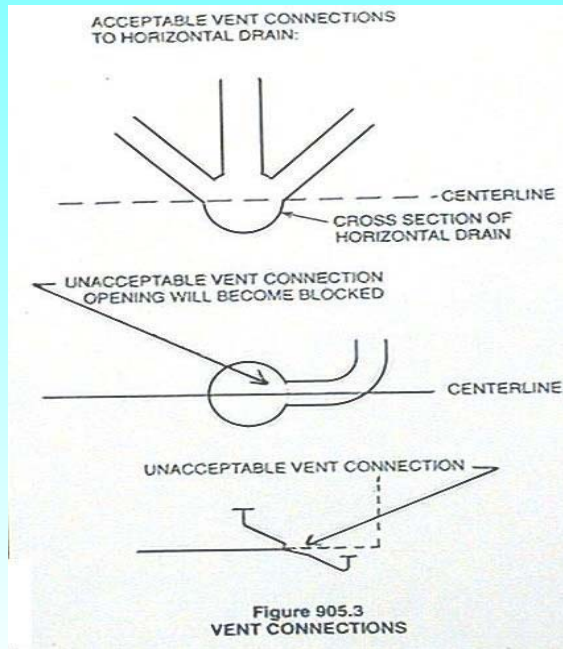
905.1 Connection.

- All individual, branch and circuit vents shall connect to a vent stack, stack vent, air admittance valve or extend to the open air.

905.3 Vent connection to drainage system.

- Every dry vent connecting to a horizontal drain shall connect above the centerline of the horizontal drain pipe.

905.3 Vent connection to drainage system.



SECTION 906

FIXTURE VENTS

906.1 Distance of trap from vent.

- Each fixture trap shall have a protecting vent located so that the slope and the developed length in the fixture drain from the trap weir to the vent fitting are within the requirements set forth in Table 906.1.

906.1 Distance of trap from vent.

TABLE P906.1
MAXIMUM DISTANCE OF FIXTURE TRAP FROM VENT

SIZE OF TRAP (inches)	SIZE OF FIXTURE DRAIN (inches)	SLOPE (inch per foot)	DISTANCE FROM TRAP (feet)
1-1/4	1-1/4	1/4	3-1/2
1-1/4	1-1/2	1/4	5
1-1/2	1-1/2	1/4	5
1-1/2	2	1/4	8* 6
2	2	1/4	6
3	3	1/8	10
4	4	1/8	12

For SI: 1 inch = 25.4 mm,
1 foot = 304.8 mm,
1 inch per foot = 0.0833 mm/m.

§P906.2 Venting of fixture drains. The vent for a fixture drain, except where serving a fixture with integral traps, such as water closets, shall connect above the weir of the fixture trap being vented.

*** 2001 GA Amendment to table**

SECTION 909

WET VENTING*

- * 2001 GA Amendment adds additional Wet Vent options in Appendix I. To enforce the provisions of this appendix, a local government must formally adopt it. (See GA Amendments)**

909.1 Wet Vent Permitted.

- Any combination of fixtures within two bathroom groups located on the same floor level are permitted to be vented by a wet vent. The wet vent shall be considered the vent for the fixtures and shall extend from the connection of the dry vent along the direction of the flow in the drain pipe to the most downstream fixture drain connection to the horizontal branch drain. Only the fixtures within the bathroom groups shall connect to the wet vented horizontal branch drain. Any additional fixtures shall discharge downstream of the wet vent.

909.2 Vent Connection.

- The dry vent connection to the wet vent shall be an individual vent or common vent to the lavatory, bidet, shower or bathtub. The dry vent shall be sized based on the largest required diameter of pipe within the wet vent system served by the dry vent.

909.3 Size.

- The wet vent shall be of a minimum size as specified in Table 909.3, based on the fixture unit discharge to the wet vent.

**TABLE 909.3
WET VENT SIZE**

WET VENT PIPE SIZE (inches)	DRAINAGE FIXTURE UNIT LOAD (dfu)
1½	1
2	4
2½	6
3	12

For SI: 1 inch = 25.4 mm.