

ARTICLE

Methods to Venting Plumbing Fixtures and Traps in the 2009 International Plumbing Code - Part 3

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The venting system (center) advances skyward along with the construction.

Part 3 of a Four-Part Series

In Part 2 of this series, we continued to discuss various approaches to venting that the 2009 IPC permits. In Part 3 you will find that the common vent, waste stack vent, and wet vent systems are three of the remaining five venting methods for which the IPC is probably best


known. These venting provisions offer the installer and designer different paths to achieving an adequately vented system that could result in cost savings along with ease of installation in different types of construction.

Common Vent

This very simple concept allows two traps to be vented by the same vent. The two traps and their fixture drains can be at the same or different levels as long as they are on the same floor. The following diagrams show some of the various approaches to common venting. Table 908.3 specifies the sizing of common venting.

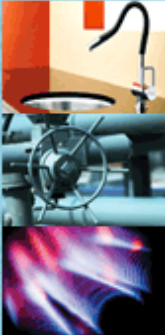
Table 908.3
Common Vent Size

Pipe Size (inches)	Maximum Discharge From Upper Fixture Drain (dfu.)
1-1/2	1
2	4



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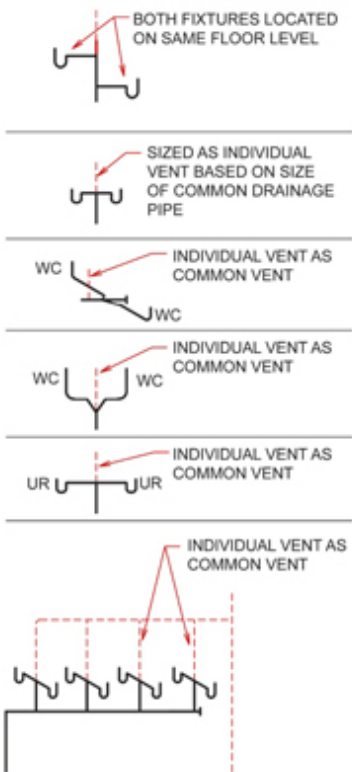

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2-1/2 to 3	6

Waste Stack Vent

This is a very simple method of allowing a drainage stack to serve as a vent. It greatly extends the concept of a vertical common vent, with the

[Click here](#) to see larger diagram of a common vent approach.

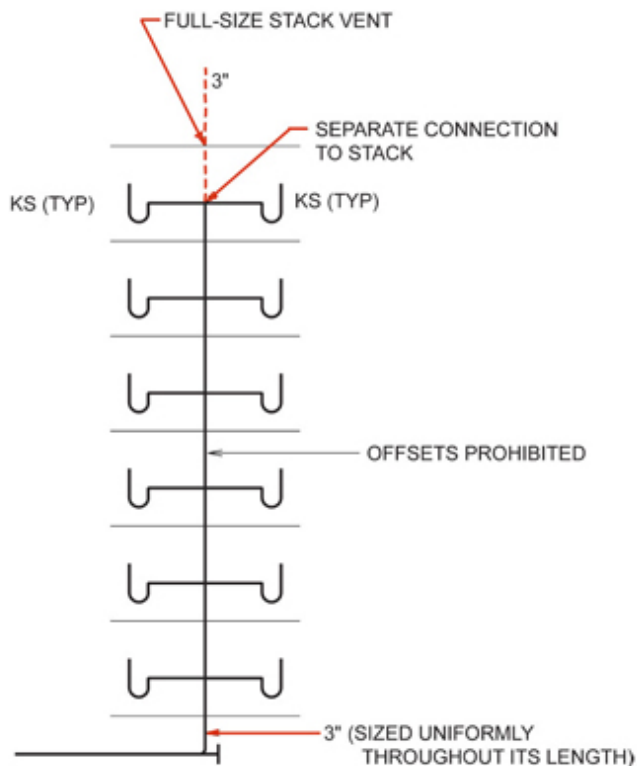
exception of a few specific installation guidelines. For this system to function effectively, there cannot be any offsets in the waste stack portion. Once the highest branch interval is connected to the stack, the vent portion can contain offsets, provided such offsets are at least 6 inches above the branch interval connection. The size of the waste stack vent is to be in accordance with Table 910.4 of the IPC. Note for reference: the size of the stack, which is based on the total branch intervals, must be the same size from the lowest point of the stack to the vent termination or connection to another approved vent. In other words, if the fixture unit total would require a three-inch diameter drain per Table 910.4, then both the stack and its vent must be 3 inches in diameter with no offsets at all until at least 6 inches above the highest branch interval (see diagram below).

Through these two methods of using the drain as a vent, common venting and waste stack venting are, for the most part, vertical in their application.

Wet Venting

This is one of the three remaining methods of such venting that are more often found in a horizontal application. As shown in the diagram below, the wet venting method can be used in both vertical and horizontal applications. The vertical method may be more common to

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If the fixture unit total would require a 3-inch diameter drain, then both the stack and its vent must be 3 inches in diameter with no offsets at all until at least 6 inches above the highest branch interval.

plumbing installers in certain regions. However, don't be alarmed by what you see. The horizontal wet venting method is an effective way to provide a safe, sanitary system that can save the contractor and owner time and materials.

Wet venting is limited to any combination of fixtures within two bathroom groups. Reviewing the definition for a bathroom group, we ascertain that the wet vent system cannot exceed two each of water closets, lavatories, bidets and bathing facilities (bathtub, shower, or combination), for a total of eight fixtures, not including the two emergency floor drains that are also allowed. The bathroom groups must also be located on the same floor level. The fixture drain length from the wet vent is limited to the distances shown in Table 906.1 (see "Methods to Venting Plumbing Fixtures..." Part 1).

The dry vent, the vent that continues upward from the wet vent to the point of termination of connection to another vent, shall be either an individual vent or a common vent to the lavatory, bidet, shower or bathtub, but not the water closet. In horizontal applications, the dry vent needs to be installed downstream of the first fixture drain or as an individual vent or common vent upstream of the last fixture drain.

**Table 909.3
Wet Vent Size**

Wet Vent Pipe Size (inches)	Drainage Fixture Load (dfu)
1-1/2	1
2	4
2-1/2	6
3	12

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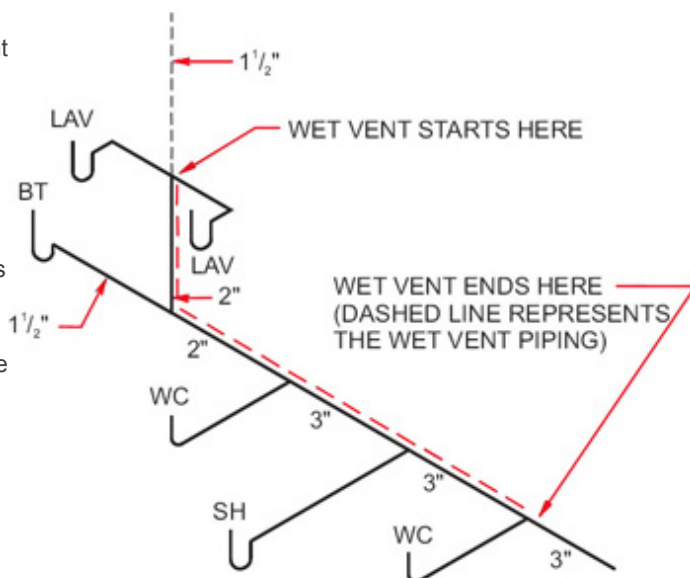
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The dry vent must be sized in accordance with Section 916.2 of the IPC. Remember, though, that in this case, the drain served is going to be the entire wet-vented section. It will need to be at least one-half the diameter of the largest section of pipe in the system. The wet-vented section itself is sized per Table 909.3.

Keep in mind that any additional fixtures outside of the wet vent that are to be drained into the same branch must be connected to the branch downstream of the wet vent. Because the wet vent serves as a drain, the type of fittings used must be in accordance with the drainage pattern shown in Table 706.3 of the IPC.



The wet venting method can be used in both vertical and horizontal applications.

In Part 4 of this series, we will look at the two remaining venting methods in the IPC: circuit venting, and

combination drain and vent systems. Circuit venting was included in Hunter^{*}'s research and reported in BMS 66. The plumbing community has long recognized this venting method and it is included in the *ASPE Data Book*. The combination drain and vent system is based on the same premise as the circuit-vented system. The performance of the combination drain and vent system was verified in test conducted at Stevens Institute of Technology.

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**In the 1940s, Dr. Roy Hunter of the National Bureau of Standards developed and published BMS 66, a methodology for determining necessary pipe sizing by estimating maximum demand on the delivery and drainage systems. This was developed because one of the major code concerns was then, and is now, pipe sizing, both for supply and for drainage piping in a building. While "tweaked" over the years, Hunter's basic work is still used as the basis for pipe sizing in a plumbing system.*



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