


The fixtures allowed to be vented by a wet vent either have low discharge surges or last for only a short duration that do not significantly impact the air flow in the horizontal drain. That is why the water closet is distinguished from the other fixtures with the requirement to connect downstream of all the fixture drain connections to the horizontal wet vent (see Section 908.2.4). Although having a short surge duration, the toilet typically has a high discharge rate that could significantly impinge the air space in the horizontal drain and affect trap seals.

The design of the horizontal wet vent requires that each fixture within the bathroom group (see definition for Bathroom Group in Chapter 2) connects independently and laterally to the horizontal wet vent pipe and not exceed the lengths from the trap to the lateral connection as deter-

mined by Table 1002.2 (see **Figure 908.2a**). This reduces the potential to interrupt the airflow above the mean water surface, and also prevents the vented upper portion of the horizontal wet vent pipe from being below the weir of the trap. Surge flows of relatively short durations follow discharges from the lavatory and water closet, while tubs and showers could tend toward steady flows when the drainage is extended over a period of time (such as extended shower use and tubs draining when full). The condition of flows in the horizontal wet vent branch could be steady, surge, or no flow. These lateral connections are therefore the critical points of the system.

See **Figure 908.2b** and **Figure 908.2c** for examples of layout options and sizing requirements.

908.2.1 Vent Connection. The dry vent connection to the wet vent shall be an individual vent for the bidet, shower, or bathtub. One or two vented lavatory(s) shall be permitted to serve as a wet vent for a bathroom group. Only one wet-vented fixture drain or trap arm shall discharge upstream of the dry-vented fixture drain connection. Dry vent connections to the horizontal wet vent shall be in accordance with Section 905.2 and Section 905.3.

 The only fixtures that may serve as the wet venting fixture for the bathroom group are the bidet, shower, bathtub, and lavatory(s). This excludes the water closet, floor drain, or any fixtures outside the bathroom. This also excludes a back-to-back lavatory since the lavatories would be in separate bathroom groups. Two lavatories serving as a wet vent are only permitted if they are within the same bathroom group as Section 908.2.5 requires.

The code allows only one wet-vented fixture drain or trap arm to discharge upstream of the dry-vented fixture

VENTS

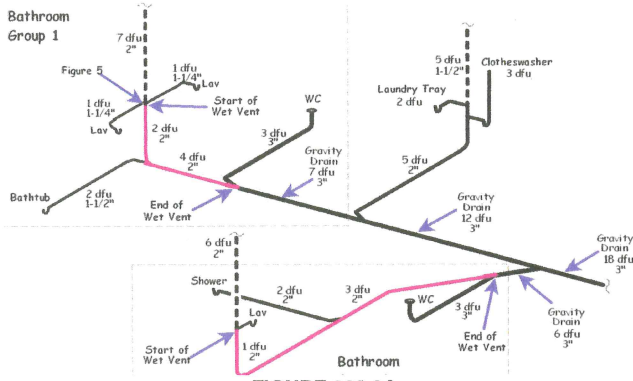


FIGURE 908.2A

LATERAL CONNECTIONS TO THE HORIZONTAL WET VENT

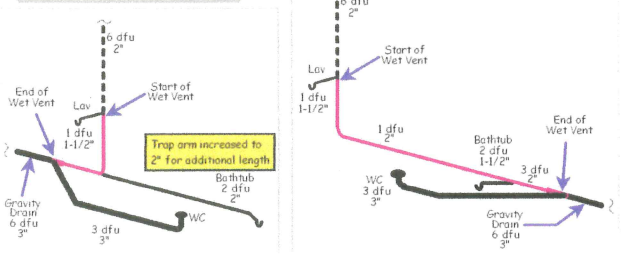
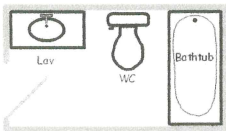
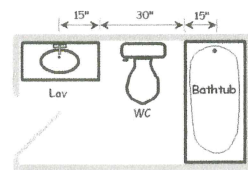


FIGURE 908.2B

EXAMPLE 1: LAYOUT OPTIONS



2 Possible Layout Variations

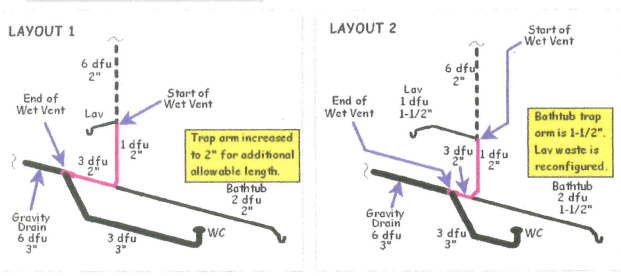


FIGURE 908.2C

EXAMPLE 2: LAYOUT OPTIONS

drain connection. To avoid confusion of what it means for the fixture drain or trap arm to be upstream the dry vented fixture drain connection, consider **Figure 908.2.1a**. Always begin the point of reference at the dry-vented fixture drain. The lavatory is the dry-vented fixture that is wet venting the water closet. Even though the water closet is positioned

laterally upstream the lavatory, the water closet drain connection is downstream the lavatory dry-vented drain connection. **Figure 908.2.1b** shows a bathtub that is laterally upstream the lavatory fixture, but it is not upstream the dry-vented fixture drain connection where the arrow shows the start of the wet vent. This is the point where the dry vent connects to the fixture drain that is wet-venting the bathroom group. To be upstream of the start of the wet vent, the bathtub would have to take off from the point where the vertical drain of the lavatory transitions horizontally as shown in **Figure 908.2.1c**. Therefore, **Figure 908.2.1b** would allow another fixture, such as a shower, to be upstream of the start of the wet vent. This would also require the sizing of the horizontal wet vent to increase.

908.2.2 Size. The wet vent shall be sized based on the fixture unit discharge into the wet vent. The wet vent shall be not less than 2 inches (50 mm) in diameter for 4 drainage fixture units (dfu) or less, and not less than 3 inches (80 mm) in diameter for 5 dfu or more. The dry vent shall be sized in accordance with Table 702.1 and Table 703.2 based on the total fixture units discharging into the wet vent.

In order to prevent excessive interference at the junction of the lateral connections, the sizing requirements for the horizontal wet vent branch are more restrictive than what is allowed in Table 703.2. If combined flows at the junctions are excessive, then local flooding or large pneumatic pressure fluctuations may occur. Therefore, the minimum size for the horizontal wet vent pipe is two-inches and limited to four fixture units. A system having five or more fixture units must be increased to three inches. The reduced fixture units limit the practical flow capacity allowing the drain sufficient volume for continuous air space above the flow. Along with sufficient volume within the pipe, it is also critical to maintain a minimum uniform slope of 1/4-inch per foot to prevent surges of water to crest the crown of the pipe (see Section 708.1).

908.2.3 Trap Arm. The length of the trap shall not exceed the limits in Table 1002.2. The trap size shall be in accordance with Section 1003.3. The vent pipe opening from the horizontal wet vent, except for water closets and similar fixtures, shall not be below the weir of the trap.

The last sentence prohibiting the vent pipe opening below the weir of the trap, would not allow an unvented lavatory to connect independently to the wet vented horizontal branch even though the distance of the lavatory trap arm to the wet vented horizontal branch is in accordance with Table 1002.2. An unvented lavatory trap arm would form an S-trap, which is in conflict with Section 1004.1 that prohibits S-traps. With this provision, the lavatory(s) may serve as the wet vent, or shall be individually vented when not serving as the wet vent (as shown in **Figure 908.2.3).**

908.2.4 Water Closet. The water closet fixture drain or trap arm connection to the wet vent shall be downstream of fixture drain or trap arm connections to the horizontal wet vent.

908.2.5 Additional Fixtures. Additional fixtures shall discharge downstream of the wet vent system and be conventionally vented. Only the fixtures within the bathroom group shall connect to the wet-vented horizontal branch.

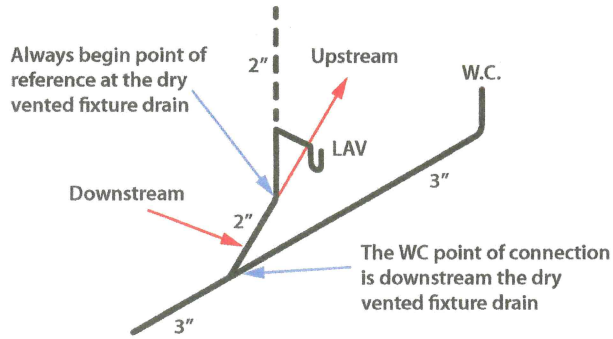


FIGURE 908.2.1A
UPSTREAM DOWNSTREAM DRY-VENT CONNECTION

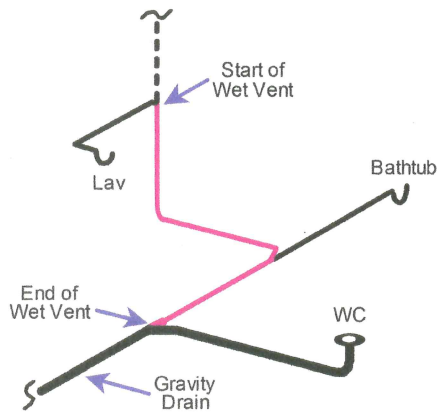


FIGURE 908.2.1B
BATHTUB IS NOT UPSTREAM DRY-VENT CONNECTION

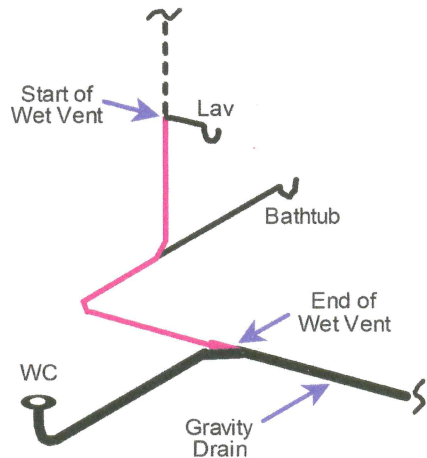


FIGURE 908.2.1.C
BATHTUB UPSTREAM DRY-VENT CONNECTION

