


Wet & Circuit Venting

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WET VENTING

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WET VENTING



Why wet vent?
 Saves fittings, material and labor
 Can save space
 Relies on the principle that all the fixtures in a bathroom group will not be used simultaneously
 Their probable simultaneous usage much less than other fixtures.
 Wet venting works and has been around for 100 years!

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UPC VERTICAL WET VENTING





2018 UPC
Vertical Wet Venting
 908.0 Wet Venting
 908.1 Vertical Wet Venting. Wet venting is limited to vertical drainage piping receiving the discharge from **the trap arm of one and two fixture unit fixtures that also serves as a vent not exceeding four fixtures.** Wet-vented fixtures shall be within the same story, provided further, that fixtures with a continuous vent discharging into a wet vent shall be within the same story as the wet-vented fixtures. No wet vent shall exceed 6 feet (1829 mm) in developed length.

908.1.1 Size. The vertical piping between two consecutive inlet levels shall be considered a wet-vented section. Each wet-vented section shall be not less than one pipe size exceeding the required minimum waste pipe size of the upper fixture or shall be one pipe size exceeding the required minimum pipe size for the sum of the fixture units served by such wet-vented section, whichever is larger, but in no case less than 2 inches (50mm) in diameter.

908.1.2 Vent Connection. Common vent sizing shall be the sum of the fixture units served but, in no case, smaller than the minimum vent pipe size required for a fixture served, or by Section 904.0.

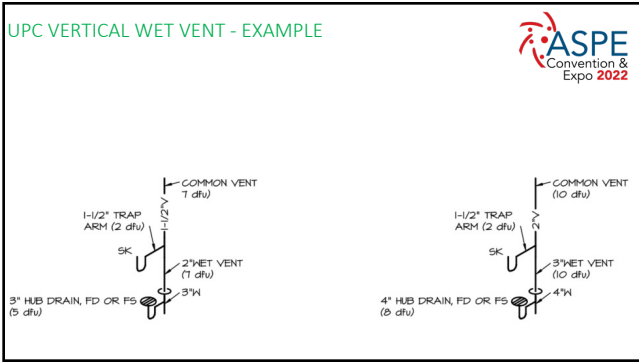
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UPC VERTICAL WET VENT - EXAMPLE

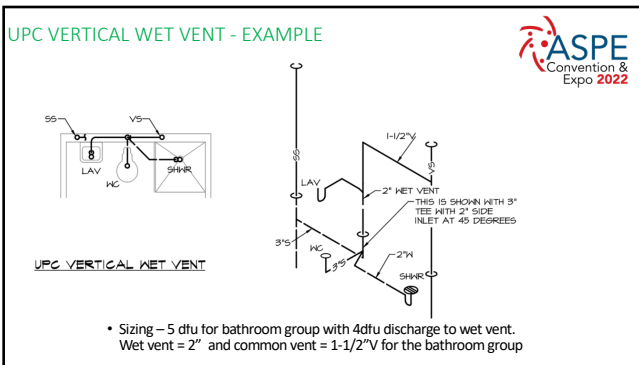



UPC VERTICAL WET VENT FOR A FIXTURE

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UPC HORIZONTAL WET VENTING

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908.2 Horizontal Wet Venting for Bathroom Group.
A bathroom group located on the same floor level shall be permitted to be vented by a horizontal wet vent where all the conditions of Section 908.2.1 through Section 908.2.5 are met.

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 connection to the horizontal wet vent shall be in accordance with Section 905.2 and Section 902.3

908.2.2 Size. The wet vent shall be sized based on the fixture unit discharge into the wet vent. The wet vent shall not be less than 2 inches in diameter for 4 fixture units (dfu) or less, and not less than 3 inches 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.

908.2.3 Trap Arm. The length of the trap arm 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.

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.

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UPC HORIZONTAL WET VENT - EXAMPLE

UPC HORIZONTAL WET VENT

Sizing – 5 dfu for bathroom group with 4dfu discharge to wet vent.
Wet vent = 2" & common vent = 1-1/2"V for the bathroom group

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UPC HORIZONTAL WET VENT - EXAMPLE

UPC HORIZONTAL WET VENT

- Sizing – 5 dfu for bathroom group with 4dfu discharge to wet vent – wet vent = 2" & 1-1/2"V for the bathroom group

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UPC HORIZONTAL WET VENT - EXAMPLE

UPC HORIZONTAL WET VENT

- Sizing – 10 dfu for bathroom group with 8 dfu discharge to wet vent. Wet vent = 3" & common vent serving wet vent = 1-1/2"

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IPC WET VENTING



2018 IPC
Wet Venting


912.1 Horizontal Wet Venting
Any combination of fixtures within two bathroom groups located on the same floor level is permitted to be vented by a horizontal wet vent. The wet vent shall be considered to be 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. Each wet-vented fixture drain shall connect independently to the horizontal wet vent. Only the fixture within the bathroom groups shall connect to the wet-vented horizontal branch drain. Any additional fixtures shall discharge downstream of the horizontal wet vent.

912.1.1 Vertical Wet Vent Permitted
Any combination of fixtures within two bathroom groups located on the same floor level is permitted to be vented by a vertical wet vent. The vertical wet vent shall be considered to be the vent for the fixtures and shall extend from the connection of the dry vent to the lowest fixture drain connection. Each wet-vented fixture shall connect independently to the vertical wet vent. Water closet drains shall connect at the same elevation. Other fixture drains shall connect above or at the same elevation as the water closet fixture drains. The dry-vent connection to the vertical wet vent shall be an individual or common vent serving one or two fixtures.

908.1.2 Vent Connection. Common vent sizing shall be the sum of the fixture units served but, in no case, smaller than the minimum vent pipe size required for a fixture served, or by Section 904.0.

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IPC WET VENTING




912.2 Dry vent connection
The required dry-vent connection for the wet-vented systems shall comply with Sections 912.2.1 and 912.2.2

912.2.1 Vertical Wet Vent Permitted
The dry-vent connection for the horizontal wet-vent system shall be an individual vent or common vent for any bathroom group fixture, except an emergency floor drain. Where the dry-vent connects to a water closet fixture drain, the drain shall connect horizontally to the horizontal wet-vent system. Not more than one wet-vented fixture drain shall discharge upstream of the dry-vented fixture drain connection.

912.2.2 Vertical wet vent
The dry-vent connection for a vertical wet-vent system shall be an individual vent or common vent for the most upstream fixture

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IPC WET VENTING



912.3 Size
The dry vent serving the wet vent shall be sized based on the largest required diameter of pipe within the wet-vent served by the dry vent. The wet vent shall be of a size not less than that specified in table 912.3, based on the fixture unit discharge to the wet vent.

TABLE 912.3
WET VENT SIZE

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

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IPC VERTICAL WET VENT - EXAMPLE

IPC VERTICAL WET VENT

- Sizing – 5 dfu for bathroom group with 4dfu discharge to wet vent
– wet vent = 2" & 1-1/4"V for the bathroom group

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IPC VERTICAL WET VENT - EXAMPLE

IPC VERTICAL WET VENT

- Sizing – 5 dfu for bathroom group with 4dfu discharge to wet vent
– wet vent = 2" & 1-1/4"V for the bathroom group

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IPC VERTICAL WET VENT - EXAMPLE

IPC VERTICAL WET VENT

PART NO. NH 32B
Sanitary Tee with 2" 45° Sanitary Opening Above Center
(New Orleans Code)

Size	D	E	F	G	Weight
3 (L)	6	5	8 1/2	5	8.2
3 (R)	6	5	8 1/2	5	7.8
3 (R&L)	6	5	8 1/2	5	9.1
4 (L)	6 1/2	5 1/2	9 3/16	5 1/2	9.6
4 (R)	6 1/2	5 1/2	9 3/16	5 1/2	9.4

From Charlotte Pipe and Foundry Company

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IPC VERTICAL WET VENT - EXAMPLE

IPC VERTICAL WET VENT

- Sizing – 10 dfu for bathroom group with 8 dfu discharge to wet vent – wet vent = 3" & 1-1/2"V for the bathroom group

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IPC VERTICAL WET VENT - EXAMPLE

IPC VERTICAL WET VENT

- Sizing – 10 dfu for bathroom group with 8 dfu discharge to wet vent – wet vent = 3" & 1-1/2"V for the bathroom group

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IPC VERTICAL WET VENT - EXAMPLE

PART NO. NH 33F
Sanitary Cross with Two 2" 45° Sanitary Openings Same Side
(New Orleans Code)

Size	D	E	F	G	Weight
3	6	5	8 1/2	5	9.8
4	5 1/2	5 1/2	9 1/4	5 1/2	13.8

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IPC HORIZONTAL WET VENT - EXAMPLE

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IPC HORIZONTAL WET VENT

- Sizing – 5 dfu for bathroom group with 4dfu discharge to wet vent
– wet vent = 2" & 1-1/2"V for the bathroom group

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IPC HORIZONTAL WET VENT - EXAMPLE

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IPC HORIZONTAL WET VENT

- Sizing – 10 dfu for bathroom group with 8dfu discharge to wet vent
– wet vent = 3" & 1-1/2"V for the bathroom group

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NSPC WET VENTING

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2018 NSPC
Wet Venting
12.10 WET VENTING
12.10.1 Single Bathroom Groups

- An individually vented lavatory in a single bathroom group shall be permitted to serve as a wet vent for the water closet, the bathtub or shower stall, or the water closet and bathtub/shower if all the following conditions are met.
 - The wet vent is **1-1/2" minimum pipe size** if the water closet bend is 3" size or it shall be **2" minimum pipe size** if the water closet bend is 4" pipe size.
 - A horizontal branch drain serving both the lavatory and the bathtub or shower stall is 2" minimum pipe size.
 - The length of the trap arm for the bathtub or shower stall is within the limits of Table 12.8.1. If not, the bathtub or shower stall shall be individually vented.
 - The distance from the outlet of the water closet to the connection of the wet vent is within the limits established by Section 12.8.4. Otherwise, the water closet shall be individually vented.

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NSPC WET VENTING



12.10.1 Single Bathroom Groups - continued

- 5. A horizontal branch serving the lavatory and the bathtub or shower stall shall connect to the stack at the same level as the water closet, or it may connect to the water closet bend, or the lavatory and bathtub or shower stall may individually connect to the water closet bend.
- 6. When the bathroom group is the topmost load on a stack a horizontal branch serving the lavatory and the bathtub or shower stall may connect to the stack below the water closet bend, or the lavatory and the bathtub or shower stall may individually connect to the stack below the water closet bend.

12.10.2 Double Bathtubs and Lavatories

Two lavatories and two bathtubs or showers back-to-back may be installed on the same horizontal branch with a common vent for the lavatories and with no back vent for the bathtubs or shower stall provided the wet vent is 2" in size and the lengths of the tub/shower drains conform to the Table 12.8.1.

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NSPC WET VENTING

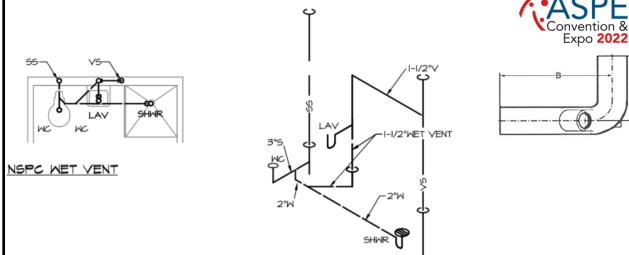


12.10.3 Multi-Story Bathroom Groups

- a) On the lower floors of a stack, the waste pipe from one or two lavatories may be used as a wet vent for one or two bathtubs or showers as provided in Section 12.10.2.
 - b) Each water closet below the top floor shall be individually back-vented.
- EXCEPTION: The water closets in the bathroom groups shall not be required to be back vented if the following conditions are met:
- (1) The 2" waste serving the tubs/showers and lavatories connect directly into the water closet bend with a 45-degree wye fitting in the direction of the flow or,
 - (2) A special stack fitting is used that consist of a 3" or 4" closet opening and two side inlets each 2" in size and the inverts of which are above the center, and below the top of the water closet opening; and one of the 2" inlets is connected to the tub/shower drains, and the other is connected to the waste pipe from a maximum of two lavatories that are vented to a vent stack or stack vent; or,
 - (3) In lieu of the special stack fitting of Section 12.10.3b(2) above, 4" closet bends with two 2" wye taps may be used.

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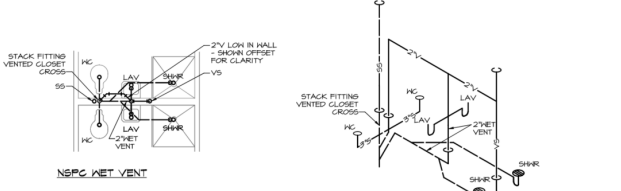
NSPC WET VENTING



Sizing – 5 dfu for bathroom group with 4dfu discharge to wet vent.
 Wet vent = 1-1/2" & common vent = 1-1/2"V for the bathroom group

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NSPC WET VENTING

Stack Fittings Vented Closet Cross


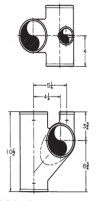
2\"V LOH IN HALL = SHOWN OFFSET FOR CLARITY

NSPC WET VENT

Sizing – 10 dfu for bathroom group with 8 dfu discharge to wet vent.
Wet vent = 2\" & common vent = 2\"V for the bathroom group

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NSPC VERTICAL WET VENT - EXAMPLE


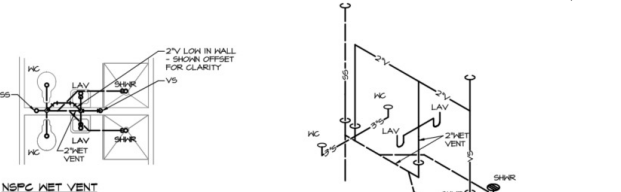
9-463 VENTED CLOSET CROSS
w/2\" Top Vent (With Baffle)

DFU's	Size
070610	4x4x2.664
010517	

From Tyler Pipe

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NSPC WET VENTING

Stack Fittings Vented Closet Cross


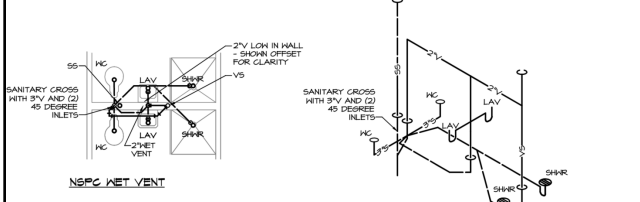
2\"V LOH IN HALL = SHOWN OFFSET FOR CLARITY

NSPC WET VENT

Sizing – 10 dfu for bathroom group with 8 dfu discharge to wet vent.
Wet vent = 2\" & common vent = 2\"V for the bathroom group

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NSPC WET VENTING

SANITARY CROSS WITH 3"V AND (2) 45 DEGREE INLETS

2"V LOH IN HALL - SHOWN OFFSET FOR CLARITY


SANITARY CROSS WITH 3"V AND (2) 45 DEGREE INLETS

NSPC WET VENT

Sizing - 10 dfu for bathroom group with 8 dfu discharge to wet vent.
Wet vent = 2" & common vent = 2"V for the bathroom group

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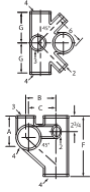
NSPC VERTICAL WET VENT - EXAMPLE



PART NO. NH 33G

Sanitary Cross with 3" Vent and Two 2" 45° Inlets

Size	A	B	C	F	G	Weight
4x3x4x2	3 3/4	5 1/4	4 3/4	10 1/2	6 1/2	24.0


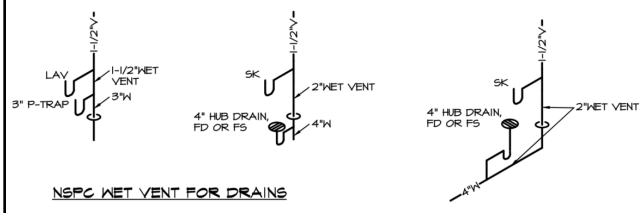


PART NO. NH 34

From Charlotte Pipe and Foundry Company

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NSPC WET VENTING

NSPC WET VENT FOR DRAINS

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CIRCUIT VENTING



Why circuit vent?
 Saves fittings, material and labor
 The technique allows multiple floor mount water closets to install one fitting deep holding bottom of pipe tight to structure
 Circuit vent operates similar to the CWV, where the top of pipe acts as a vent

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IPC CIRCUIT VENTING



914.1 Circuit Vent permitted.
 Not more than eight fixtures connected to a horizontal branch drain shall be permitted to be circuit vented. Each fixture drain shall connect horizontally to the horizontal branch being circuit vented. The horizontal branch drain shall be classified as a vent from the most downstream fixture drain connection to the most upstream fixture drain connection to the horizontal branch.

914.1.1 Multiple circuit-vented fixtures.
 Circuit-vented horizontal branch drains are permitted to be connected together. Each Group of not more than eight fixtures shall be considered to be a separate circuit vented and shall conform to the requirements of this section.


914.2 Vent connection.
 The circuit vent connection shall be located between the two most upstream fixture drains. The vent shall connect to the horizontal branch and shall be installed in accordance with Section 905. The circuit vent pipe shall not receive the discharge of any soil or waste.

914.3 Slope and size of horizontal branch
 The slope of the vent section of the horizontal branch drain shall not be greater than one unit vertical to 12 units horizontal (8.3 percent slope). The downstream circuit-vented horizontal branch drain shall be sized for the total discharge into the branch, including the upstream branches and fixtures within the branch.

914.3.1 Size of multiple circuit vented.
 Each separate circuit-vented horizontal branch that is interconnected shall be sized independently in accordance with Section 914.3. The downstream circuit-vented horizontal branch shall be sized for the total discharge into the branch, including the upstream branches and the fixtures within the branch.

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IPC CIRCUIT VENTING



914.1 Relief vent.
 A relief vent shall be provided for circuit-vented horizontal branches receiving the discharge of four or more water closets and connecting to a drainage stack that receives the discharge of soil or waste from upper horizontal branches.

914.4.1 Connection and installation
 The relief vent shall connect to the horizontal branch drain between the stack and the most downstream fixture drain of the circuit vent. The relief vent shall be installed in accordance with section 905.

914.4.2 Fixture drain or branch.
 The relief vent is permitted to be a fixture drain or fixture branch for fixtures located within the same branch interval as the circuit vented horizontal branch. The maximum discharge to a relief vent shall be four fixture units.

914.5 Additional fixtures.
 Fixtures, other than the circuit-vented fixtures, are permitted to discharge to the horizontal branch drain. Such fixtures shall be located on the same floor as the circuit-vented fixtures and shall be either individually or common vented.

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UPC CIRCUIT VENTING



Circuit Venting

911.0 Circuit Venting.

911.1 Circuit Vent Permitted. A maximum of eight fixtures connected to a horizontal branch drain shall be permitted to be circuit vented. Each fixture drain shall connect horizontally to the horizontal branch being circuit vented. The horizontal branch drain shall be classified as a vent from the most downstream fixture drain connection to the most upstream fixture drain connection to the horizontal branch.

911.1.1 Multiple Circuit-Vented Branches. Circuit-vented branches are permitted to be connected together. Each group of a maximum of eight fixtures shall be considered a separate circuit vent and shall be in accordance with the requirement of this section.

911.2 Vent Size and Connection. The circuit vent shall be not less than 2 inches (50mm) in diameter, and the connection shall be located between the two most upstream fixture drains. The vent shall connect to the horizontal branch on the vertical. The circuit vent pipe shall not receive the discharge of soil or waste.

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UPC CIRCUIT VENTING



911.3 Slope and Size of Horizontal Branch. The slope of the vent section of the horizontal branch drain shall not be more than 1 inch per foot (83.3 mm/m). The entire length of the vented section of the horizontal branch drain will be sized for the total drainage discharge to the branch.

911.3.1 Size of Multiple Circuit Vent. Multiple circuit vented branches shall be permitted to connect to the same floor level. Each separate circuit-vented horizontal branch that is interconnected shall be sized independently in accordance with Section 911.3. The downstream circuit-vented horizontal branch shall be sized for the total discharge into the branch, including the upstream branches and the fixtures within the branch.

911.4 Relief Vent. A 2 inch (50 cm) relief vent shall be provided for circuit-vented horizontal branches receiving the discharge of four or more water closets and connecting to a drainage stack that receives the discharge of soil or waste from upper horizontal branches.

911.4.1 Connection and Installation. The relief vent shall connect to the horizontal branch drain between the stack and the most downstream fixture drain of the circuit vent. The relief vent shall be installed on the vertical to the horizontal branch.

911.4.2 Connection and Installation. The relief vent is permitted to be a fixture drain or fixture branch for a fixture located within the same branch interval as the circuit-vented horizontal branch. The discharge to a relief vent shall not exceed 4 fixture units.

911.5 Additional Fixtures. Fixtures, other than the circuit-vented fixtures, are permitted to discharge to the horizontal branch drain. Such fixtures shall be located on the same floor as the circuit-vented fixtures and shall be either individually or common vented.

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NSPC CIRCUIT VENTING



12.13 Circuit and Loop Venting

12.13.1 Battery Venting

- a. A maximum of eight floor-outlet water closets, showers, bathtubs, or floor drains connected in battery on a horizontal drain shall be permitted to be battery vented. **EXCEPTION: Blowout type water closets.**
- b. Each fixture drain shall connect horizontally to the horizontal drain being so vented.
- c. The horizontal battery-vented drain shall be considered as a vent extending from the most downstream fixture drain connection to the most upstream fixture drain connection.
- d. Back-outlet water closets and wall-mounted urinals shall be permitted to be battery vented provided that no floor-outlet fixtures are connected to the same horizontal battery-vented drain. **EXCEPTION:** Back-outlet blowout type water closets.
- e. The battery vent shall be a circuit or loop vent connected to the horizontal drain between the two most upstream fixture drains and shall be installed in accordance with Section 12.6.
- f. The entire length of the vented section of the horizontal battery-vented drain shall be uniformly sized for the total drainage fixture units (DFU) connected thereto.
- g. The maximum slope of the horizontal batter-vented drain shall be 1 inch per foot.
- h. A relief vent shall be provided on battery-vented horizontal drains that have four or more water closets connected on the lower floors of a drain stack, the building drain, or branch of building drain.

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NSPC CIRCUIT VENTING

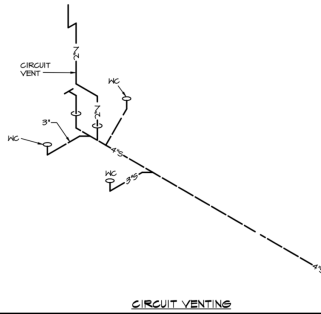


12.13.1 – Battery Venting continued

- i. The relief vent shall connect to the horizontal battery-vented drain between its most downstream fixture drain connection to a drain stack, the building drain or a branch of the building drain.
- j. Relief vents shall be installed in accordance with Section 12.6.
- k. Circuit, loop, and relief vents shall be permitted to connect to a fixture drain, common vent, or continuous vent for fixtures located within the same branch interval as the battery-vented horizontal drain.
EXCEPTION: Fixture vents more than four drainage fixture units (DFU) shall not connect to a battery vent.
- i. Lavatories and similar fixtures shall be permitted to connect to the horizontal battery-vented drain, either horizontally or vertically, provided that,
 - a. The fixtures are on the same floor as the battery-vented drain, and
 - b. The fixtures have individual, common, or continuous vents.
- j. Batteries of more than eight battery-vented fixtures shall have a circuit or loop vent for each group of eight or less fixtures.

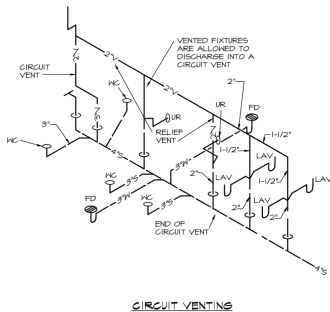
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CIRCUIT VENT DIAGRAMS

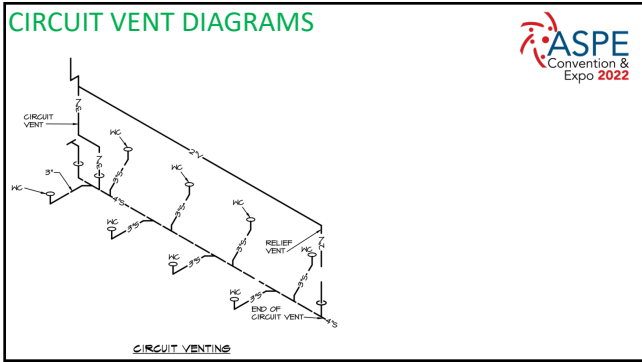


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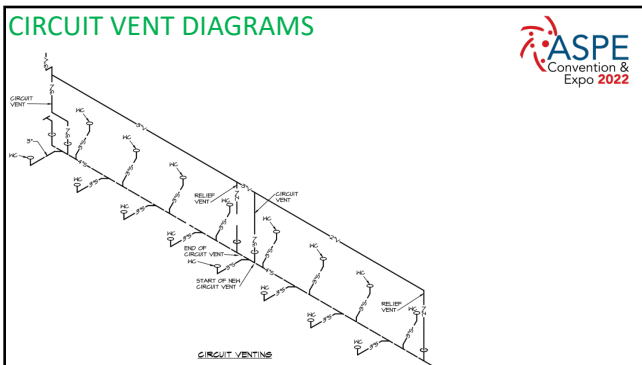
CIRCUIT VENT DIAGRAMS



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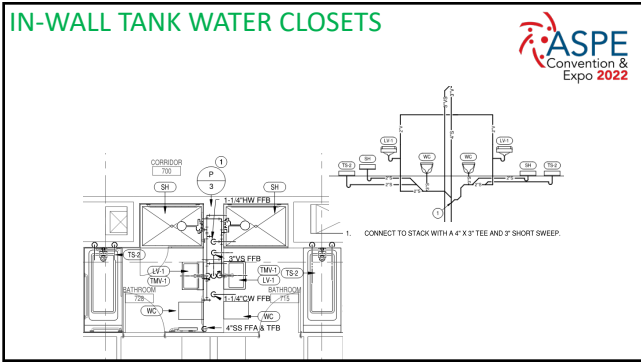
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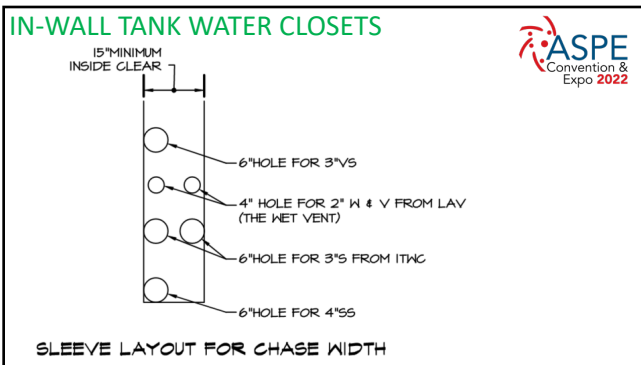
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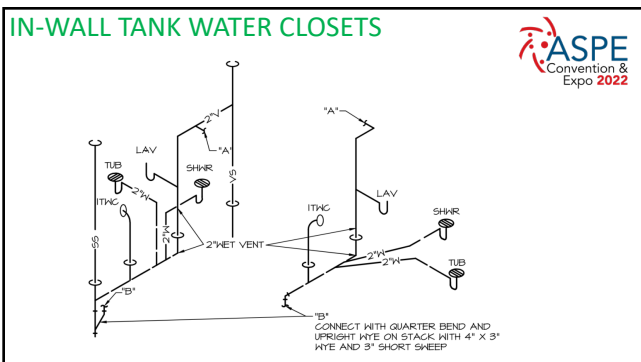
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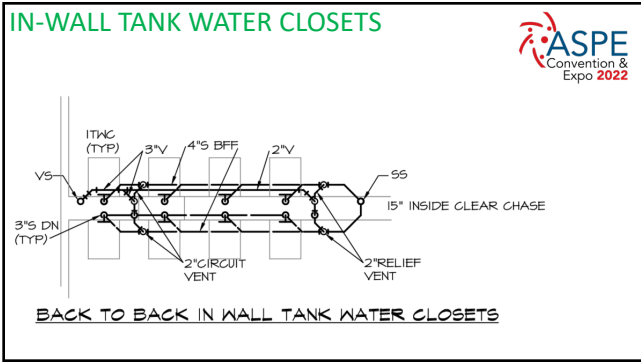
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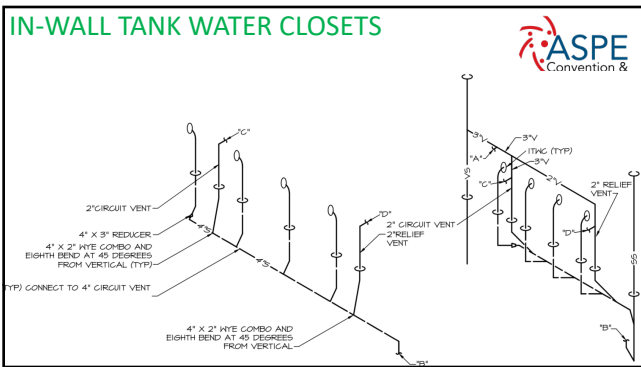
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