



Department of Commerce

Division of Industrial Compliance

John R. Kasich, Governor

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Ohio Board of Building Standards Building on the Code Education Series

Ohio Plumbing Code Drain & Venting Sections Pt 2 Fixture Vents & Individual Vents and Common Venting Stack Vents, Vent Stacks, Relief Vents & Offsets Vent Pipe Sizing Single Stack Vent Systems

April 15, 2016

Presentation Handout



OHIO BOARD OF BUILDING STANDARDS

BUILDING ON THE CODE

Ohio Plumbing Code Drain & Venting Sections Part 2

Fixture Vents & Individual Vents and Common Venting

Stack Vents, Vent Stacks, Relief Vents & Offsets

Vent Pipe Sizing

Single Stack Vent Systems

April 15, 2016

INTRODUCTIONS

- **Frank A. Brykalski, Jr.**
 - ▣ OAPI NW Ohio Trustee
 - ▣ DOC Plumbing Inspector KOO452
 - ▣ BBS Residential Plumbing Inspector BBS 178
 - ▣ BBS Non-Residential Plumbing Inspector BBS 178
 - ▣ OCILB Plumbing Training Agent #043
- **Jason Shank**
 - OAPI NE Ohio Trustee
 - ASSE International Region 6 Director
 - Hold DOC Plumbing Inspector Cert.
 - Training Director for CPCA/Local 55 JATC

Who is in Attendance?

- **Employed by...**
 - Building Department? Health? State?
 - Full Time? Part?
 - Other Inspections you do?
- **Experience as an Plumbing Inspector?**
 - 5 or less years? 6-10? More than 10?
- **Type of Inspections**
 - Residential? Commercial? Design Approvals?

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Outcomes/Objectives of this Session

- Identify the proper installation of the drain and vent section per each OPC Section – **901, 903, 905, 906, 907, 908, 914, 915, 916, and 920.**
- Describe the physical characteristics of the drain and vent.
- Discuss the rules and regulations.
- Identify issues with installations.
- Cite the applicable code section that applies to the installation
- Resolve any code conflicts...or agree to disagree!

Chapter 9

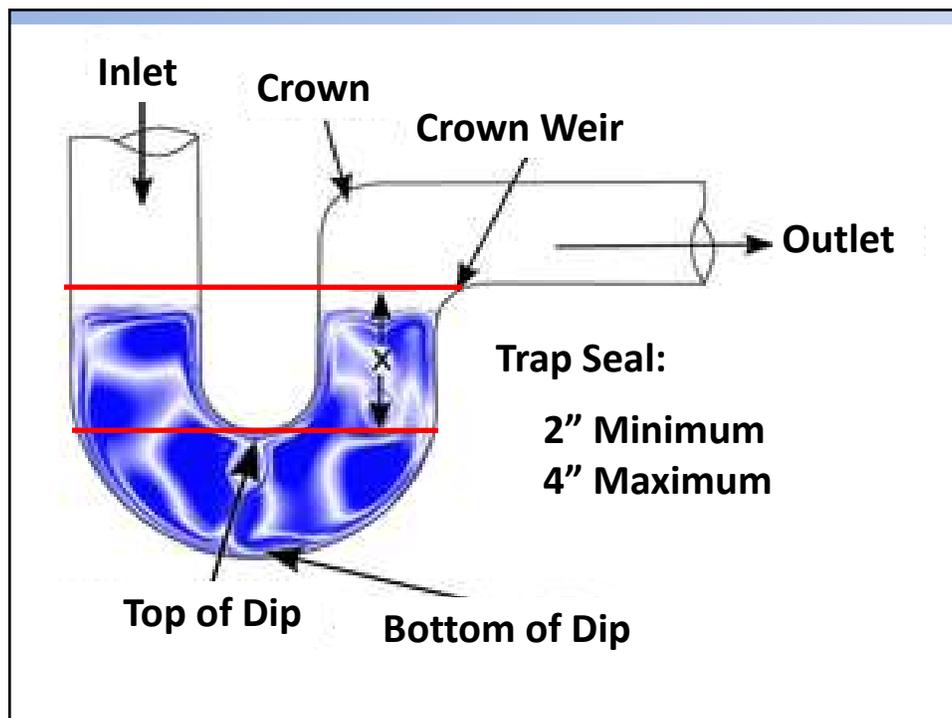
VENTS – Why we need them?

SECTION 901 GENERAL

901.1 Scope. The provisions of this chapter shall govern the materials, design, construction and installation of vent systems.

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 column (249Pa).

901.2.1 Venting required. Every trap and trapped fixture shall be vented in accordance with one of the venting methods specified in this chapter.



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 from the trap weir to the vent fitting is within the requirements set forth in Table 906.1

Exception: *The developed length of the fixture drain from the trap weir to the vent fitting for self-siphoning fixtures such as water closets, shall not be limited in individual vents, common vents, and wet vent systems only.*

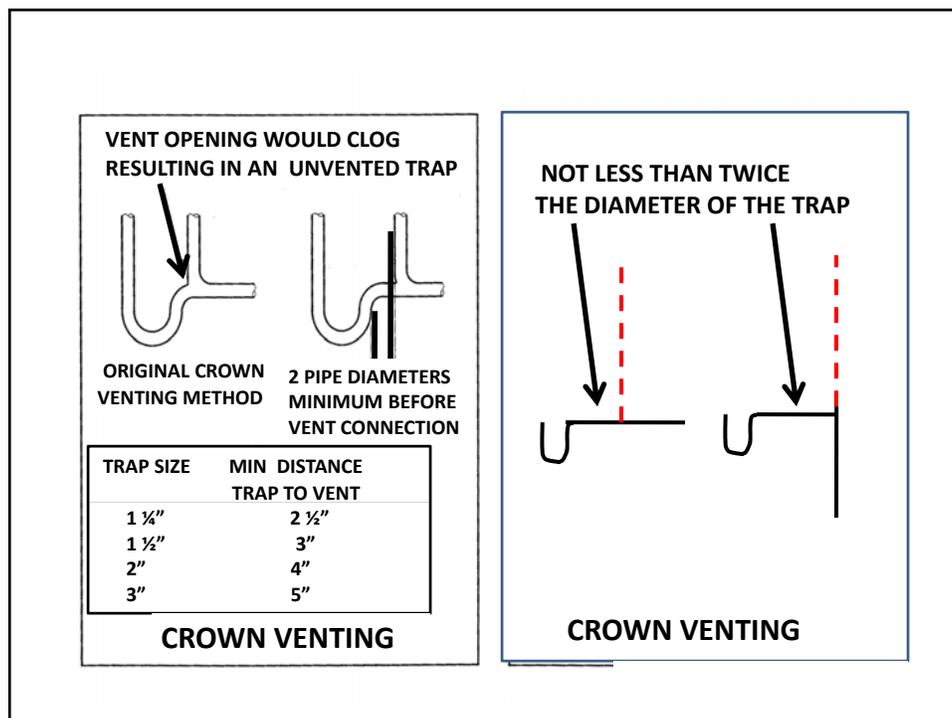
TABLE 906.1

MAXIMUM DISTANCE OF FIXTURE TRAP FROM VENT

SIZE OF TRAP (inches)	SLOPE (inches per foot)	DISTANCE FROM TRAP (feet)
1 ¼"	1/4"	5'
1 ½"	1/4"	6'
2"	1/4"	8'
3"	1/8"	12'
4"	1/8"	16'

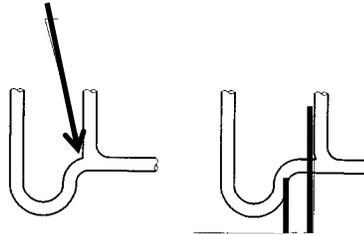
906.3 – Crown Vent

- Crown Vent – A vent ***SHALL NOT*** be installed ***within 2 pipe diameters of the trap weir.***



906.3 – Crown Vent

VENT OPENING WOULD CLOG RESULTING IN AN UNVENTED TRAP



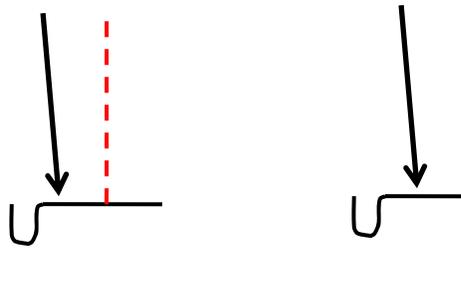
ORIGINAL CROWN VENTING METHOD

2 PIPE DIAMETERS MINIMUM BEFORE VENT CONNECTION

TRAP SIZE	MIN DISTANCE TRAP TO VENT
1 ¼"	2 ½"
1 ½"	3"
2"	4"
3"	5"

906.3 – Crown Vent

NOT LESS THAN TWICE THE DIAMETER OF THE TRAP



REMEMBER!!

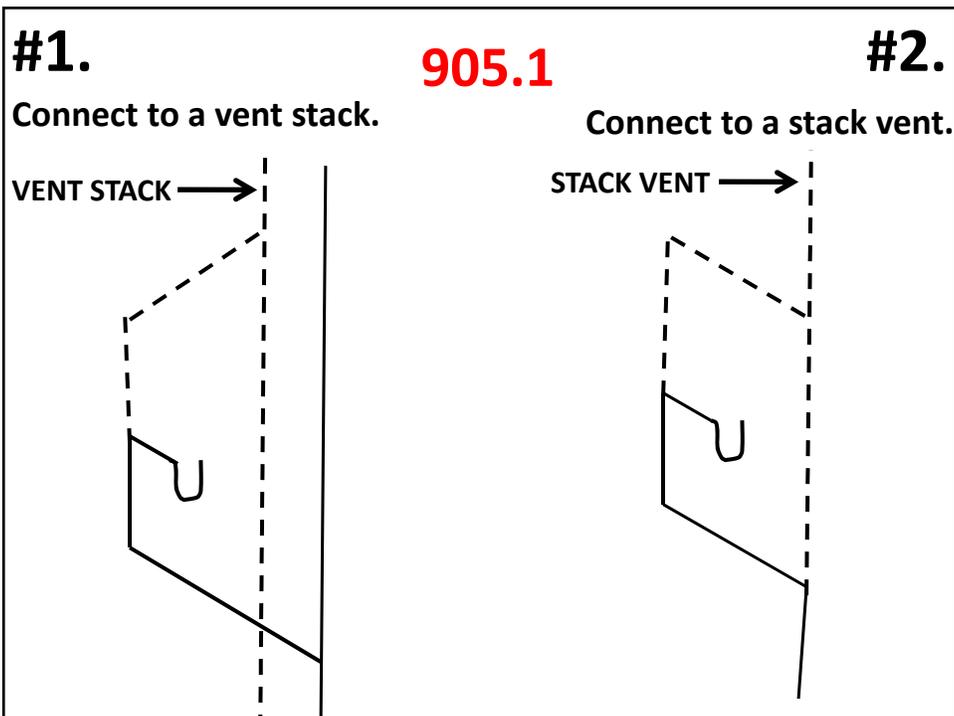
The plumbing system shall be provided with a system of vent piping that will permit the admission or emission of air so that the seal of any fixture trap shall not be subjected to a pneumatic pressure differential of more than 1 inch of water column (249Pa)..

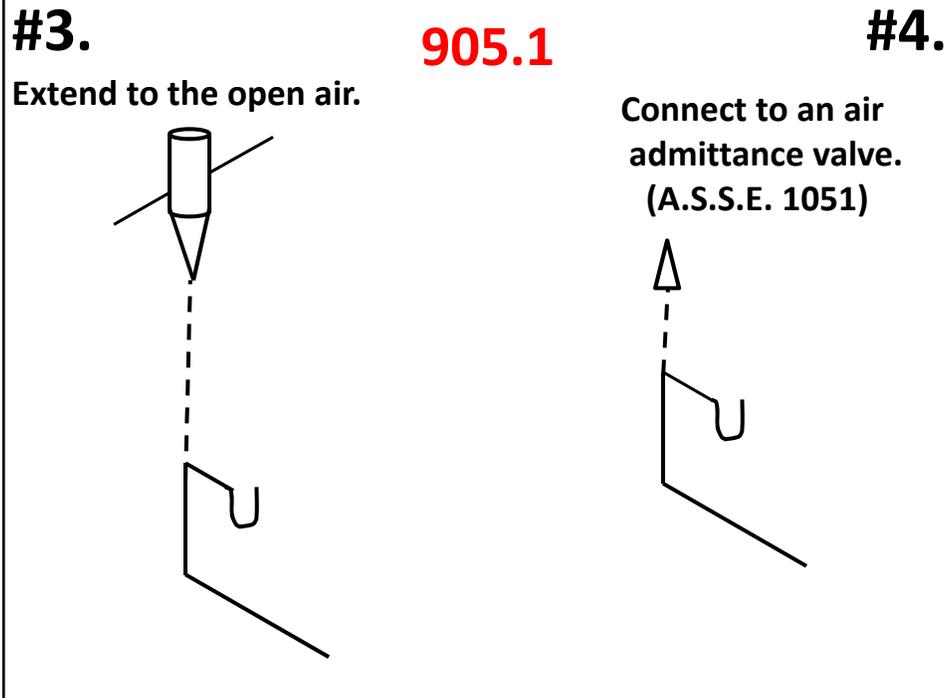
REMEMBER!!

Every trap and trapped fixture shall be vented in accordance with one of the venting methods specified in this chapter.

905.1 - Connection

- All individual , branch, and circuit vents shall:
 1. Connect to a vent stack, or
 2. Connect to a stack vent, or
 3. Extend to open air, or
 4. Connect to an air admittance valve. (A.S.S.E. 1050 or 1051)

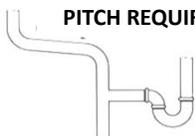




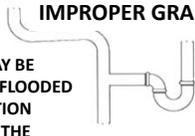
Section 905.2
GRADE

Grade of Vents

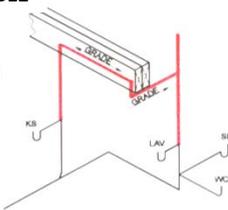
PROPER GRADING
ACCEPTABLE
THERE IS NO MINIMUM PITCH REQUIRED



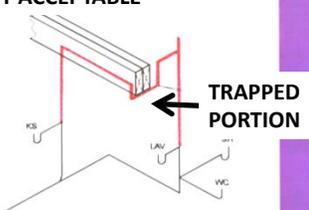
NOT ACCEPTABLE
IMPROPER GRADING
THE VENT MAY BE COMPLETELY FLOODED BY CONDESATION CLOSING OFF THE VENT FOR THE FIXTURE



ACCEPTABLE



NOT ACCEPTABLE
TRAPPED PORTION



Orientation to the Ohio Plumbing Code 88

Section 905.3 VENT CONNECTED TO DRAINAGE SYSTEM

Vent Connections

ACCEPTABLE VENT CONNECTION TO HORIZONTAL DRAINS

UNACCEPTABLE VENT CONNECTION

UNACCEPTABLE VENT CONNECTION OPENING MAY BE BLOCKED

CROSS SECTION OF HORIZONTAL DRAIN

CROSS SECTION OF HORIZONTAL DRAIN



Orientation to the Ohio Plumbing Code

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Section 905.3 VERTICAL RISE OF VENT

Improperly Connected Vent Serving a Drain

VENT STACK
FLOOD LEVEL RIM
MOP SINK
WASTE STACK

IF DRAIN IS BLOCKED, THE FIXTURE WILL DRAIN THROUGH THE VENT STACK

Orientation to the Ohio Plumbing Code

92

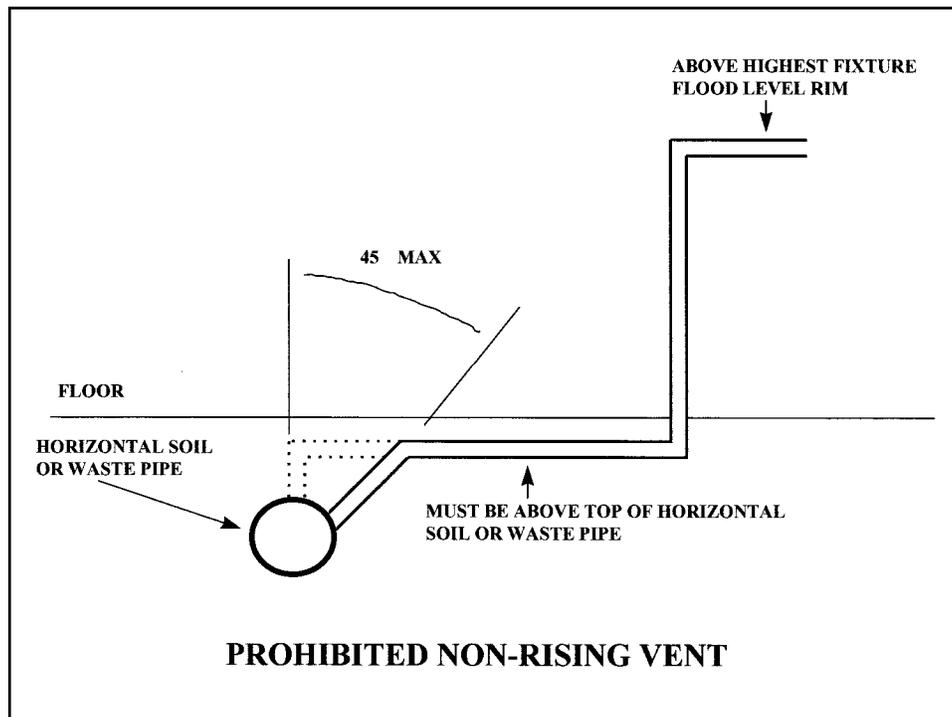
Properly Connected Vent Serving a Drain

VENT STACK
FLOOD LEVEL RIM
6" MIN
MOP SINK
WASTE STACK

IF DRAIN IS BLOCKED, THE FIXTURE WILL OVERFLOW

Orientation to the Ohio Plumbing Code

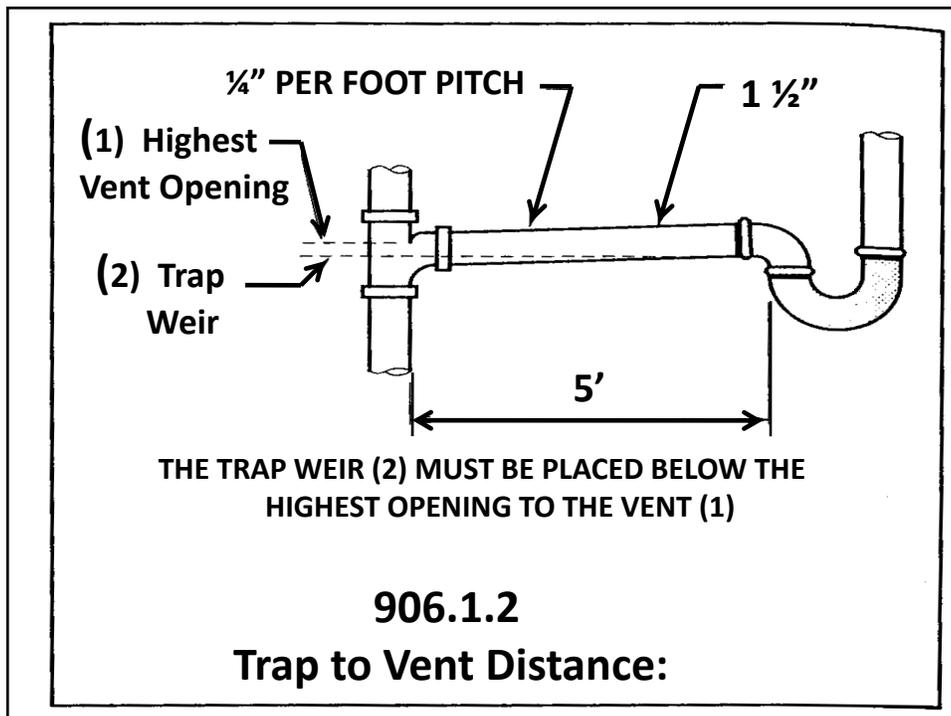
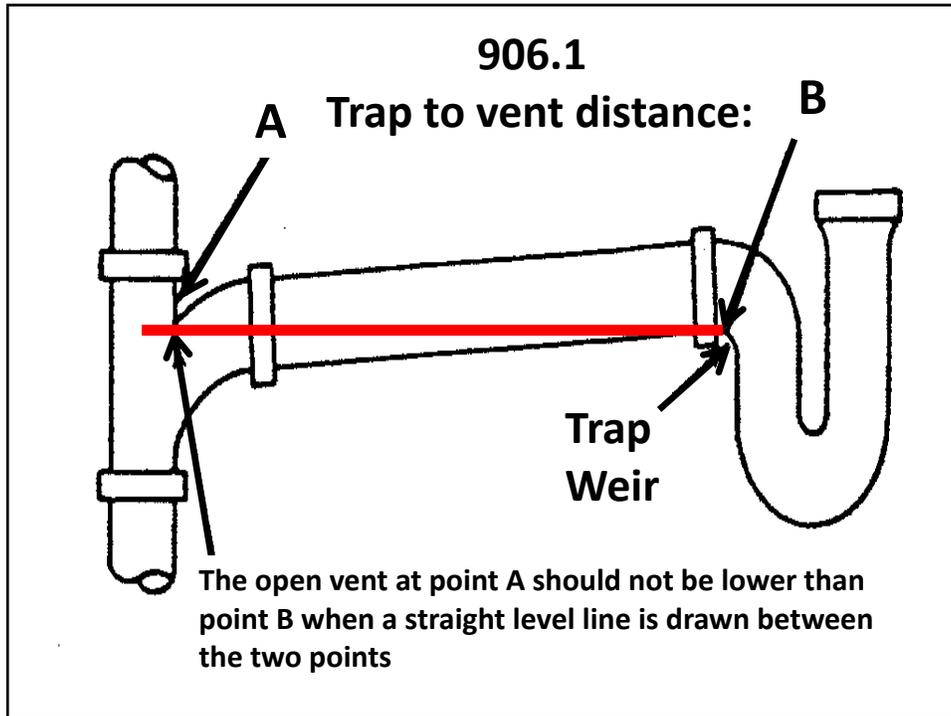
93

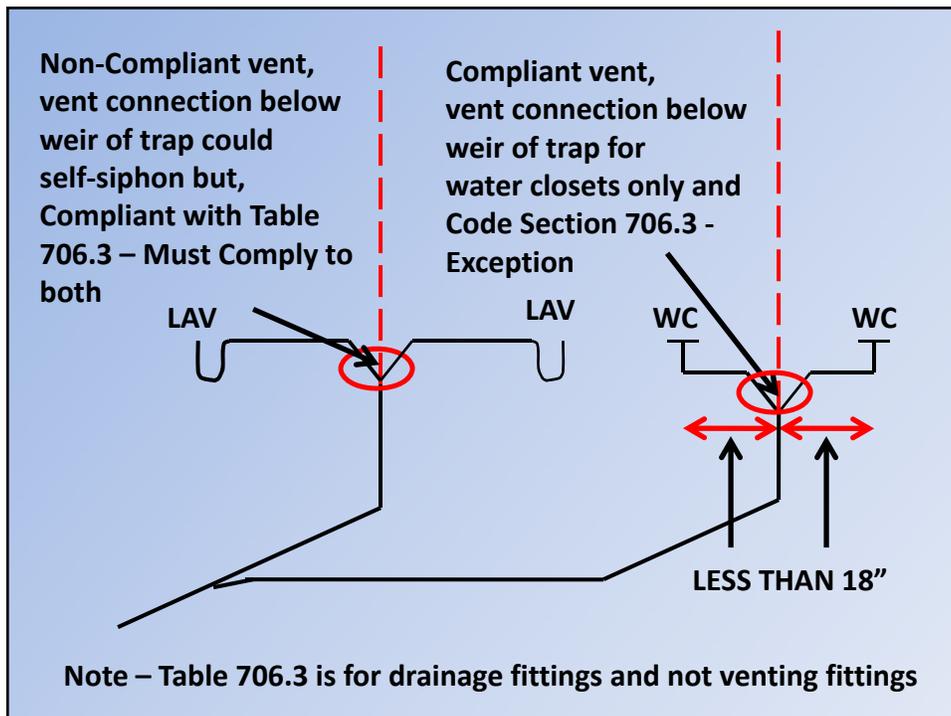
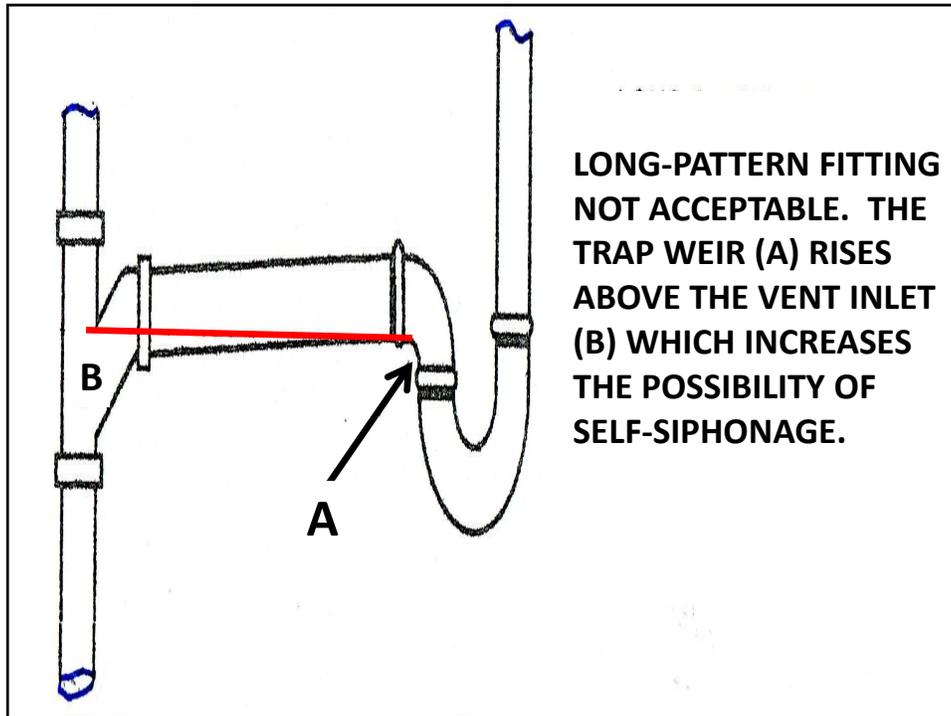


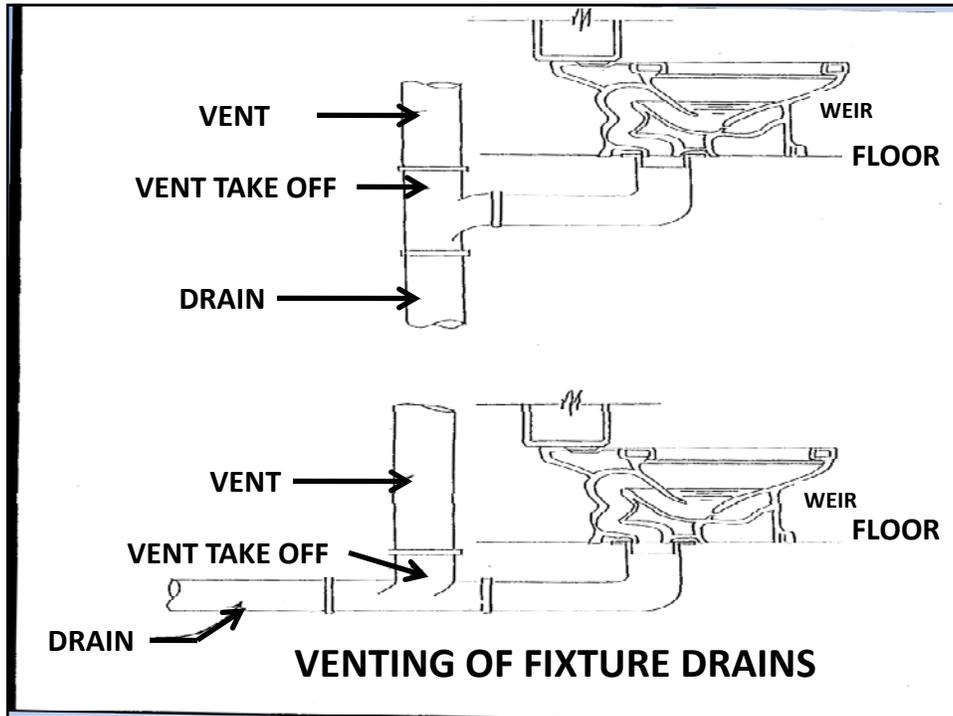
906.2

VENTING OF FIXTURE DRAINS

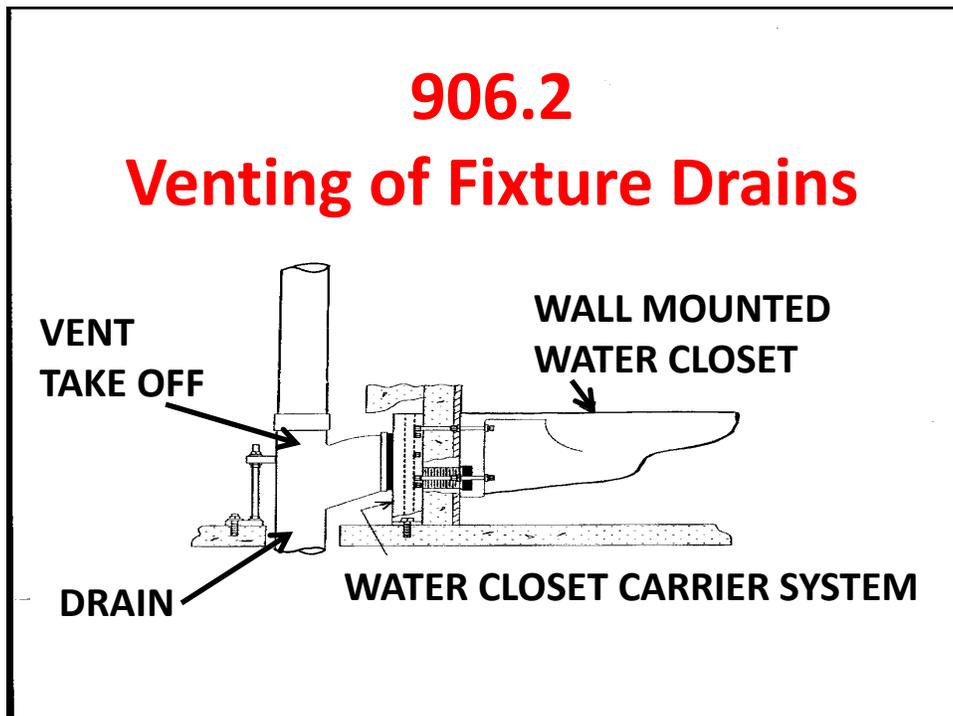
The total fall in a fixture drain due to pipe slope shall not exceed the diameter of the fixture drain, nor shall the vent connection to a fixture drain, except water closets, be below the weir of the trap.







906.2 Venting of Fixture Drains



2011 Ohio Plumbing Code Venting Methods

907 - INDIVIDUAL VENT

908 - COMMON VENT

909 - WET VENTING

910 - WASTE STACK VENT

911 - CIRCUIT VENTING

912 - COMBINATION DRAIN & VENT

913 - ISLAND FIXTURE VENTS

920 – SINGLE STACK VENT SYSTEM*

** Added Jan. 1st 2016*

SECTION 907 INDIVIDUAL VENT

**An individual vent is a vent
for a single fixture.**

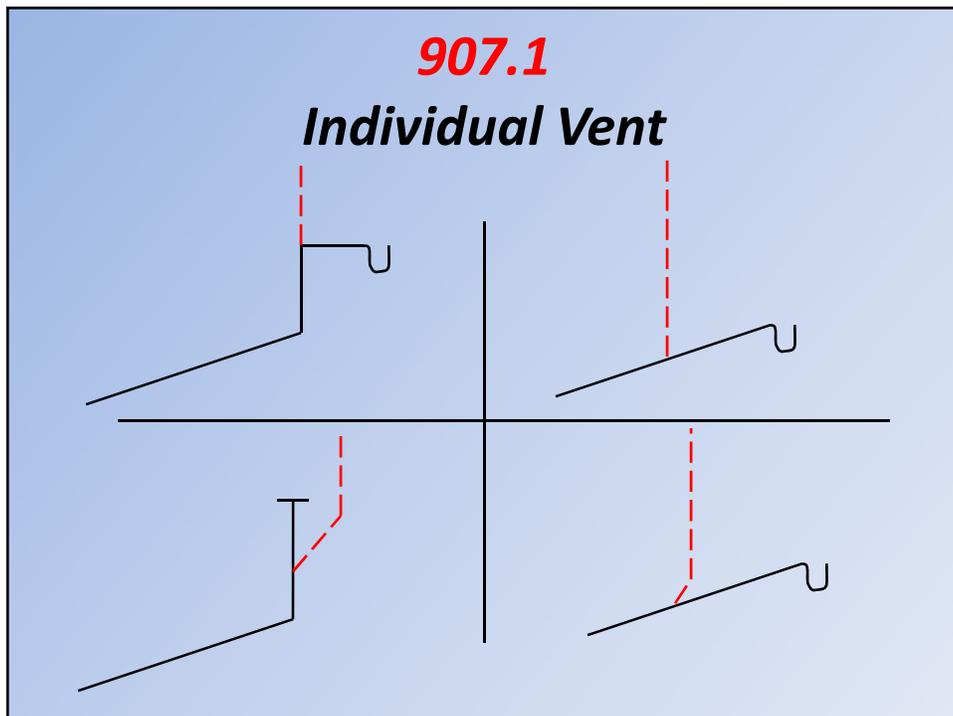
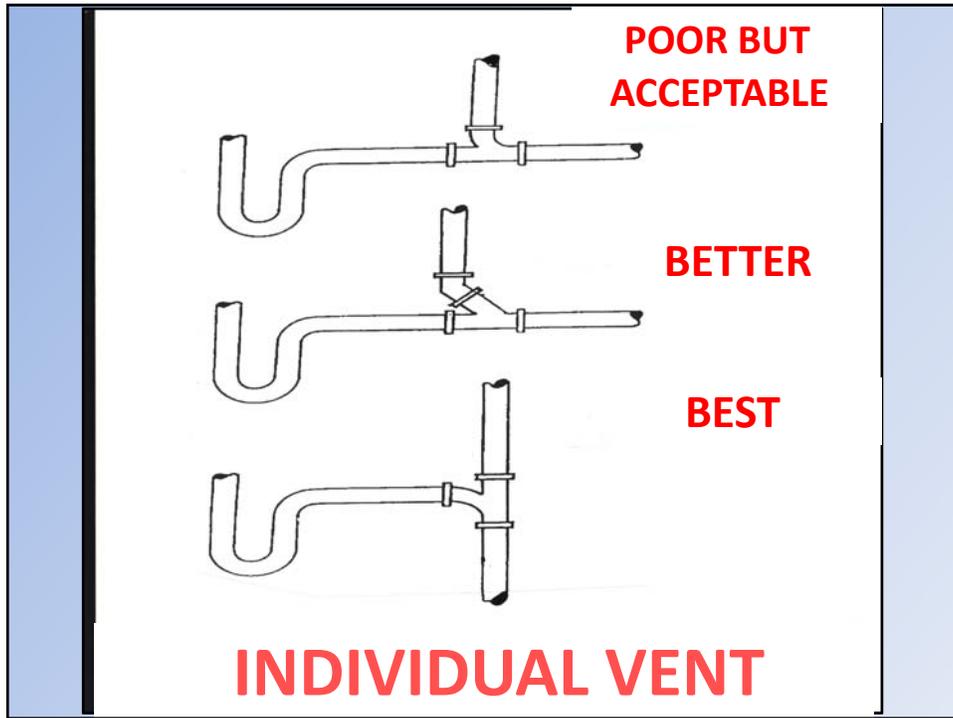
907.1

Individual Vent

- *An individual vent is a vent for a single fixture.*
- *Each fixture trap and trap is allowed to be provided with an individual vent.*
- *The individual vent shall connect to the fixture drain of the trap or the trapped fixture being vented.*

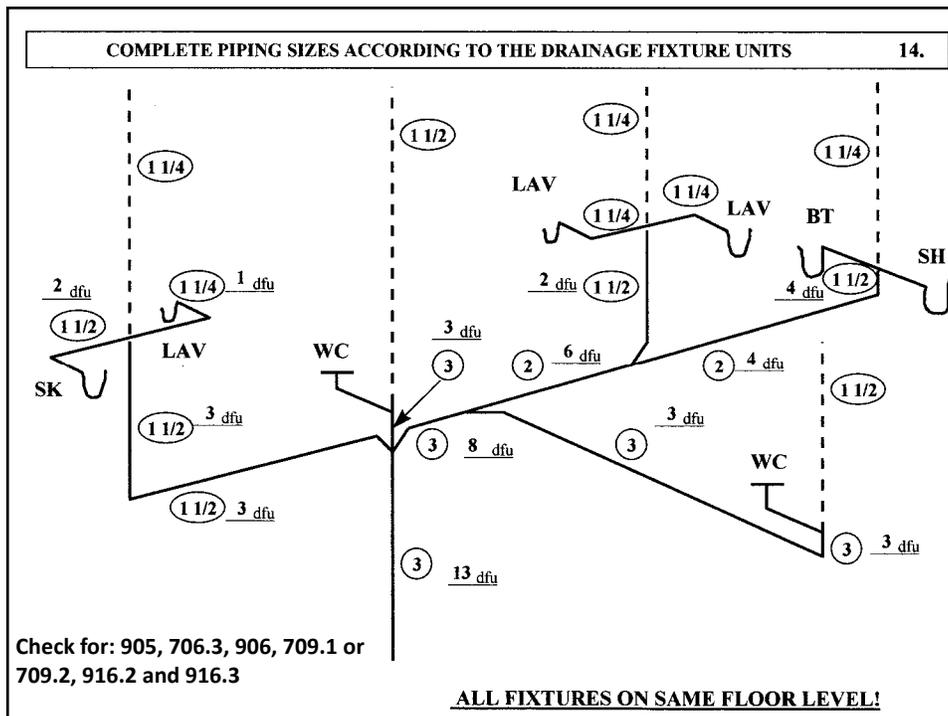
907.1

- Each trap and trapped fixture is permitted to be provided with an individual vent.
- The individual vent **shall** connect to the fixture drain of the trap or trapped fixture being vented.
- **Shall** comply to **ALL** of section 905.
- **(Vent Connections and Grade)**
- **Shall** comply to **ALL** of section 906.
- **(Fixture Vents)**
- **Shall** comply to section 706.3.
- **(Fittings for Change of Direction)**



Sizing of Drain and Individual Vent

- Shall comply to **ALL** of section 905
Vent Connections and Grades
- Shall comply to section 706.3
Fittings for Change of Direction
- Shall comply to **ALL** of section 906
Fixture Vents
- Shall comply with section 709.1 or 709.2
Values for Fixtures
Fixtures not listed in Table 709.1
- Shall comply with section 916.2 and 916.3
Vents other than Stack Vents and Vent Stacks
Developed Length



SECTION 908 COMMON VENT

An common vent is a vent for two fixtures on the same floor level.

908.1

Common Vent

- ***Any two traps or trapped fixtures can be vented by a common vent.***
- ***Maximum of any two fixture on the same floor level.***
- ***The upper fixture can not be a water closet.***
- ***908.2 at the same level, means using a double sanitary tee or sanitary cross on the vertical.***
- ***908.3 fixtures at different levels, means stacking two tees on the vertical.***

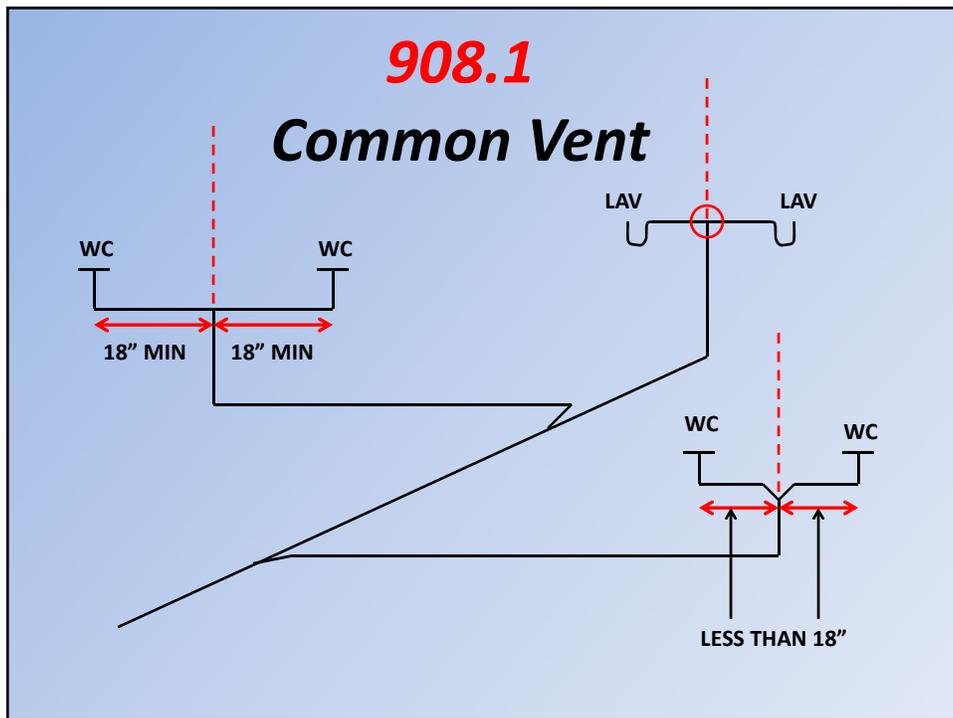
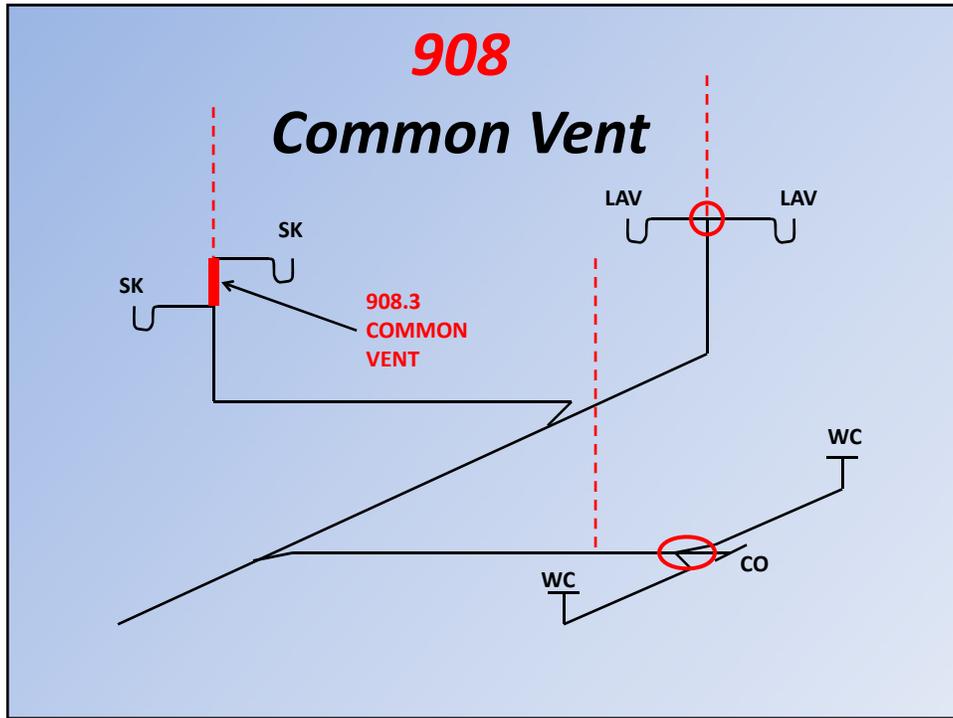
908.1**Common Vent**

- *If a common vent is used on a horizontal fitting, the fitting shall be a double pattern fitting.*
- *Crosses or sanitary tee's shall not be permitted on a horizontal pipe.*
- *Remember, table 906.1 trap to vent distance.*
- *Table 908.3, shows allowable dfu's for common vent between the vent for lower fixture and drain for upper fixture.*

TABLE 906.1

MAXIMUM DISTANCE OF FIXTURE TRAP FROM VENT

SIZE OF TRAP (inches)	SLOPE (inches per foot)	DISTANCE FROM TRAP (feet)
1 ¼'	1/4"	5'
1 ½"	1/4"	6'
2"	1/4"	8'
3"	1/8"	12'
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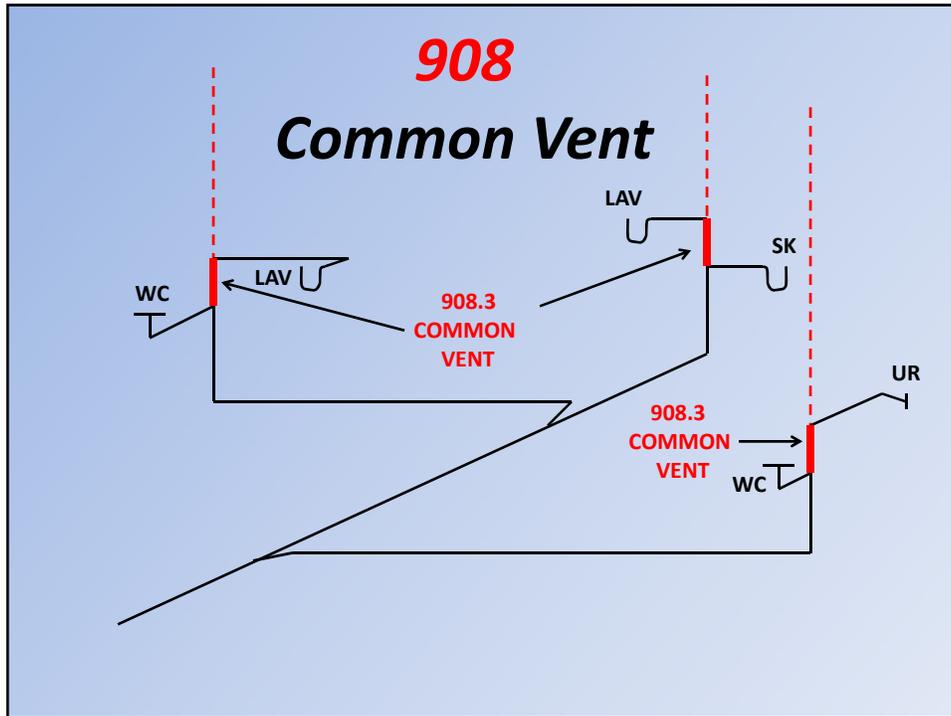
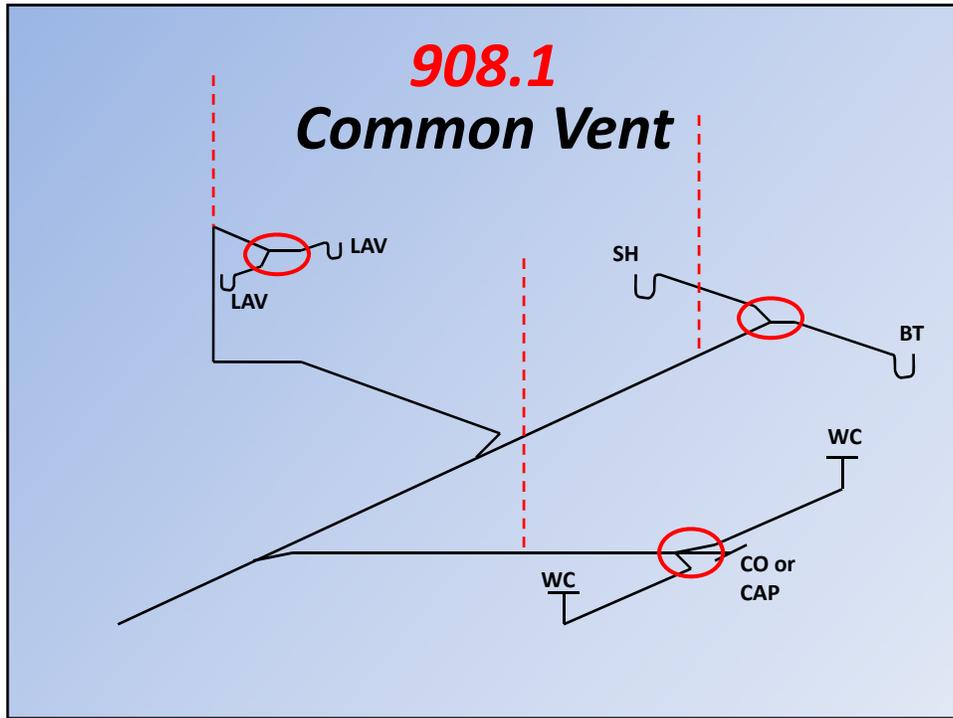


TABLE 908.3
Common Vent Sizing

PIPE SIZE (Inches)	MAXIMUM DISCHARGE FROM UPPER FIXTURE DRAIN (dfu's)
1 ½"	1
2"	4
2 ½" to 3"	6



908.2**CONNECTION AT SAME LEVEL****908.2****Connection at the same level:**

Where the fixture drains being common vented connect at the same level, the vent connection shall be at the interconnection of the fixture drains or downstream of the interconnection.

Common vent on the horizontal shall be a double pattern fitting.

908.2

Connection at the same level:

706.3

Double Pattern Fitting

Twin 90 (2" and smaller)

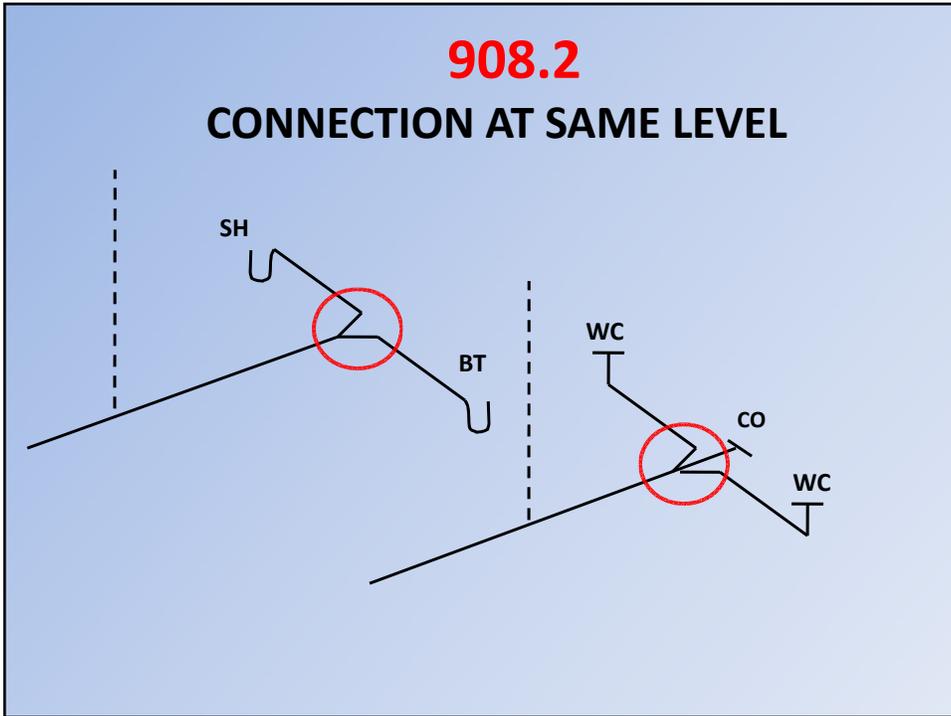
Double WYE

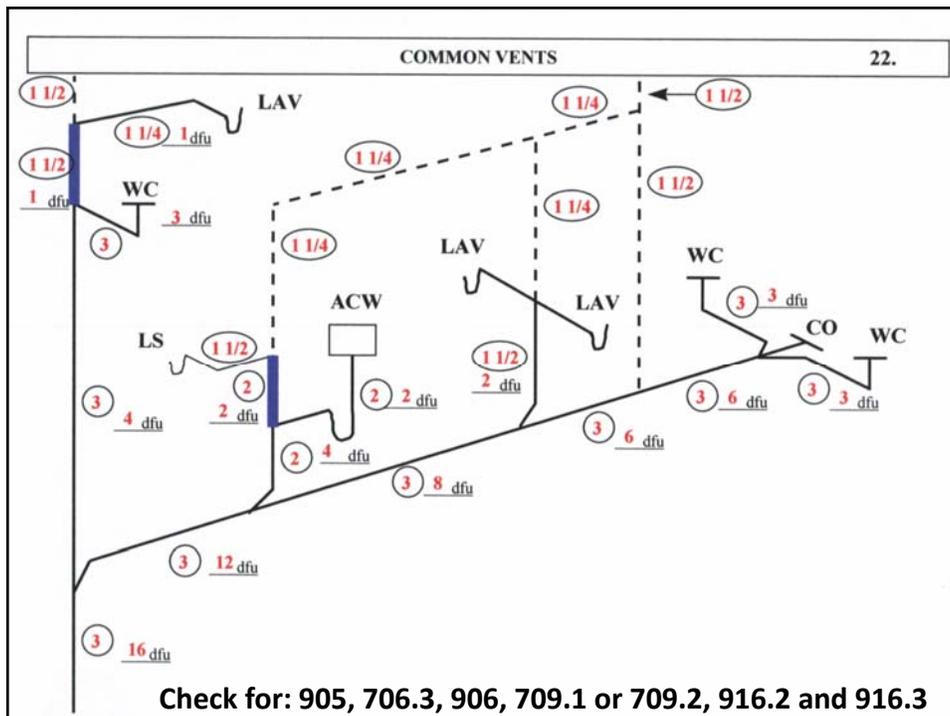
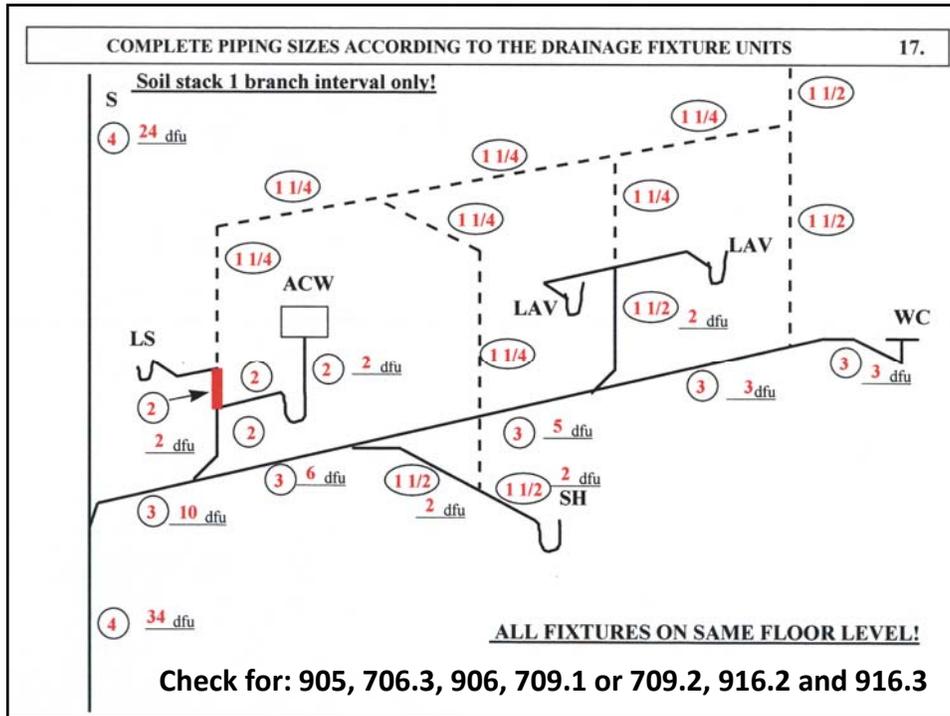
Double WYE and 1/8 Bend

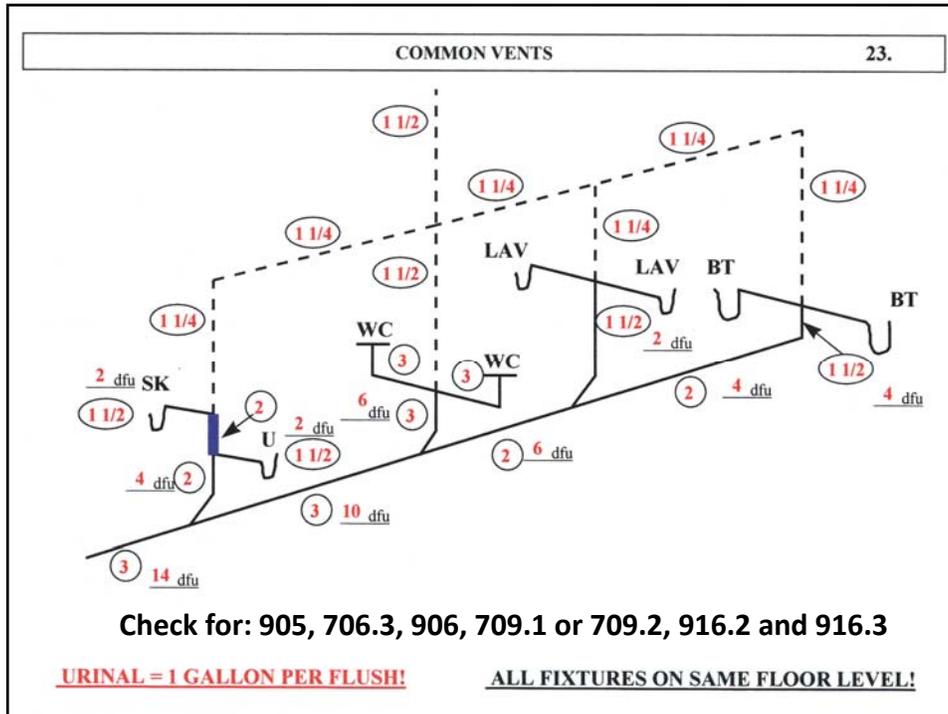
908.2

CONNECTION AT SAME LEVEL





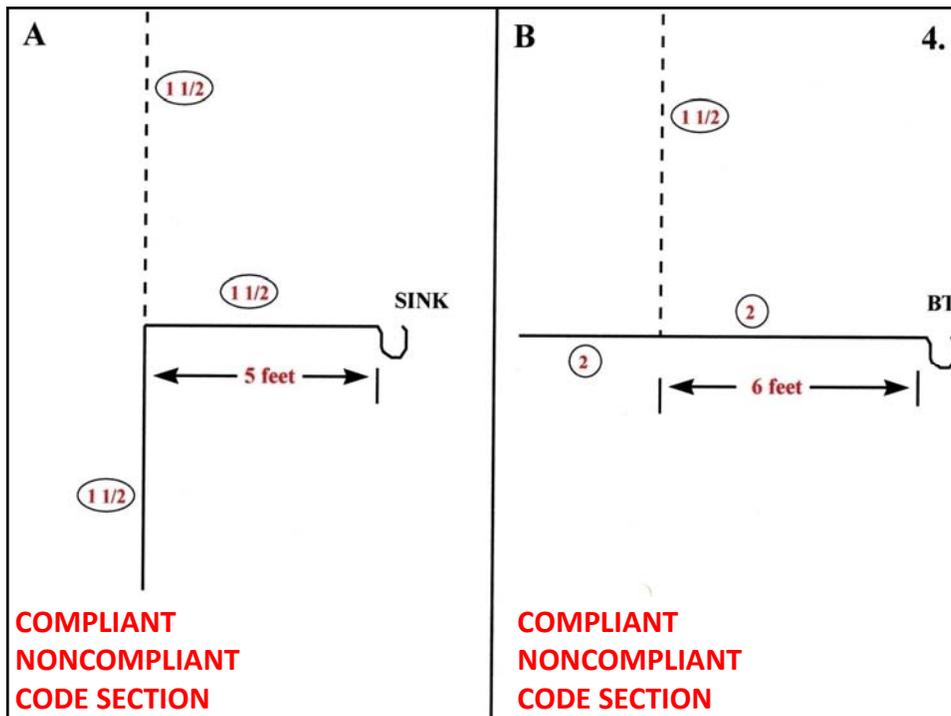
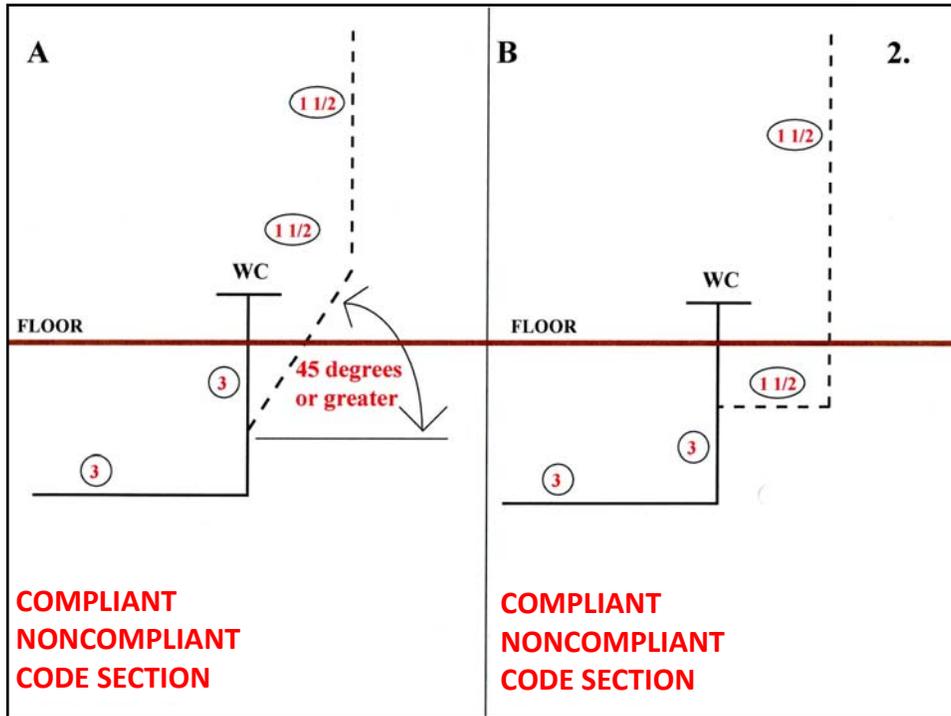


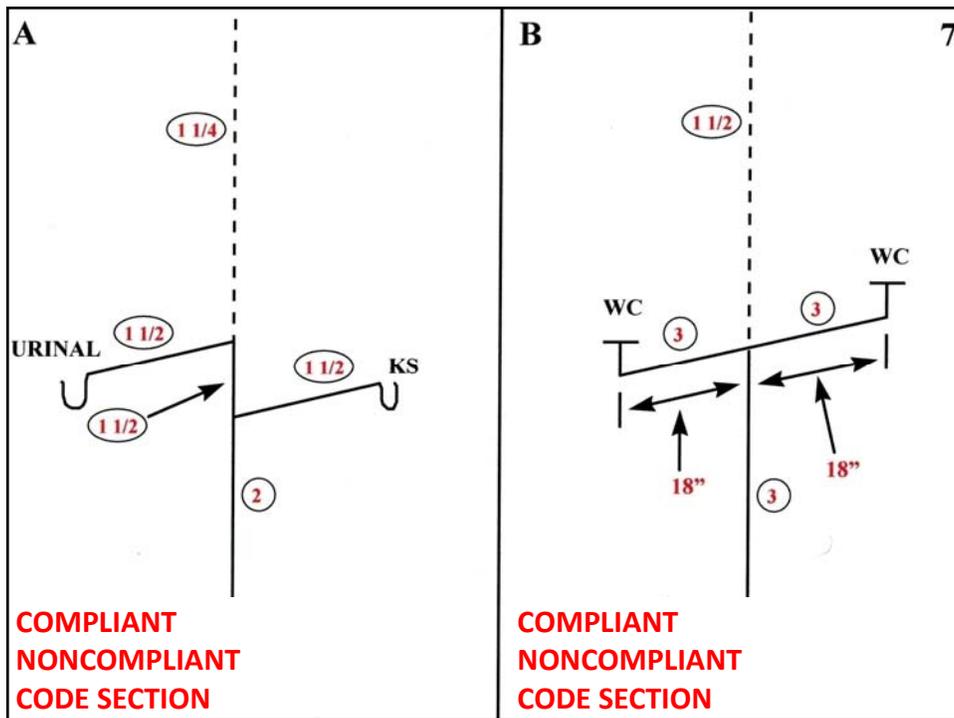
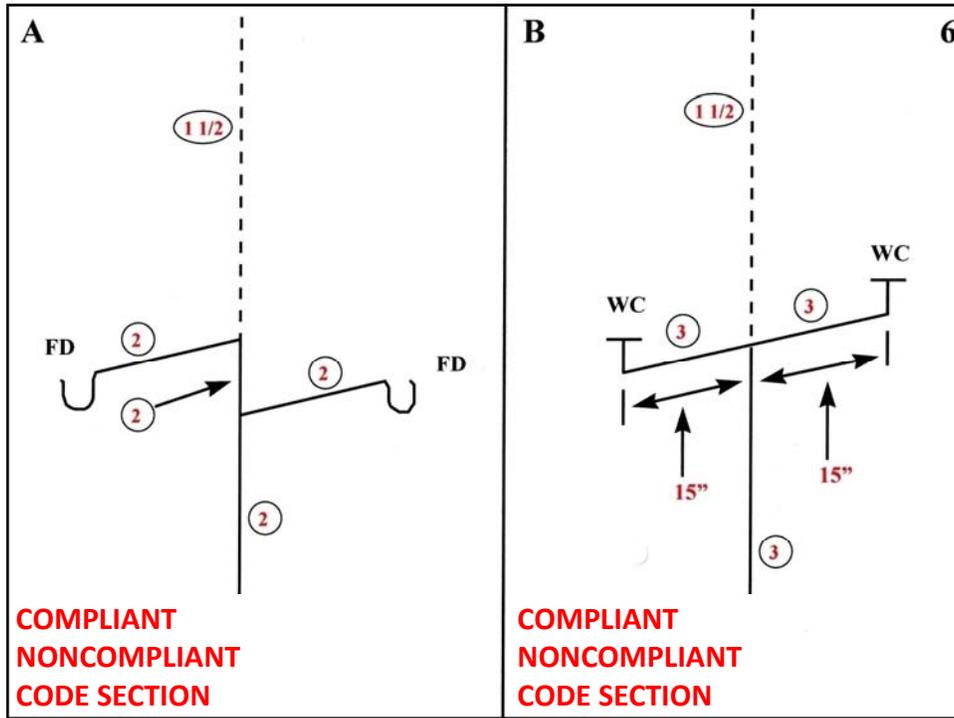


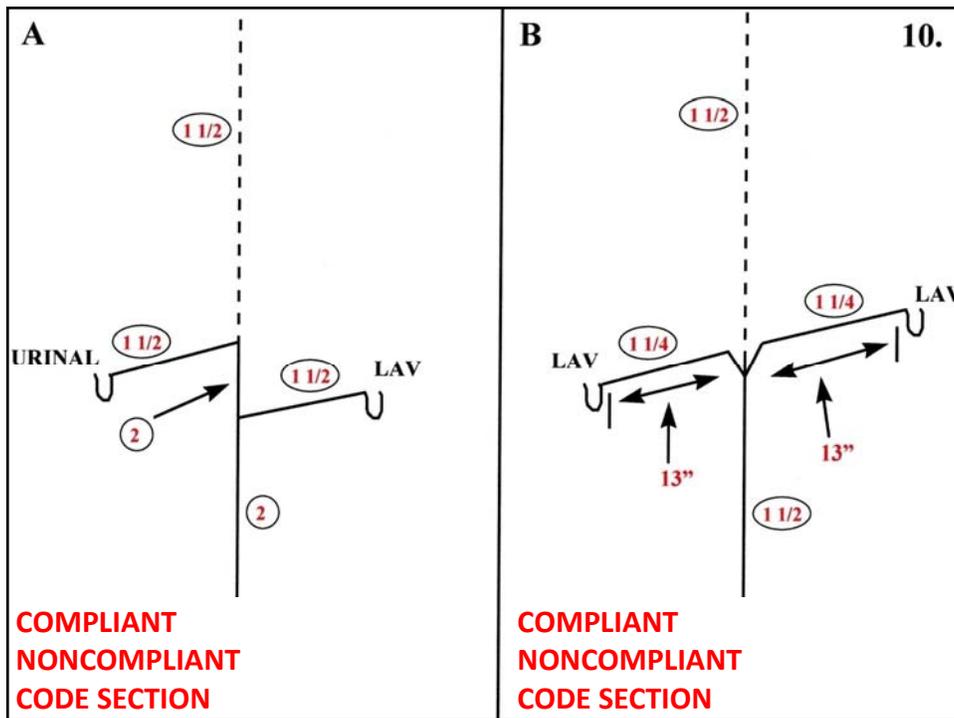
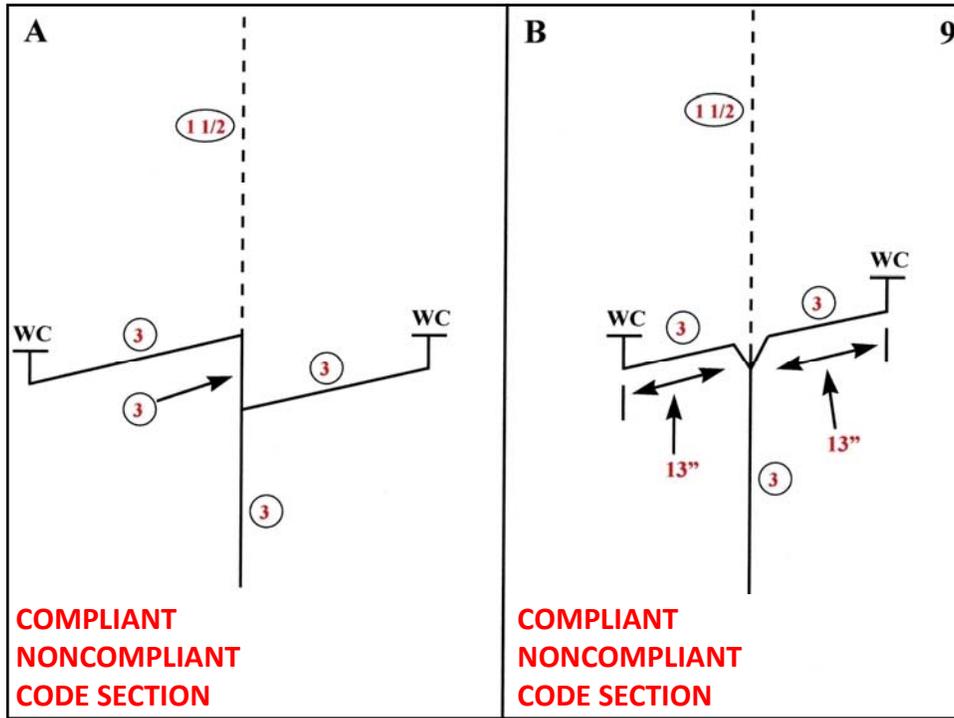
COMPLIANT

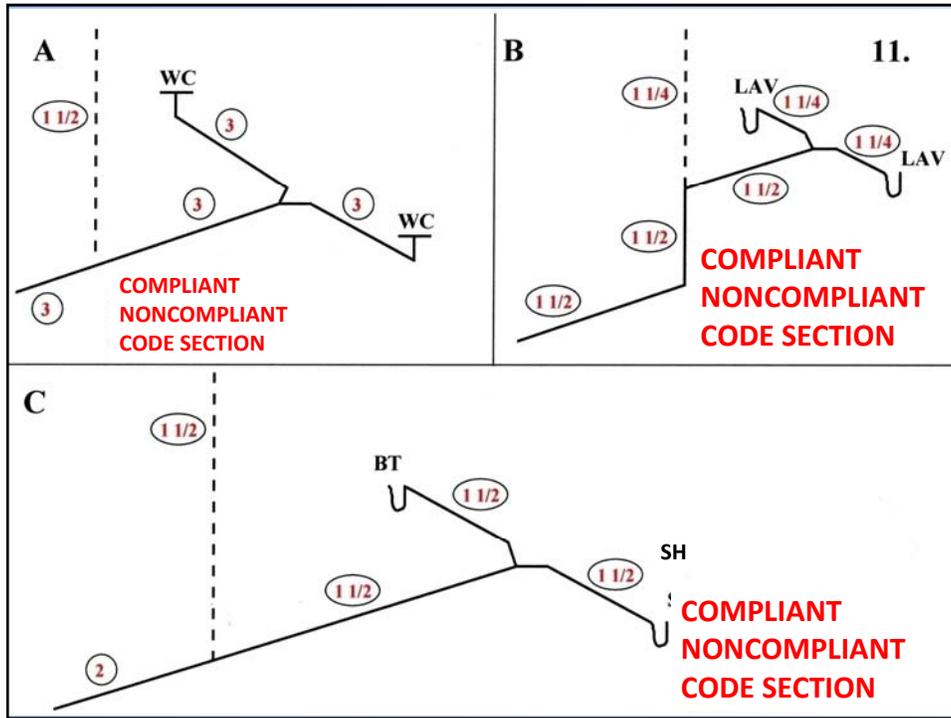
NONCOMPLIANT

CODE SECTION



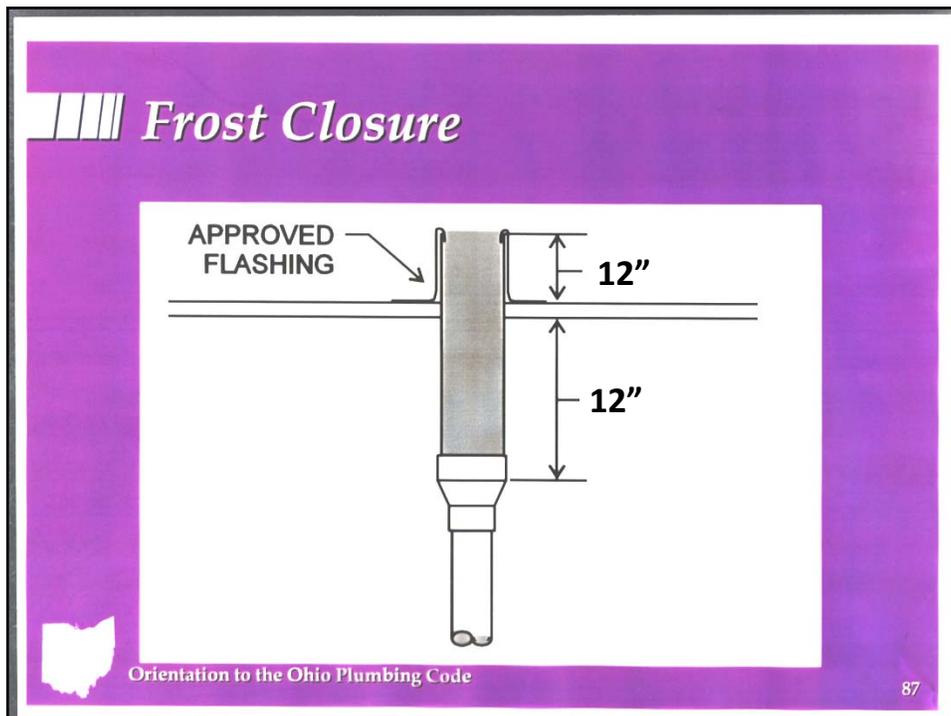


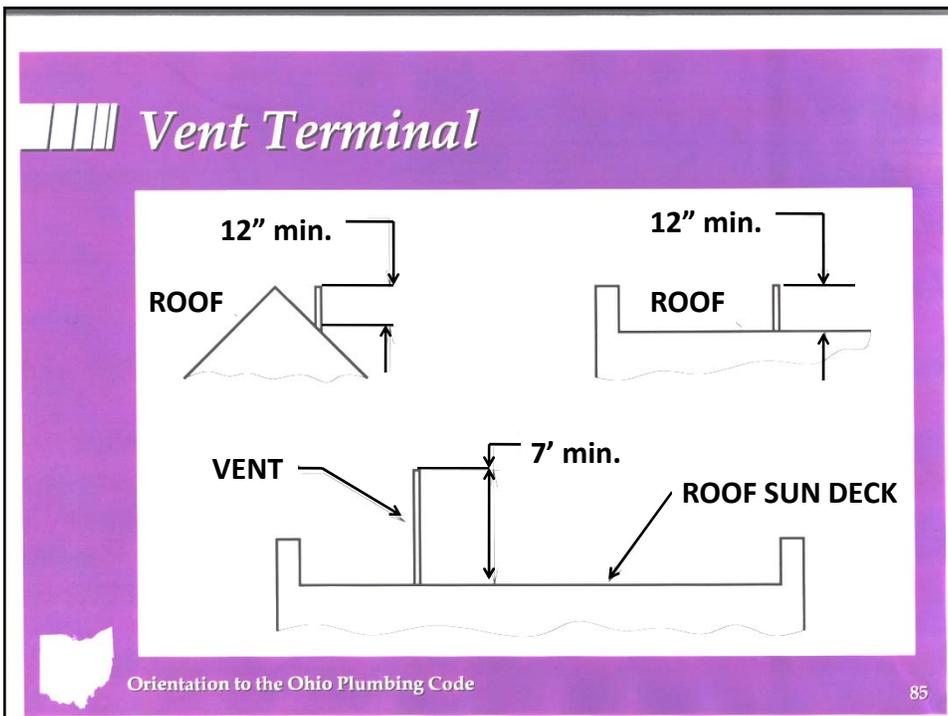


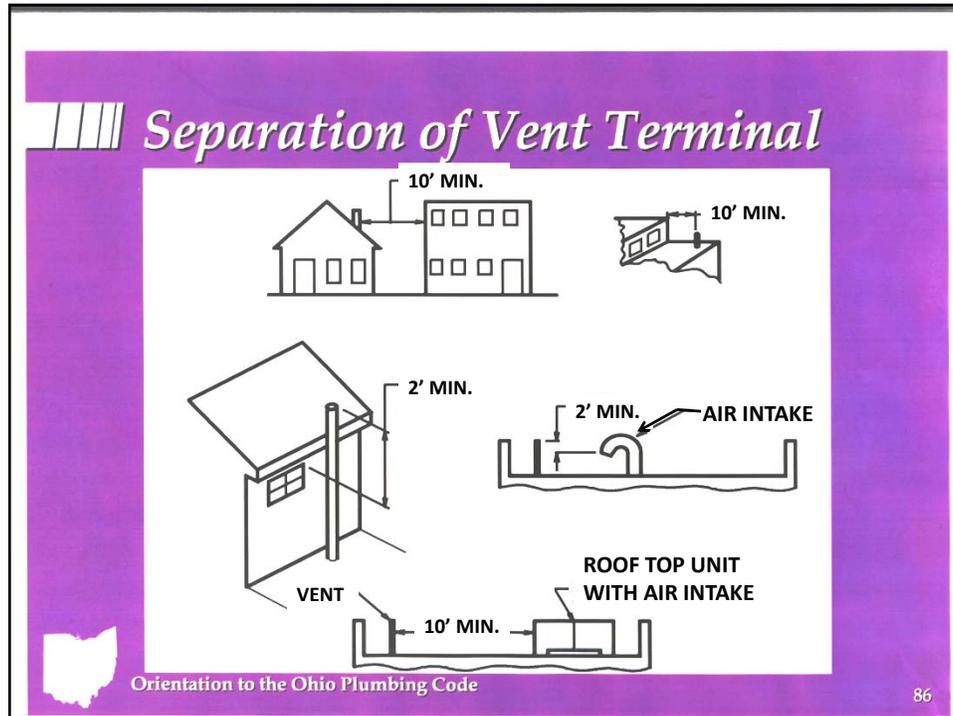


**SECTION 903
OUTDOOR VENT
EXTENSION**

- **903.1 Required vent extension.** The vent system serving each building drain shall have at least one vent pipe that extends to the outdoors ***through and above the roof.***





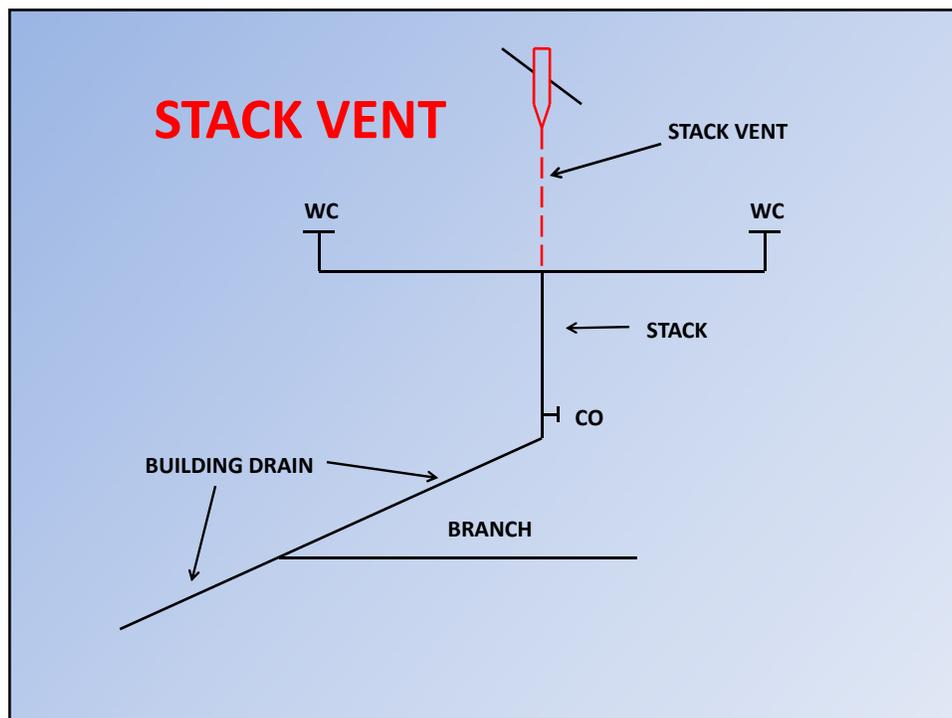


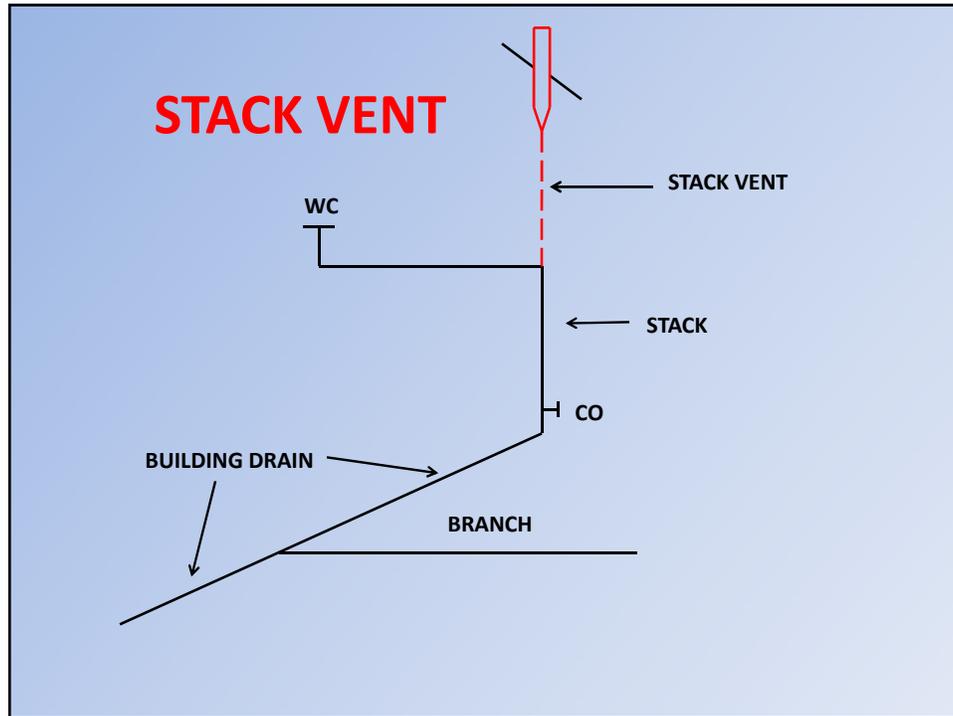
STACK VENT

The extension of a soil or waste stack above the highest horizontal drain connected to the stack.

STACK VENT

- **903.1.1 Installation.** The required vent shall be a dry vent that connects to the building drain or an extension of a drain that connects to the building drain.





VENT STACK

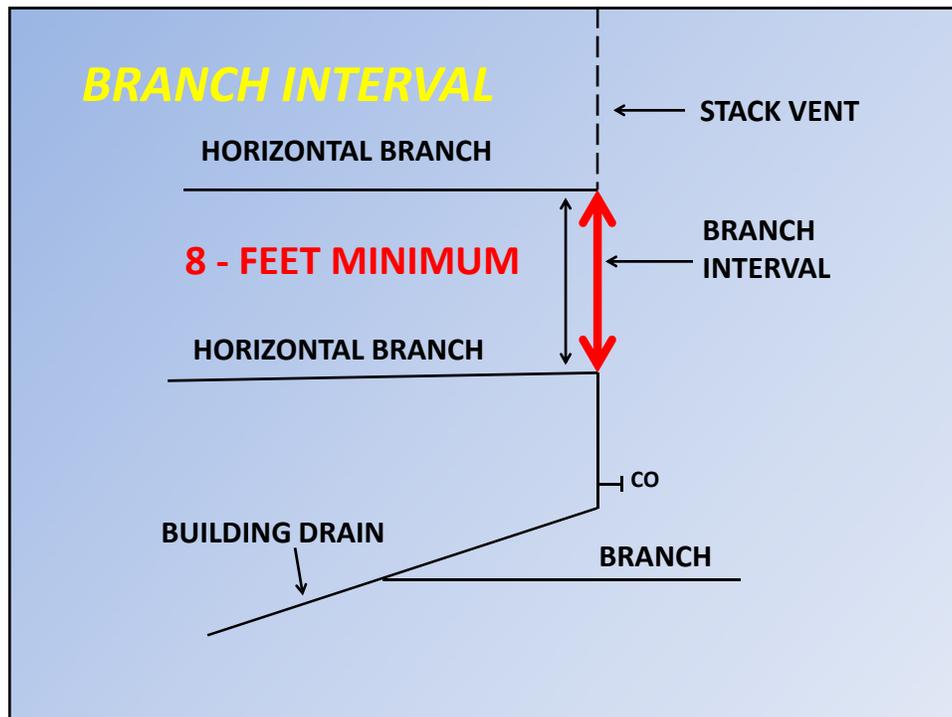
A vertical vent pipe installed primarily for the purpose of providing circulation of air to and from any part of the drainage system.

VENT STACK

- **903.2 Vent stack required.** A vent stack shall be required for every drainage stack that has five branch intervals or more.

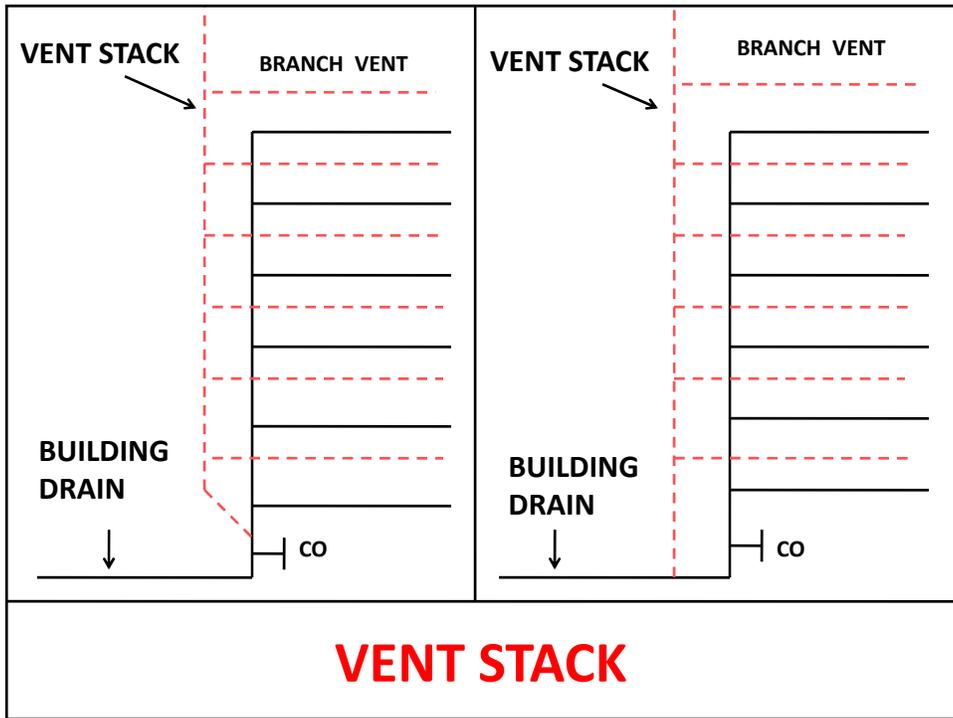
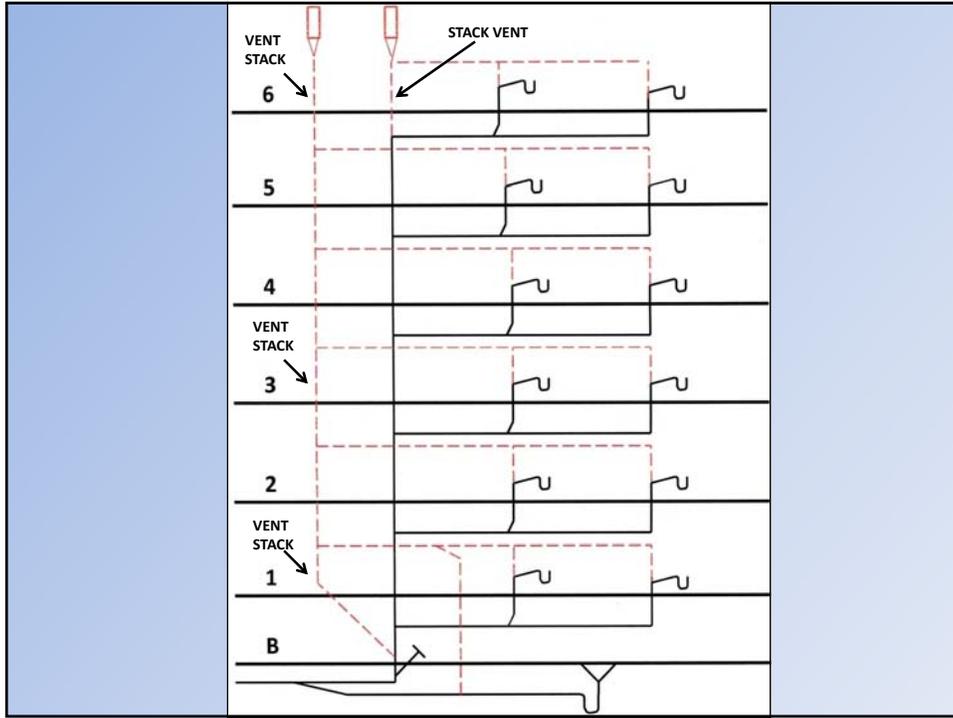
BRANCH INTERVAL

A branch interval is the distance between two horizontal branches that connects to a stack.



VENT STACK

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 10 times the diameter of the drainage stack.**



SECTION 916 VENT PIPE SIZING

STACK VENT

- **903.1.2 Size.** The required vent shall be sized in accordance with **Section 916.1 based on the required size of the building drain.**

SECTION 916.1 SIZE OF STACK VENTS AND VENT STACKS

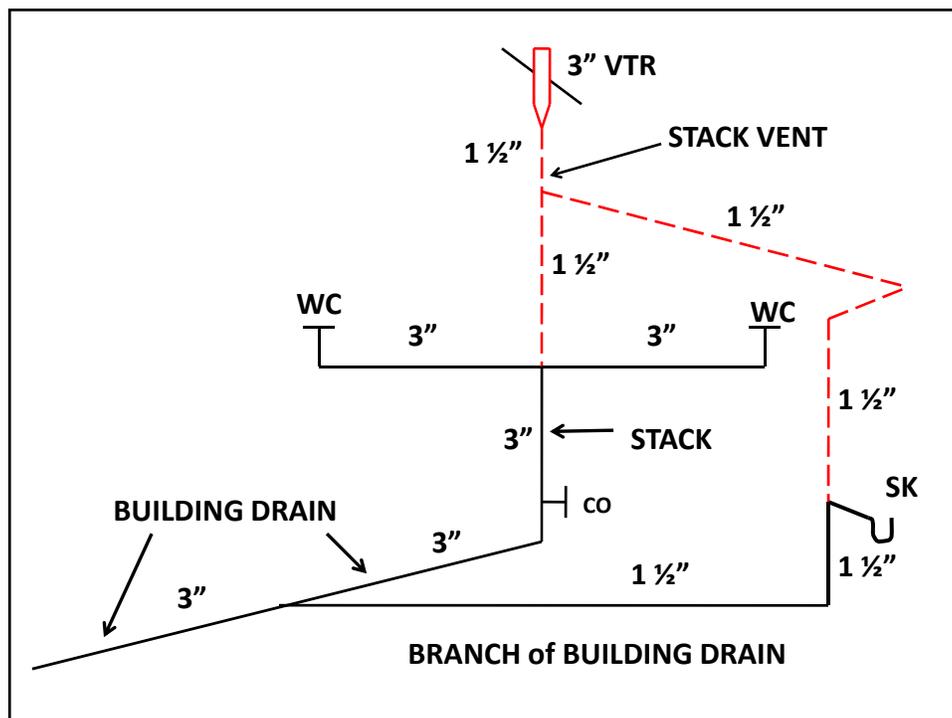
**TABLE 916.1
SIZE AND DEVELOPED LENGTH OF STACK VENTS AND VENT STACKS**

DIAMETER OF SOIL OR WASTE STACK (inches)	TOTAL FIXTURE UNITS SERVED (dfu)	MAXIMUM DEVELOPED LENGTH OF VENT (feet) ^a DIAMETER OF VENT (inches)										
		1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10	12
1 1/4	2	30										
1 1/2	8	50	150									
1 1/2	10	30	100									
2	12	30	75	200								
2	20	26	50	150								
2 1/2	42	30	30	100	300							
3	10		42	150	360	1,040						
3	21		32	110	270	810						
3	53		27	94	230	680						
3	102		25	86	210	620						
4	43		35	85	250	980						
4	140		27	65	200	750						
4	320			23	55	170	640					
4	540			21	50	150	580					
5	190				28	82	320	990				
5	490				21	63	250	760				
5	940				18	53	210	670				
5	1,400				16	49	190	590				
6	500					33	130	400	1,000			
6	1,100					26	100	310	780			
6	2,000					22	84	260	660			
6	2,900					20	77	240	600			
8	1,800						31	95	240	940		
8	3,400						24	73	190	720		
8	5,600						20	62	160	610		
8	7,600						18	56	140	560		
10	4,000							31	78	310	960	
10	7,200							24	60	240	740	
10	11,000							20	51	200	630	
10	15,000							18	46	180	570	
12	7,300								31	120	380	940
12	13,000								24	94	300	720
12	20,000								20	79	250	610
12	26,000								18	72	230	500
15	15,000									40	130	310
15	25,000									31	96	240
15	38,000									26	81	200
15	50,000									24	74	180

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
a. The developed length shall be measured from the vent connection to the open air.

916.1 Size of stack vents and vent stacks.

The minimum required diameter of stack vents and vent stacks shall be determined from the developed length and the total of drainage fixture units connected thereto in accordance with Table 916.1, but in no case shall the diameter be less than one-half the diameter of the drain served or less than 1¼" (32 mm).



916.2 Vents other than stack vents or vent stacks.

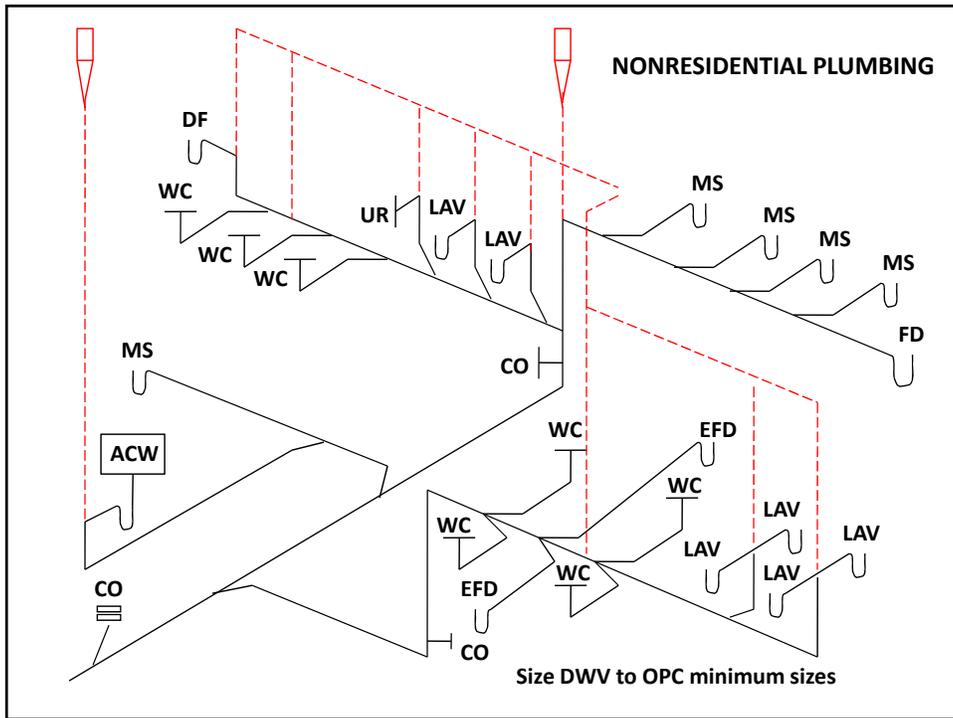
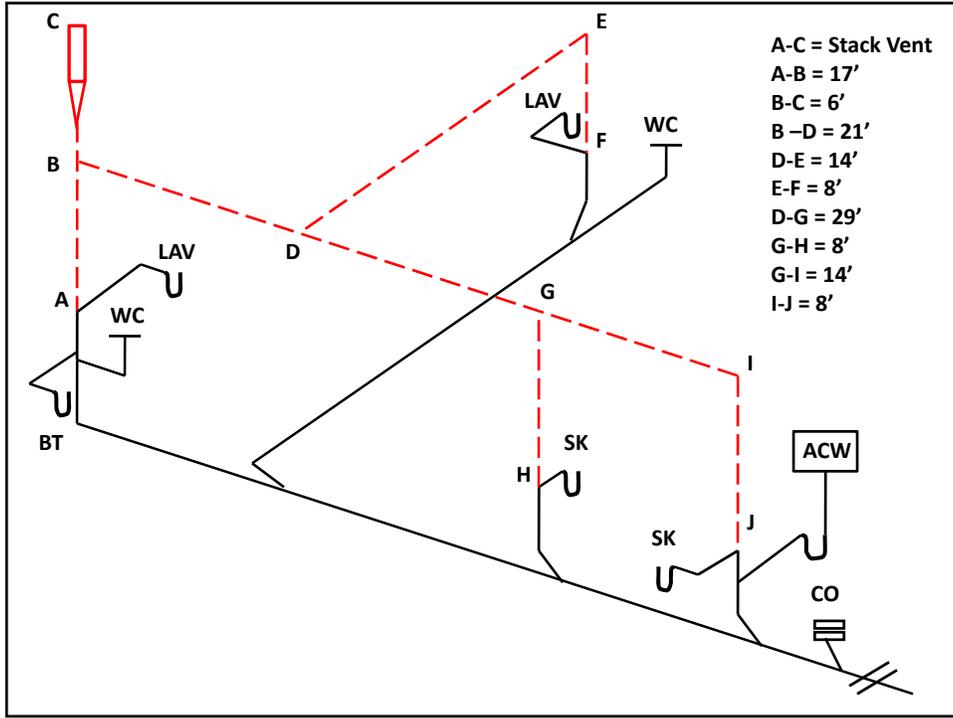
The diameter of individual vents, branch vents, circuit vents and relief vents shall be at least one-half the required diameter of the drain served. The required size of the drain shall be determined in accordance with Table 710.1(2). Vent pipes shall not be less than 1 ¼ inches in diameter.

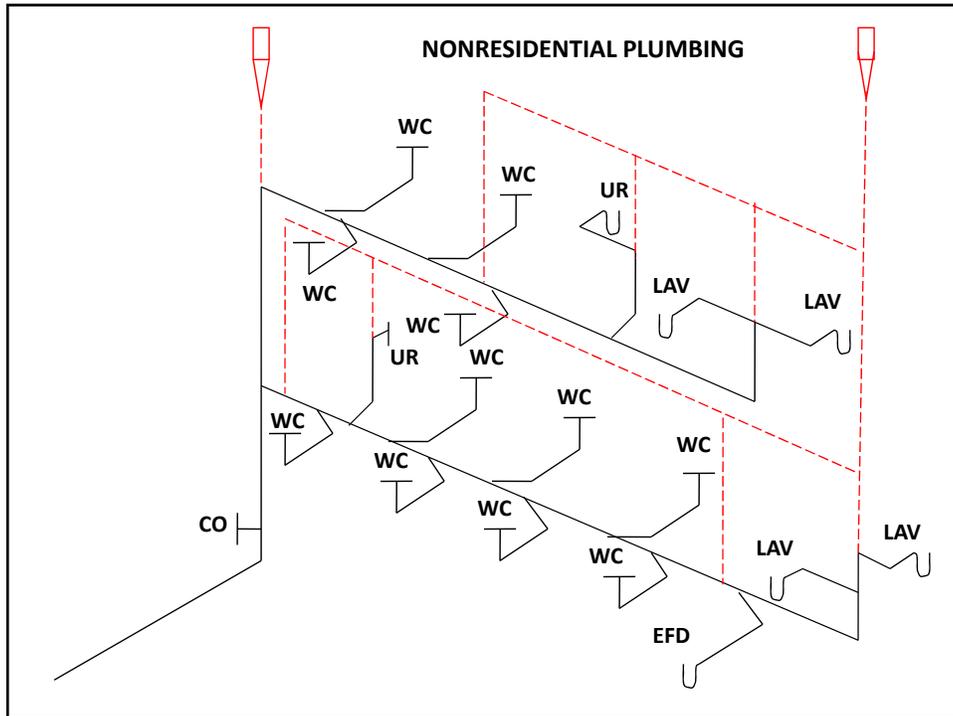
Vents exceeding 40 feet in developed length shall be increased by one nominal pipe size for the entire developed length of the vent pipe.

Relief vents for soil and waste stacks in buildings having more than 10 branch intervals shall be sized in accordance with Section 914.2.

916.3 Developed length.

The developed length of individual, branch, circuit and relief vents shall be measured from the farthest point of vent connection to the drainage system to the point of connection to the vent stack, stack vent or termination outside of the building.

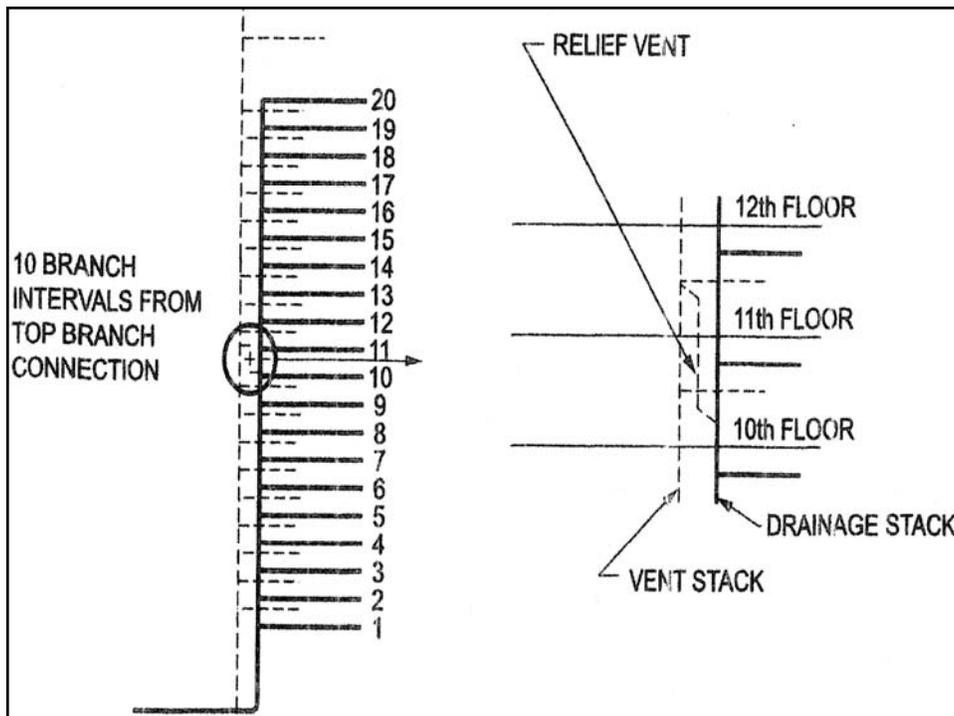


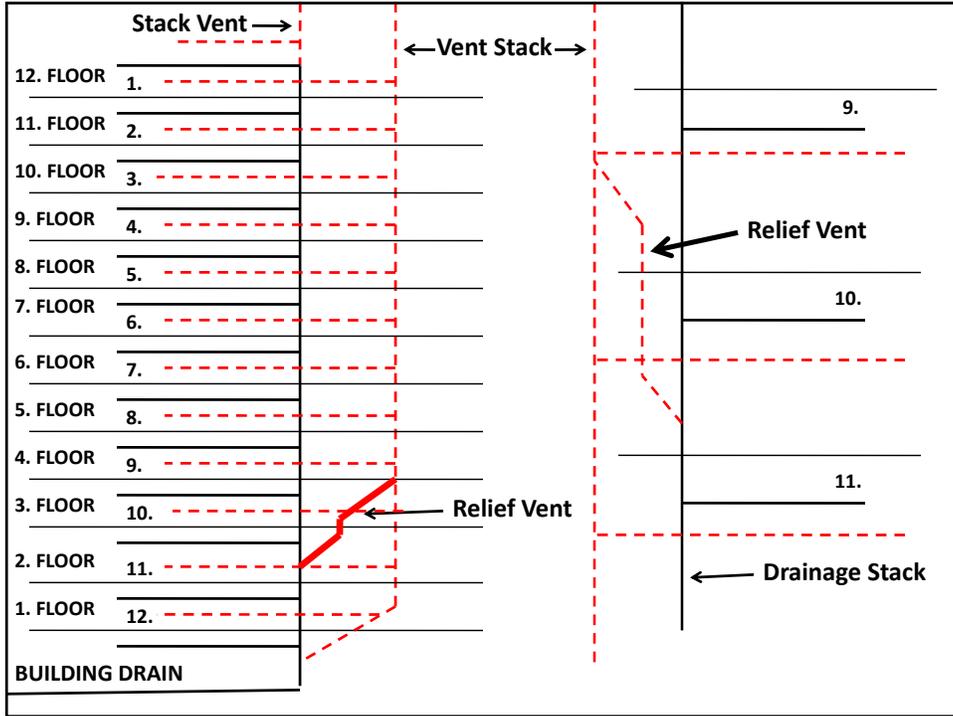


**SECTION 914
RELIEF VENTS
STACKS MORE THAN 10
BRANCH INTERVALS**

914.1 Where required. Soil and waste stacks in buildings having more than 10 branch intervals shall be provided with a relief vent at each tenth interval installed, beginning with the top floor.

914.2 Size and connection. The size of the relief vent shall be equal to the size of the vent stack to which it connects. The lower end of each relief vent shall connect to the soil or waste stack through a wye below the horizontal branch serving the floor, and the upper end shall connect to the vent stack through a wye not less than 3 feet (914 mm) above the floor.





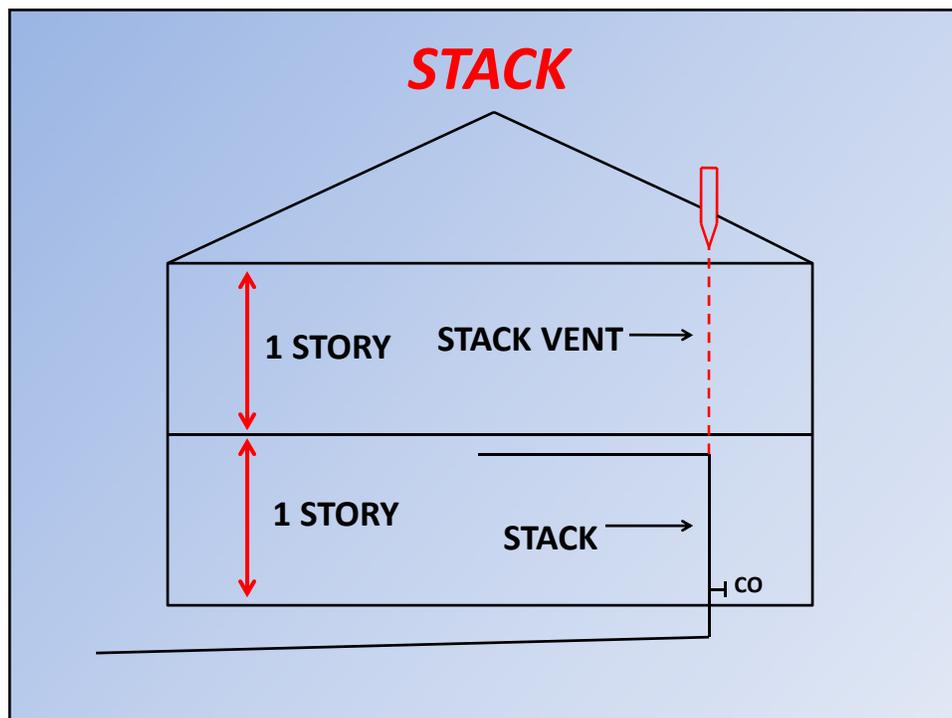
SECTION 915
VENTS FOR STACK
OFFSETS

STACK

A vertical pipe that extends one story.

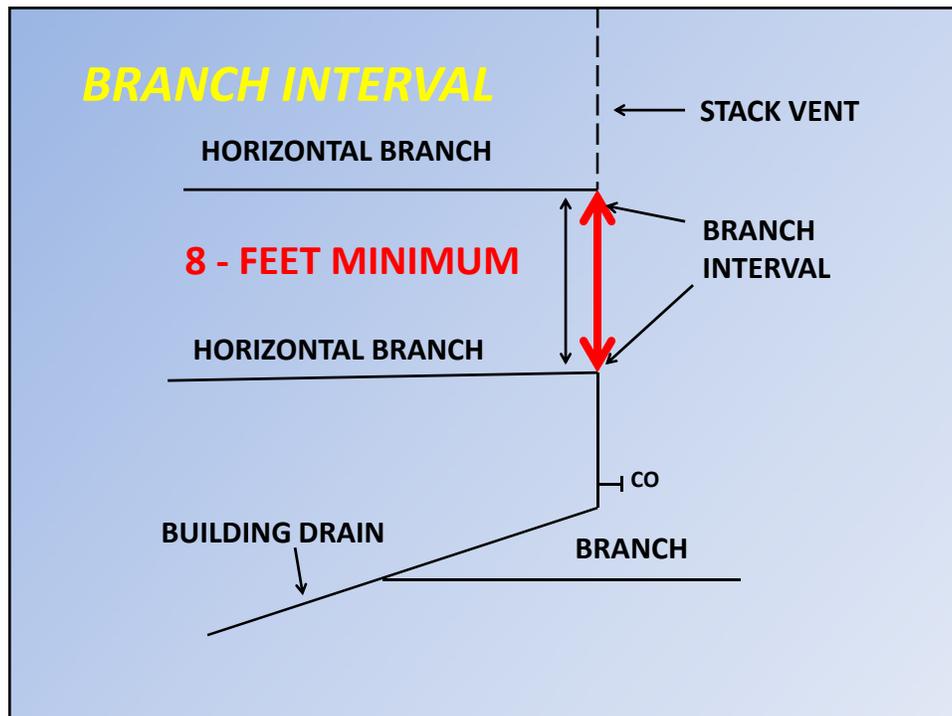
STORY

The space between two adjacent floors or between a floor and the roof of a building. Typically a story is 3.0 to 3.5 meters high (about 10 to 20 feet).



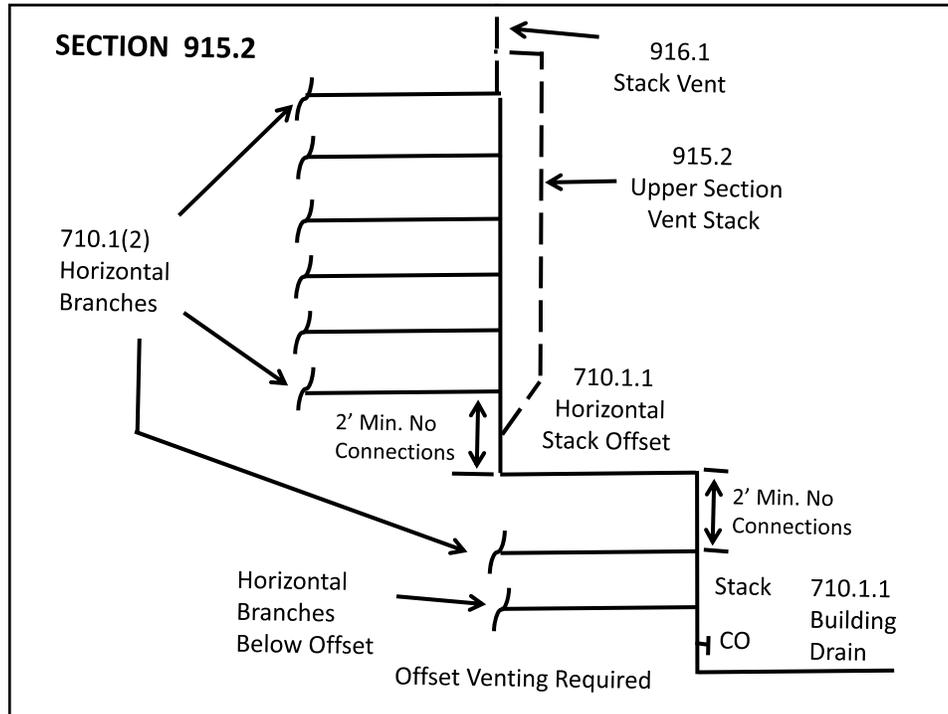
BRANCH INTERVAL

A branch interval is the distance between two horizontal branches that connects to a stack.

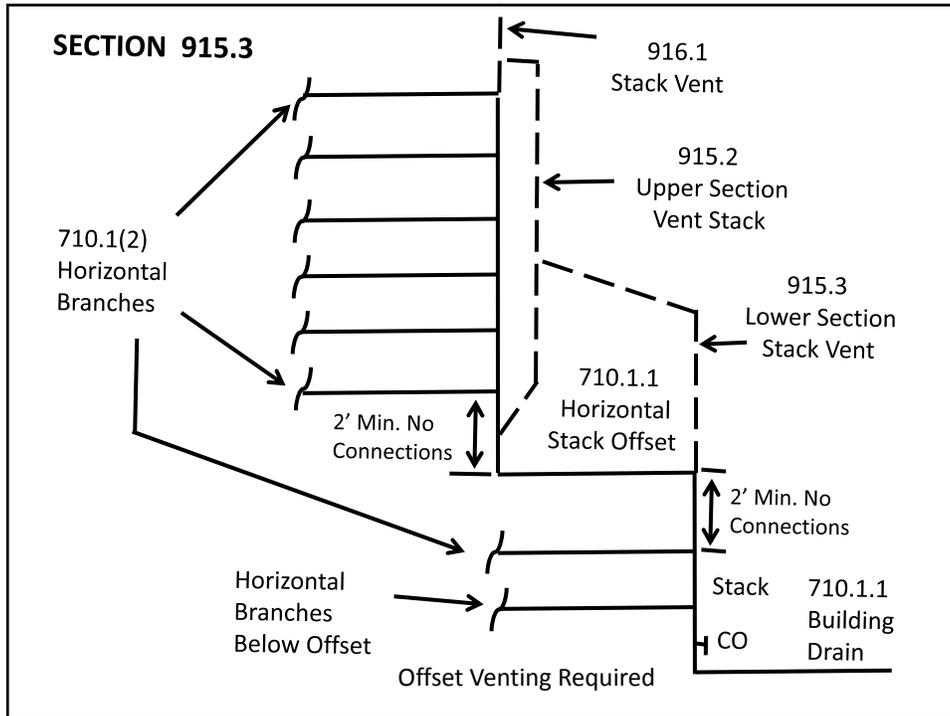


915.1 Vent for horizontal offset of drainage stack. Horizontal offsets of drainage stacks shall be vented where five or more branch intervals are located above the offset. The offset shall be vented by venting the upper section of the drainage stack and the lower section of the drainage stack.

915.2 Upper section. The upper section of the drainage stack shall be vented as a separate stack with a vent stack connection installed in accordance with Section 903.4. The offset shall be considered the base of the stack.

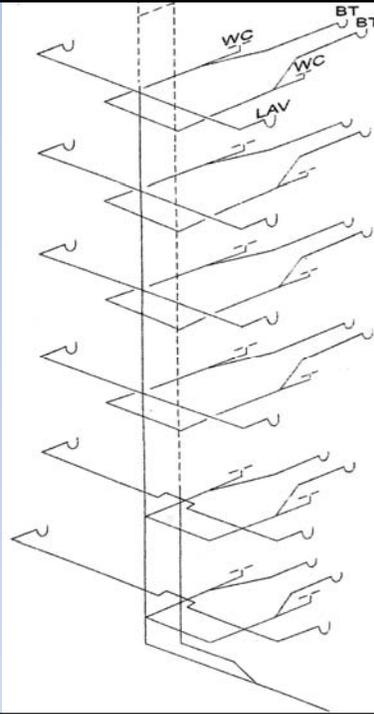


915.3 Lower section. The lower section of the drainage stack shall be vented by a yoke vent connecting between the offset and the next lower horizontal branch. The yoke vent connection shall be permitted to be a vertical extension of the drainage stack. The size of the yoke vent and connection shall be a minimum of the size required for the vent stack of the drainage stack.



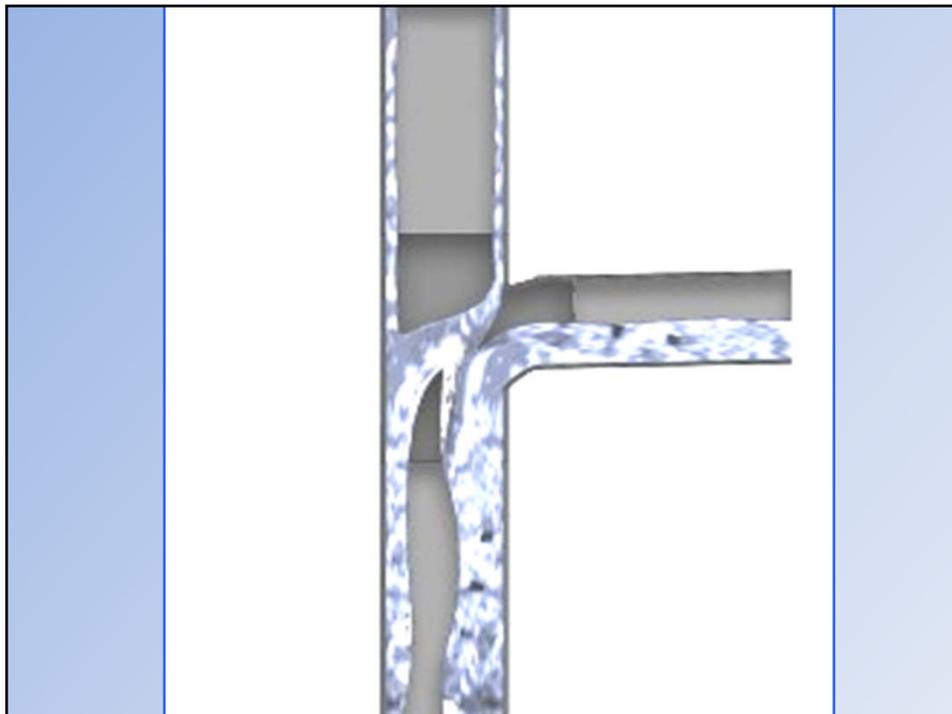
**SECTION 920
SINGLE STACK
VENT SYSTEM**

SECTION 920 SINGLE STACK VENT SYSTEM



***THE SINGLE STACK VENTING
SYSTEM HAS BEEN AROUND
FOR A LONG TIME,
COMMONLY REFERED TO AS
THE “PHILADELPHIA SINGLE
STACK SYSTEM”***

The theory behind this system, is to oversize the pipes to allow for adequate air flow to vent the system



920.1

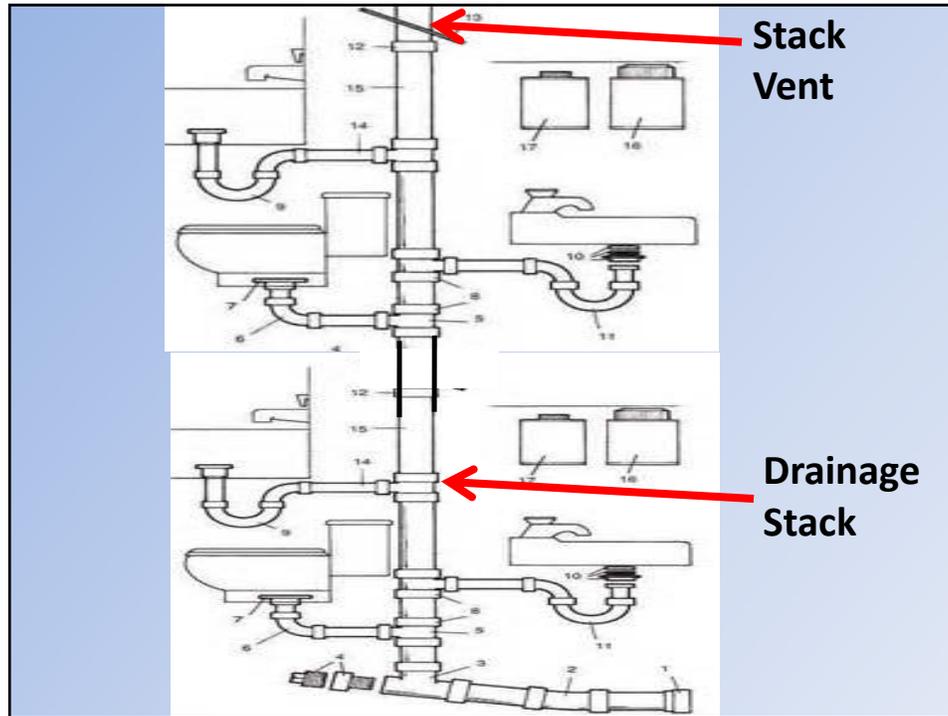
Where permitted.

A drainage stack shall serve as a single stack vent system where sized and installed in accordance with Sections 920.2 through 920.9. The drainage stack and branch piping shall be the vents for the drainage system.

The drainage stack shall have a stack vent.

The Drainage Stack shall have a Stack Vent equal in size to the Waste Stack.

This Stack Vent shall terminate to the outdoors.



920.2 Stack Size.

Drainage stacks shall be sized in accordance with Table 920.2. Stacks **shall be uniformly sized** based on the total connected drainage fixture unit load. **The stack vent shall be the same size as the drainage stack.** A 3-inch stack shall serve not more than two water closets

**Stacks shall be uniformly sized
and the stack vent shall be same
size as the waste stack**

TABLE 920.2 SINGLE STACK SIZE

NP = NOT POSSIBLE or NOT PERMITTED

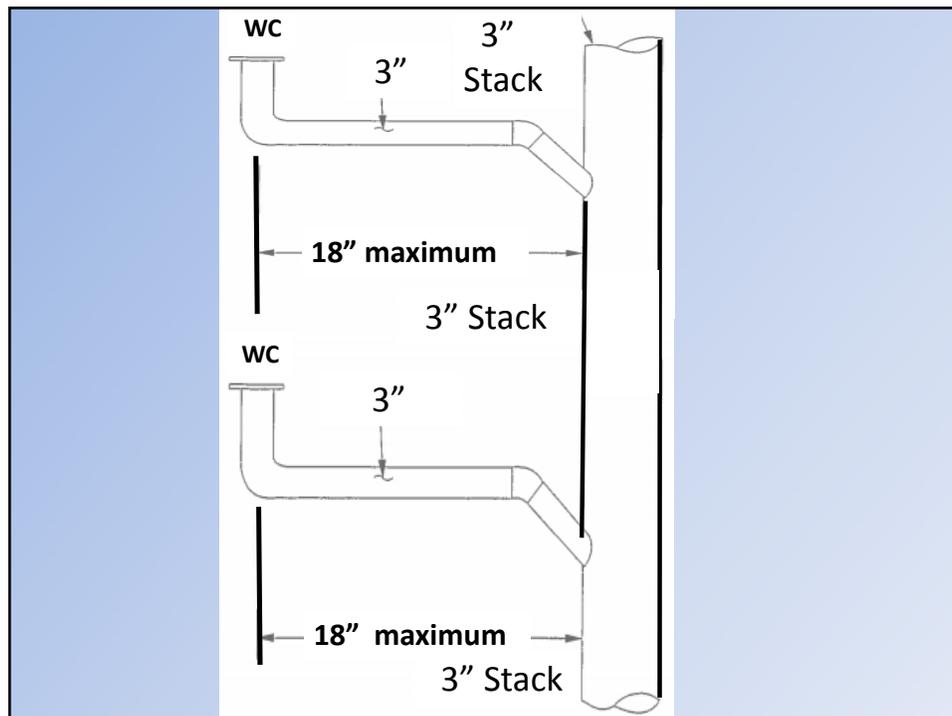
STACK SIZE (Inches)	MAXIMUM CONNECTED DRAINAGE FIXTURE UNITS		
	Stacks less than 75 feet in height	Stacks 75 feet to less than 160 feet in height	Stacks 160 feet and greater in height
3	24	NP	NP
4	225	24	NP
5	480	225	24
6	1,015	480	225
8	2,320	1,015	480
10	4,500	2,320	1,015
12	8,100	4,500	2,320
15	13,600	8,100	4,500

Comparison between the Single Stack System and the Waste Stack System DFU Loads

TABLE 920.2 SINGLE STACK SIZE				TABLE 910.4 WASTE STACK VENT SIZE		
NP = NOT POSSIBLE or NOT PERMITTED				STACK SIZE (inches)	MAXIMUM NUMBER OF DRAINAGE FIXTURE UNITS (dfu)	
STACK SIZE (inches)	MAXIMUM CONNECTED DRAINAGE FIXTURE UNITS	Stacks less than 75 feet in height	Stacks 75 feet to less than 160 feet in height		Stacks 160 feet and greater in height	Total discharge into one branch interval
3	24	NP	NP	1½	1	2
4	225	24	NP	2	2	4
5	480	225	24	2½	No limit	8
6	1,015	480	225	3	No limit	24
8	2,320	1,015	480	4	No limit	50
10	4,500	2,320	1,015	5	No limit	75
12	8,100	4,500	2,320	6	No limit	100
15	13,600	8,100	4,500			

910 Waste Stack Vent,
the height is unlimited, but shall
NOT receive the discharge of
water closets and urinals

920 Single Stack System
has Limitations on Height
But can receive all types of
plumbing fixtures.



920.3 Branch Size.

Horizontal branches connecting to a single stack vent system shall be sized in accordance with **Table 710.1(2)**.

Not more than one water closet shall discharge into a 3" horizontal branch at a point within a developed length of 18 inches measured horizontally from the stack. Where a water closet is within 18 inches measured horizontally from the stack and not more than one fixture with a drain size of not more than 1 ½" connects to a 3" horizontal branch, the branch drain connection to the stack shall be made with a sanitary tee.

**TABLE 710.1(2)
HORIZONTAL FIXTURE BRANCHES AND STACKS^a**

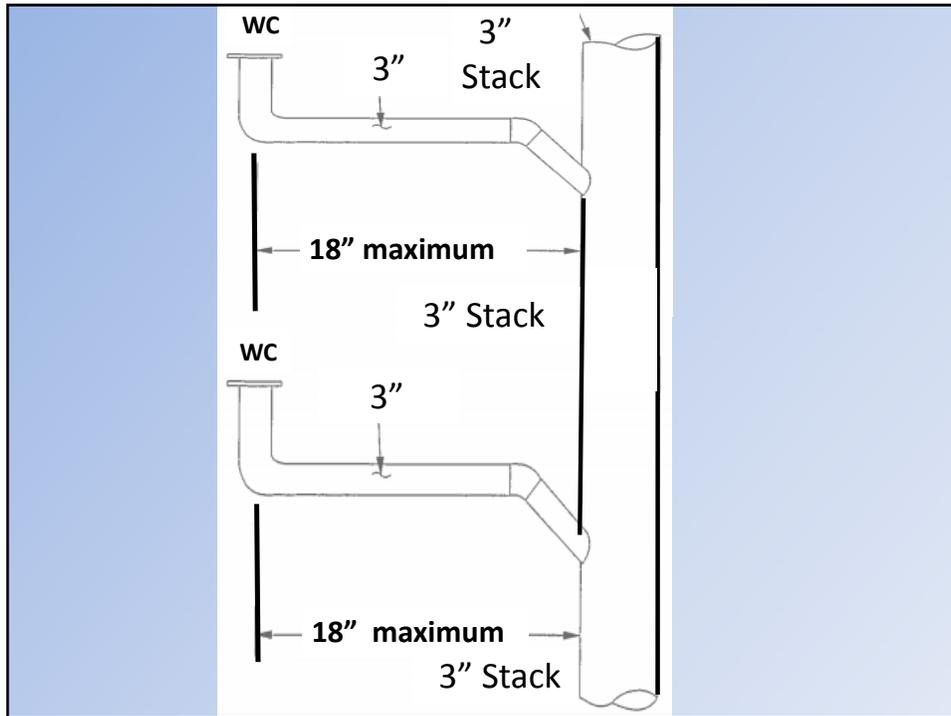
DIAMETER OF PIPE (inches)	MAXIMUM NUMBER OF DRAINAGE FIXTURE UNITS (dfu)			
	Total for horizontal branch	Stacks ^b		
		Total discharge into one branch interval	Total for stack of three branch intervals or less	Total for stack greater than three branch intervals
1½	3	2	4	8
2	6	6	10	24
2½	12	9	20	42
3	20	20	48	72
4	160	90	240	500
5	360	200	540	1,100
6	620	350	960	1,900
8	1,400	600	2,200	3,600
10	2,500	1,000	3,800	5,600
12	3,900	1,500	6,000	8,400
15	7,000	Note c	Note c	Note c

For SI: 1 inch = 25.4 mm.

a. Does not include branches of the building drain. Refer to Table 710.1(1).

b. Stacks shall be sized based on the total accumulated connected load at each story or branch interval. As the total accumulated connected load decreases, stacks permitted to be reduced in size. Stack diameters shall not be reduced to less than one-half of the diameter of the largest stack size required.

c. Sizing load based on design criteria.



920.3 Branch Size
Horizontal branches connecting
to a single stack vent system
shall be sized in accordance with
Table 710.1(2).

**TABLE 710.1(2)
HORIZONTAL FIXTURE BRANCHES AND STACKS^a**

DIAMETER OF PIPE (inches)	MAXIMUM NUMBER OF DRAINAGE FIXTURE UNITS (dfu)			
	Total for horizontal branch	Stacks ^b		
		Total discharge into one branch interval	Total for stack of three branch intervals or less	Total for stack greater than three branch intervals
1½	3	2	4	8
2	6	6	10	24
2½	12	9	20	42
3	20	20	48	72
4	160	90	240	500
5	360	200	540	1,100
6	620	350	960	1,900
8	1,400	600	2,200	3,600
10	2,500	1,000	3,800	5,600
12	3,900	1,500	6,000	8,400
15	7,000	Note c	Note c	Note c

For SI: 1 inch = 25.4 mm.

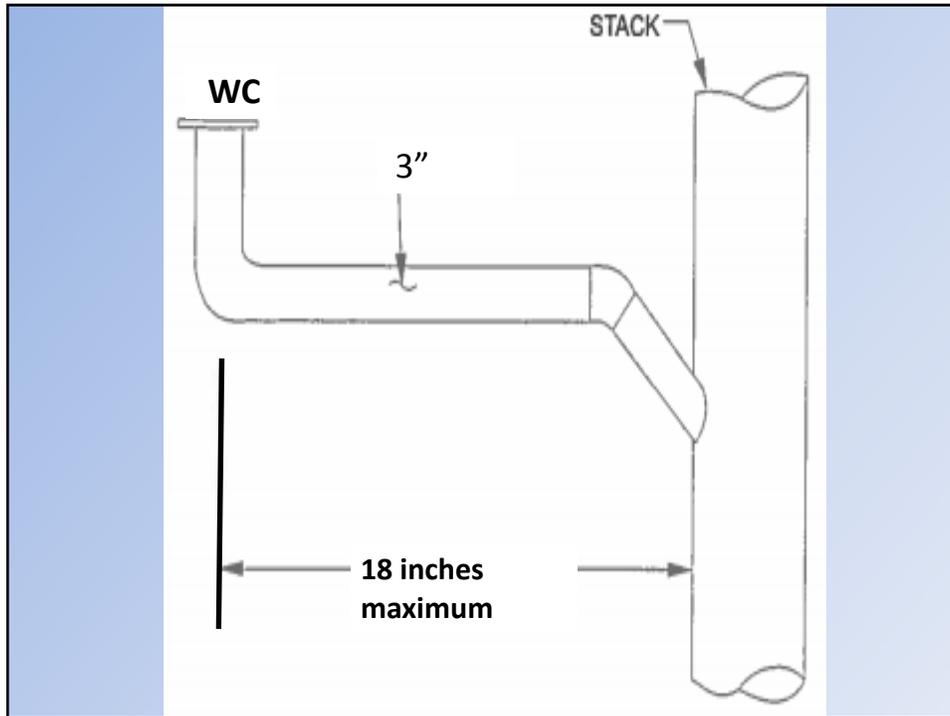
a. Does not include branches of the building drain. Refer to Table 710.1(1).

b. Stacks shall be sized based on the total accumulated connected load at each story or branch interval. As the total accumulated connected load decreases, stacks permitted to be reduced in size. Stack diameters shall not be reduced to less than one-half of the diameter of the largest stack size required.

c. Sizing load based on design criteria.

920.3 Branch Size.

Not more than one water closet shall discharge into a 3-inch horizontal branch at a point within a developed length of 18 inches measured horizontally from the stack.

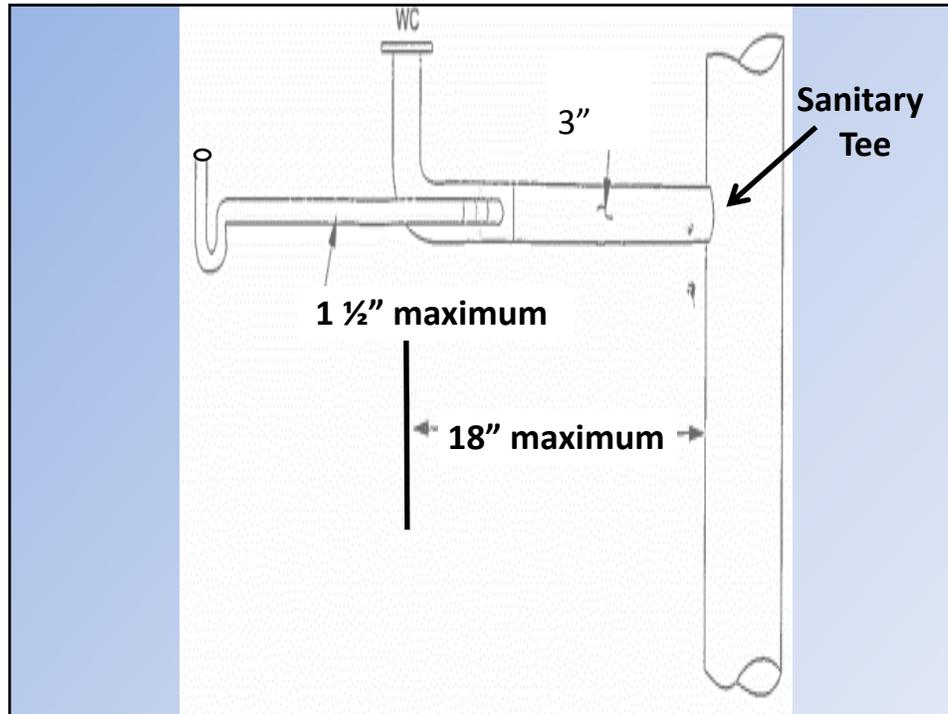


920 Branch Size

Horizontal branches connecting to a single stack vent system shall be sized in accordance with Table 710.1(2).

Not more than one water closet shall discharge into a 3" horizontal branch at a point within a developed length of 18 " measured horizontally from the stack.

Where a water closet is within 18" measured horizontally from the stack and not more than one fixture with a drain size of not more than 1 ½" connects to a 3" horizontal branch, the branch drain connection to the stack **shall be made with a sanitary tee.**

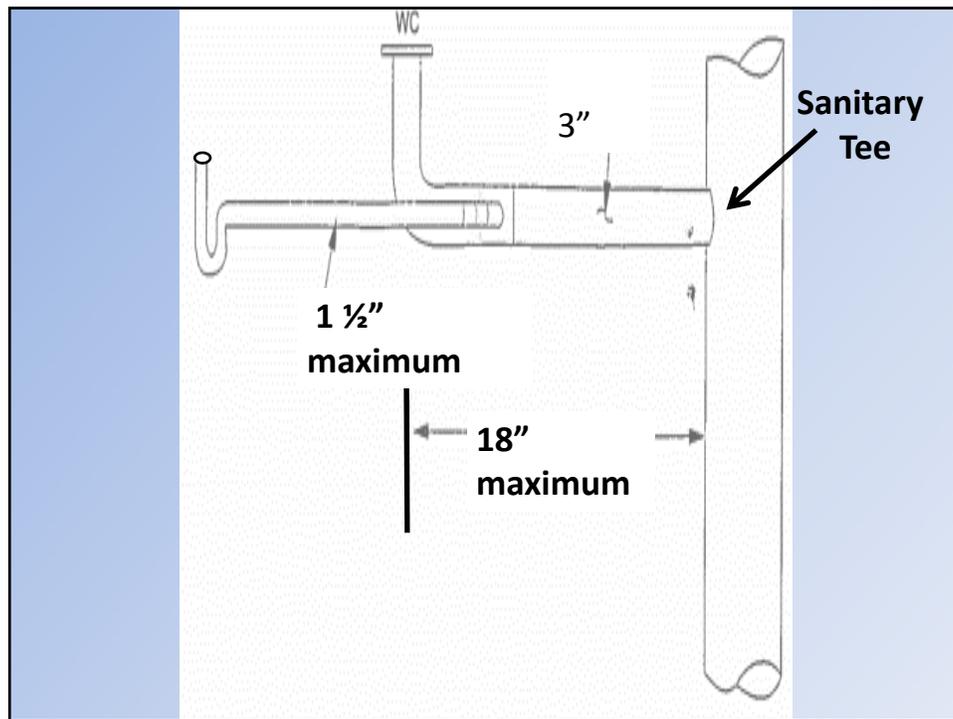


920 Branch Size

Horizontal branches connecting to a single stack vent system shall be sized in accordance with Table 710.1(2).

Not more than one water closet shall discharge into a 3" horizontal branch at a point within a developed length of 18 " measured horizontally from the stack.

Where a water closet is within 18" measured horizontally from the stack and not more than one fixture with a drain size of not more than 1 1/2" connects to a 3" horizontal branch, the branch drain connection to the stack **shall be made with a sanitary tee.**

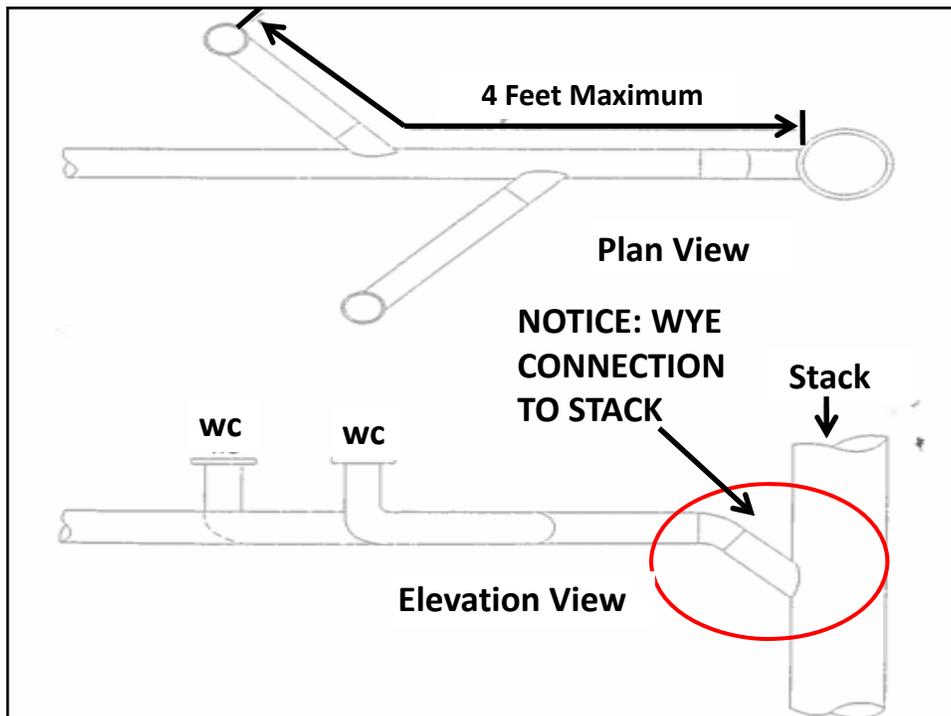


920.4 Length of horizontal branches.

The length of horizontal branches shall conform to the requirements of Sections 920.4.1 through 920.4.3

920.4.1 Water closet connection.

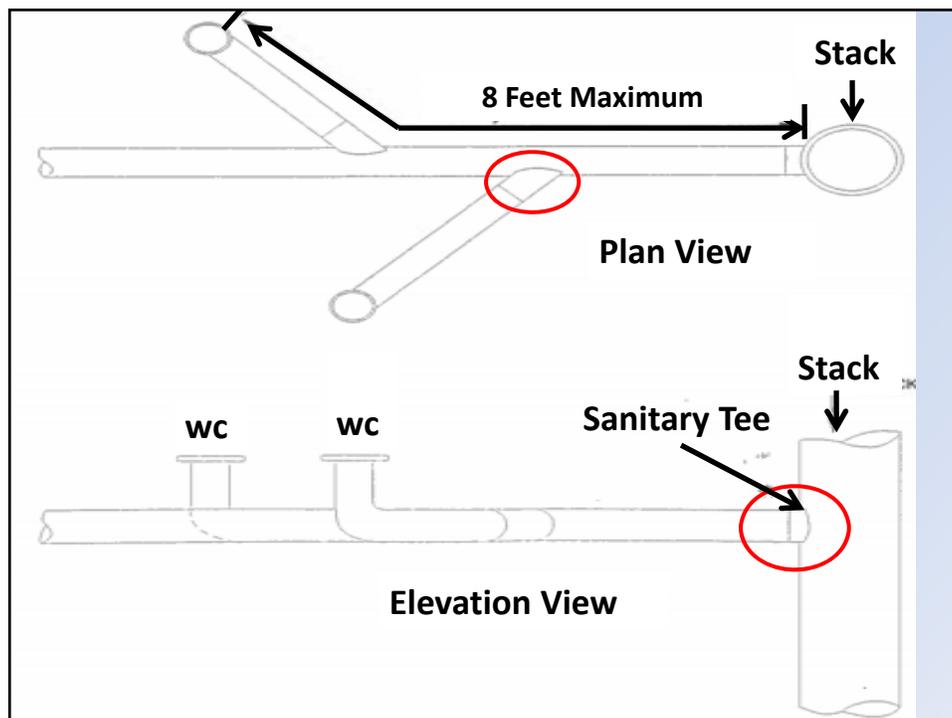
Water closet connections shall be not greater than 4 feet in developed length measured horizontally from the stack.



920.4.1 Water Closet Connection.

Water closet connections shall be not greater than 4 feet in developed length measured horizontally from the stack.

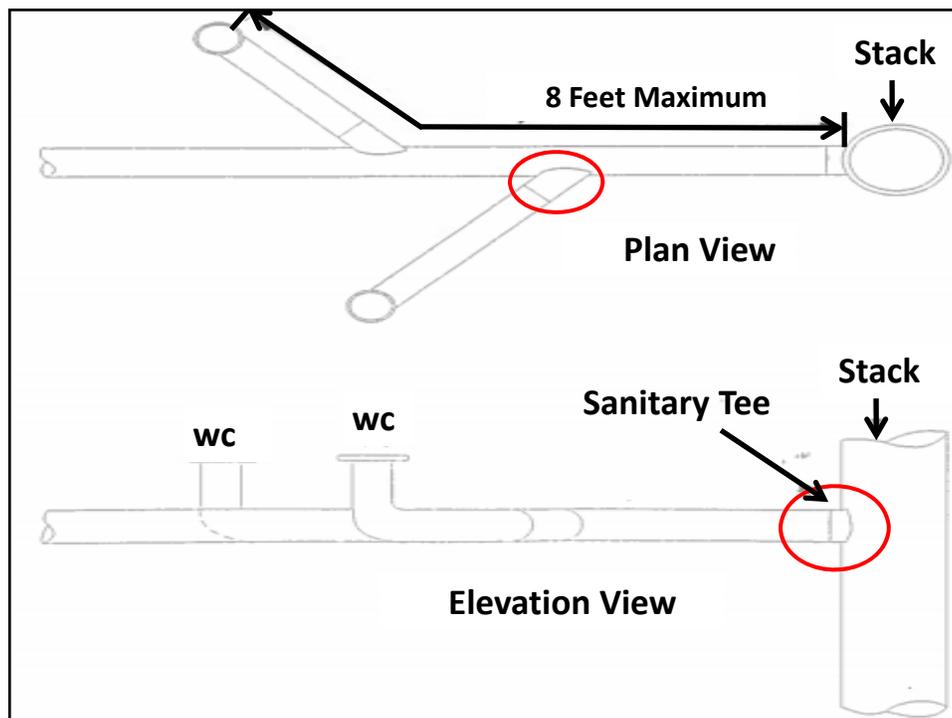
Exception: *Where the connection is made with a sanitary tee, the maximum developed length shall be 8 feet.*



920.4.1 Water Closet Connection.

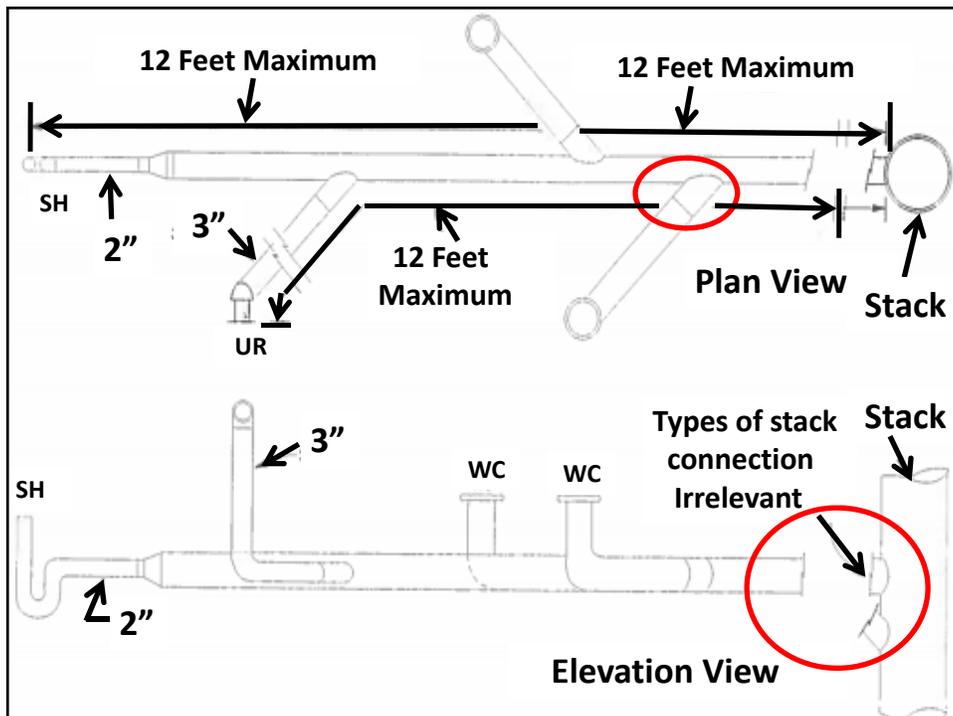
Water closet connections shall be not greater than 4 feet in developed length measured horizontally from the stack.

Exception: Where the connection is made with a sanitary tee, the maximum developed length shall be 8 feet.



920.4.2 Fixture connections.

Fixtures other than water closets shall be located not greater than 12 feet in developed length, measured horizontally from the stack.

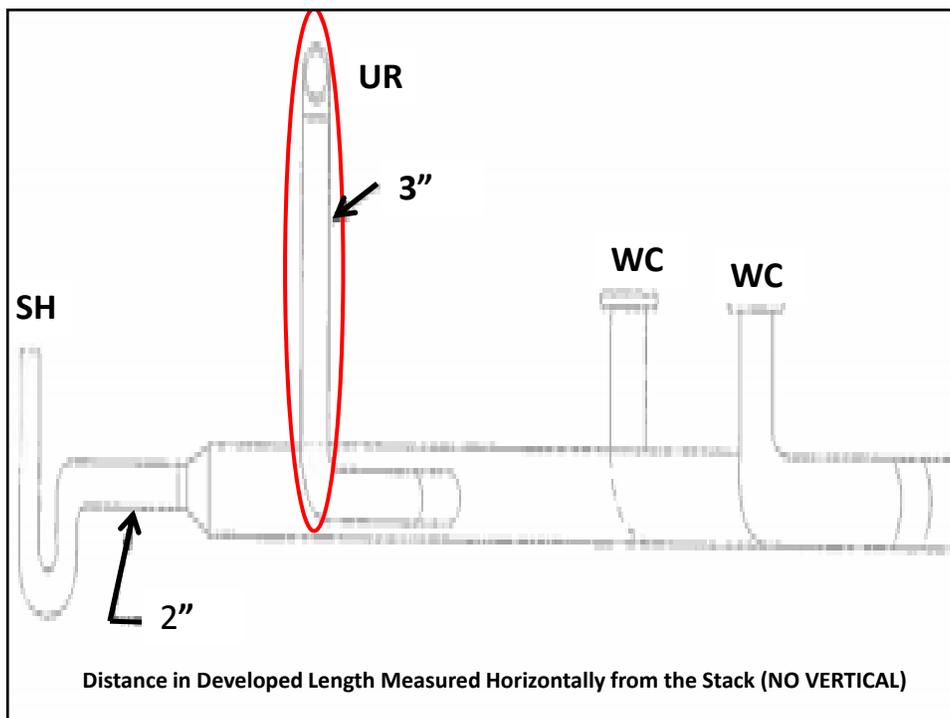


920.5 Minimum vertical piping size from fixture.

The vertical portion of piping in a fixture drain to a horizontal branch shall be 2 inches.

The minimum size of the vertical portion of piping for a water-supplied urinal or standpipe shall be 3 inches. **The maximum vertical drop shall be 4 feet.**

Fixture drains that are not increased in size, or have a vertical drop in excess of 4 feet, **shall be individually vented.**

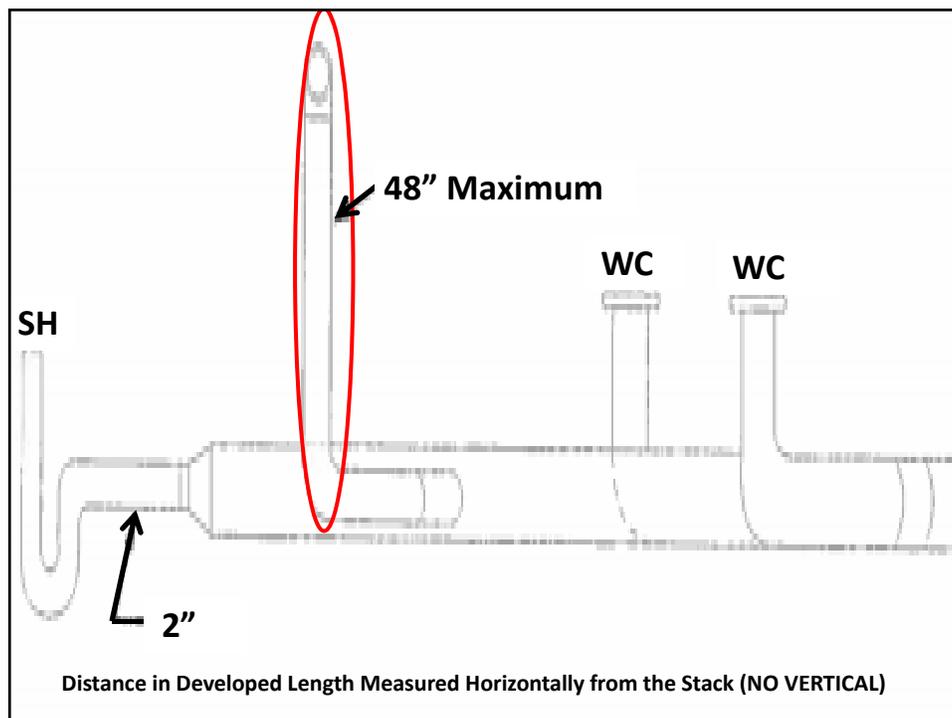


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The vertical portion of piping in a fixture drain to a horizontal branch shall be 2 inches.

The minimum size of the vertical portion of piping for a water-supplied urinal or standpipe shall be 3 inches. **The maximum vertical drop shall be 4 feet.**

Fixture drains that are not increased in size, or have a vertical drop in excess of 4 feet, **shall be individually vented.**

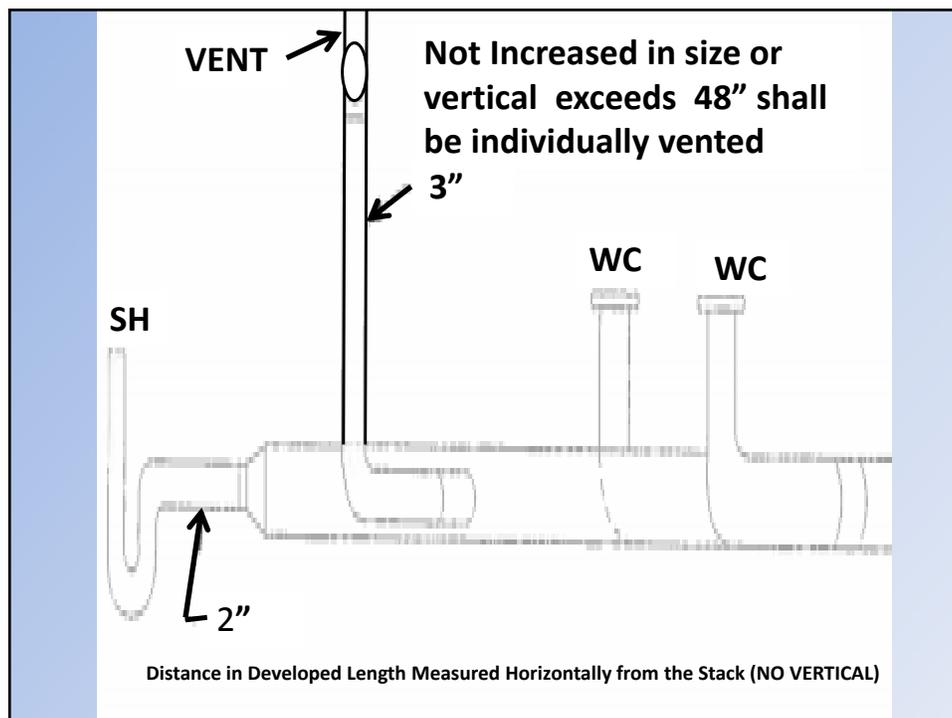


920.5 Minimum vertical piping size from fixture.

The vertical portion of piping in a fixture drain to a horizontal branch shall be 2 inches.

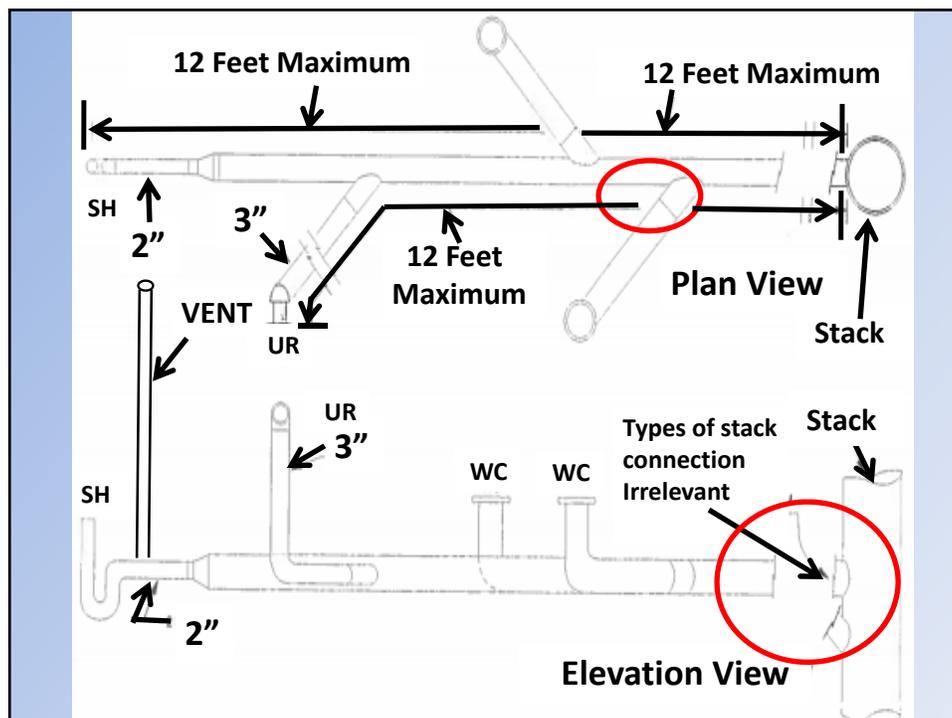
The minimum size of the vertical portion of piping for a water-supplied urinal or standpipe shall be 3 inches. **The maximum vertical drop shall be 4 feet.**

Fixture drains that are not increased in size, or have a vertical drop in excess of 4 feet, **shall be individually vented.**



920.6 Additional venting required.

Additional venting shall be provided where more than one water closet discharges to a horizontal branch and **where the distance from a fixture trap to the stack exceeds the limits in Section 920.4.** Where additional venting is required, the fixture(s) shall be vented by individual vents, common vents, wet vents, circuit vents, or a combination waste and vent pipe. The dry vent extensions for the additional venting shall connect to a branch vent, vent stack, stack vent, or shall terminate outdoors.



920.6 Additional venting required.

Additional venting shall be provided where more than one water closet discharges to a horizontal branch and **where the distance from a fixture trap to the stack exceeds the limits in Section 920.4.** Where additional venting is required, the fixture(s) shall be vented by individual vents, common vents, wet vents, circuit vents, or a combination waste and vent pipe. The dry vent extensions for the additional venting shall connect to a branch vent, vent stack, stack vent, or shall terminate outdoors.

920.4.1 Water closet connection.

Water closet connections shall be not greater than 4 feet (8' by Exception)

920.4.2 Fixture connections.

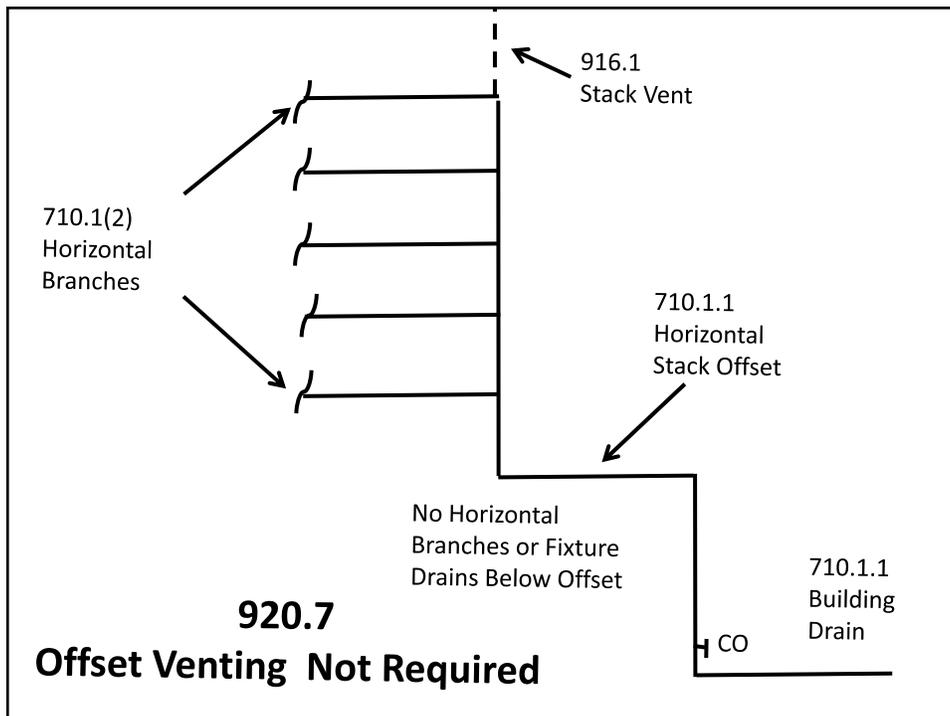
Fixtures other than water closets shall be located not greater than 12 feet

920.5 Minimum vertical piping size from fixture.

(The maximum vertical drop shall be 4 feet)

920.7 Stack Offsets.

Where fixture drains are not connected below a horizontal offset in a stack, a horizontal offset shall not be required to be vented.

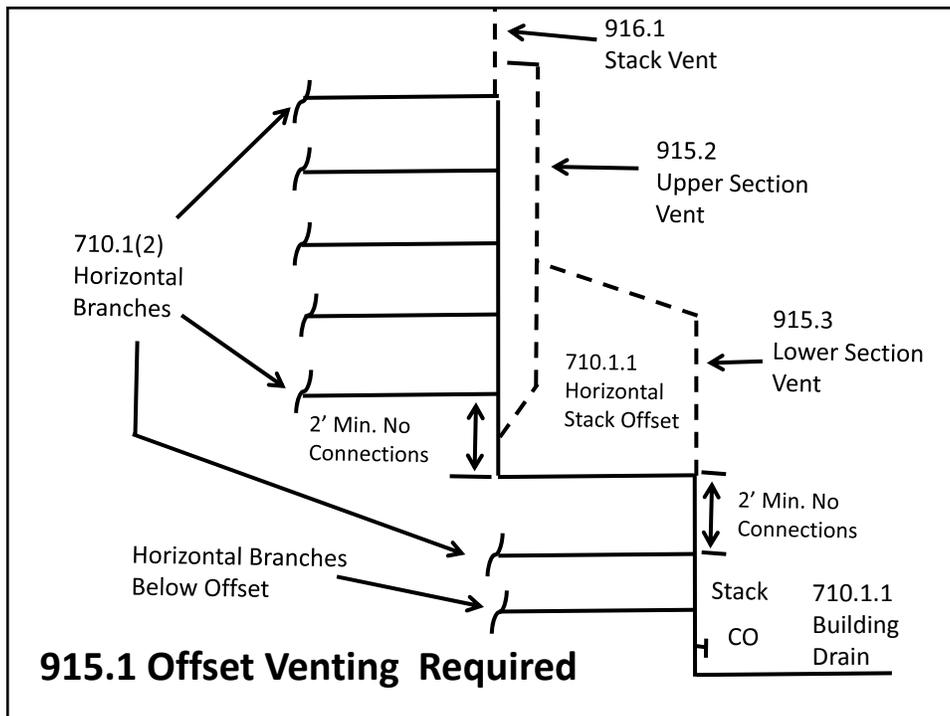


920.7 Stack offsets.

Where fixture drains are not connected below a horizontal offset in a stack, a horizontal offset shall not be required to be vented.

Where horizontal branches or fixture drains are connected below a horizontal offset in a stack, the offset shall be vented in accordance with Section 915.

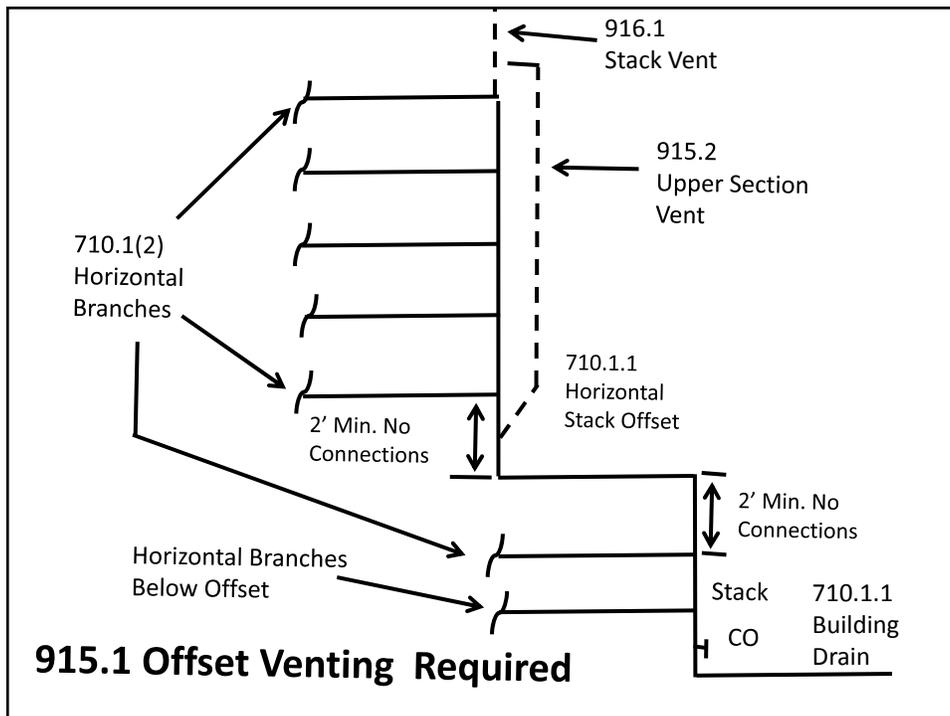
Fixture connections shall not be made to a stack within 2 feet above or below a horizontal offset.



SECTION 915 VENTS FOR STACK OFFSETS

915.2 Upper section.

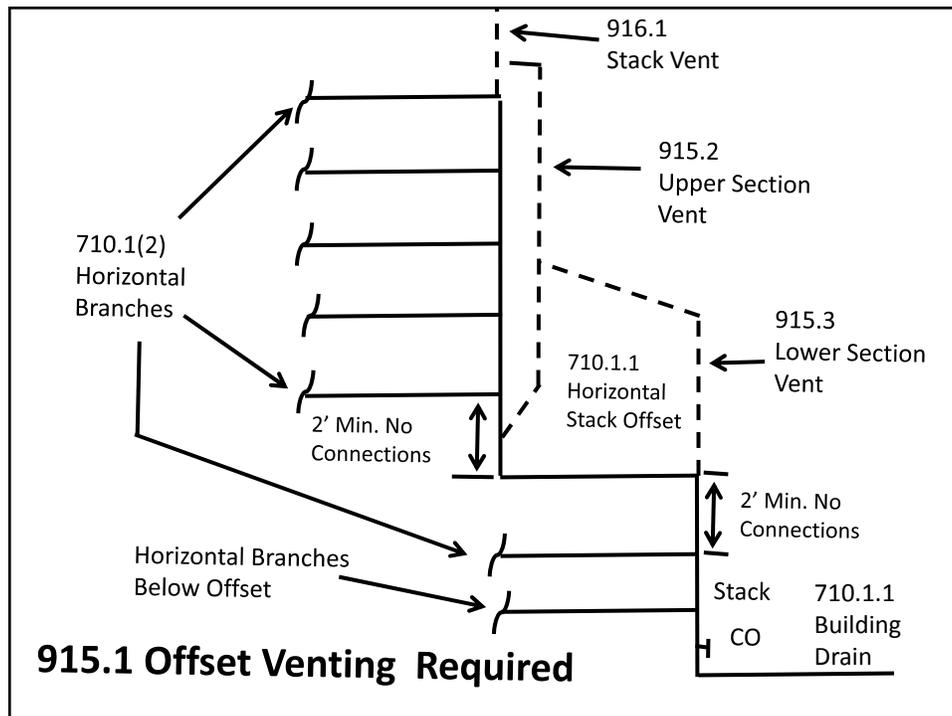
The upper section of the drainage stack shall be vented as a separate stack with a vent stack connection installed in accordance with Section 903.4. The offset shall be considered the base of the stack.



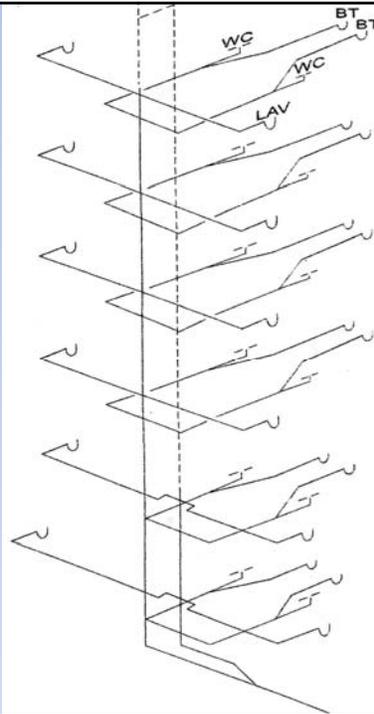
SECTION 915 VENTS FOR STACK OFFSETS

915.3 Lower section.

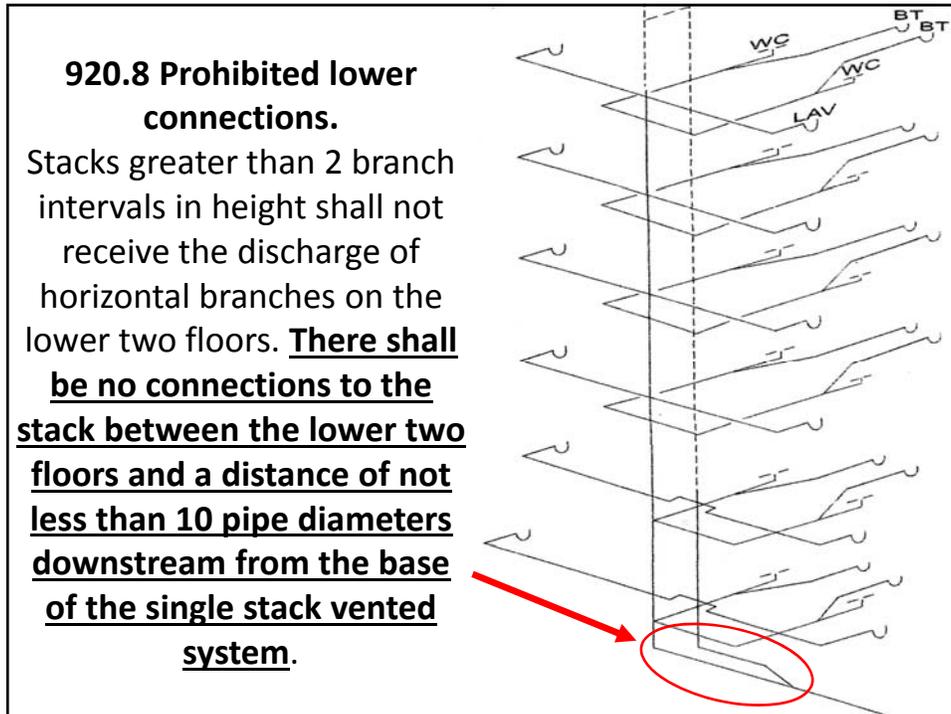
The lower section of the drainage stack shall be vented by a yoke vent connecting between the offset and the next lower horizontal branch. The yoke vent connection shall be permitted to be a vertical extension of the drainage stack. The size of the yoke vent and connection shall be a minimum of the size required for the vent stack of the drainage stack.



SECTION 920 SINGLE STACK VENT SYSTEM



920.8 Prohibited lower connections.
Stacks greater than 2 branch intervals in height shall not receive the discharge of horizontal branches on the lower two floors.
There shall be no connections to the stack between the lower two floors and a distance of not less than 10 pipe diameters downstream from the base of the single stack vented system.

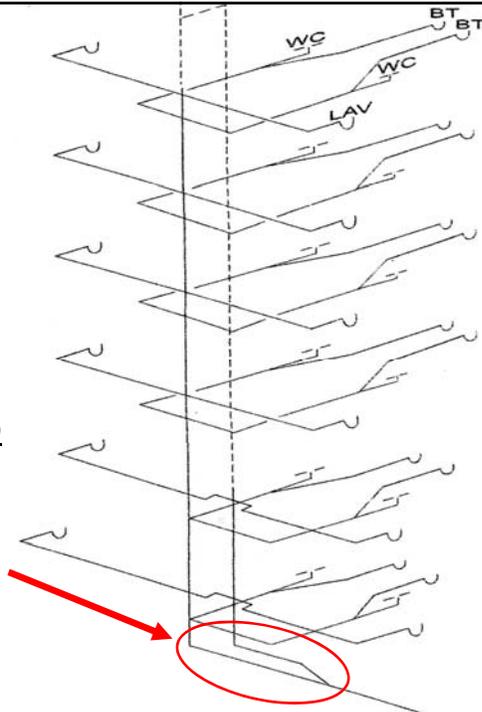


920.8 Prohibited lower connections.
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There shall be no connections to the stack between the lower two floors and a distance of not less than 10 pipe diameters downstream from the base of the single stack vented system.

920.8 Prohibited lower connections.

Stacks greater than 2 branch intervals in height shall not receive the discharge of horizontal branches on the lower two floors. **There shall be no connections to the stack between the lower two floors and a distance of not less than 10 pipe diameters downstream from the base of the single stack vented system.**



920.9

Sizing Building Drains and Sewers

The building drain and building sewer receiving the discharge of a single stack vent system shall be sized in accordance with **Table 710.1(1)**.

**TABLE 710.1(1)
BUILDING DRAINS AND SEWERS**

DIAMETER OF PIPE (inches)	MAXIMUM NUMBER OF DRAINAGE FIXTURE UNITS CONNECTED TO ANY PORTION OF THE BUILDING DRAIN OR THE BUILDING SEWER, INCLUDING BRANCHES OF THE BUILDING DRAIN ^a			
	Slope per foot			
	1/16 inch	1/8 inch	1/4 inch	1/2 inch
1 1/4	—	—	1	1
1 1/2	—	—	3	3
2	—	—	21	26
2 1/2	—	—	24	31
3	—	36	42	50
4	—	180	216	250
5	—	390	480	575
6	—	700	840	1,000
8	1,400	1,600	1,920	2,300
10	2,500	2,900	3,500	4,200
12	3,900	4,600	5,600	6,700
15	7,000	8,300	10,000	12,000

For SI: 1 inch = 25.4 mm, 1 inch per foot = 83.3 mm/m.
a. The minimum size of any building drain serving a water closet shall be 3 inches.

Ohio Plumbing Code Drain & Venting Sections Part 2

Presented By

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