Section 2.5. Venting Systems

2.5.1. Vent Pipes for Traps

2.5.1.1. Venting for Traps

1) Except as provided in Sentences (3) and (4), *traps* shall be protected by a *vent pipe*.

2) *Drainage systems* may require additional protection as provided in Subsections 2.5.4. and 2.5.5. by the installation of

a) *branch vents*,
b) *vent stacks*,
c) *stack vents*,
d) *vent headers*,
e) *fresh air inlets*,
f) *relief vents*,
g) *circuit vents*,
h) *yoke vents*,
i) *offset relief vents*,
j) *additional circuit vents*,
k) *wet vents*,
l) *individual vents*,
m) *dual vents*, or
n) *continuous vents*.

3) A *trap* that serves a floor drain need not be protected where

a) the *size* of the *trap* is not less than 3 inches,
b) the length of the *fixture drain* is not less than 450 mm, and
c) the fall on the *fixture drain* does not exceed its *size*.

(See Note A-2.5.1.1.(3).)

4) A *trap* need not be protected by a *vent pipe*

a) where it serves
   i) a *subsoil drainage pipe*, or
   ii) a *storm drainage system*, or
b) where it forms part of an indirect *drainage system*. (See also Clause 2.4.2.3.(2)(b).)

(See Note A-2.5.1.1.(4).)

2.5.2. Wet Venting

2.5.2.1. Wet Venting

(See Note A-2.5.2.1.)

1) A *soil-or-waste pipe* is permitted to serve as a *wet vent*, provided

a) the hydraulic load is in accordance with Table 2.5.8.1.,
b) the number of wet-vented water closets does not exceed 2,
c) where 2 water closets are installed, they are connected at the same level by means of a double sanitary T fitting if the *vent pipe* is vertical and by means of a double Y fitting if the *vent pipe* is horizontal,
d) the water closets are installed downstream of all other *fixtures*,
e) *trap arms* and *fixture drains* connected to the *wet vent* do not exceed 2 inches in *size*, except for connections from *emergency floor drains* in accordance with Sentence 2.5.1.1.(3),

f) the total hydraulic load on the *wet vent* does not exceed the limits stated in Table 2.5.8.1. when separately vented *branches* or *fixture drains* in the same *storey*, having a total hydraulic load not greater than 2 *fixture units*, are connected to the *wet vent* or a wet-vented water closet *trap arm*,

g) the hydraulic load of separately vented *fixtures* that drain into the *wet vent* are not included when sizing the *continuous vent* that serves the *wet vent*,

h) where a *wet vent* extends through more than one *storey*, the total discharge from any one *storey* above the first *storey* does not exceed 4 *fixture units*,

i) there is not more than one *nominally horizontal offset* in the *wet vent*, and

i) the *offset* does not exceed 1.2 m for pipes 2 inches or less in *size*, or

ii) the *offset* does not exceed 2.5 m for pipes larger than 2 inches in *size*,

j) the wet-vented portion is not reduced in *size* except for the portion that is upstream of *emergency floor drains* in accordance with Sentence 2.5.1.1.(3), and

k) the length of the *wet vent* is not limited.

2.5.3. Circuit Venting

2.5.3.1. Circuit Venting

(See Note A-2.5.3.1.)

1) section of horizontal *branch* is permitted to be circuit-vented, provided

a) a *circuit vent* is connected to it,

b) all *fixtures* served by the *circuit vent* are located in the same *storey*, and

c) no *soil-or-waste stack* is connected to it upstream of a circuit-vented *fixture*.

2) *Fixtures* with *fixture outlet pipes* less than 2 inches in *size* shall be separately vented or separately circuit-vented.

3) Except as provided in Sentences (4) and (5), a *relief vent* shall be connected to the *branch* that forms part of a circuit-vented system, downstream of the connection of the most downstream circuit-vented *fixture*.

4) A *soil-or-waste pipe* having a hydraulic load not greater than 6 *fixture units* is permitted to act as a *relief vent* for a *branch* that is circuit-vented.

5) A symmetrically connected *relief vent* is permitted to serve as a combined *relief vent* for a maximum of 2 *branches* that are circuit-vented, provided there are not more than 8 circuit-vented *fixtures* connected between the combined *relief vent* and each *circuit vent*.

6) *Additional circuit vents* shall be required

a) where each cumulative horizontal change in direction of a *branch* served by a *circuit vent* exceeds 45° between *vent pipe* connections, or

b) where more than 8 circuit-vented *fixtures* are connected to a *branch* between *vent pipe* connections.

7) A *soil-or-waste pipe* is permitted to serve as an *additional circuit vent* in accordance with Sentence (6), provided the *soil-or-waste pipe* is sized as a *wet vent* in conformance with Article 2.5.8.1. and is not less than 2 inches in *size*.

8) Connections to *circuit vents* and *additional circuit vents* in accordance with Sentence (6) shall conform to Sentence 2.5.4.5.(1).

9) A circuit-vented *branch*, including the *fixture drain* downstream of the *circuit vent* connection, shall be sized in accordance with Article 2.4.10.7., except that it shall be not less than

a) 2 inches, where *traps* less than 2 inches in *size* are circuit-vented, or

b) 3 inches, where *traps* 2 inches in *size* or larger are circuit-vented.

10) *Additional circuit vents* shall be sized in accordance with Table 2.5.7.1. and Sentence 2.5.7.3.(1).

11) The hydraulic load on a *circuit vent* shall include the hydraulic load from *fixtures* connected to the *branch* served by the *circuit vent*, but shall not include the hydraulic load from *fixtures* permitted by Sentences (3), (4) and (5).

2.5.4. Vent Pipes for Soil-or-Waste Stacks

2.5.4.1. Stack Vents

1) The upper end of every *soil-or-waste stack* shall terminate in a *stack vent*.

2.5.4.2. Vent Stacks

1) Except as provided in Sentence (2), every *soil-or-waste stack* draining *fixtures* from more than 4 *storeys* that contain plumbing *fixtures* shall have a *vent stack*.

2) A *soil-or-waste stack* that serves as a *wet vent* does not require a *vent stack*.

3) The *vent stack* required by Sentence (1) shall be connected to a vertical section of the *soil-or-waste stack* at or immediately below the lowest *soil-or-waste pipe* connected to the *soil-or-waste stack*.

4) *Fixtures* are permitted to be connected to a *vent stack*, provided

a) the total hydraulic load of the connected *fixtures* does not exceed 8 *fixture units*,

b) at least one *fixture* is connected to a vertical portion of the *vent stack* and upstream of any other *fixtures*,

c) no other *fixture* is connected downstream of a water closet,

d) all *fixtures* are located in the lowest *storey* served by the *vent stack*, and

e) the section of the *vent pipe* that acts as a *wet vent* conforms to the requirements regarding *wet vents*.

2.5.4.3. Yoke Vents

(See Note A-2.5.4.3.)

1) Except as provided in Sentence (4), where a *soil-or-waste stack* receives the discharge from *fixtures* located on more than 11 *storeys*, a *yoke vent* shall be installed

a) for each section of 5 *storeys* or part thereof counted from the top down, and

b) at or immediately above each *offset* or double *offset*.

2) The *yoke vent* shall be connected to the *soil-or-waste stack* by means of a drainage fitting at or immediately below the lowest *soil-or-waste pipe* from the lowest *storey* of the sections described in Sentence (1).

3) The *yoke vent* shall connect to the *vent stack* at least 1 m above the floor level of the lowest *storey* in the section described in Sentence (1).

4) A *yoke vent* need not be installed provided the *soil-or-waste stack* is interconnected with the *vent stack* in each *storey* of the section in which *fixtures* are located by means of a *vent pipe* equal in *size* to the *branch* or *fixture drain* or 2 inches in *size*, whichever is smaller.

2.5.4.4. Offset Relief Vents

1) A *soil-or-waste stack* that has a *nominally horizontal offset* more than 1.5 m long and above which the upper vertical portion of the stack passes through more than 2 *storeys* and receives a hydraulic load of more than 100 *fixture units* shall be vented by an *offset relief vent* connected to the vertical section immediately above the *offset* and by another *offset relief vent*

a) connected to the lower vertical section at or above the highest *soil-or-waste pipe* connection, or

b) extended as a vertical continuation of the lower section.

(See Note A-2.5.4.4.(1).)

2.5.4.5. Fixtures Draining into Vent Pipes

1) The *trap arm* of a *fixture* that has a hydraulic load of not more than 1½ *fixture units* may be connected to the vertical section of a *circuit vent*, *additional circuit vent*, *offset relief vent* or *yoke vent*, provided

a) not more than 2 *fixtures* are connected to the *vent pipe*,

b) where 2 *fixtures* are connected to the *vent pipe*, the connection is made by means of a double sanitary T fitting, and

c) the section of the *vent pipe* that acts as a *wet vent* is not less than 2 inches in *size*.

(See Note A-2.5.4.5.(1).)

2.5.5. Miscellaneous Vent Pipes

2.5.5.1. Venting of Sewage Sumps

1) Every sump that receives *sewage* shall be provided with a *vent pipe* that is connected to the top of the sump. (See Article 2.5.7.7. for sizing of these vents.)

2.5.5.2. Venting of Oil Interceptors

(See Note A-2.5.5.2.) (See also Article 4.3.5.2. of Division B of the NFC.)

1) Every oil interceptor shall be provided with 2 *vent pipes* that

a) connect to the *interceptor* at opposite ends,

b) extend independently to outside air, and

c) terminate not less than 2 m above ground and at elevations differing by at least 300 mm.

2) Adjacent compartments within an oil *interceptor* shall be connected to each other by a vent opening.

3) Where a secondary receiver for oil is installed in conjunction with an oil *interceptor*, it shall be vented in accordance with the manufacturer's recommendations, and the *vent pipe* shall

a) in no case be less than 1½ inches in *size*,

b) extend independently to outside air, and

c) terminate not less than 2 m above ground.

4) The *vent pipes* referred to in Sentence (1) are permitted to be one *size* smaller than the largest connected drainage pipe but not less than 1¼ inches in *size*, or can be sized in accordance with the manufacturer's recommendations.

5) A *vent pipe* that serves an oil *interceptor* and is located outside a *building* shall be not less than 3 inches in *size* in areas where it may be subject to frost closure.

2.5.5.3. Venting of Drain Piping and Dilution Tanks for Corrosive Waste

1) *Venting systems* for drain piping or dilution tanks conveying corrosive waste shall extend independently and terminate in outside air. (See Article 2.5.7.7. for sizing of these vents.)

2.5.5.4. Fresh Air Inlets

1) Where a *building trap* is installed, a *fresh air inlet* not less than 4 inches in *size* shall be connected upstream and within 1.2 m of the *building trap* and downstream of any other connection. (See Note A-2.4.5.4.(1).)

2.5.5.5. Provision for Future Installations

1) Where provision is made for a *fixture* to be installed in the future, the *drainage system* and *venting system* shall be sized accordingly and provision shall be made for the necessary future connections.

2) Except as required in Sentence 2.5.7.7.(2), where a *plumbing system* is installed in a *building*, every *storey* in which plumbing is or may be installed, including the basement of a single-family dwelling, shall have extended into it or passing through it a *vent pipe* that is at least 1½ inches in size for the provision of future connections.

2.5.6. Arrangement of Vent Pipes

2.5.6.1. Drainage of Vent Pipes

1) *Vent pipes* shall be installed without depressions in which moisture can collect.

2.5.6.2. Vent Pipe Connections

1) *Vent pipes* shall be installed in a *nominally vertical* position where it is practical to do so.

2) Except for *wet vents*, where a *vent pipe* is connected to a *nominally horizontal soil-or-waste pipe*, the connection shall be above the horizontal centre line of the *soil-or-waste* pipe. (See Note A-2.5.6.2.(2).)

3) Unused *vent pipes* installed for future connections shall be permanently capped with an end *cleanout* or an adapter and plug.

2.5.6.3. Location of Vent Pipes

1) Except as provided in Sentences (2) and (3), *vent pipes* that protect a *fixture trap* shall be located so that

a) the *developed length* of the *trap arm* is not less than twice the *size* of the *fixture drain*,

b) the total fall of the *trap arm* is not greater than its inside diameter, and

c) the *trap arm* does not have a cumulative change in direction of more than 135°.

(See Note A-2.5.6.3.(1).)

2) The *trap arm* of water closets, of S-*trap standards* or of any other *fixture* that also discharges vertically and depends on siphonic action for its proper functioning shall not have a cumulative change in direction of more than 225°. (See Note A-2.5.6.3.(2).)

3) A *vent pipe* that protects a water closet or any other *fixture* that also depends on siphonic action for its proper functioning shall be located so that the distance between the connections of the *fixture drain* to the *fixture* and the *vent pipe* does not exceed

a) 1 m in the vertical plane, and

b) 3 m in the horizontal plane.

(See Note A-2.5.6.3.(3).)

4) The maximum length of every *trap arm* shall conform to Table 2.5.6.3.

Table 2.5.6.3.
Length of Trap Arm
Forming Part of Sentence 2.5.6.3.(4)

Size of *Trap* Served, inches	Maximum Length of *Trap Arm*, m	Minimum Slope
1¼	1.5	1/50
1½	1.8	1/50
2	2.4	1/50
3	3.6	1/50
4	9.8	1/100

5) The *vent pipe* from a water closet or any *fixture* that has an integral siphonic flushing action may be connected to the vertical leg of its drainage pipe.

2.5.6.4. Connection of Vents above Fixtures Served

1) Except for a *wet vent*, every *vent pipe* shall extend above the *flood level rim* of every *fixture* that it serves before being connected to another vent pipe.

2) No *vent pipe* shall be connected in such a manner that a blockage in a *soil-or-waste pipe* would cause waste to drain through the *vent pipe* to the *drainage system*.

2.5.6.5. Terminals

1) Except as provided in Sentence (3), the upper end of every *vent pipe* that is not terminated in outside air shall be connected to a *venting system* that terminates through a roof to outside air.

2) The upper end of every *vent pipe* that is terminated in outside air, other than a *vent pipe* that serves an oil *interceptor* or a *fresh air inlet*, shall be extended above the roof.

3) A *vent pipe* is permitted to be erected outside a building, provided that

a) no single change in direction of the *vent pipe* exceeds 45°,

b) all parts of the *vent pipe* are *nominally vertical*,

c) in areas where the *vent pipe* may be subject to frost closure, it is increased to not less than 3 inches in *size* before penetrating a wall or roof, and

d) where the *building* is 4 *storeys* or less in height, the *vent pipe* terminates above the roof of the *building*.

4) Except for a *fresh air inlet*, where a *vent pipe* is terminated in outside air, the terminal shall be located

a) not less than 1 m above or not less than 3.5 m in any other direction from every air inlet, openable window or door,

b) not less than 2 m above or not less than 3.5 m in any other direction from a roof that supports an *occupancy*,

c) not less than 2 m above ground, and

d) not less than 1.8 m from every property line.

(See Note A-2.5.6.5.(4).)

5) Where a *vent pipe* passes through a roof, it shall

a) be terminated high enough to prevent the entry of roof drainage but not less than 150 mm above the roof or above the surface of *storm water*, which could pond on the roof (See Note A-2.5.6.5.(4)), and

b) be provided with flashing to prevent the entry of water between the *vent pipe* and the roof (See Article 2.2.10.14.).

6) Where a *vent pipe* passes through a roof and may be subject to frost closure, it shall be protected from frost closure by

a) increasing its diameter at least one *size*, but not less than 3 inches in *size*, immediately before it penetrates the roof,

b) insulating the pipe, or

c) protecting it in some other manner.

(See Article 2.3.4.7.)

2.5.7. Minimum Size of Vent Pipes

2.5.7.1. General

1) The *size* of every *vent pipe* shall conform to Table 2.5.7.1.

Table 2.5.7.1.
Minimum Permitted Size of Vent Pipe Based on Size of Trap Served
Forming Part of Sentences 2.5.7.1.(1) and 2.5.8.2.(1)

Size of *Trap* Served, inches	Minimum *Size* of *Vent Pipe*, inches
1¼	1¼
1½	1¼
2	1½
3	1½
4	1½
5	2
6	2

2.5.7.2. Size Restriction

1) The *size* of a *branch vent, stack vent, vent stack* or *vent header* shall be not less than the *size* of the *vent pipe* to which it is connected.

2) *Building drains* shall be provided with at least one vent that is not less than 3 inches in *size*.

2.5.7.3. Additional Circuit Vents and Relief Vents

1) Except as provided in Article 2.5.7.1. and Sentence 2.5.3.1.(7), the minimum *size* of an *additional circuit vent* or *relief vent* installed in conjunction with a *circuit vent* is permitted to be one *size* smaller than the required size of the *circuit vent*, but need not be larger than 2 inches.

2) The *size* of the *soil-or-waste pipe* acting as a *relief vent* in accordance with Sentence 2.5.3.1.(4) shall be in conformance with Tables 2.4.10.6.-A, 2.4.10.6.-B or 2.5.8.1., and Article 2.5.7.1., whichever *size* is the largest considering the hydraulic load drained into the *soil-or-waste pipe*.

2.5.7.4. Offset Relief Vents

1) Except as provided in Article 2.5.7.1., the minimum *size* of an *offset relief vent* is permitted to be one *size* smaller than the *size* of the *stack vent*.

2.5.7.5. Yoke Vents

1) *Yoke vents* required by Sentence 2.5.4.3.(1) are permitted to be one *size* smaller than the *size* of the smallest pipe to which they are connected.

2.5.7.6. Vent Pipes for Maintenance Holes

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1) The minimum *size* of a *vent pipe* that serves a maintenance hole within a *building* shall be 2 inches.

2.5.7.7. Vents for Sewage Sumps, Dilution Tanks and Macerating Toilet Systems

1) Except as provided in Sentences (2) and (3), the minimum *size* of the *vent pipe* for a *sewage sump* or *dilution tank* shall be one *size* smaller than the *size* of the largest *branch* or *fixture drain* draining to the sump.

2) The *size* of every *vent pipe* for a *sewage sump* or dilution tank shall be not less than 2 inches, but need not be greater than 4 inches.

3) The *size* of a *vent pipe* for a macerating toilet system with a sump shall be not less than 1½ inches.

2.5.8. Sizing of Vent Pipes

(See Note A-2.5.8. for an explanation on the sizing of *vent pipes*.)

2.5.8.1. Hydraulic Loads Draining to Wet Vents

1) The hydraulic load that drains to a *wet vent* shall conform to Table 2.5.8.1.

2) When determining the *size* of a *wet vent*, the hydraulic load from the most downstream *fixture* or symmetrically connected *fixtures* shall not be included. (See Note A-2.5.8.1.(2).)

Table 2.5.8.1.
Maximum Permitted Hydraulic Loads Drained to a Wet Vent
Forming Part of Sentence 2.5.8.1.(1)

Size of *Wet Vent*, inches	Maximum Hydraulic Load, *fixture units*	
	Not Serving Water Closets	*Fixtures*, Other Than Water Closets, That Serve Not More Than 2 Water Closets
1½	2	—
2	4	3
3	12	8
4	36	14
5	—	18
6	—	23

2.5.8.2. Individual Vents and Dual Vents

1) The *size* of *individual vents* and *dual vents* shall be determined using Table 2.5.7.1. based on the largest *trap* served.

2) When sizing an *individual vent* or a *dual vent*, the length is not taken into consideration.

2.5.8.3. Branch Vents, Vent Headers, Continuous Vents and Circuit Vents

(See Note A-2.5.8.3. and 2.5.8.4.)

1) *Branch vents*, *vent headers*, *circuit vents* and *continuous vents* shall be sized in accordance with Table 2.5.8.3., unless they are *individual vents* or *dual vents*.

2) For the purposes of Table 2.5.8.3., the length of a *branch vent* shall be its *developed length* from the most distant *soil-or-waste pipe* connection to a *vent stack*, *stack vent*, *vent header* or outside air.

3) For the purposes of Table 2.5.8.3., the length of a *vent header* shall be its *developed length* from the most distant *soil-or-waste pipe* connection to outside air.

4) For the purposes of Table 2.5.8.3., the length of a *circuit vent* shall be its *developed length* from the horizontal *soil-or-waste pipe* connection to a *vent stack*, *stack vent*, *vent header* or outside air.

5) For the purposes of Table 2.5.8.3., the length of a *continuous vent* shall be its *developed length* from the vertical *soil-or-waste pipe* connection to a *vent stack*, *stack vent*, *vent header* or outside air.

Table 2.5.8.3.
Sizing of Branch Vents, Vent Headers, Circuit Vents and Continuous Vents
Forming Part of Article 2.5.8.3.

Total Hydraulic Load Served by *Vent Pipe*, *fixture units*	***Size* of *Vent Pipe*, inches**							
	1¼	**1½**	**2**	**3**	**4**	**5**	**6**	**8**
	Maximum Length of *Vent Pipe*, m							
2	9							
8	9	30	61					
20	7.5	15	46			Not Limited		
24	4.5	9	30					
42		9	30					
60		4.5	15	120				
100			11	79	305			
200			9	76	275			
500			6	55	215			
1 100				15	61	215		
1 900				6	21	61	215	
2 200		Not Permitted			9	27	105	335
3 600					7.5	18	76	245
5 600						7.5	18	76

2.5.8.4. Vent Stacks or Stack Vents

(See Note A-2.5.8.3. and 2.5.8.4.)

1) A *vent stack* or *stack vent* shall be sized in accordance with Table 2.5.8.4. based on

a) the length of the *vent stack* or *stack vent*, and

b) the total hydraulic load that is drained to the lowest section of *soil-or-waste stack* or stacks served by the *vent pipe*, plus any additional vent loads connected to the *vent stack* or *stack vent*.

2) For the purposes of Table 2.5.8.4., the length of a *stack vent* or *vent stack* shall be its *developed length* from its lower end to outside air.

3) The minimum *size* of a *vent stack* or *stack vent* shall be one-half the *size* of the *soil-or-waste stack* at its base.

4) A *stack vent* serving a *wet vent stack* that is over 4 *storeys* high shall extend the full *size* of the *wet vent* to outside air.

5) Every *building sewer* shall be provided with at least one vent that is not less than 3 inches in *size*.

Table 2.5.8.4.
Size and Developed Length of Stack Vents and Vent Stacks
Forming Part of Sentences 2.5.8.4.(1) and (2)

***Size* of *Soil-or-waste stack*, inches[1]**	**Total Hydraulic Load Being Vented, *fixture units***	***Size* of *Stack Vent* or *Vent Stack*, inches**									
		1¼	**1½**	**2**	**3**	**4**	**5**	**6**	**8**	**10**	**12**
		Maximum Length of *Stack Vent* or *Vent Stack*, m									
1¼	2	9									
1½	8	15	46								
2	12	9	23	61							
	24	8	15	46							
3	10		13	46	317						
	21		10	33.5	247				Not Limited		
	53		8	28.5	207						
	102		7.5	26	189						
4	43			10.5	76	299					
	140			8	61	229					
	320			7	52	195					
	540			6.5	46	177					
5	190				25	97.5	302				
	490				19	76	232				
	940				16	64	204				
	1 400				15	58	180				
6	500				10	39.5	122	305			
	1 100				8	30.5	94.5	238			
	2 000				6.5	25.5	79	201			
	2 900				6	23.5	73	183			
8	1 800					9.5	29	73	287		
	3 400					7	22	58	219.5		
	5 600					6	19	49	186		
	7 600					5.5	17	43	170.5		
10	4 000						9.5	24	94.5	292.5	
	7 200						7	18	73	225.5	
	11 000						6	15.5	61	192	
	15 000						5.5	14	55	174	
12	7 300							9.5	36.5	116	287
	13 000							7	28.5	91	219.5
	20 000			Not Permitted				6	24	76	186
	26 000							5.5	22	70	152
15	15 000								12	39.5	94.5
	25 000								9.5	29	73
	38 000								8	24.5	61
	50 000								7	22.5	55

Notes to Table 2.5.8.4.:

(1) *Soil-or-waste stacks* shall be sized using Table 2.4.10.6.-A.

2.5.8.5. Lengths of Other Vent Pipes

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1) When sizing an *additional circuit vent*, *offset relief vent*, *relief vent*, *yoke vent*, and the *vent pipe* for an *interceptor*, dilution tank, *sewage* tank, sump, or maintenance hole, length is not taken into consideration.

2.5.9. Air Admittance Valves

(See Note A-2.2.10.16.(1).)

2.5.9.1. Air Admittance Valve as a Vent Terminal

1) *Individual vents* and *dual vents* are permitted to terminate with a connection to an *air admittance valve* as provided in Articles 2.5.9.2. and 2.5.9.3. (See also Sentence 2.2.10.16.(1).)

2.5.9.2. Air Admittance Valves

1) *Air admittance valves* shall only be used to vent

a) *fixtures* located in island counters,

b) *fixtures* that may be affected by frost closure of the vent due to local climatic conditions,

c) *fixtures* in one- and two-family dwellings undergoing renovation, or

d) installations where connection to a vent may not be practical.

2) *Air admittance valves* shall be located

a) not less than 100 mm above the *fixture drain* being vented,

b) within the maximum *developed length* permitted for the vent, and

c) not less than 150 mm above insulation materials.

2.5.9.3. Installation Conditions

1) *Air admittance valves* shall not be installed in supply or return air plenums, or in locations where they may be exposed to freezing temperatures.

2) *Air admittance valves* shall be installed in accordance with the manufacturer's installation instructions.

3) *Air admittance valves* shall be rated for the *size* of *vent pipe* to which they are connected.

4) Installed *air admittance valves* shall be

a) accessible, and

b) located in a space that allows air to enter the valve.

5) *Drainage systems* shall have at least one vent that terminates to the outdoors in conformance with Sentence 2.5.6.5.(1).