

Appendix A

Appendix A to this document is included for explanatory purposes only and does not form part of the requirements. The bold-face reference numbers that introduce each item apply to the requirement in the Code.

Symbols and Abbreviations

The following symbols and abbreviations are used in the diagrams of Appendix A.

BG	Bathroom Group
BT	Bathtub
CO	Cleanout
DF	Drinking Fountain
F.A.I.	Fresh Air Inlet
FD	Floor Drain
HD	Hub Drain
LAV	Lavatory Basin
LT	Laundry Tray (Tub)
WC	Water Closet

A-1.1.3.2. Plumbing System. The definition of plumbing is defined in the current Building Code Act, 1992. Each of the three systems appearing in Part 1 definition are themselves defined, with the end result that plumbing system encompasses all elements.

Other piping systems as listed below are excluded from plumbing system since the definition of water system limits the system to the point of juncture with outlets, fixtures, etc. Similarly, a drainage system starts at the fixture or plumbing appliance it drains.

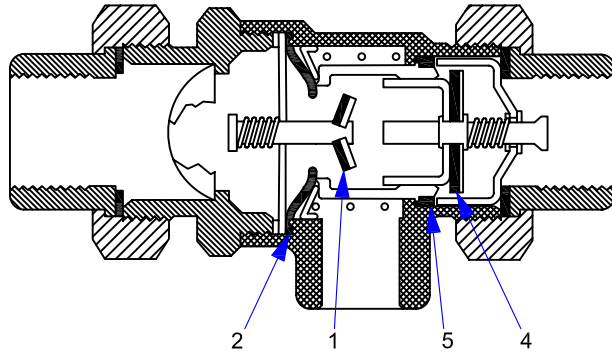
Plumbing system means a system of connecting piping, fittings, valves, equipment, fixtures and appurtenances contained in plumbing, but does not include

- (a) a system of piping,
 - (i) for the space heating in which water is used as a medium to transfer heat,
 - (ii) in which liquids or vapours are circulated for the purpose of cooling or refrigeration,
 - (iii) through which air is passed for the purpose of controlling the temperature, humidity or motion of air passing through the system,
 - (iv) that conveys water for the purpose of providing water or nutrients to soil,
 - (v) that conveys water for the purpose of landscaping or for the care of animals, birds or fish,
 - (vi) that transmits force by means of water or by means of a liquid other than water in which water is used for cooling,
 - (vii) that conveys liquids for the purpose of melting ice or snow, or
 - (viii) that used water in the conveyance of flammable gas or fuel; or
- (b) a well, a well pump installed for the purpose of conveying water from a well, a pressure tank and pump if the tank and pump are combined as a unit, the piping between any well pump and the well, the piping between a well pump and a pressure tank that is installed separate from the pump and the connection of the piping to such pressure tank, and when there is no well pump, any piping connected to the well for a distance of three feet from the outside of the well.

A-1.1.3.2

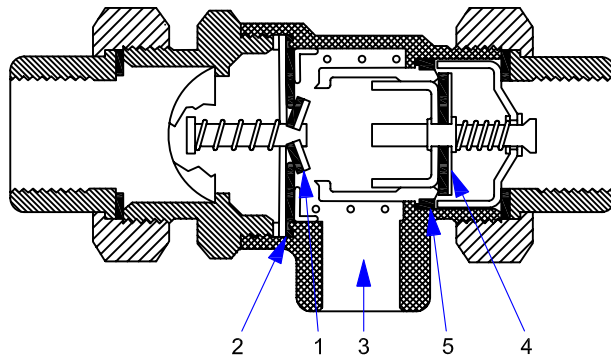
BACKFLOW PREVENTER

Normal Flow - Checks Open - Vent Closed



With flow through valve, primary check (1) opens away from diaphragm (2). Atmospheric vent remains closed by deflection of diaphragm seal (2). Secondary check (4) opens away from downstream seat (5) permitting flow of water through the valve.

Negative Supply Pressure - Checks Closed - Vent Open



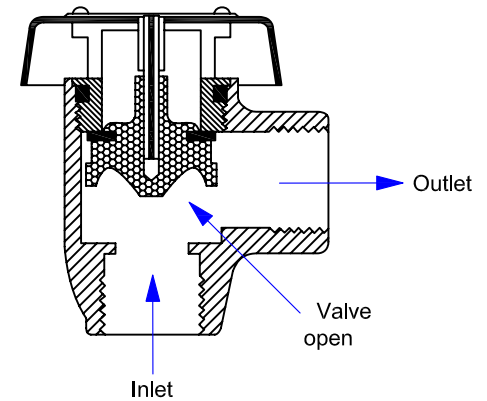
With a back-siphonage condition created, secondary check (4) seals tightly against downstream seat (5). Primary check (1) seals tightly against diaphragm (2). Atmospheric vent (3) is now open permitting air to enter air break chamber.

In the event of fouling of downstream check valve, leakage would be vented to atmosphere through the vent port thereby safeguarding the potable water system from contamination.

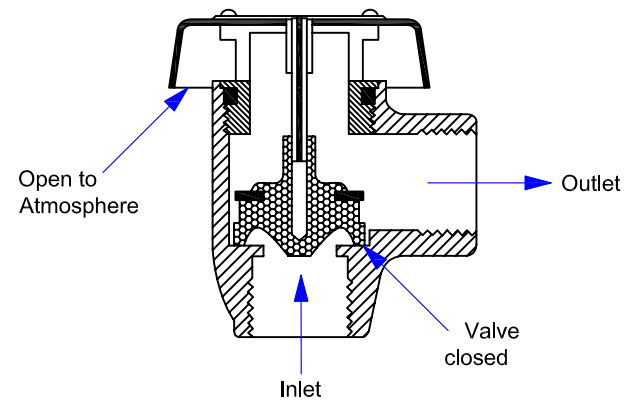
A-1.1.3.2

BACK-SIPHONAGE PREVENTER

a) Normal operation with valve open

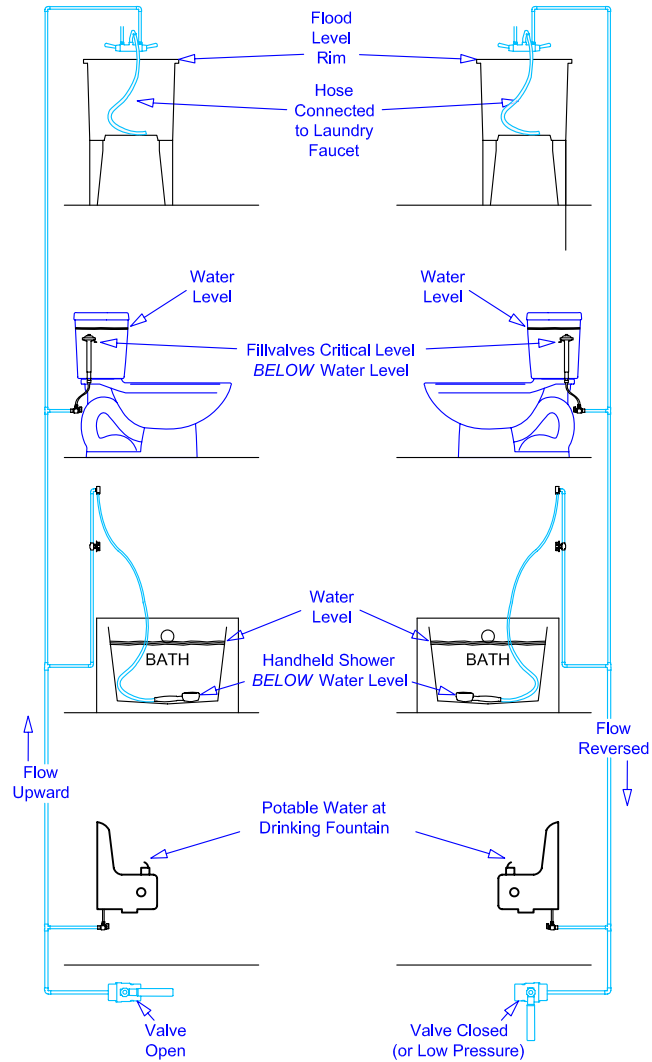


b) Backflow condition with valve closed.



A-1.4.1.2

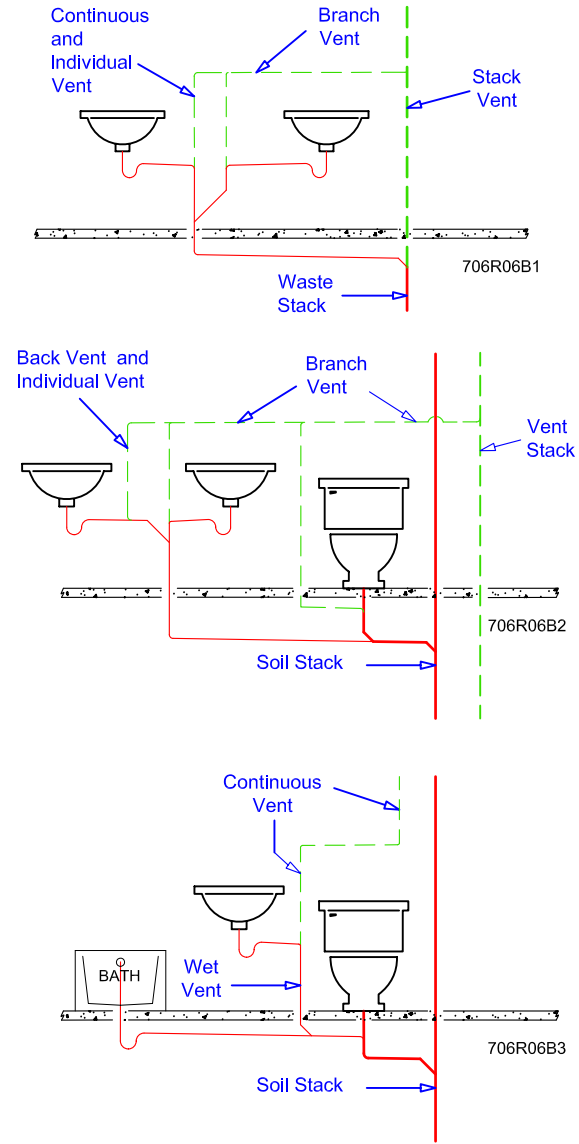
BACK-SIPHONAGE



When there is low pressure or the water is shut-off and the riser is draining, non-potable water is fed to the lower fixtures form the extra hose on the Laundry Tray (Tub) faucet, the fillvalve below the water level in the toilet tank or the handheld hose left in a bathtub filled with water.

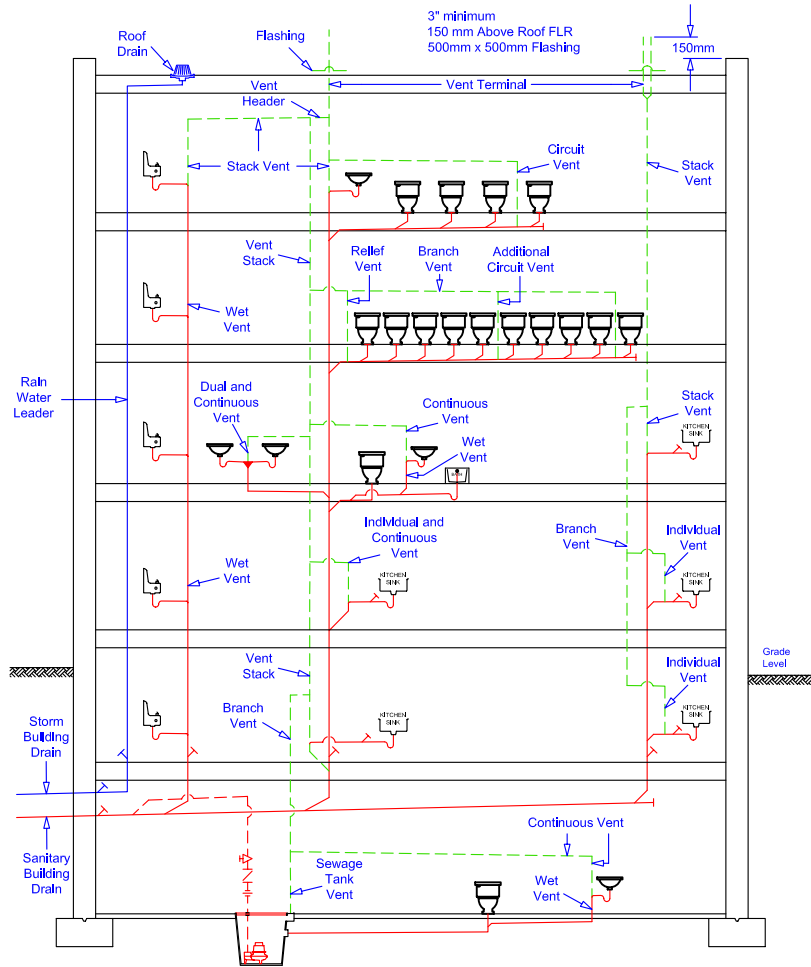
A-1.4.1.2

BRANCH VENT, BACK VENT, CONTINUOUS VENT



A-1.4.1.2

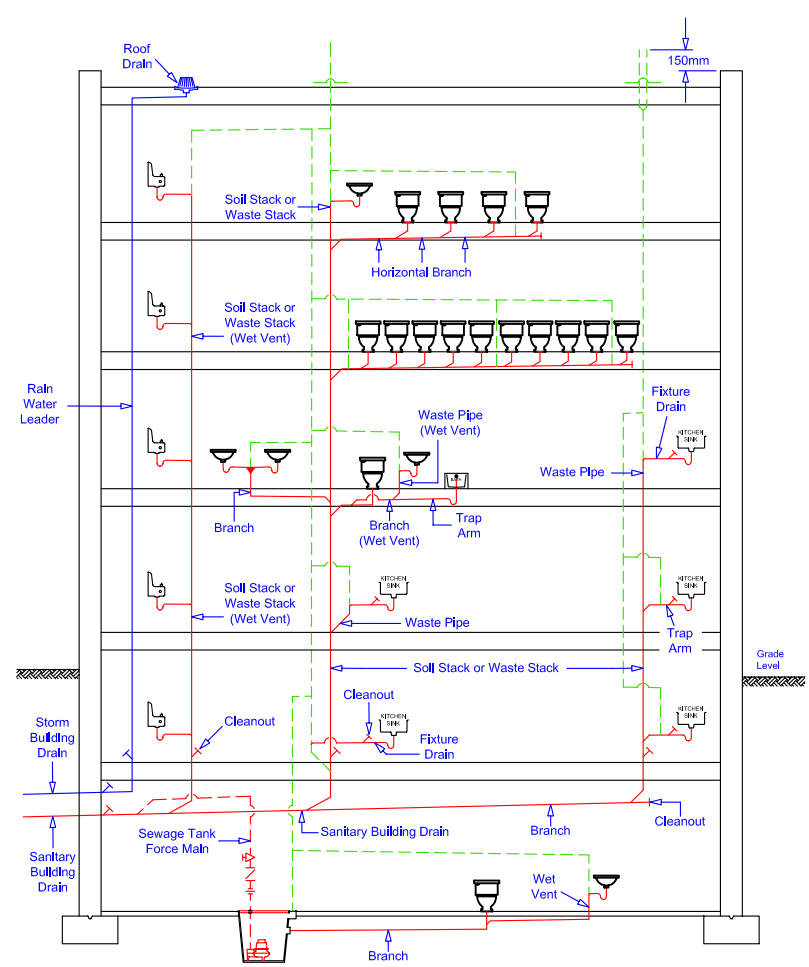
VENTING SYSTEM



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A-1.4.1.2

DRAINAGE SYSTEM

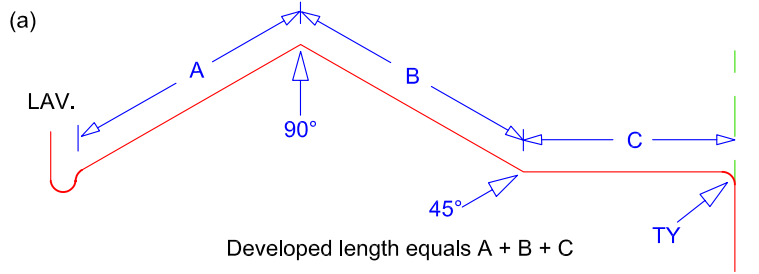


A-6iii

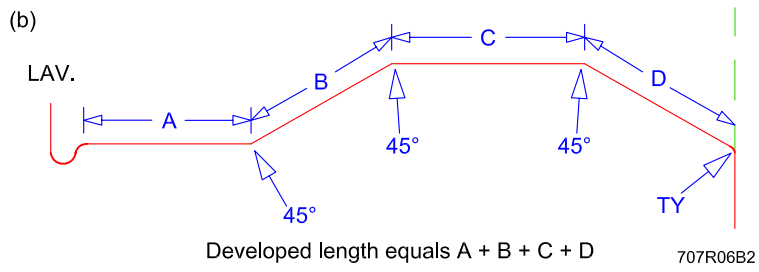
A-1.4.1.2

DEVELOPED LENGTH

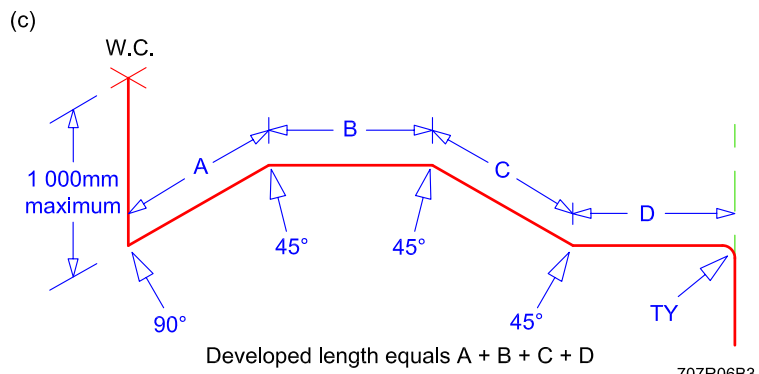
Developed length means the length along the centre line of the pipe and fittings.



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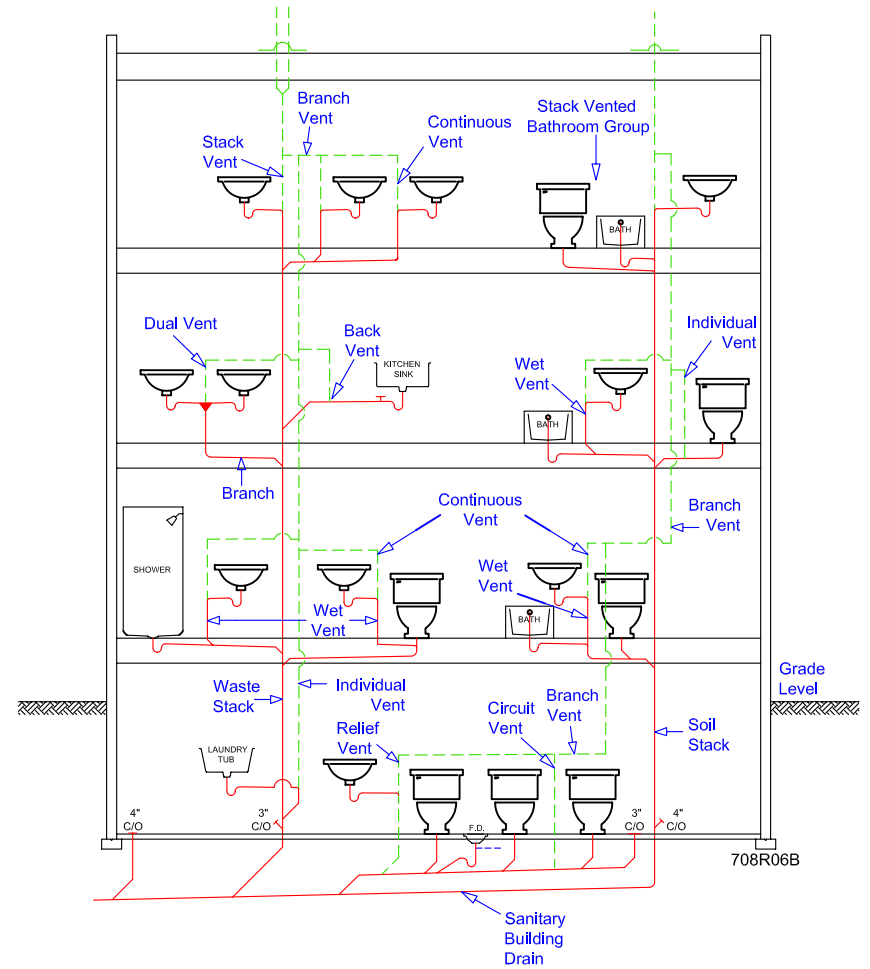
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A-1.4.1.2

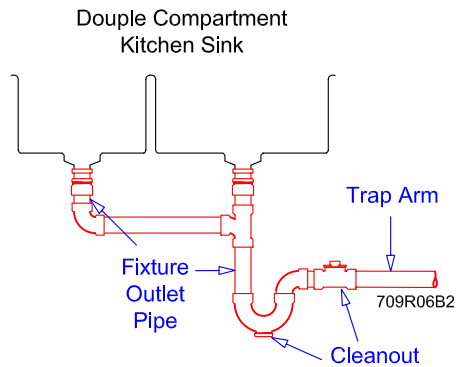
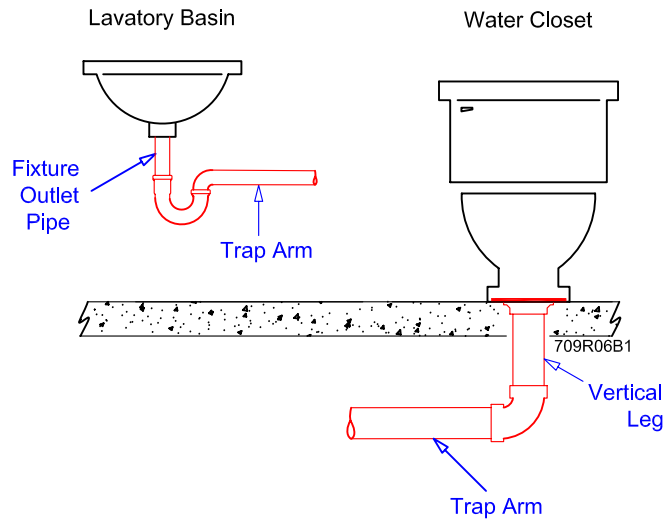
DRAINAGE AND VENTING SYSTEMS



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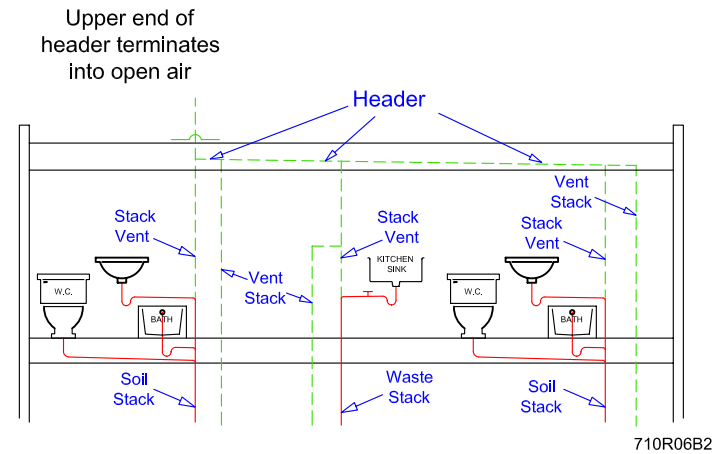
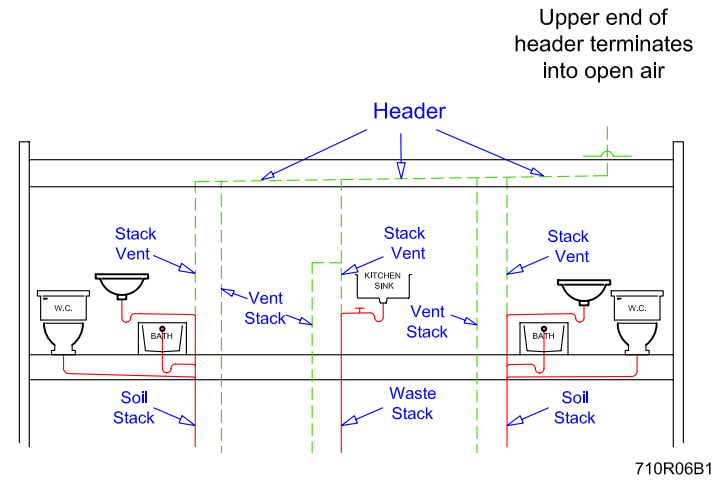
A-1.4.1.2

FIXTURE OUTLET PIPE AND TRAP ARM



A-1.4.1.2

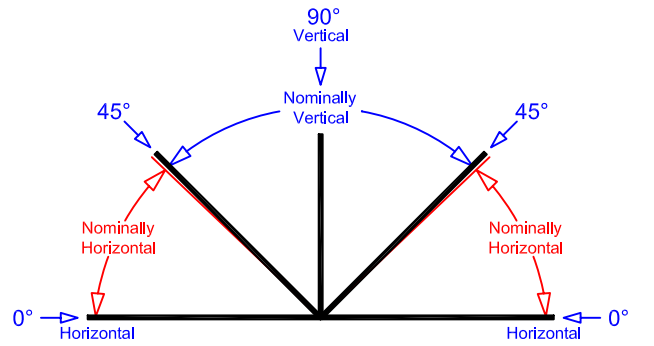
HEADER



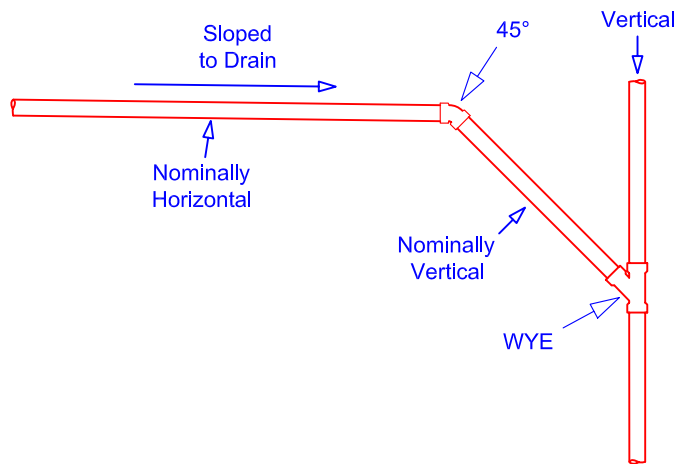
Although a header is similar to a branch vent, it serves the special purpose of connecting the tops of stack vents or vent stacks. Use Table 7.5.8.3. for sizing.

A-1.4.1.2

NOMINALLY HORIZONTAL AND NOMINALLY VERTICAL



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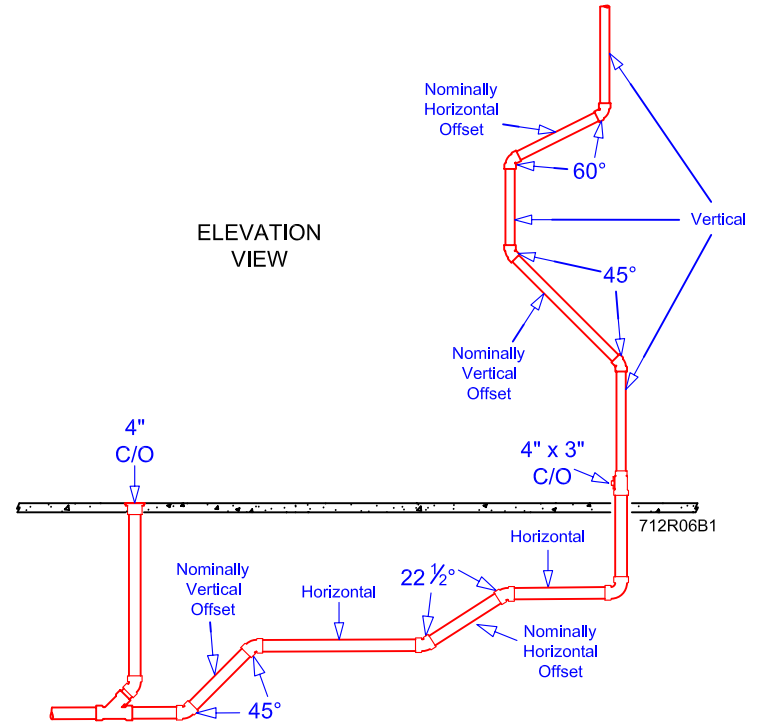


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A-1.4.1.2

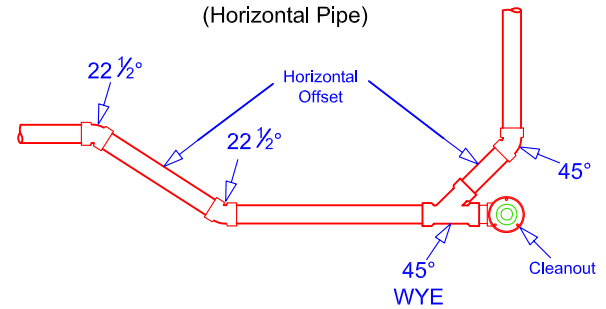
OFFSET

ELEVATION VIEW



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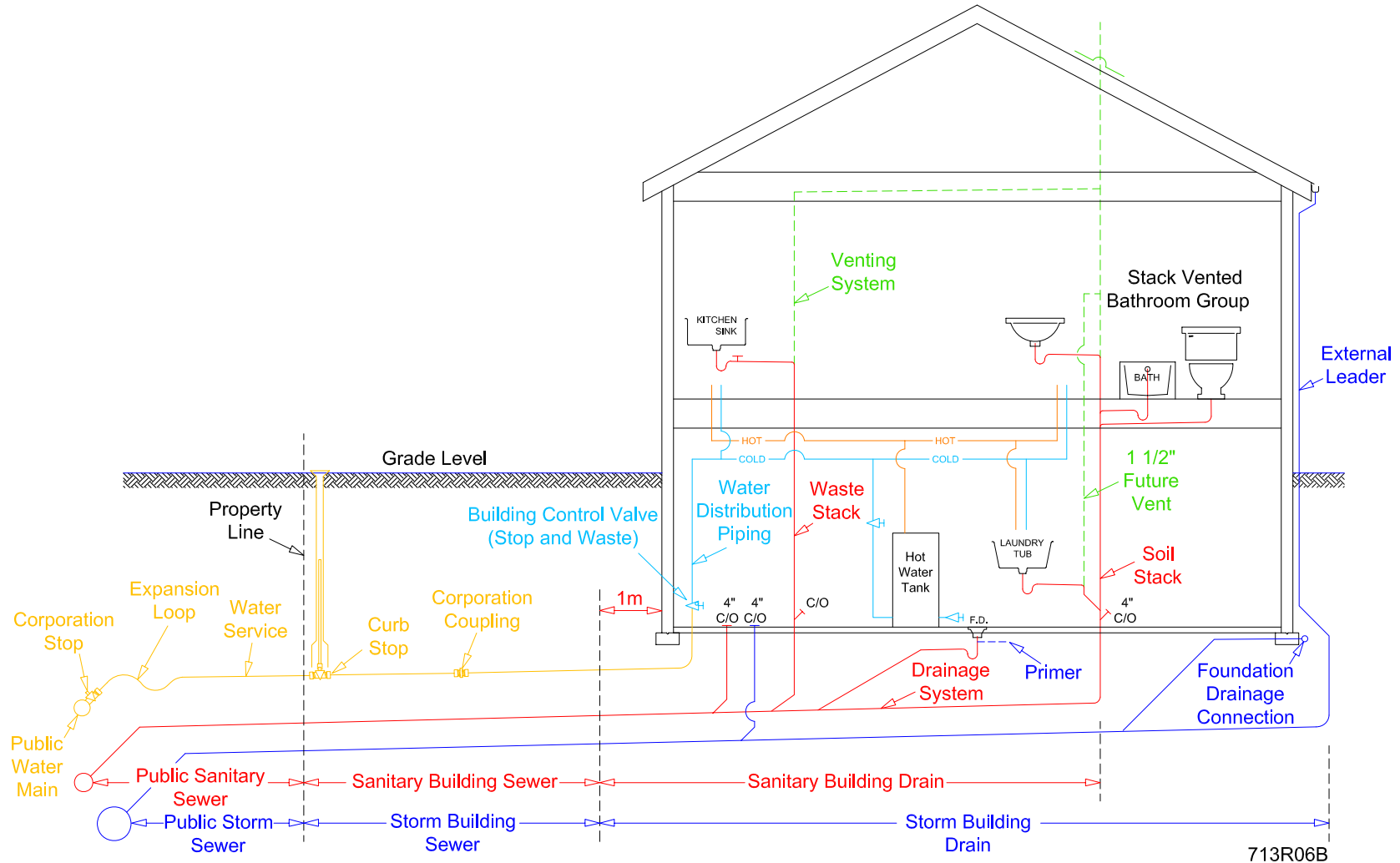
**PLAN VIEW
(Horizontal Pipe)**



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A-1.4.1.2

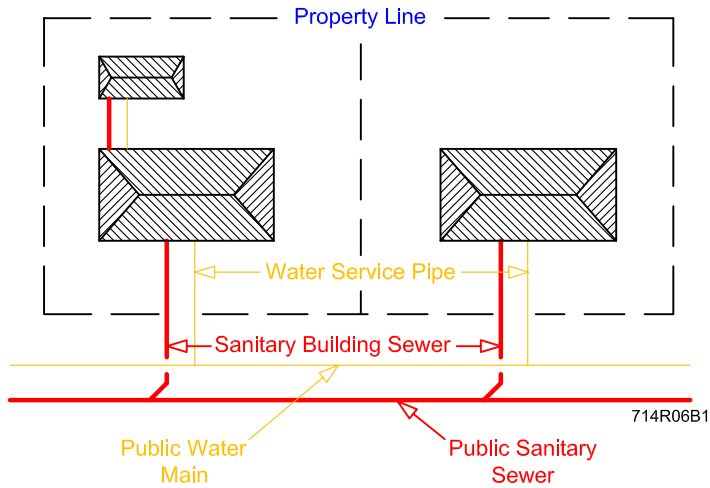
PLUMBING SYSTEMS



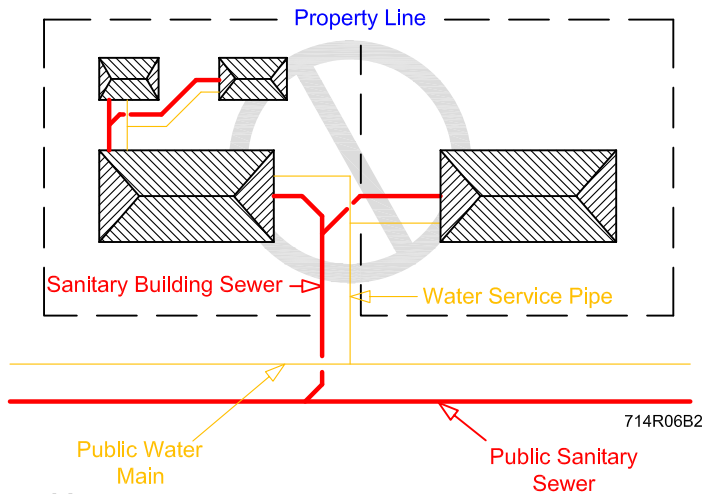
A-7.1.5.4.

SERVICE PIPING

(a) Permitted



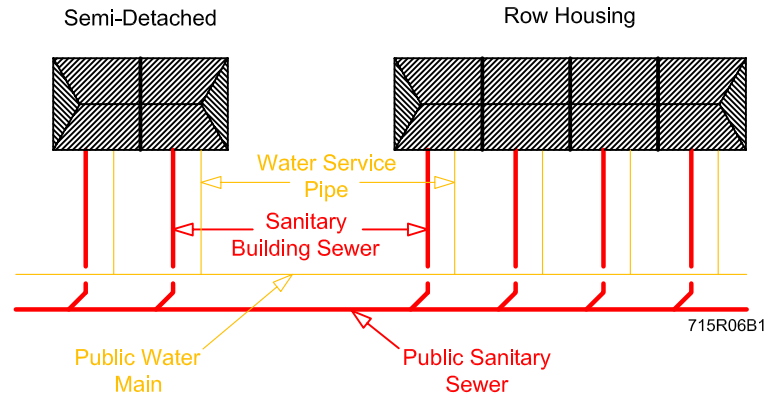
(b) **Not Permitted** - services shall not cross adjacent Property Lines nor serve more than one auxiliary building.



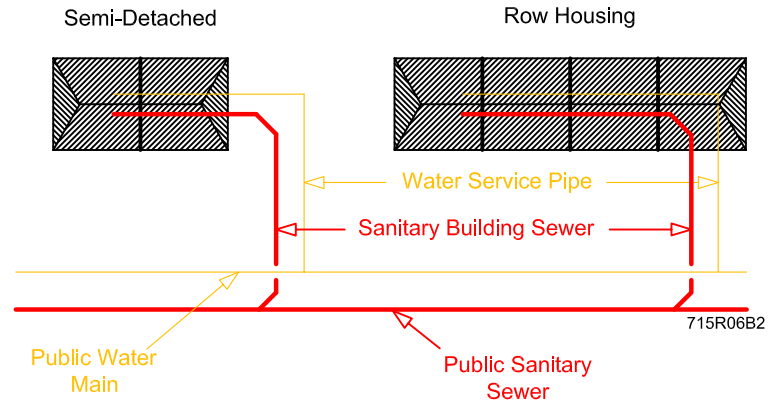
A-7.1.5.4.

SERVICE PIPING

(c) Permitted



(d) Permitted

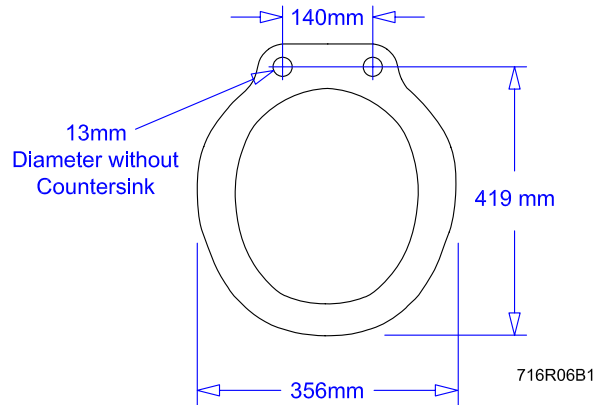


The layout as shown in diagram (d) above may require special arrangements to ensure that access can be provided to all parts of the service pipes.

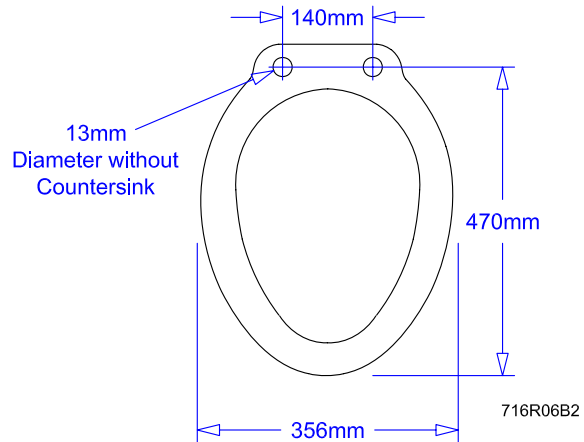
A-7.2.2.5.(1)

WATER CLOSET BOWL CONTOURS

(a) Regular Rim Contour for Water Closet Bowls



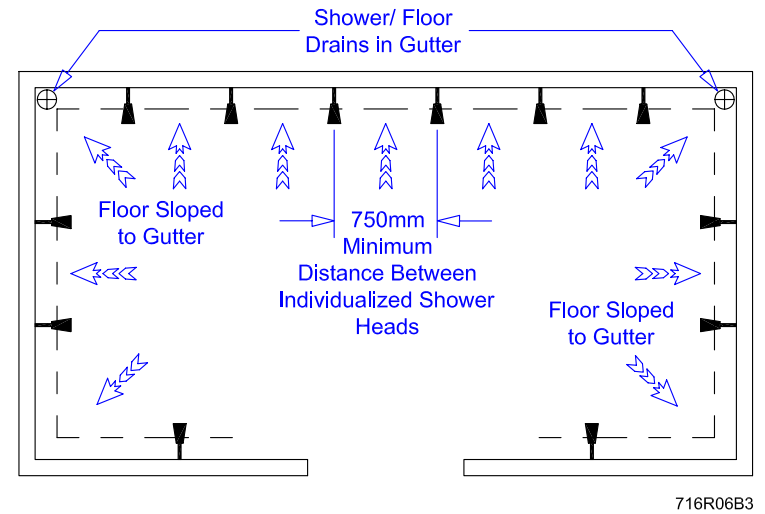
(b) Elongated Rim Contour for Water Closet Bowls



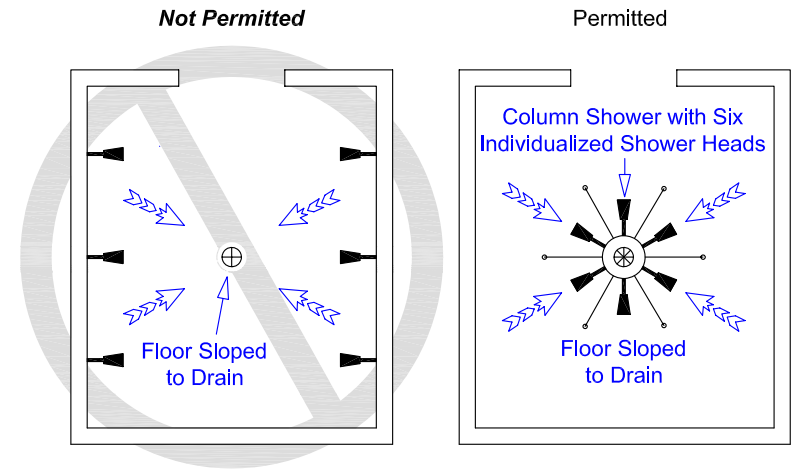
A-7.2.2.3.

SHOWERS

(a) Permitted - Floor Slopes to Gutter away from other showers, with a maximum of Six Individualized Shower Heads per Drain.

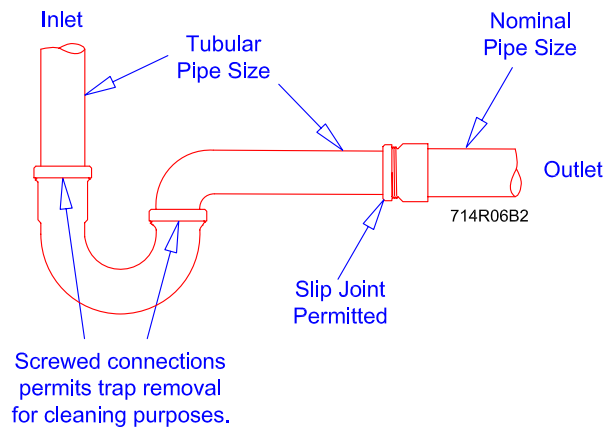
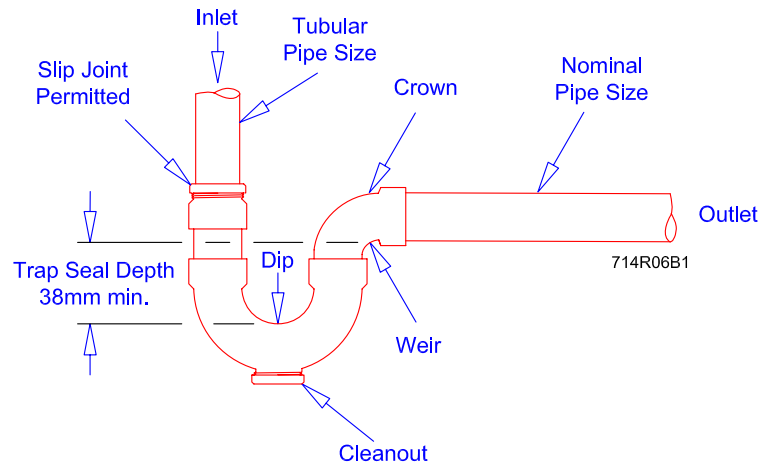


(b) Six Individualized Showers to a Single Drain



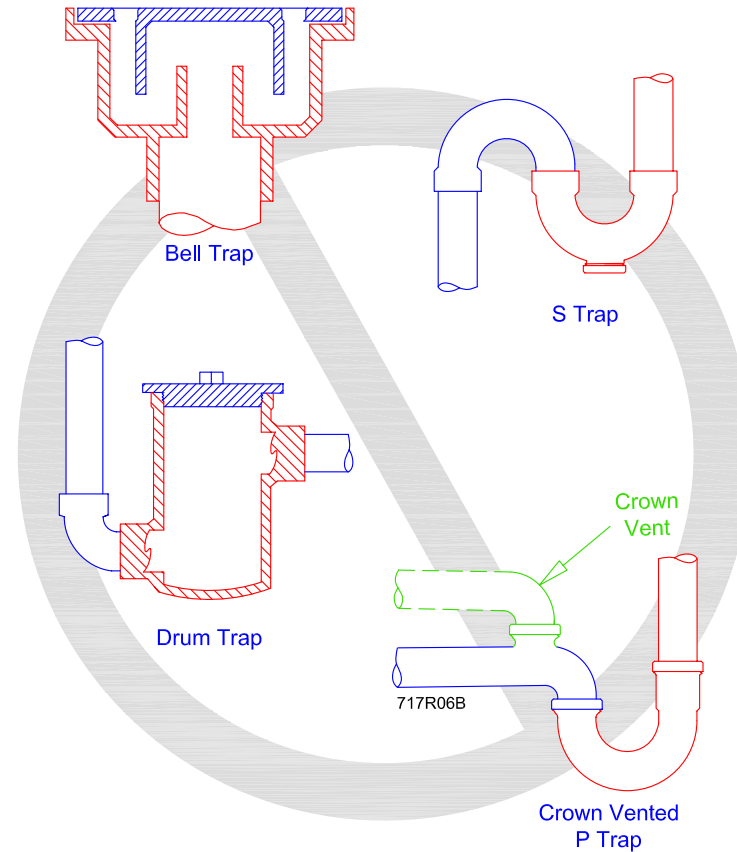
A-7.2.3.1.(1) & (3)

TRAP SEAL DEPTH AND TRAP CONNECTIONS



A-7.2.3.1.(4) & (5)

PROHIBITED TRAPS

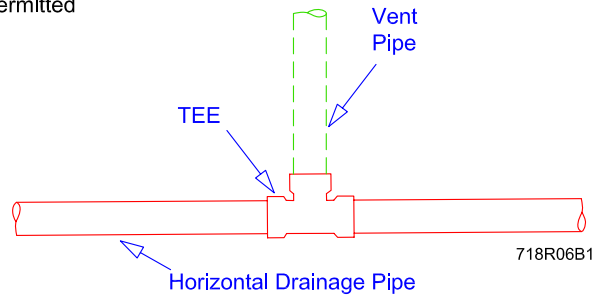


Except for a S trap standard, the S trap shown in the diagram above is prohibited by clause 7.5.6.3.(1)(b) which limits the fall on fixture drains. Crown vented traps shown in the diagram above are prohibited by clause 7.5.6.3.(1)(a) which requires that the distance from the trap weir to the vent be not less than twice the size of the fixture drain.

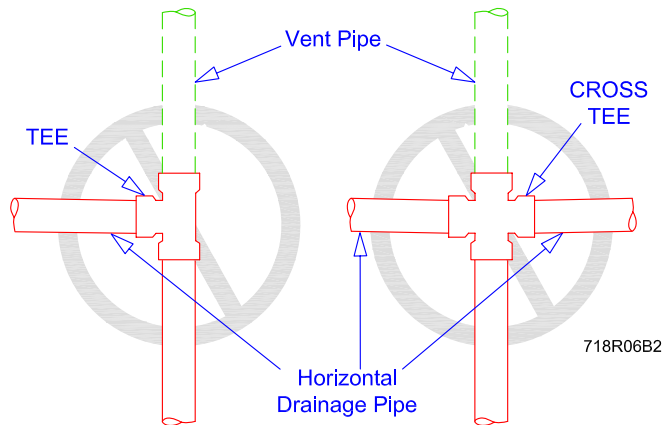
A-7.2.4.1.(1) & (2)

PIPE FITTINGS

(a) Permitted



(b) *Not Permitted*

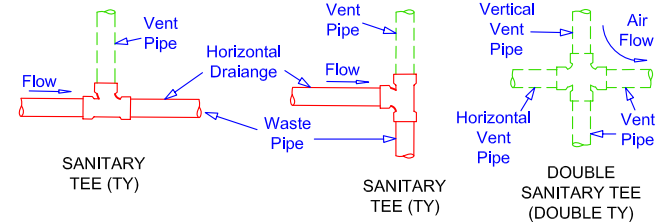


The use of a cross fitting is not permitted in a drainage system but such a fitting may be used in a venting system.

A-7.2.4.4.(1), 7.2.4.5.(1)

SANITARY FITTINGS IN DRAINAGE SYSTEMS

(a) Permitted (ELEVATION VIEW)



(b) Permitted (ELEVATION VIEW)

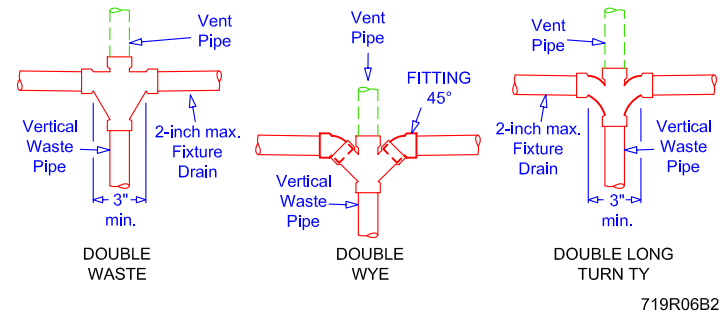
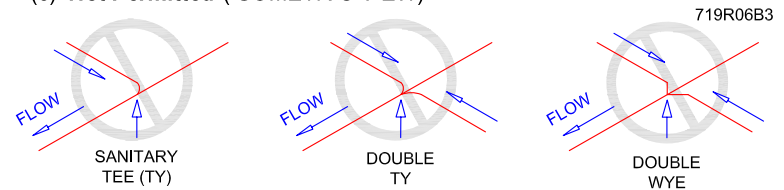


Table 7.2.4.5. (*) Double Waste and Double Long Turn TY fittings require a minimum 3-inch vertical run with a maximum 2-inch branch.

(c) *Not Permitted* (ISOMETRIC VIEW)



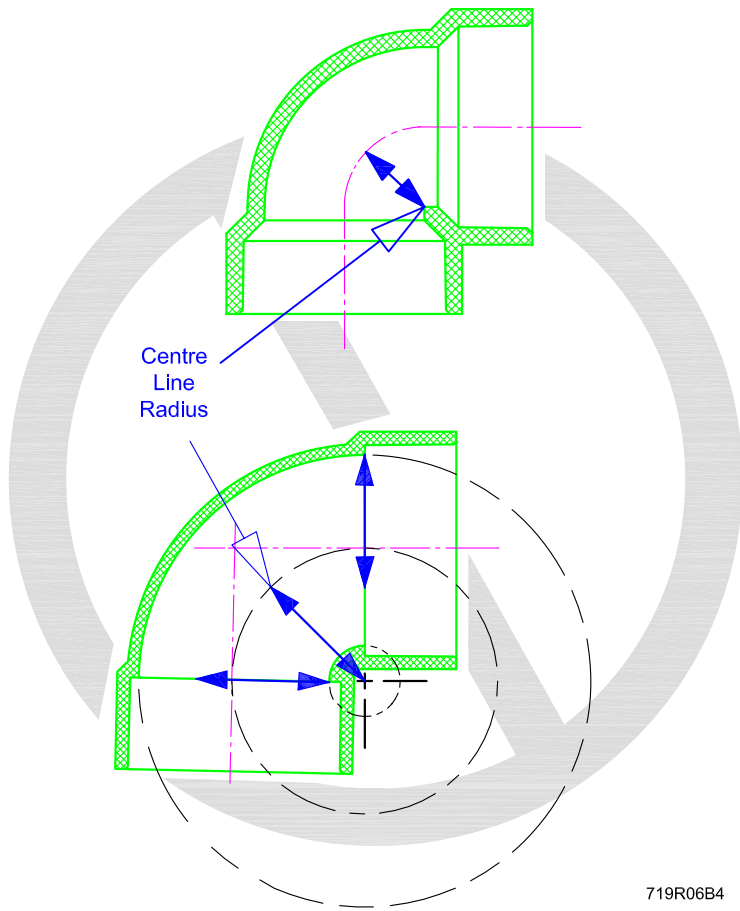
see 7.2.4.4 (1) Nominally Horizontal Drainage Piping

A Sanitary Tee fitting, a Double Waste, a Double Long Turn TY or a Double Wye may be used to change the direction of flow in a drainage system from horizontal to vertical, but may not be used to change the direction of flow in a nominally horizontal drainage system.

A-7.2.4.3.(1)

ELBOWS USED FOR DRAINAGE

(a) **Not Permitted** Centre Line Radius smaller than pipe size



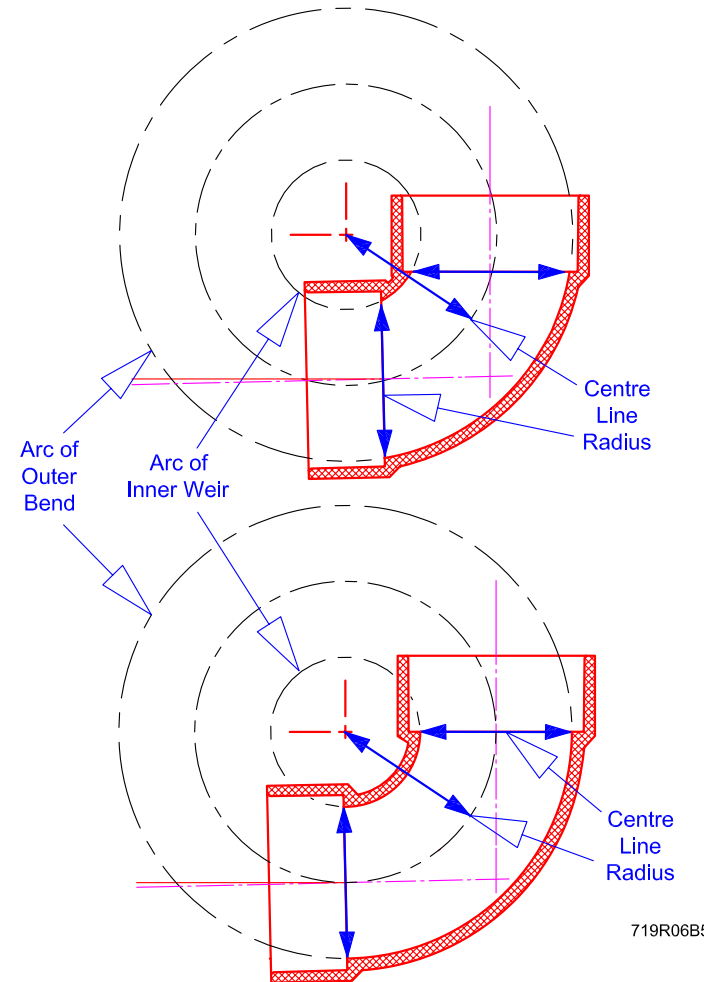
The sharp turn bend and the short-full radius turn bends above have a Centre Line Radius that is smaller than the pipe size which is only permitted on dry vents or Storm Drainage Systems.

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A-7.2.4.3.(1)

ELBOWS USED FOR DRAINAGE

(b) Permitted Centre Line Radius Equal or Larger than Pipe Size



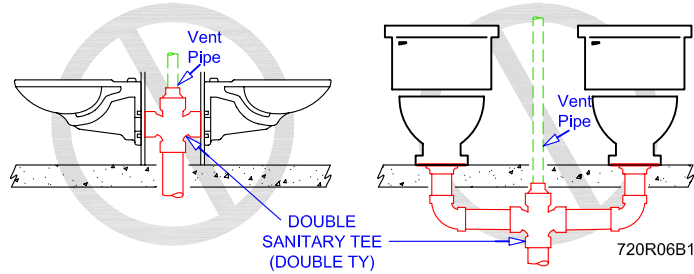
The short radius bend and the full radius bend above both measure having the same centre line radius with the short turn bend intended for use in tight installations.

A-19iii

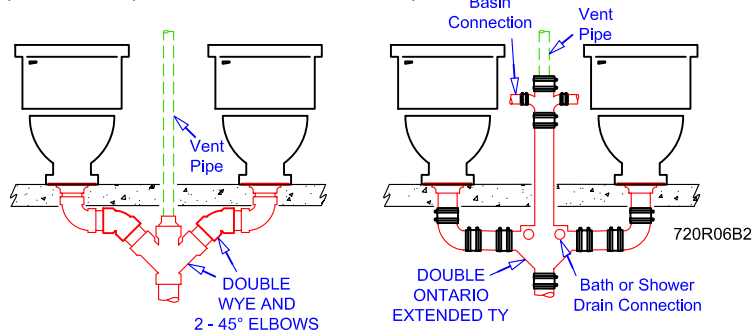
A-7.2.4.2.(1) & 7.2.4.5.(1)

PIPE FITTINGS

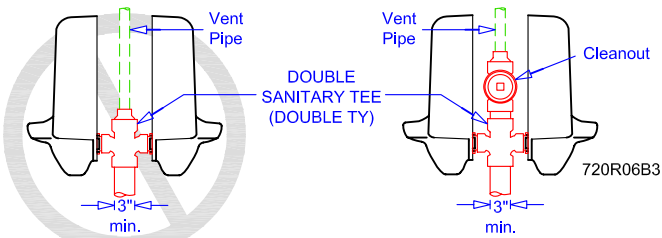
(a) **Not Permitted** (Back to Back Water Closets)



(b) Permitted (Back to Back Water Closets)



(c) **Not Permitted**



(d) Permitted

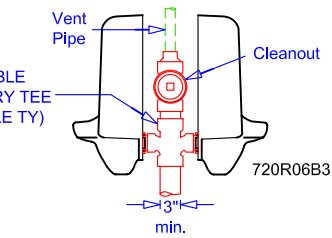
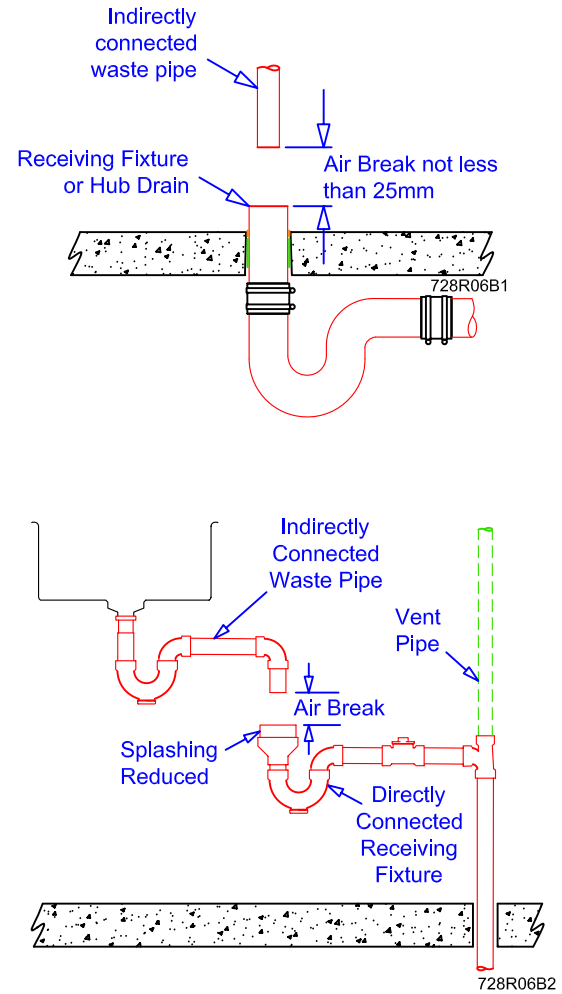


Table 7.2.4.5 (*) - A double sanitary T fitting may be used provided the vertical run is 3-inch min. and the horizontal drainage is no greater than 2-inch.

7.2.4.2 (2) - For back to back urinals be provided with a cleanout above the connection.

A-7.3.3.11.

AIR BREAK

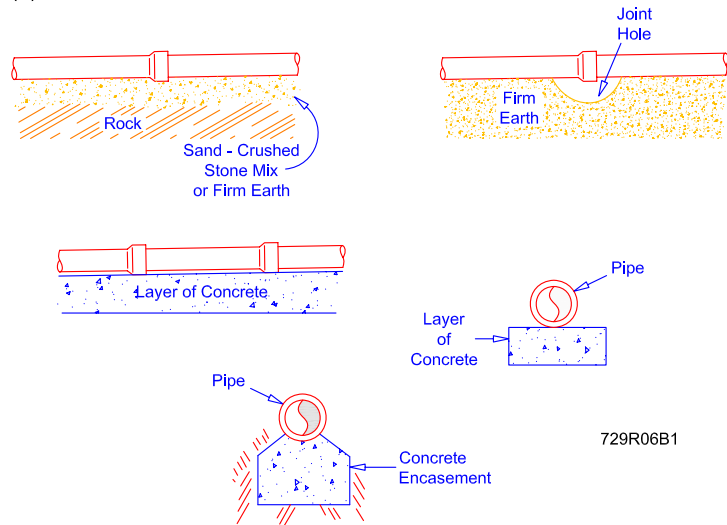


A Reducer fitting or Funnel is often added to the Receiving Fixture or Hub Drain to prevent splashing from the discharge into the Indirect Connection, therefore the air break is measured down from the bottom of the Indirect Waste to the top of the Reducer or Funnel.

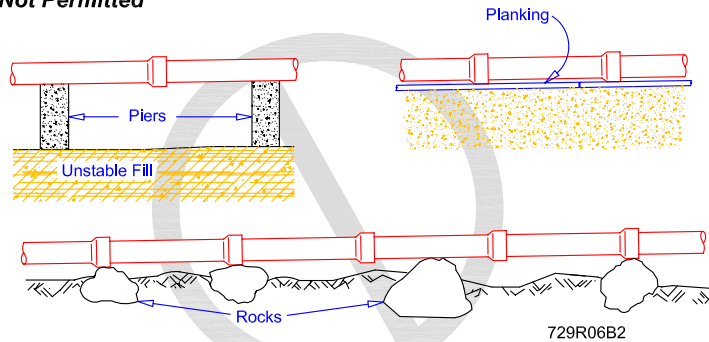
A-7.3.4.6.(1)

SUPPORT FOR UNDERGROUND PIPING

(a) Permitted



(b) **Not Permitted**

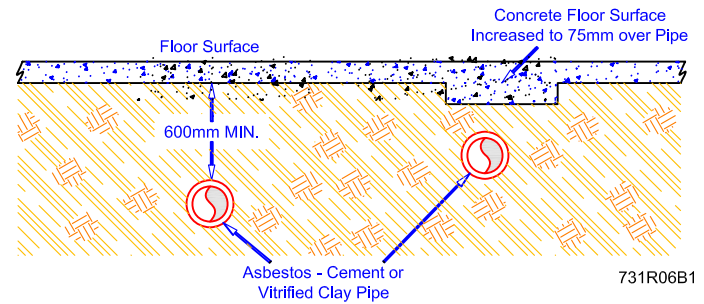


See explanation for Subsection 7.3.5. for additional protection required for underground piping. Permitted installations are shown in diagram (a). The methods of support shown in diagram (b) are not permitted because the base does not provide firm and continuous support for the piping.

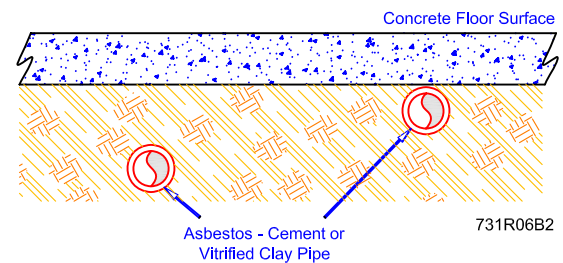
A-7.3.5.2.

PROTECTION OF UNDERGROUND NON-METALLIC PIPES

(a) Concrete floors less than 75 mm thick



(b) Concrete floors 75 mm thick or more - no protection required.



A-7.3.4.6.(1) Support for Underground Horizontal Piping.

Certified drain, waste and vent piping of polymeric plastic having schedule 40 dimensions shall be installed with select piping bedding where the fill over the pipe will be subject to vehicular traffic or where the burial depth exceeds eight feet.

Sewer pipe of polymeric plastic certified to a standard that requires a minimum pipe stiffness of 320 kPa (46.4 psi) shall be installed with select pipe bedding where the fill over the pipe will be subject to vehicular traffic or where the burial depth measured from the top of the pipe exceeds 750 mm (2 1/2 ft).

Select pipe bedding consists of a non-cohesive ballast material of which at least 50% will pass a 1/4 inch sieve and 100% will pass a 1/2 inch sieve, and that completely surrounds the pipe by a radial depth of at least four inches and that is sufficiently consolidated so that the intended earth loading will not produce further compaction.

A-7.3.4.9. Thrust Blocking. Concrete thrust blocks may be used to provide restraint for underground water service piping. They are readily utilized in combination with tie rods, structural restraining, thrust collars and restrained joints. Thrust blocks are generally categorized as gravity blocks or bearing blocks.

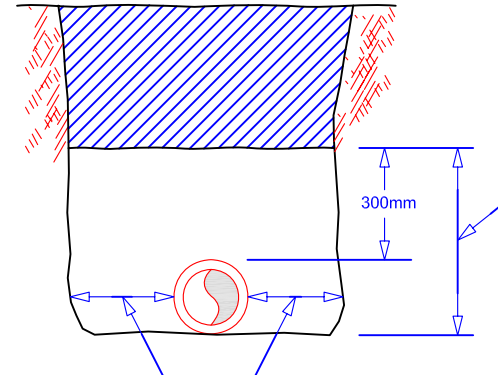
Important factors which may affect gravity block design are pipe sizes, water pressure, density of block material and allowable soil bearing pressure that will determine the minimum size of the block base. Publications of pipe and fitting manufactures show methods for installing thrust blocks at different fittings. In each case, the trench is cut to provide a bearing surface on undisturbed soil, and concrete is placed to fit snugly against as much of the fitting as possible without interfering with access to fitting joints. Sometimes anchor rods may be used to hold the fitting against the blocks.

A-7.3.5.1.(1) Backfilling of Pipe Trench. Stronger pipes may be required in deep fill or under driveways, parking lots, etc., and compaction for the full depth of the trench may be necessary.

Bedding is required primarily to provide uniform and adequate longitudinal support under the pipe. All drainage pipe shall be supported in such a manner as to maintain its alignment, and prevent sagging. Blocking alone shall not be used to maintain pipe grading. Bell holes at each joint shall be provided to permit the joint to be assembled properly while maintaining uniform pipe support. A compacted depth of 100 mm to 150 mm is generally sufficient bedding thickness. Ledge or sharp rocks and clods which could damage the pipe cannot be used. In general, select pipe bedding shall consist of a non-cohesive ballast material of which at least 50% will pass a 1/4 inch sieve and 100% will pass a 1/2 sieve, and the completely surround the pipe by a radial depth of at least 100 mm and that is sufficiently consolidated so that the intended earth loading will not produce further compaction. Other materials can be used if authorized by the pipe manufacturers.

A-7.4.7.4.

BACKFILLING OF PIPE TRENCH



Backfill in this part of the trench must be carefully placed and tamped. It must not contain STONES, BOULDERS, CINDERS or FROZEN EARTH

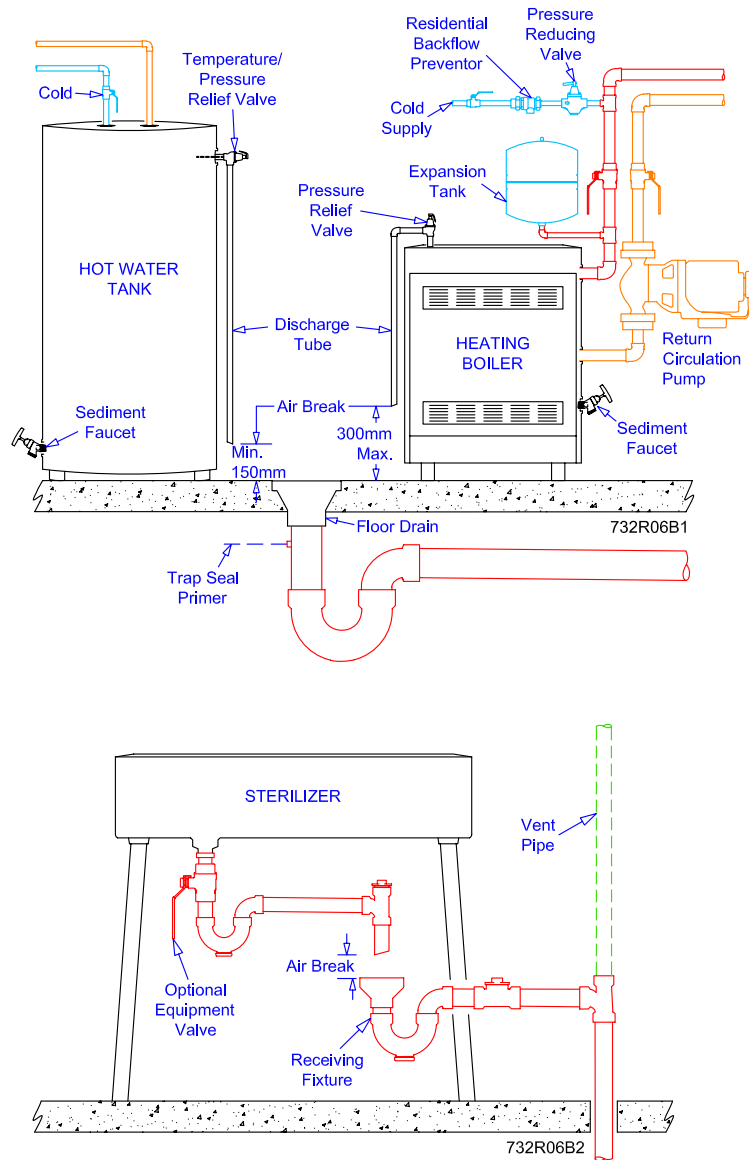
This part of the trench should be as narrow as proper jointing and backfill will permit.

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Careful selection of piping may be necessary in deep fill or under driveways, parking lots, etc., and compaction for the full depth of the trench may be necessary.

A-7.4.2.1.

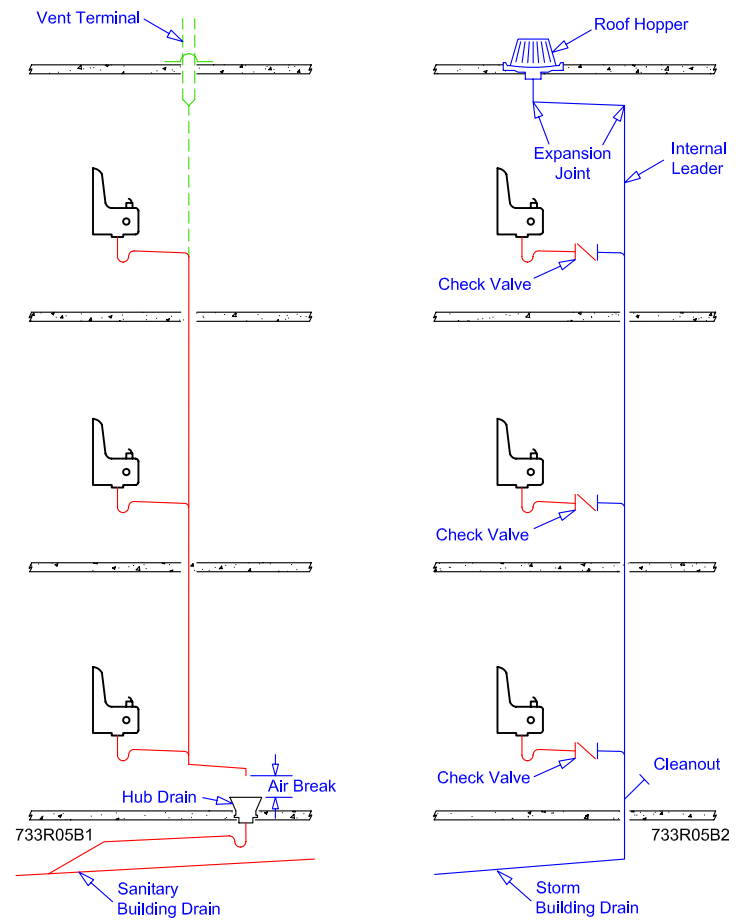
CONNECTION TO DRAINAGE SYSTEM



A-7.4.2.1.(1)

CONNECTION TO DRAINAGE SYSTEM

Drinking Fountains

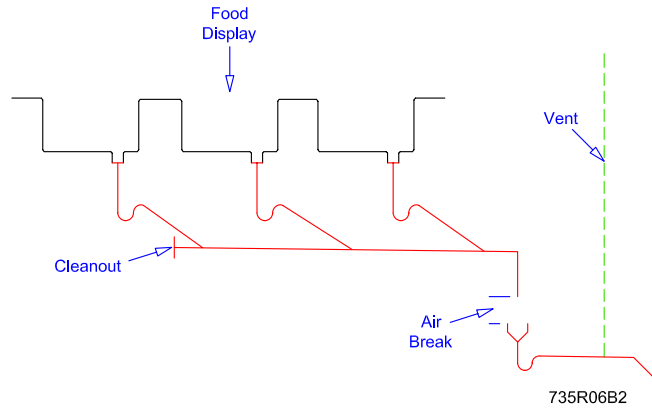
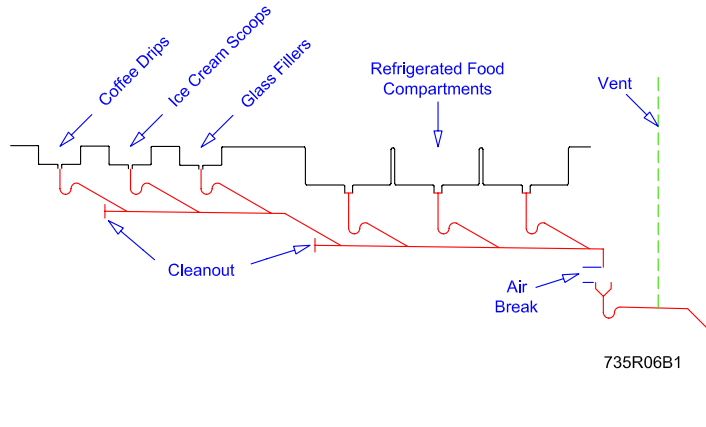


7.4.2.1.(1)(a)(i) - Drinking Fountains may serve as a Trap Seal Primer following requirements in 7.4.2.3.

7.4.2.1.(1)(a)(ii) - Drinking Fountains may connect to a Internal Leader provided check valves are installed after the protecting trap.

A-7.4.2.1.(1)

CONNECTION TO DRAINAGE SYSTEM



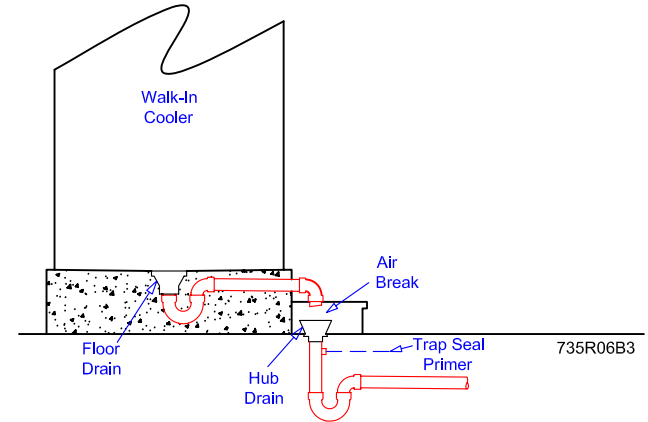
A-35i

A-7.4.2.1.

CONNECTION TO DRAINAGE SYSTEM

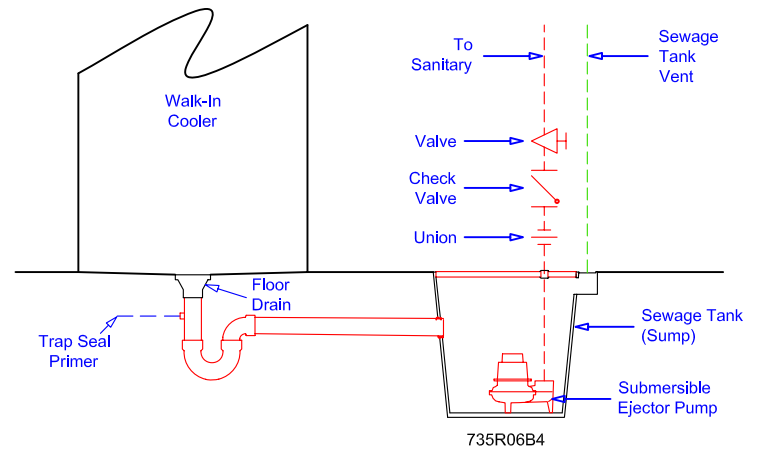
(a) A Walk-in Cooler discharging over a Hub Drain.

INDIRECTLY CONNECTED



(b) A Walk-in Cooler discharging into a Sewage Ejector -

NOT DIRECTLY CONNECTED

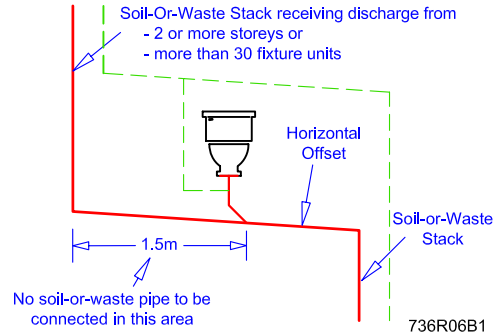


A-35ii

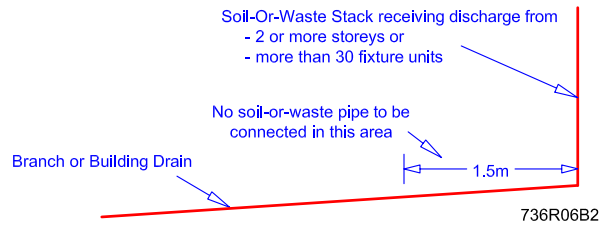
A-7.4.2.1.(2)

SOIL OR WASTE PIPE CONNECTIONS

(a) Connection to nominally horizontal offset



(b) Connection to nominally horizontal soil or waste pipe

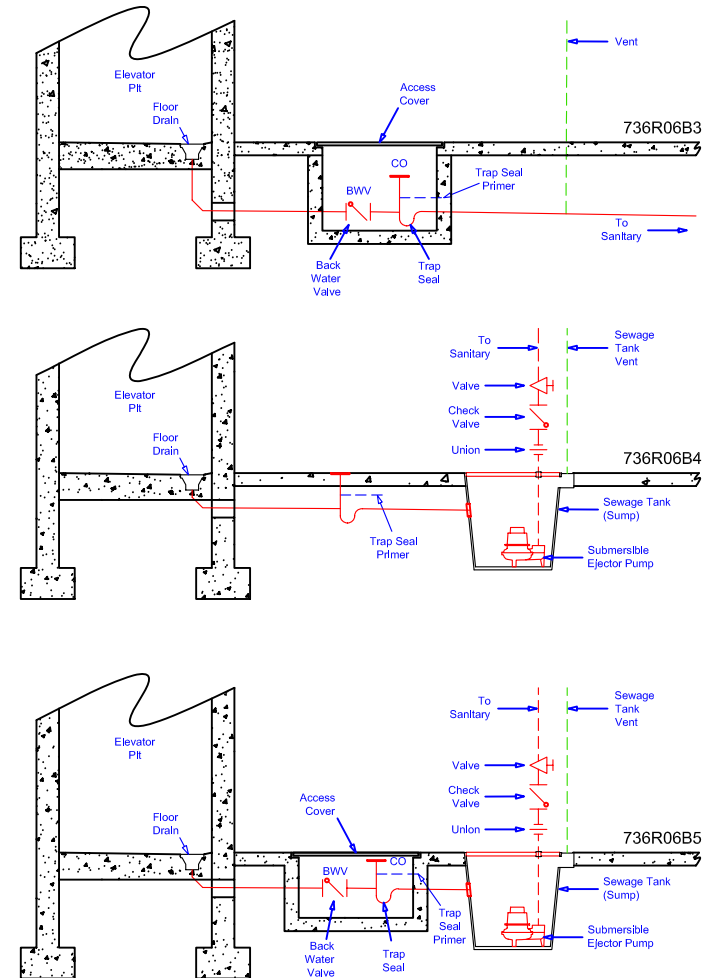


A-7.4.4.2.(1) Protection for Drainage System. When the temperature of the heated discharge exceeds 75°C (170°F), the material being used shall be used in accordance with the manufacturers approval and done in accordance with the manufactureers instructions. Where the material being used in a thermoplastic care should be taken with discharges above 55°C (140°F).

A-7.4.4.3. Interceptors. For large volume engineered interceptors, the drain down time may vary. Information on the design and sizing of grease interdeptors can be found in ASPE Data Book, Chapter 35, Grease Interceptors, October 1994.

A-7.4.4.3.(3)

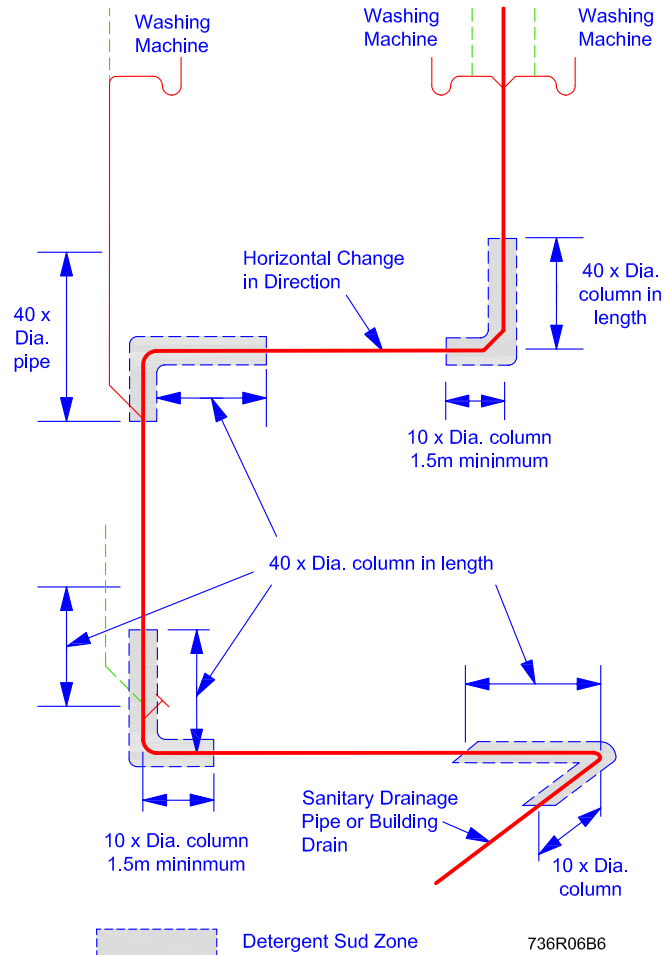
FLOOR DRAIN IN ELEVATOR PITS



Allowable connection to Elevator Pit's floor drain (FD) with or without sump pit. Oil interceptor not required as per 7.4.4.3.(3).

A-7.4.2.1.(4)

SUD ZONES BY CREATED BY MORE THAN ONE WASHING MACHINE



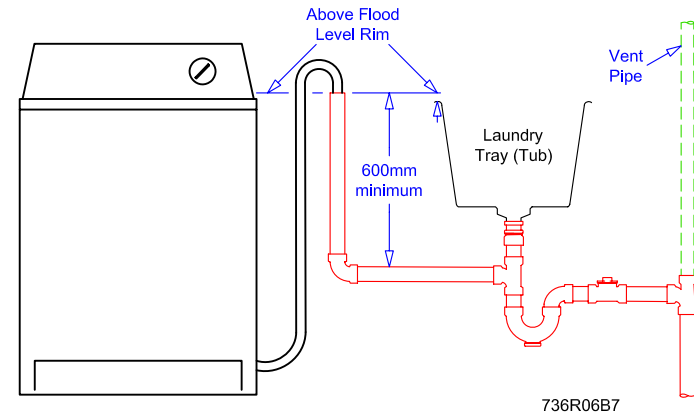
7.4.2.1.(4) A soil or waste pipe that serves more than one clothes washer, and in which pressure zones are created by detergent suds, shall not serve for connecting other soil or waste pipes.

A-36iii

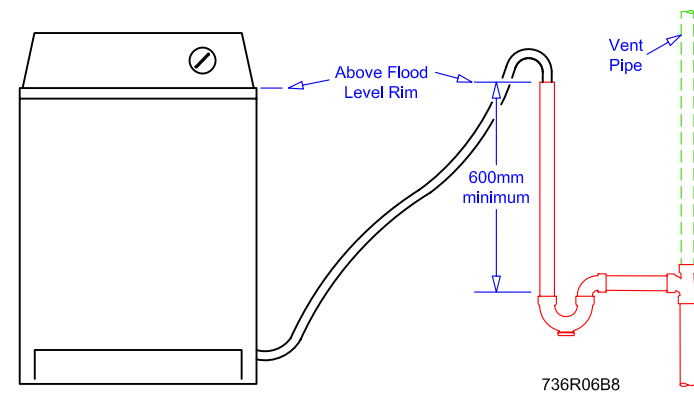
A-7.4.9.3.(3).

STANDPIPES SERVING A WASHING MACHINE

(a) A Standpipe discharging into a Single Compartment Laundry Tray (Tub)



(b) A washing machine discharging into a stand alone Standpipe

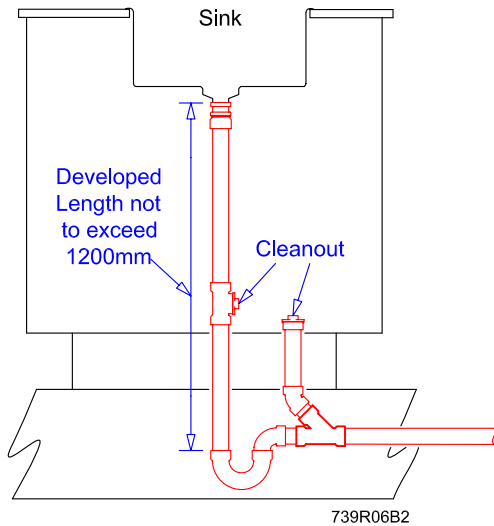
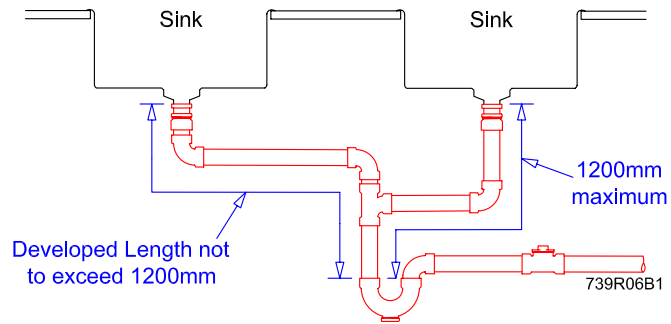


The washing machine standpipe must measure a minimum of 600mm and extend above the flood level rim of a top load washer.

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A - 7.4.5.1. (2)

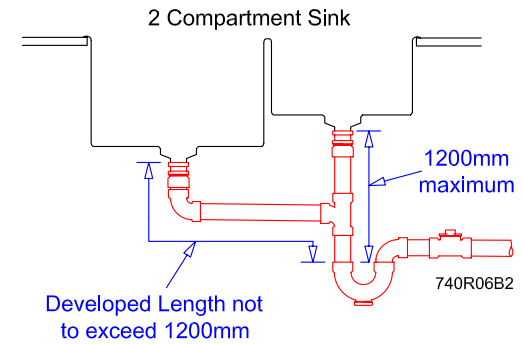
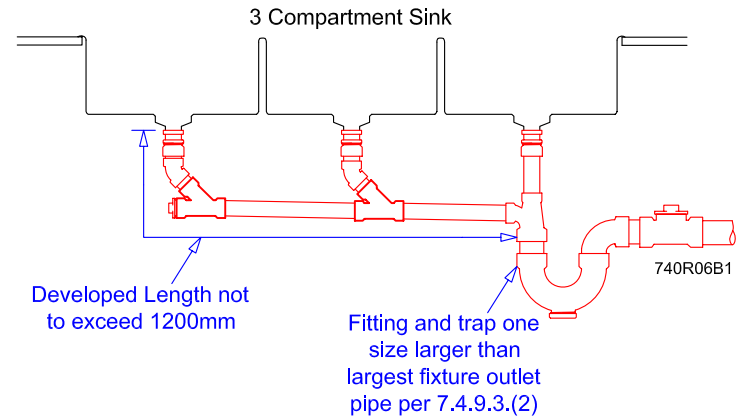
TRAPPING OF SINKS AND LAUNDRY TRAYS



See Article 7.4.8.2. on developed length restrictions.

A-7.4.5.1(2)

TRAPPING OF SINKS AND LAUNDRY TRAYS

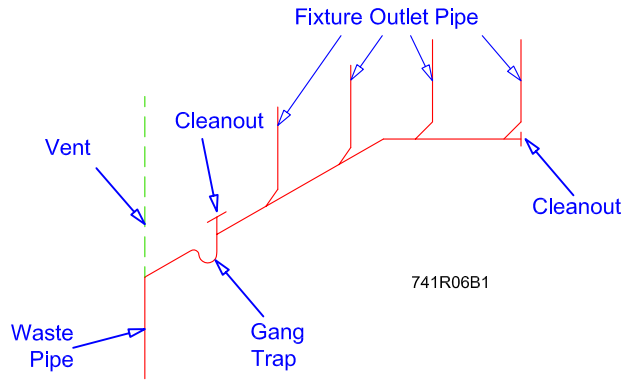


See Article 7.4.8.2. on developed length restrictions.

A-7.4.5.1.(3)

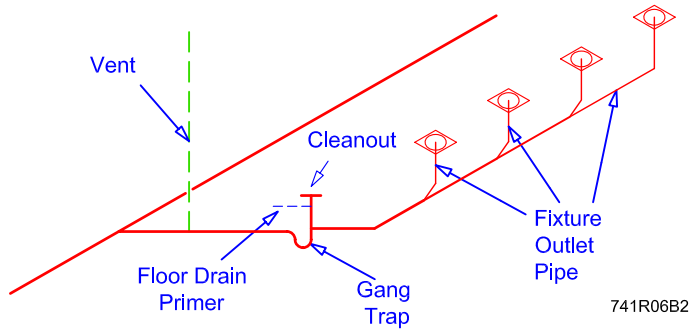
SINGLE TRAPS FOR FIXTURE GROUPS

(a) Laboratory sinks or washing machines



741R06B1

(b) Floor drains or shower drains



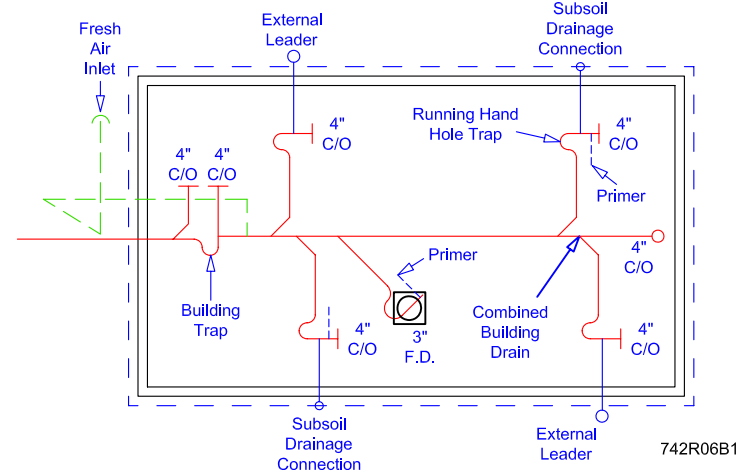
741R06B2

Venting is not required for floor drains if the installation conforms to Article 7.5.1.1.(3)

A-7.4.5.3.

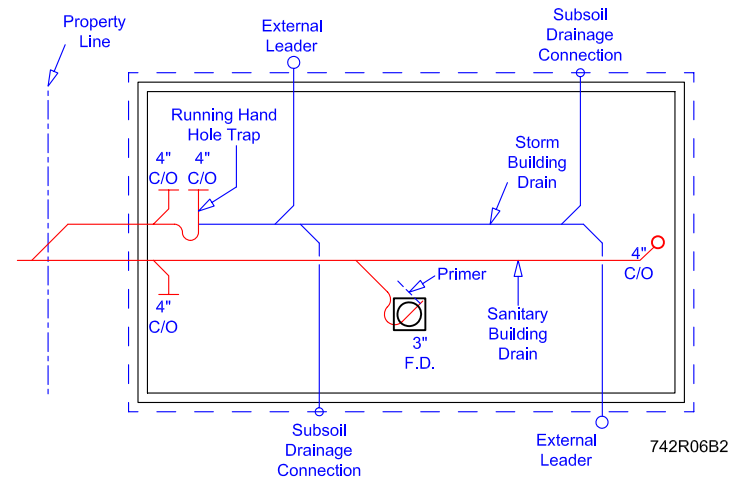
SUBSOIL DRAINAGE CONNECTION

(a) Connections to sanitary drainage system - Combined System



742R06B1

(b) Connections to sanitary drainage system - Semi-Combined System



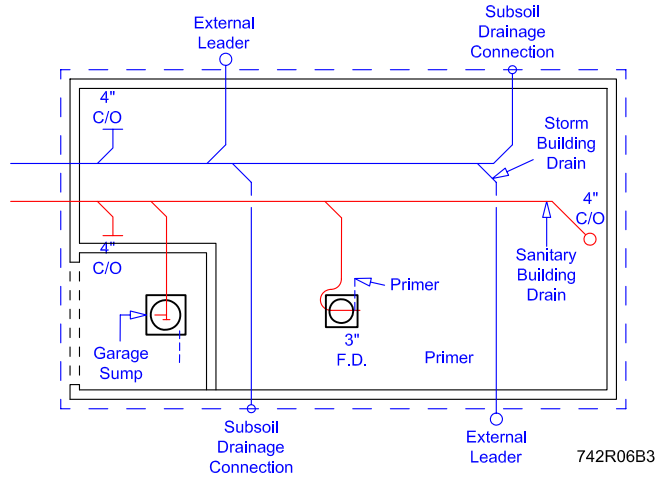
742R06B2

7.1.5.1.(2) A combined building drain or a combined building sewer shall not be installed.

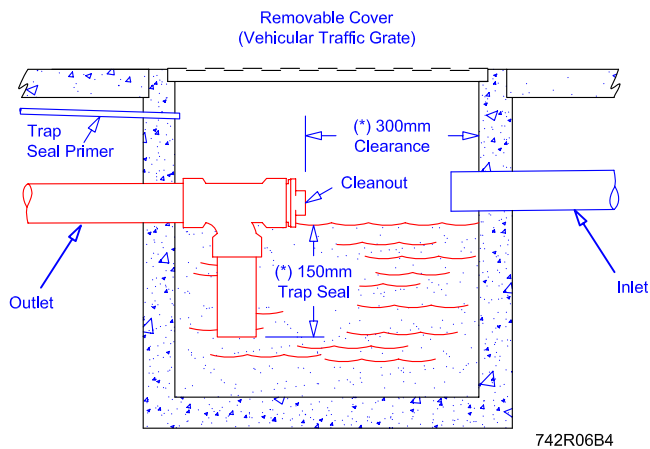
A-7.4.5.3.

SUBSOIL DRAINAGE CONNECTION

(c) Connections to storm drainage system - Separate System



(d) Trapped Sump (Garage Sump)

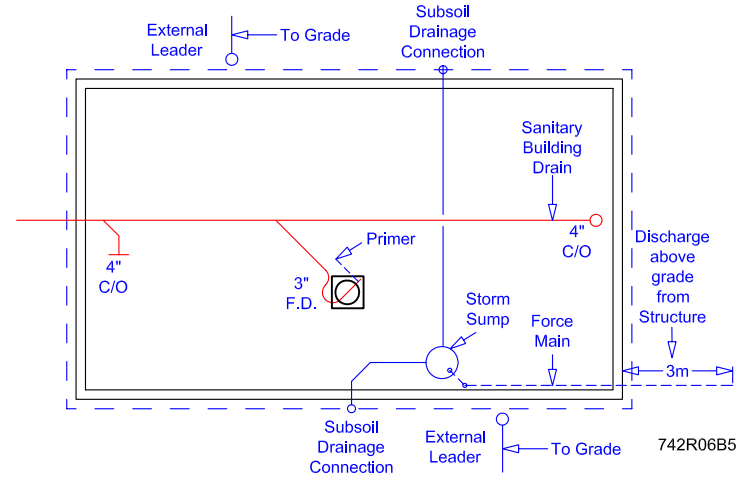


(*) Referenced to Ontario Regulation 419/86

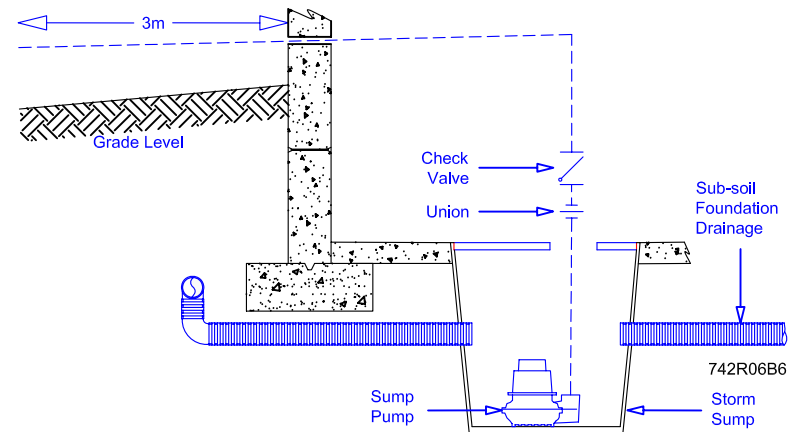
A-7.4.5.3.

SUBSOIL DRAINAGE CONNECTION

(e) Discharging Subsoil Drainage Above Grade - Separate System



(f) Discharging Subsoil Drainage Above Grade - Separate System

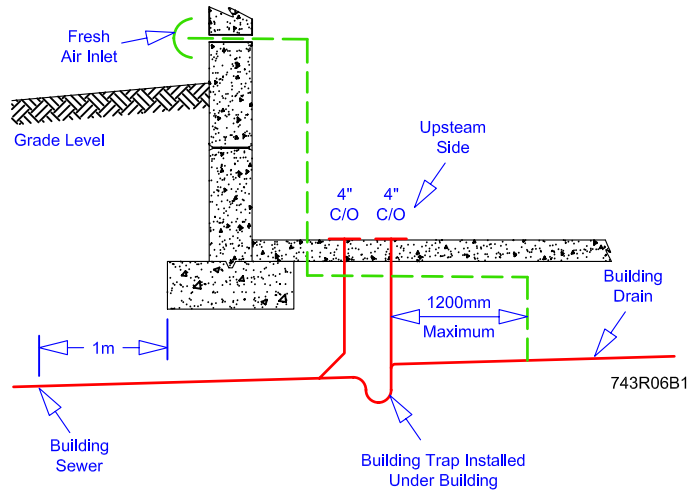


When no Storm drain in available or is not allowed, the foundation drainage much discharge above grade at least 3m from the building and must not cause a hazard.

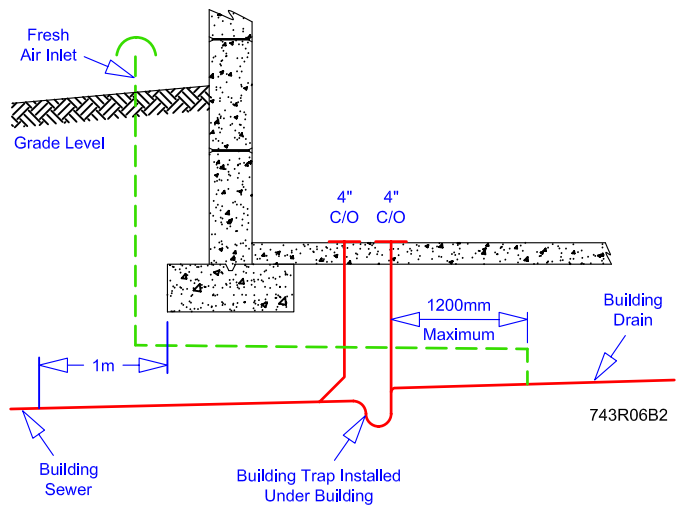
A-7.4.5.4

LOCATION OF BUILDING TRAP

(a) Permitted - Fresh Air Inlet Inside building to Exterior



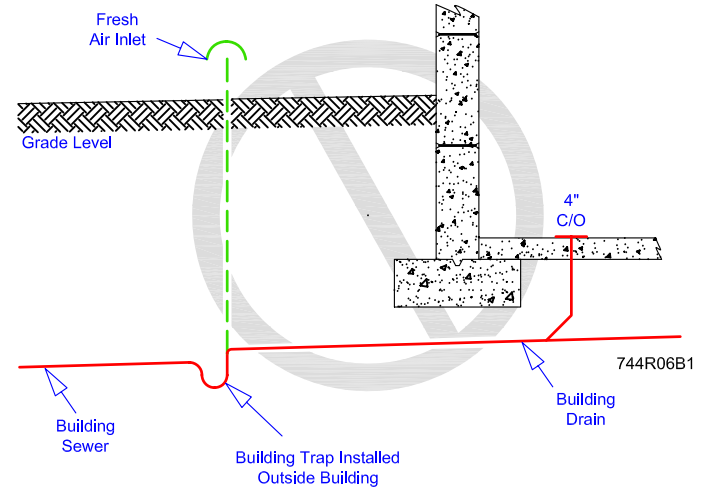
(b) Permitted - Fresh Air Inlet Under Building up to Grade



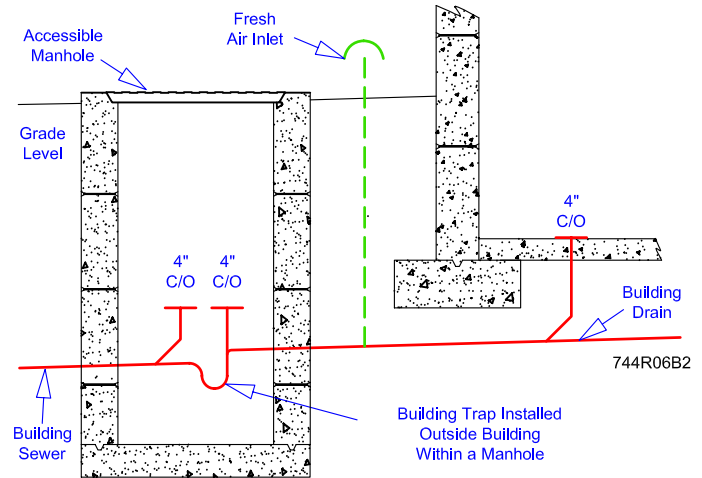
A-7.4.5.4(1)(c)(ii)

LOCATION OF BUILDING TRAP

(a) **Not Permitted** - Building trap outside building with Fresh Air Inlet/Cleanout



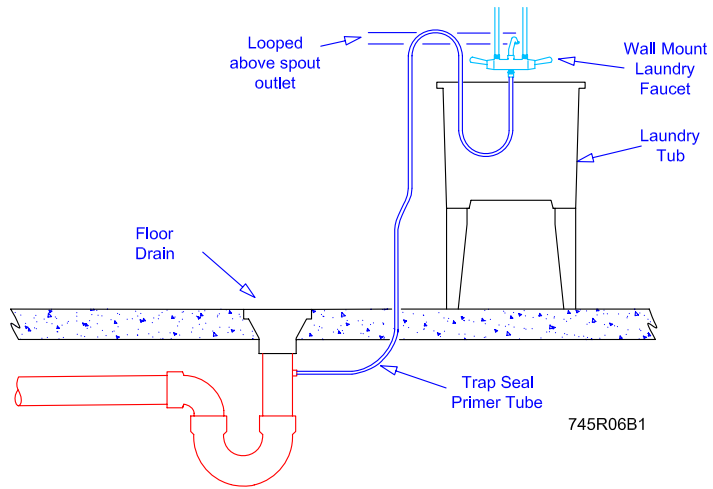
(b) Permitted - Building Trap within a Manhole



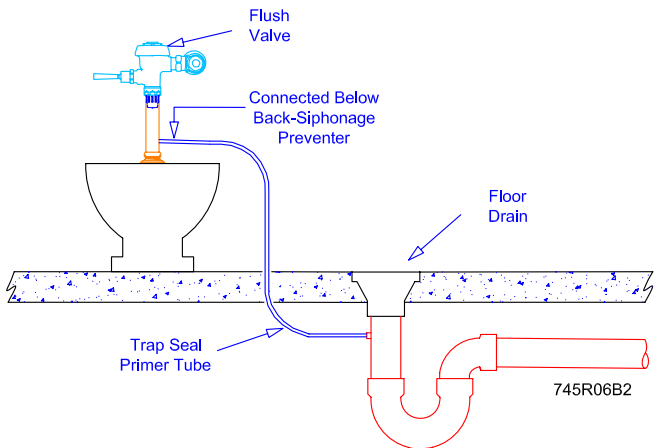
A-7.4.5.5.(1)

MAINTAINING TRAP SEALS

(a) Laundry Tub Faucet



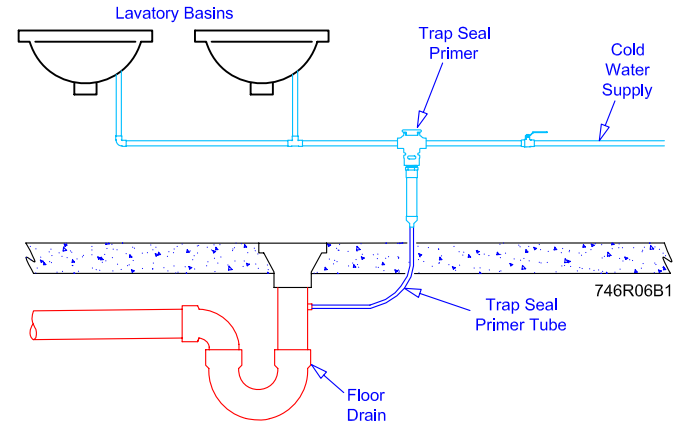
(b) Flush valve



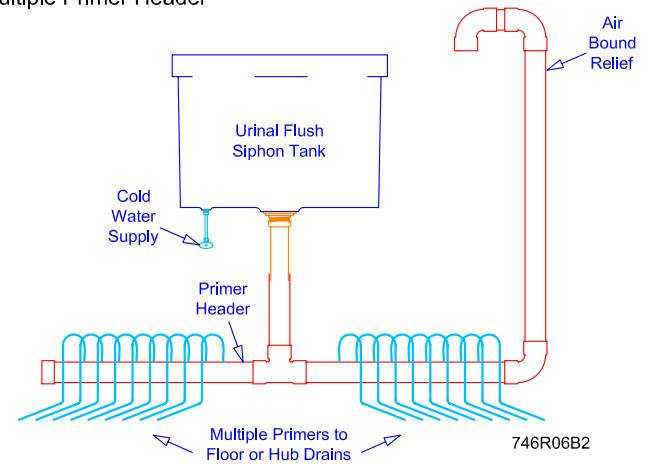
A-7.4.5.5.(1)

MAINTAINING TRAP SEALS

(c) Supply Line Trap Seal Primer



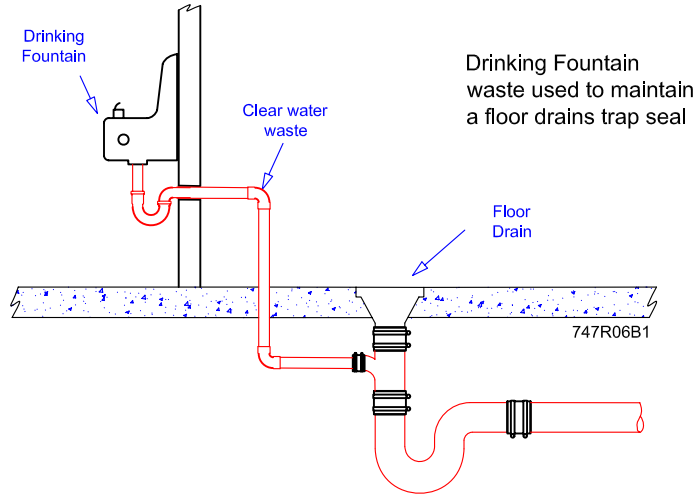
(d) Multiple Primer Header



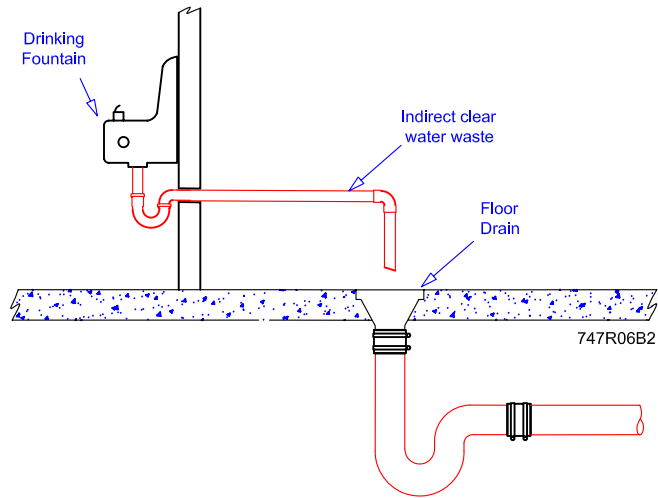
A-7.4.5.5.(1)

MAINTAINING TRAP SEALS

(e) Clear water waste



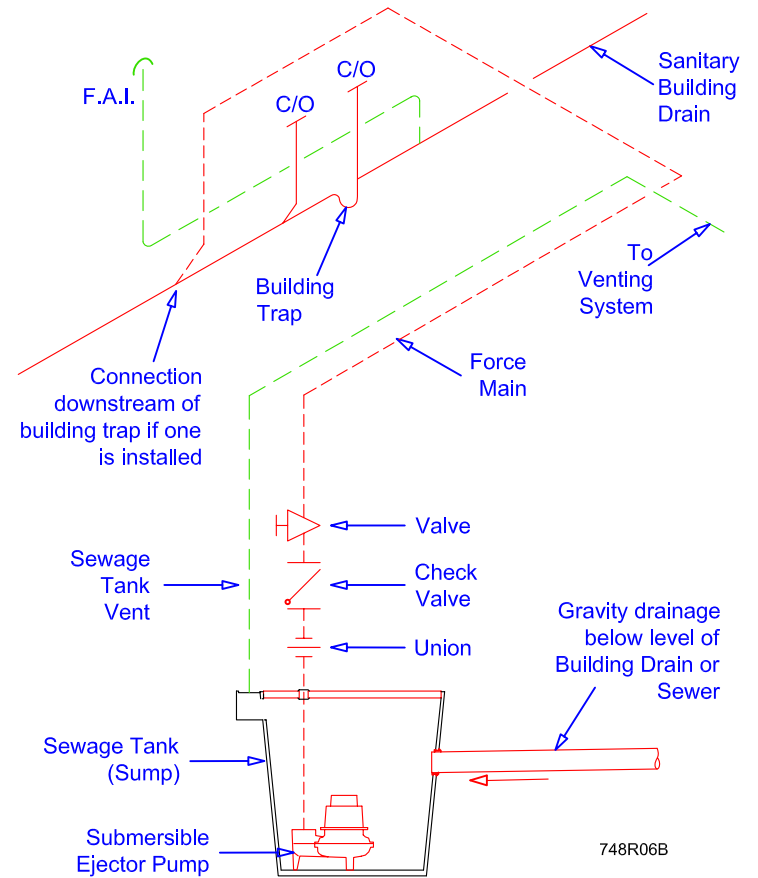
(f) Indirect Clear Water Waste



A-7.4.6.3. Arrangement of Piping at Sewage Sump. In most installations controls will be installed in conjunction with a float to automatically empty the sump. If such controls are not provided, the capacity of the sump should equal the maximum inflow to the sump that is expected to occur during any 24 hour period.

A-7.4.6.3.(1) to (7)

ARRANGEMENT OF PIPING AT SUMP



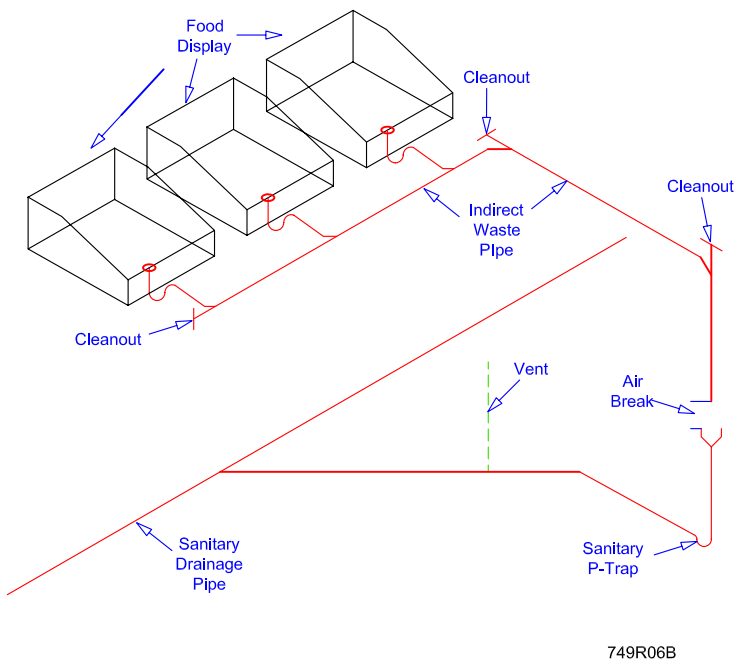
Where a sump or tank receives sewage it shall be water tight, air tight and shall be vented.

A-7.4.6.4.(1) Backwater Valve or Gate Valve. The installation of a backwater valve or a gate valve in a building drains or in a building sewer may have proven acceptable on the basis of past performance in some localities, and their acceptance under Subsection 2.7.2 of the Code may be warranted. In addition, fullport backwater valve have been accepted by other provinces in Canada.

A-7.4.6.4.(5) Protection from Backflow Caused by Surge. These requirements are intended to apply when in the opinion of the local authority having jurisdiction there is danger of backup from a public sewer.

A-7.4.7.1.(9)

CLEANOUTS FOR FOOD DISPLAY DRIP PIPES

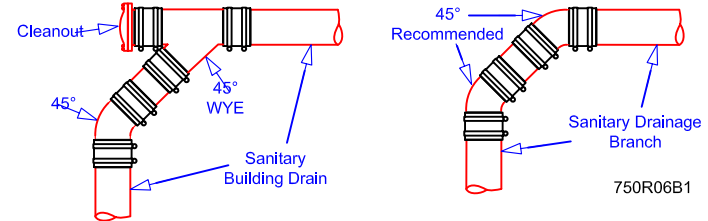


A-7.4.7.1.(10) Cleanouts for Fixture Drains. A trap cleanout plug is not acceptable as a cleanout for the fixture drain; hence; either a separate cleanout or a trap with a removable trap dip must be installed.

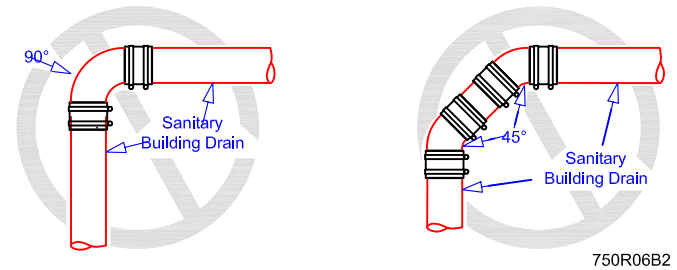
A-7.4.7.4.

CLEANOUT CONNECTIONS

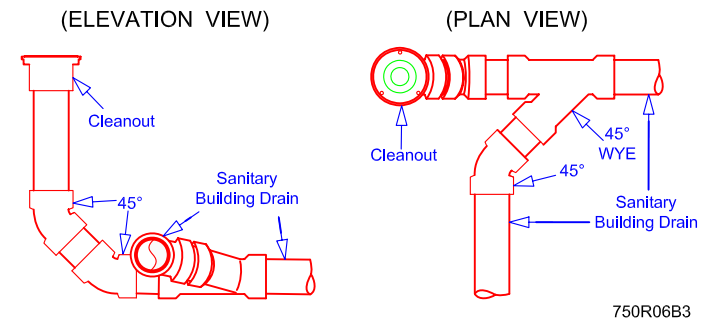
(a) Permitted - Horizontal Change in Direction (PLAN VIEW)



(b) **Not Permitted** - Horizontal Change in Direction (PLAN VIEW)



(c) Permitted - Horizontal Change in Direction

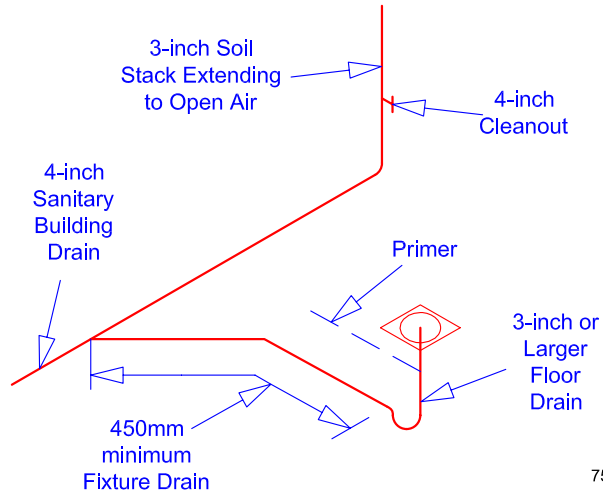


Permitted angle of connections to clean-outs as per 7.4.7.4.(4)

A-7.5.1.1.(3)

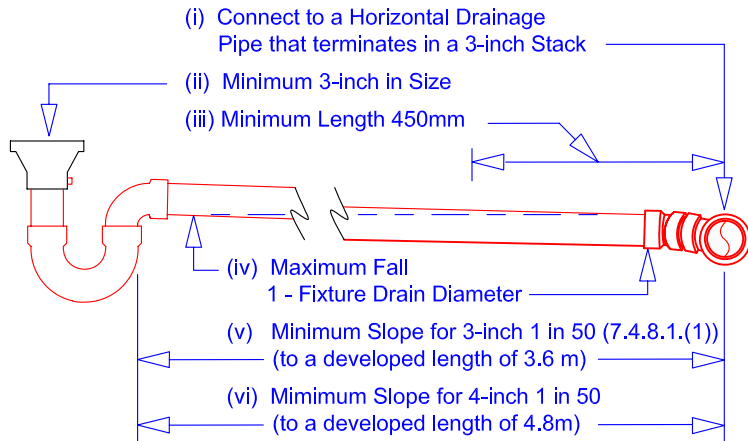
VENTING NOT REQUIRED

(a) Removing Vent Pipes for Floor Drains



754R06B1

(b) Removing the vent from a Floor Drain

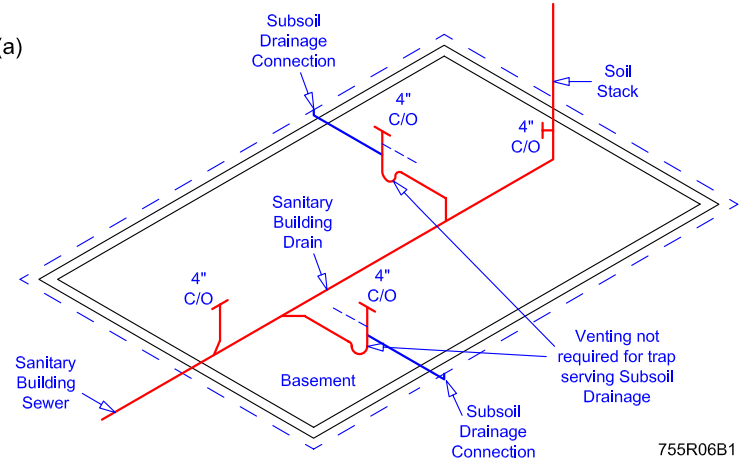


754R06B2

A-7.5.1.1.(4)

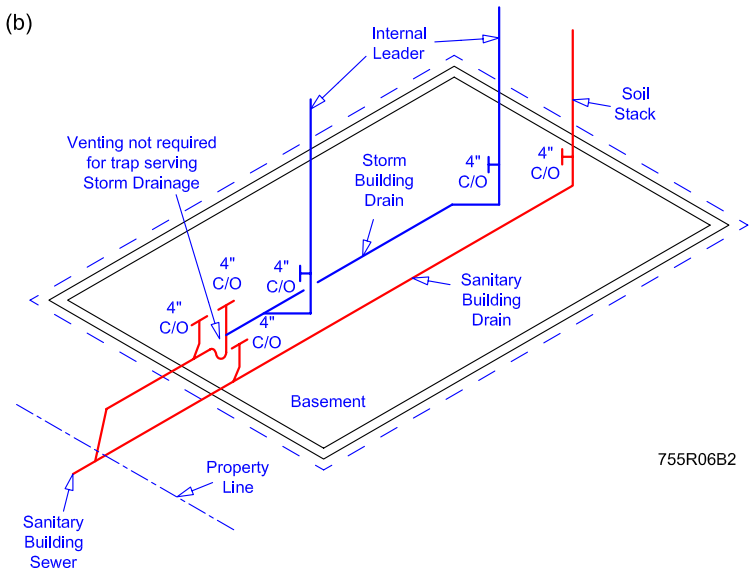
VENTING NOT REQUIRED

(a)



755R06B1

(b)



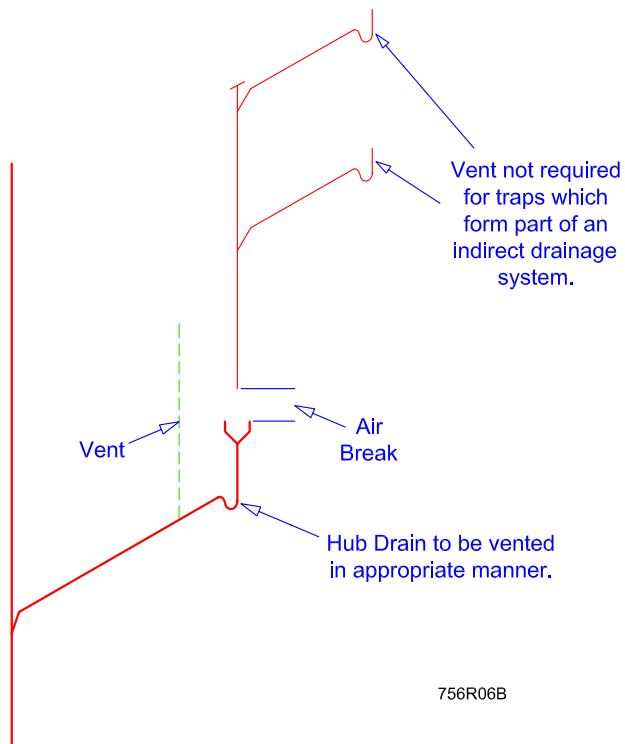
755R06B2

7.1.6.1.(2) A combined building drain or a combined building sewer shall not be installed.

A-7.5.1.1.(4)

VENTING NOT REQUIRED

(c) Indirect Drainage System (Less than three storeys high)



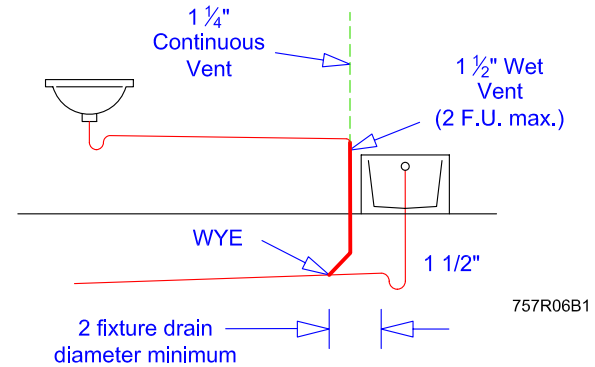
A-7.5.2.1.(1).(a).

SIZING OF WET VENTS USING TABLE 7.5.8.1.

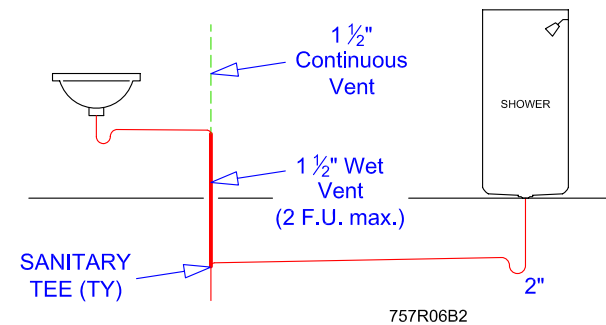
The fixtures connected to the wet vent above the most downstream fixture must not exceed a maximum of 2 fixture units for a minimum 1 1/2-inch wet vent.

The wet vent portion must not reduce in size.

(a) Bathtub being Wet Vented by a Lavatory Basin



(b) Shower being Wet Vented by a Lavatory Basin



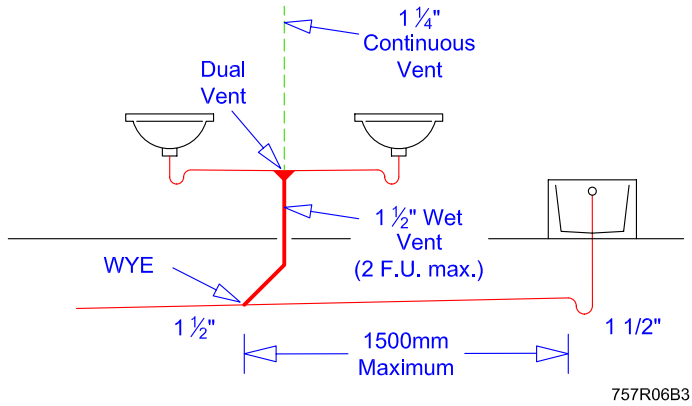
The downstream trap arm(s) may connection vertically or horizontally to the wet vent with the wet vent ending at the most downstream fixture trap arm.

The most downstream trap arm is not included in the total fixture units of the wet vent.

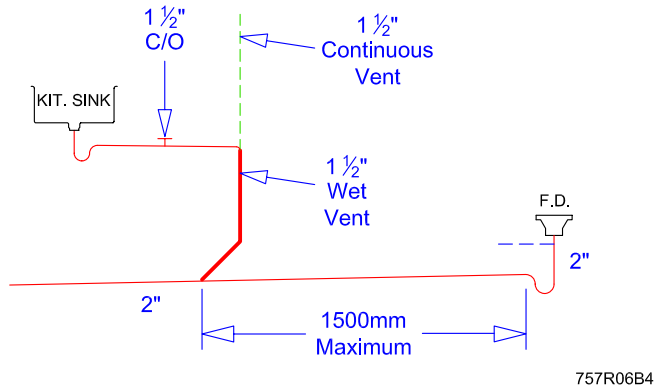
A-7.5.2.1.(1).(a).

SIZING OF WET VENTS USING TABLE 7.5.8.1.

(c) Bathtub being Wet Vented by two Dual Vented Lavatory Basins



(d) Floor Drain being Wet Vented by a Kitchen Sink



The most downstream trap arm is not included in the total fixture units of the wet vent.

A 3-inch wet vent can have 12 fixture units upstream of the 3-inch p-trap (floor drain)

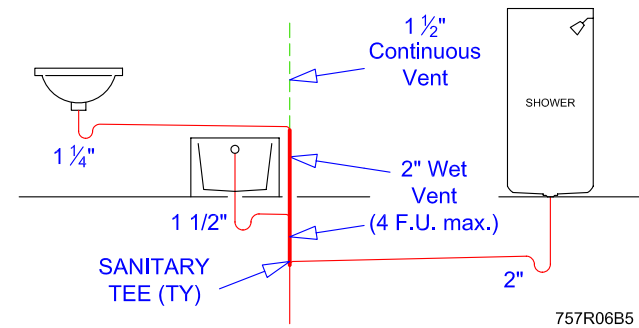
A-7.5.2.1.(1).(a).

SIZING OF WET VENTS USING TABLE 7.5.8.1.

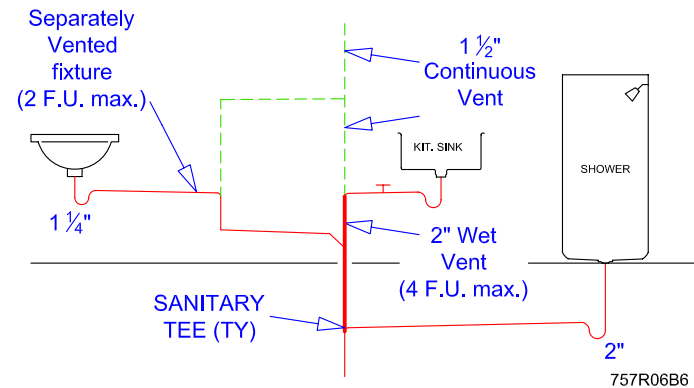
The fixtures connected to the wet vent above the most downstream fixture must not exceed a maximum of 4 fixture units for a minimum 2-inch wet vent.

The wet vent portion must not reduce in size.

(e) A Lavatory Basin and a Bathtub wet venting through a Shower



(f) Shower being Wet Vented by a Kitchen Sink with a Lavatory Basin



7.5.2.1.(e) Any separately vented branches or fixture drains connecting to the wet vent on the same storey must not exceed a total of 2 fixture units.

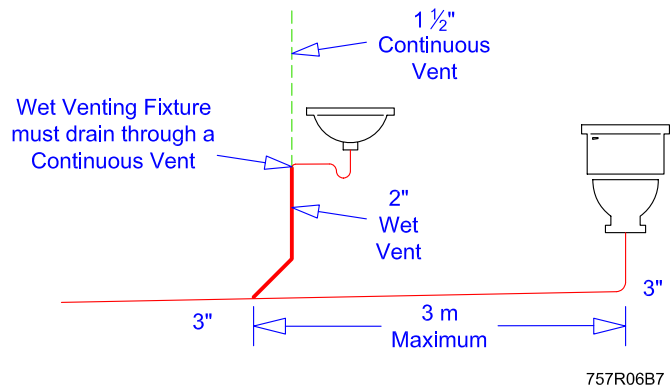
A-7.5.2.1.(1).(a).

SIZING OF WET VENTS USING TABLE 7.5.8.1.

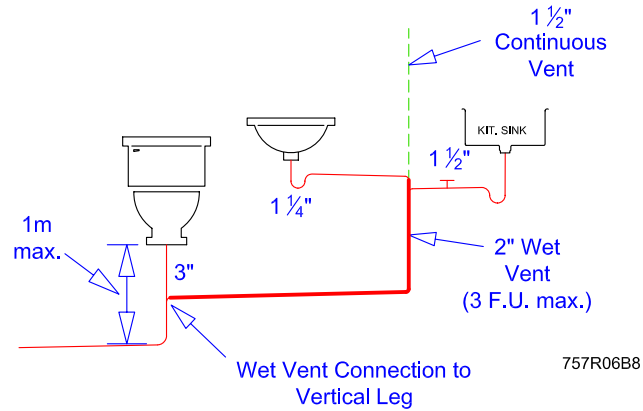
The fixtures connected to the wet vent above the water closet must not exceed a maximum of 3 fixture units for a minimum 2-inch wet vent.

The wet vent portion must not reduce in size.

(e) Water Closet being Wet Vented by a Lavatory Basin



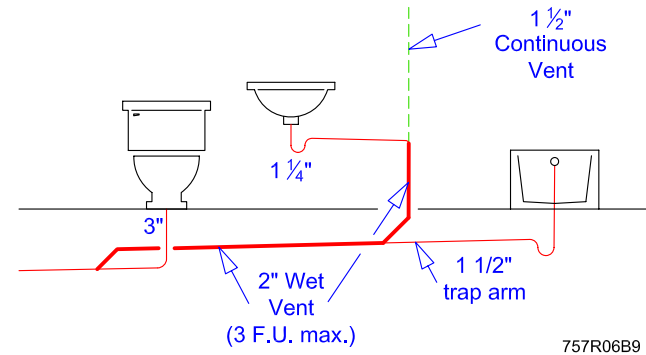
(f) A Lavatory Basin and a Kitchen Sink Wet Venting through a downstream Water Closet



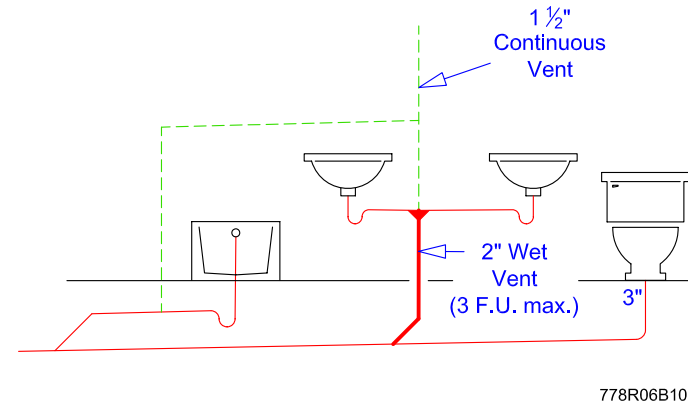
A-7.5.7.1.(1).(a).

SIZING OF WET VENTS USING TABLE 7.5.8.1.

(g) A Lavatory Basin and a Bathtub Wet Venting through a downstream Water Closet



(h) Dual Vented Lavatory Basins Wet Venting a Water Closet



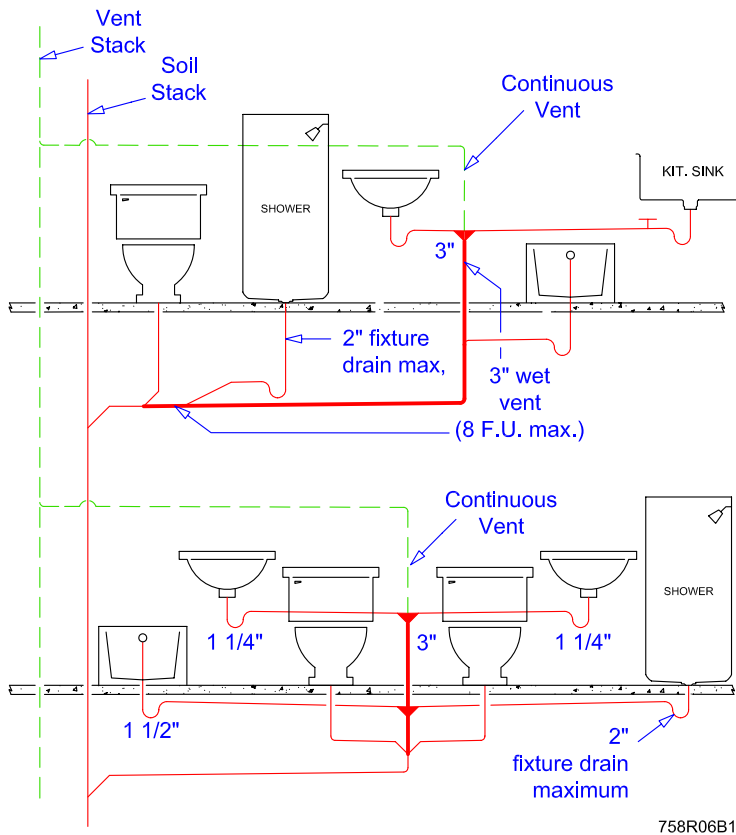
The bathtub exceeds the limit of 3 fixture units for a 2-inch wet vent and must connect downstream of the Wet Vent and be individually vented.

A-7.5.2.1.(1).(b), & (c).

**WET VENTING A RESIDENTIAL BATHROOM GROUP
(FORMERLY MODIFIED STACK VENTING, A FORM OF STACK VENTING)**

The fixtures connected to the wet vent above the water closet(s) must;
 (i) not be larger than 2-inch (except for a floor drain as per 7.5.1.1.(3)),
 (ii) not exceed a maximum of 8 fixture units for a minimum 3-inch wet vent, and
 the size of the wet vent portion must not be reduced in size.

The number of installed water closets in not greater than two, connected at the same level to a vertical part of the stack and must be downstream of all other fixtures.

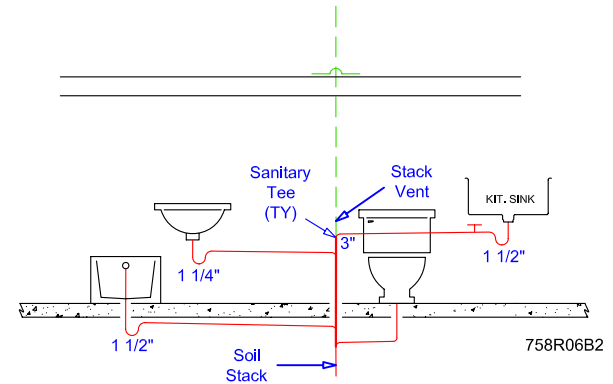


A-58i

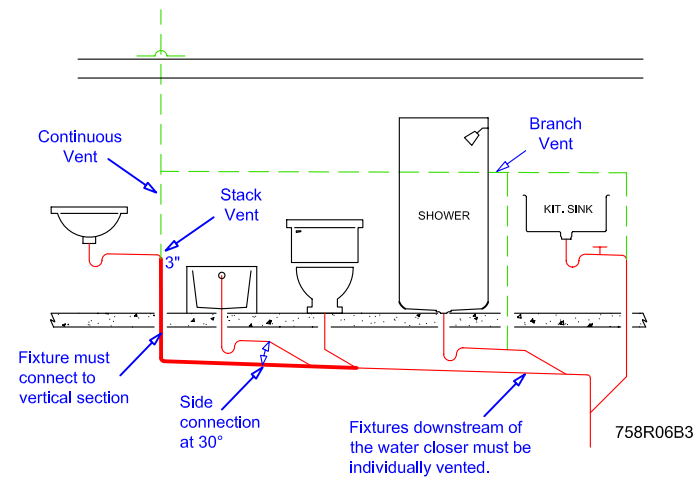
A-7.5.2.1.(1).(d).

**WET VENTING
(FORMERLY STACK VENTING)**

(a) Vertical Stack Vent



(b) Horizontal Continuation of the Soil Stack



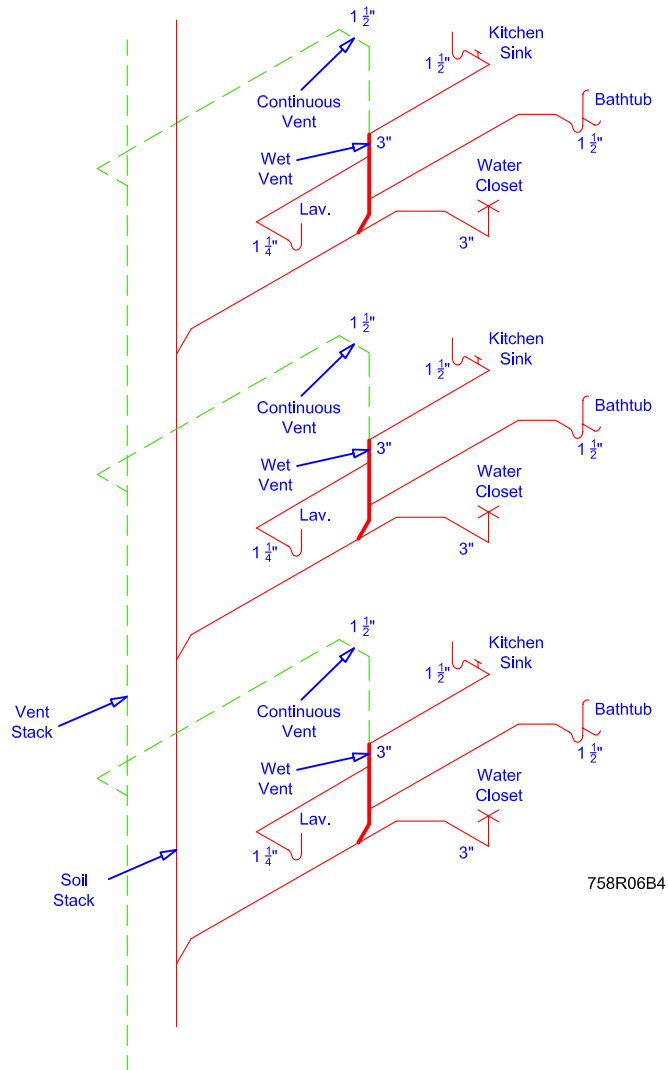
Any fixture connected downstream of the Wet Vented (Stack Vented) Water Closet must be individually vented.

A-58ii

A-7.5.2.1.(1).

**SINGLE STOREY WET VENTING
(FORMERLY MODIFIED STACK VENTING)**

Each floor level contains a water closet, bathtub, lavatory and a kitchen sink

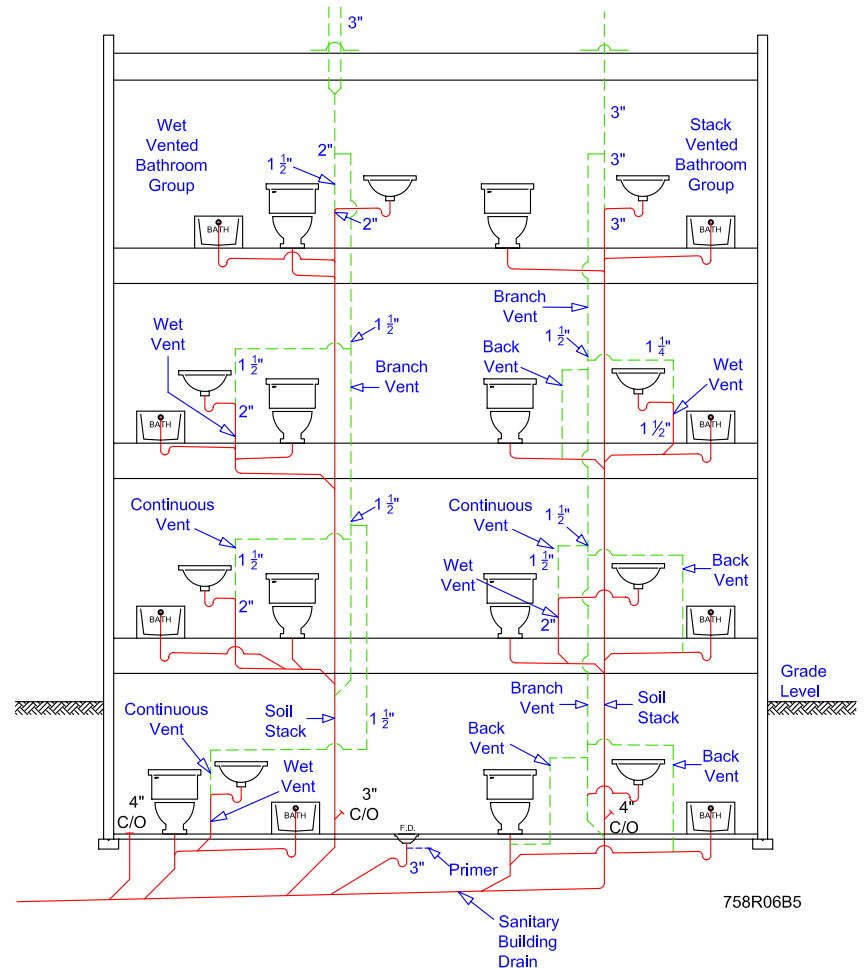


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A-7.5.2.1.(1), 7.5.4.1

WET VENTING, BACK VENTING AND STACK VENTING



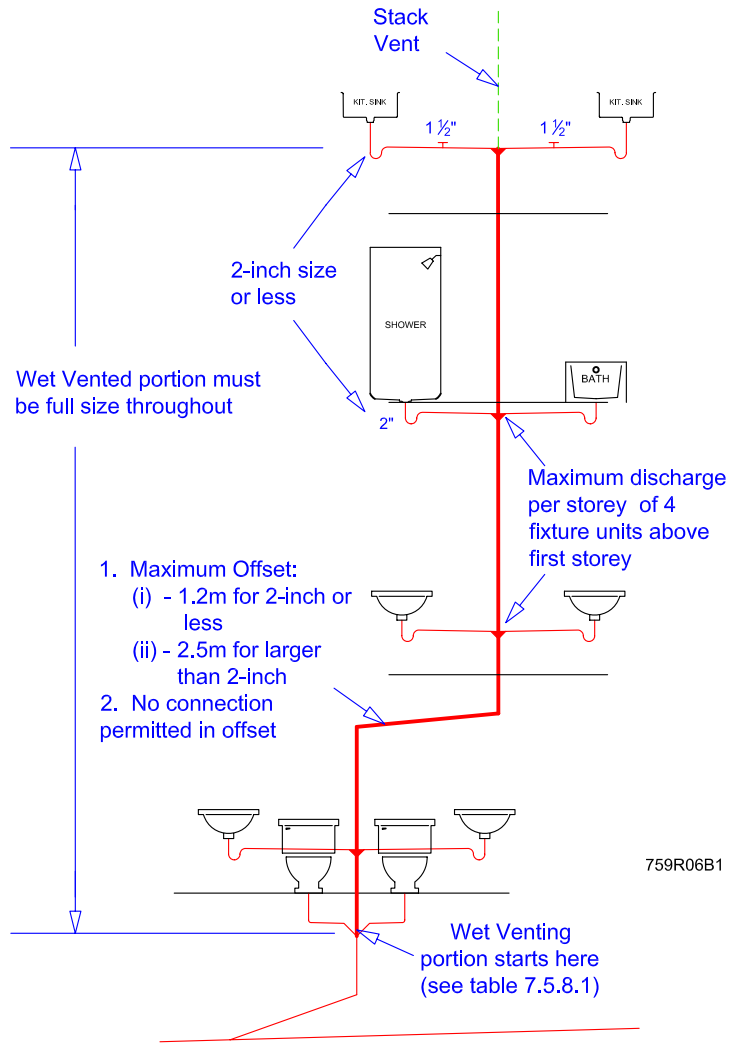
758R06B5

Table 7.5.8.3. Sizing Branch Vents, Headers, Continuous Vents and Circuit Vents by anticipating 3m per floor and calculating the total fixture units.

A-58iv

A-7.5.2.1.(1).(h), & (i)

MULTI-STOREY WET VENTING

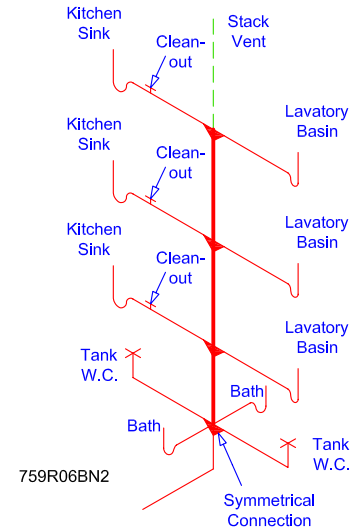


When the Wet Vent extends higher than four storeys the Stack Vent must extend through the roof the same size as the Wet Vent.

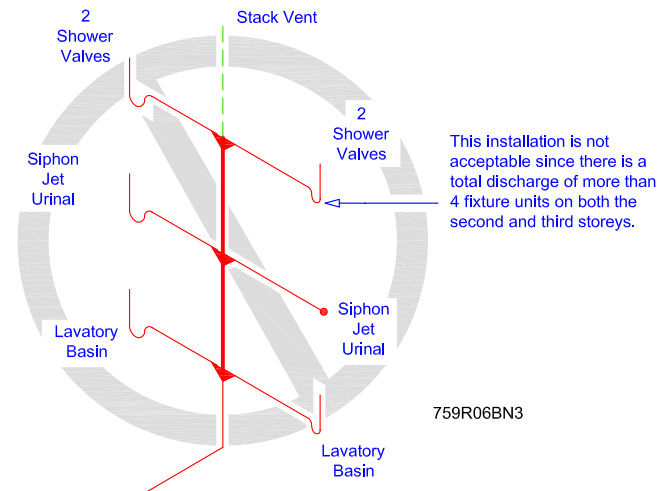
A-7.5.2.1.(1)

MULTI-STOREY WET VENTING

(b) Permitted



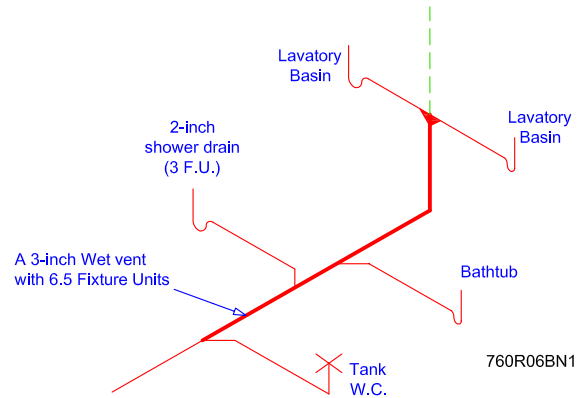
(b) **Not Permitted**



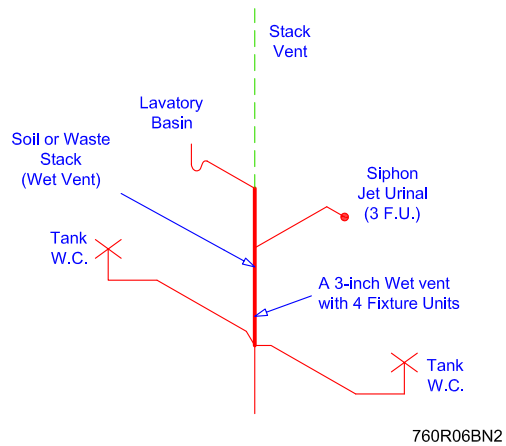
A-7.5.2.1.(1)

**CONNECTIONS TO DRAINAGE SYSTEM
USING WET VENTING**

(a) Two Lavatory Basins, a Bathtub and a Shower Drain Wet Venting through a downstream Water Closet



(b) A Lavatory Basin and a Siphon Jet Urinal Wet Venting through a Water Closet

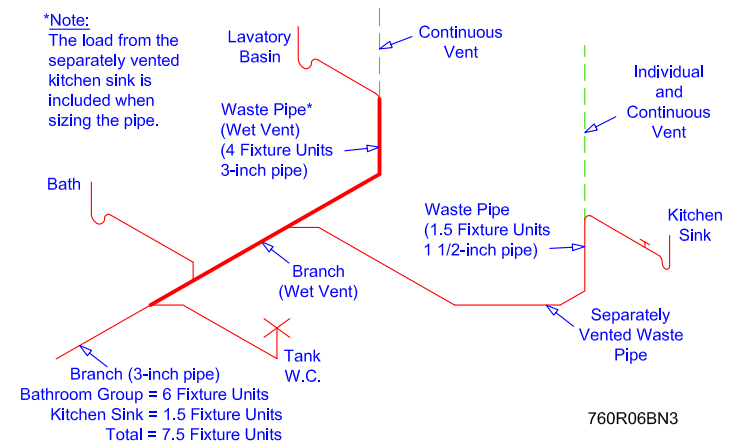


A-60i

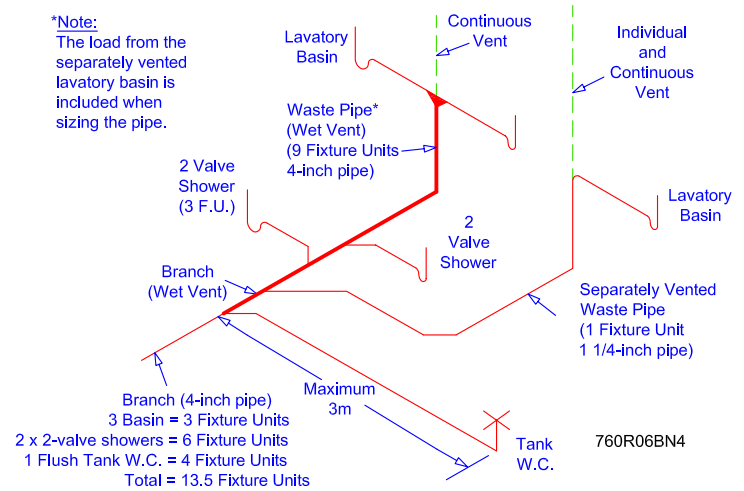
A-7.5.2.1.(1)

**CONNECTIONS TO DRAINAGE SYSTEM
USING WET VENTING**

(c) A Lavatory Basin, a Separately vented Kitchen Sink and a Bathtub Wet Venting through a downstream Water Closet.



(d) Dual Lavatory Basins, two Shower Drains with two shower valves each and a Separately vented Lavatory Basin Wet Venting through a downstream Water Closet.

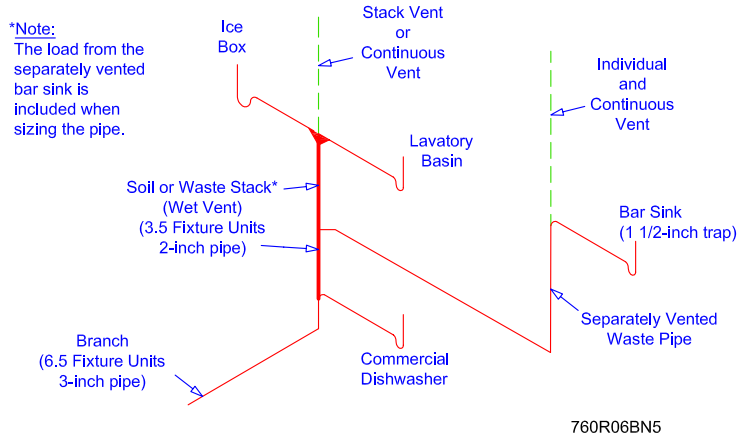


A-60ii

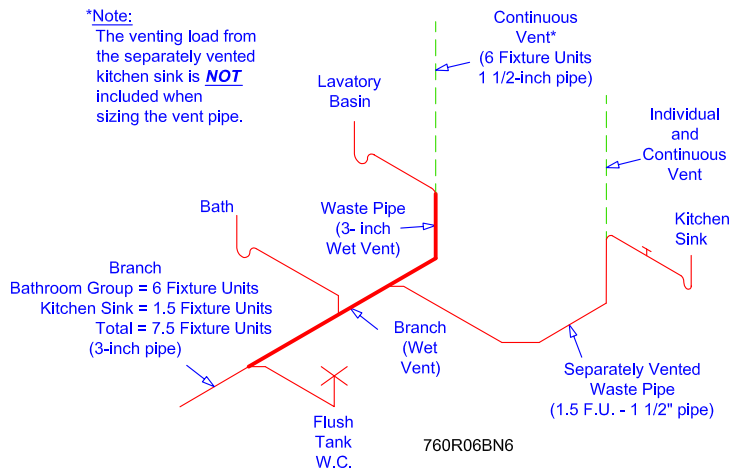
A-7.5.2.1.(1)

**CONNECTIONS TO DRAINAGE SYSTEM
USING WET VENTING**

(e) An Ice Box, a Lavatory Basin, and a separately vented Bar Sink Wet Venting through a downstream Commercial Dishwasher.



(f) A Lavatory Basin, a separately vented Kitchen Sink, and a Bathtub Wet Venting through a downstream Water Closet.

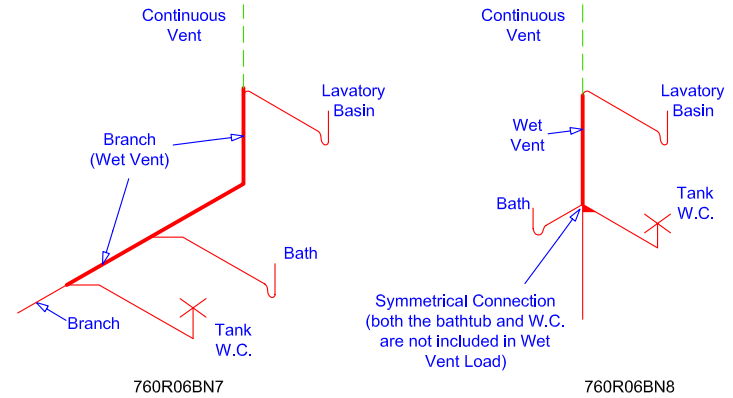


A-60iii

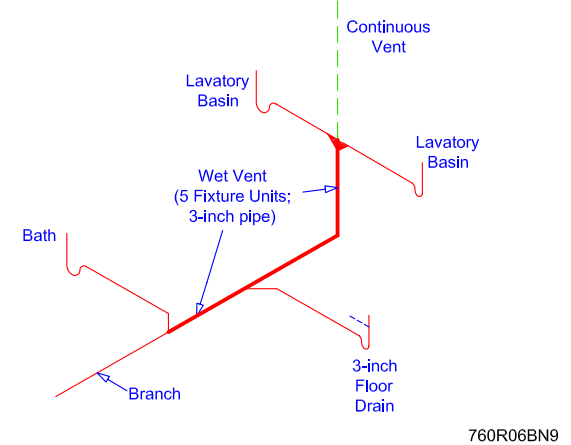
A-7.5.2.1.(1)

**CONNECTIONS TO DRAINAGE SYSTEM
USING WET VENTING**

(g) A Lavatory Basin and a Bathtub Wet Venting through a downstream Water Closet



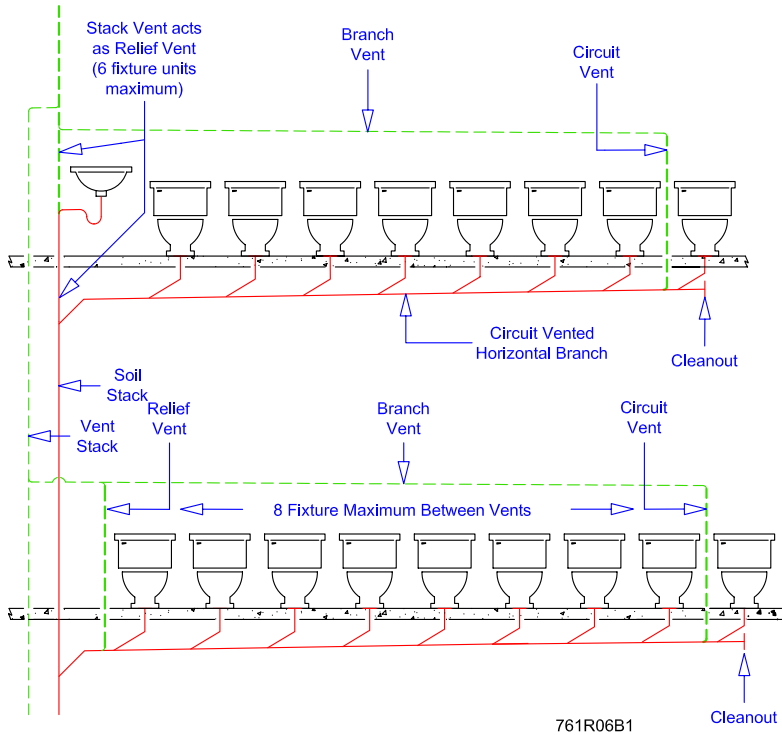
(h) Dual Lavatory Basins and a Floor Drain Wet Venting through a Bath Tub.



A-60iv

A-7.5.3.1.

CIRCUIT VENTING



The Circuit Vent must connect in front of the most upstream fixture.

A maximum of 8 fixtures between vents.

A Relief Vent must be installed in front of the most downstream Circuit Vented fixture.

A Stack Vent may serve as a Relief Vent.

Fixtures 2-inch and larger require a minimum 3-inch horizontal branch.

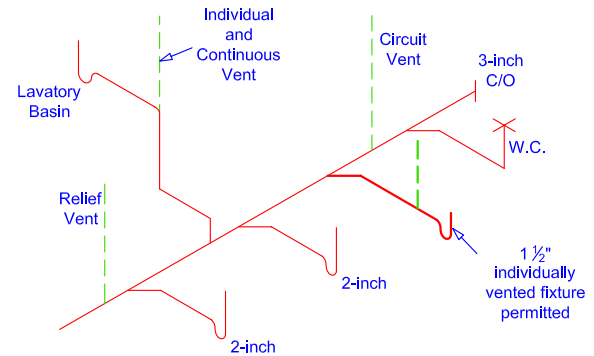
Fixtures smaller than 2-inch must be separately vented or require a separate minimum 2-inch horizontal branch.

A-61i

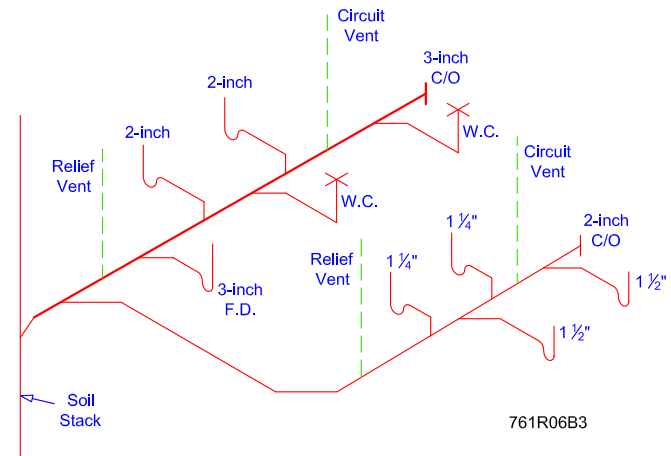
A-7.5.3.1.(2)

CIRCUIT VENTING

(a) Trap sizes smaller than 2-inch permitted when separately vented



(b) One Circuit Vented branch with 2-inch and larger traps, a second separate Circuit Vented branch with traps smaller than 2-inch.

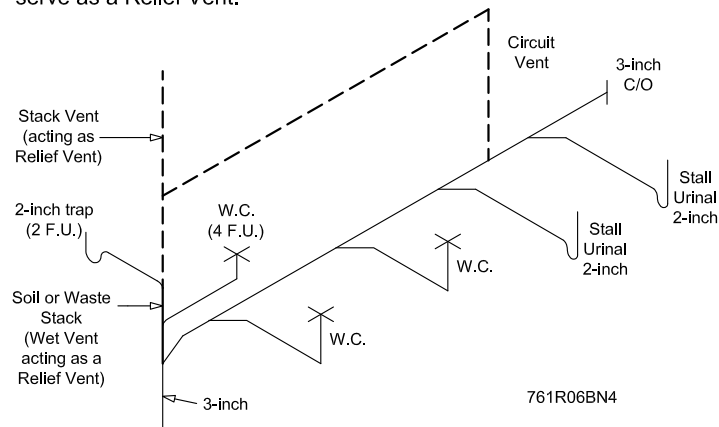


A-61ii

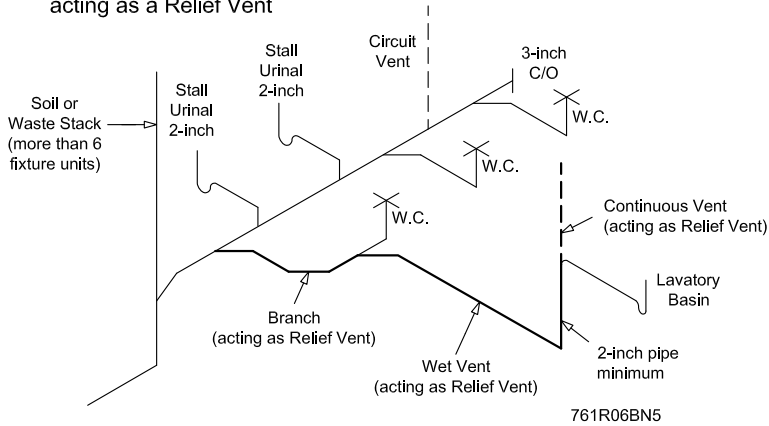
A-7.5.3.1.(4)

CIRCUIT VENTING AND RELIEF VENTING

(c) A Stack Vent (Wet Vent) with a maximum of 6 Fixture Units can serve as a Relief Vent.



(d) A circuited Vented branch with a Wet Vented Water Closet acting as a Relief Vent

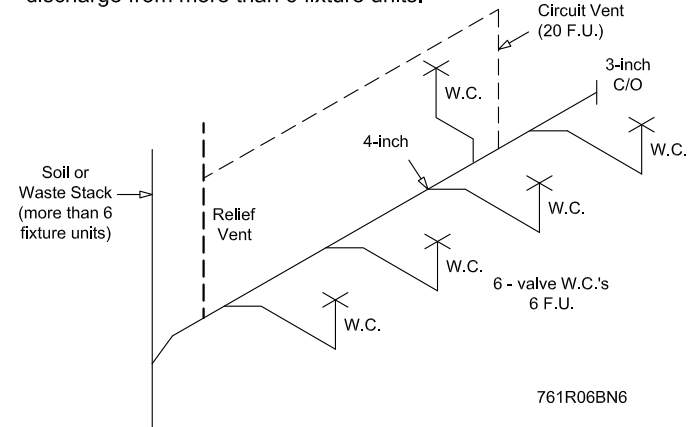


A Soil or Waste Pipe (being horizontal or vertical) having a hydraulic load not greater than 6 fixture units may act as a relief vent for a branch that is being circuit vented.

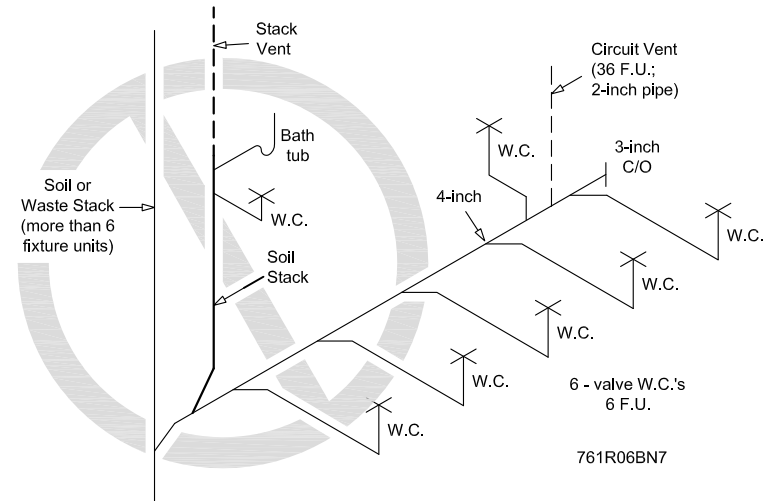
A-7.5.3.1.(4). & (5)

CIRCUIT VENTING AND RELIEF VENTING

(e) A Relief Vent is required since the Soil or Waste Stack has discharge from more than 6 fixture units.



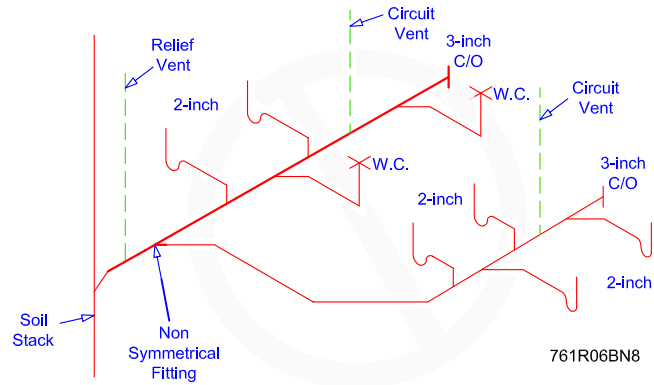
(f) **Not Permitted** - A Soil Stack (or Waste Stack) acting as a Relief Vent.



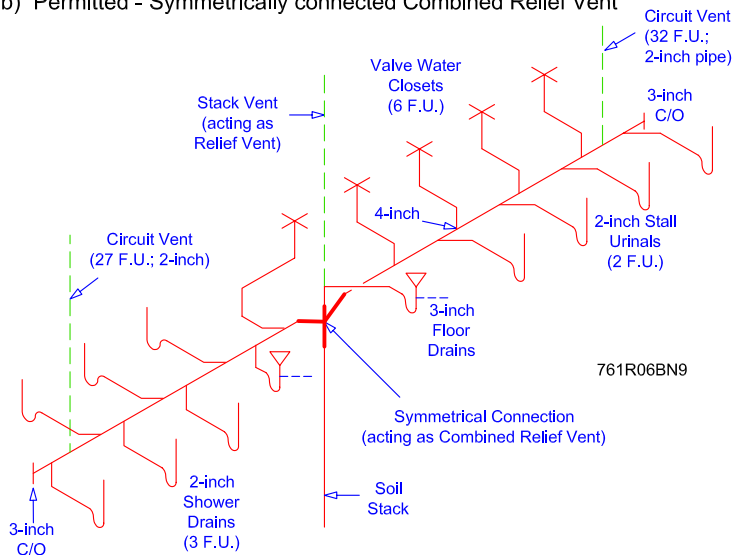
A-7.5.3.1.(5).

COMBINED RELIEF VENTING

(a) **Not Permitted** - The WYE fitting is not a symmetrical fitting and the Relief Vent is connected downstream.



(b) Permitted - Symmetrically connected Combined Relief Vent

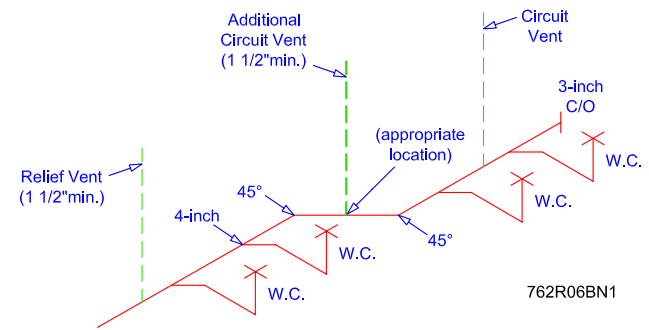


A Soil or Waste Pipe (being horizontal or vertical) having a hydraulic load not greater than 6 fixture units may act as a relief vent for a branch that is being circuit vented.

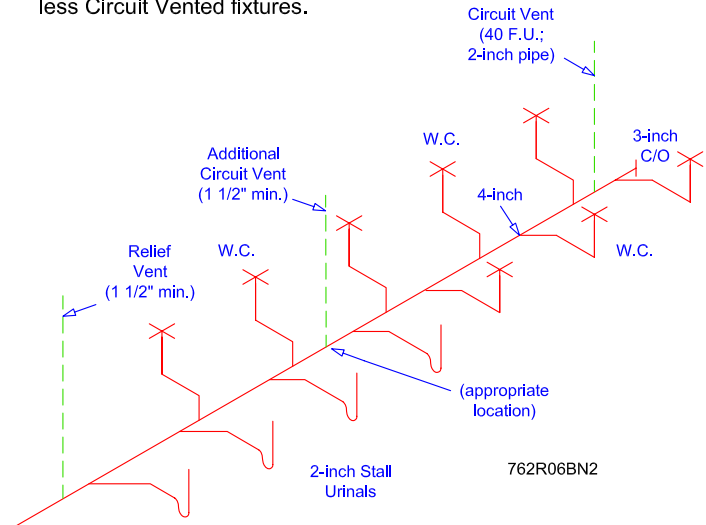
A-7.5.3.1.(6).

ADDITIONAL CIRCUIT VENTING

(a) Any change of direction greater than 45° to the Circuit Vented branch requires an appropriately installed Additional Circuit Vent.



(b) An Additional Circuit Vent is required for every group of 8 or less Circuit Vented fixtures.

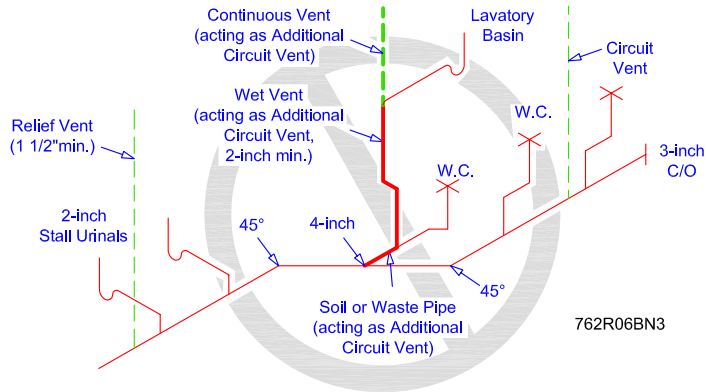


7.5.7.3. Additional Circuit Vents and Relief Vents are sized by the trap arms connecting to the branch or one size smaller than the Circuit Vent, but need not be larger than 2-inch.

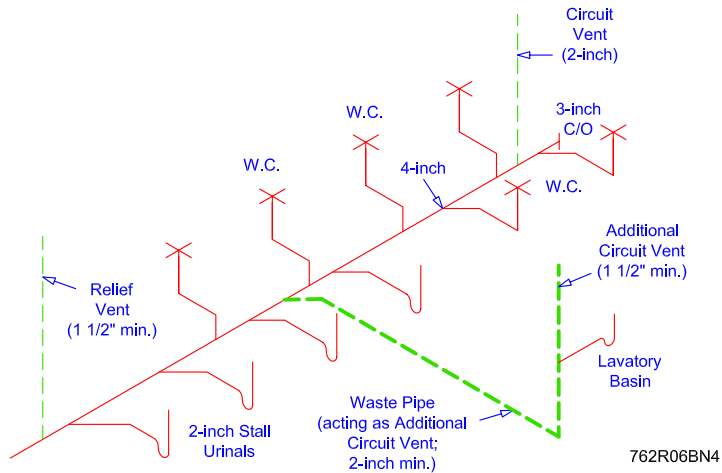
A-7.5.3.1.(7).

SIZING ADDITIONAL CIRCUIT VENTS

(c) **Not Permitted** - A Soil or Waste pipe serving as an Additional Circuit Vent.



(d) An Additional Circuit Vent is if there are more than 8 Circuit Vented fixtures between vents serving the horizontal branch.

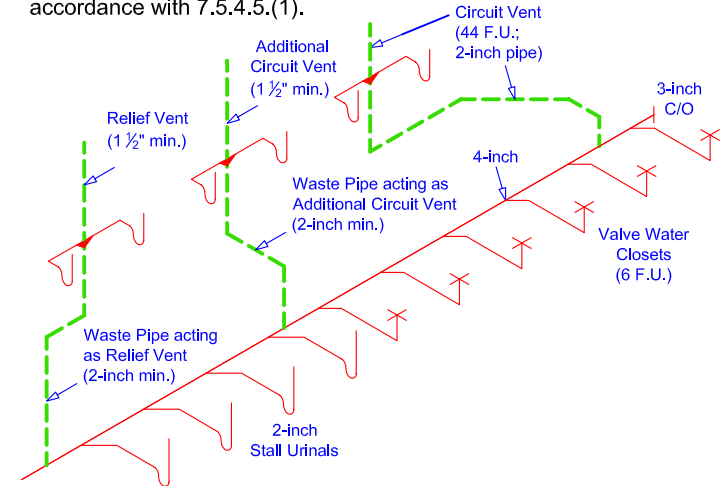


A Soil or Waste pipe may serve as an Additional Circuit Vent provided it is sized as a wet vent and is 2-inch minimum.

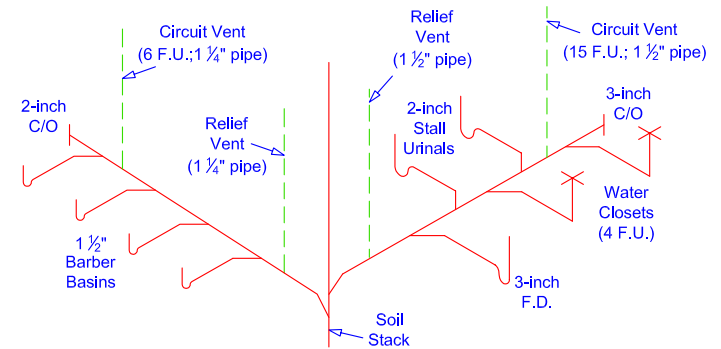
A-7.5.3.1.(8). & 7.5.7.3.1.(2)

SIZING CIRCUIT, ADDITIONAL CIRCUIT AND RELIEF VENTS

(e) Dual vented trap arms with a maximum of 1.5 fixture units may connect to the vertical section of a Circuit, Additional Circuit or Relief vent in accordance with 7.5.4.5.(1).



(f) One Circuit Vented branch with 2-inch and larger traps, a second separate Circuit Vented branch with traps smaller than 2-inch.

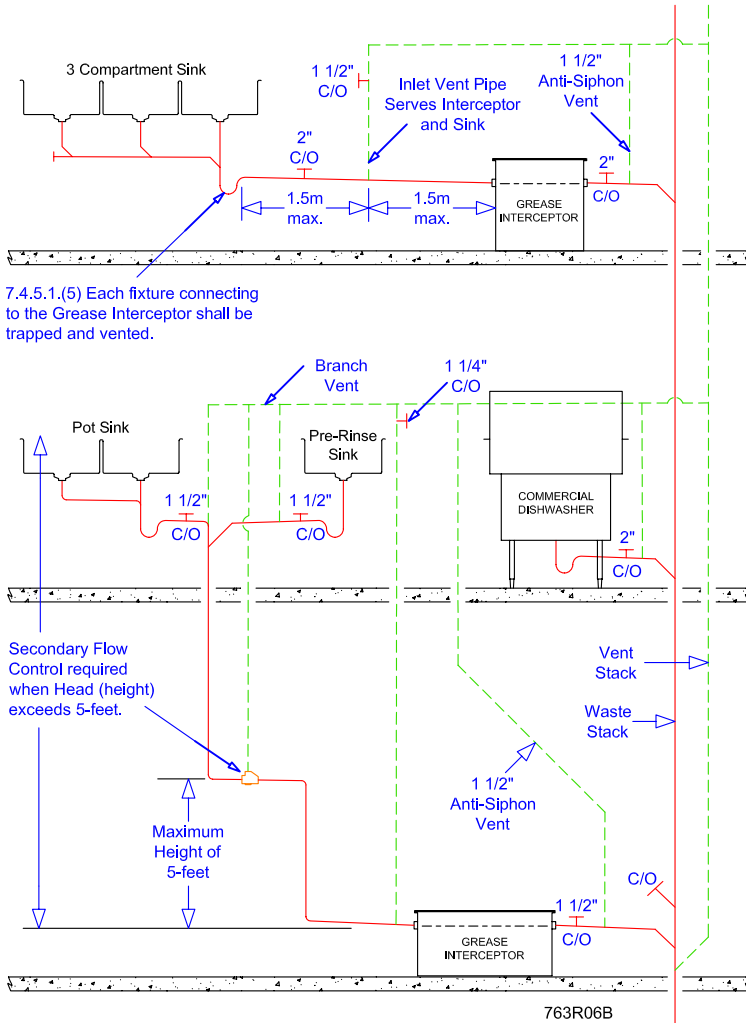


The size of the Circuit Vent is done using the size of the trap arm and Table 7.5.8.3.

The size of the Additional Circuit Vent and Relief Vent is one size smaller than the size of the Circuit Vent.

A-7.5.4.2.(3)&(4)

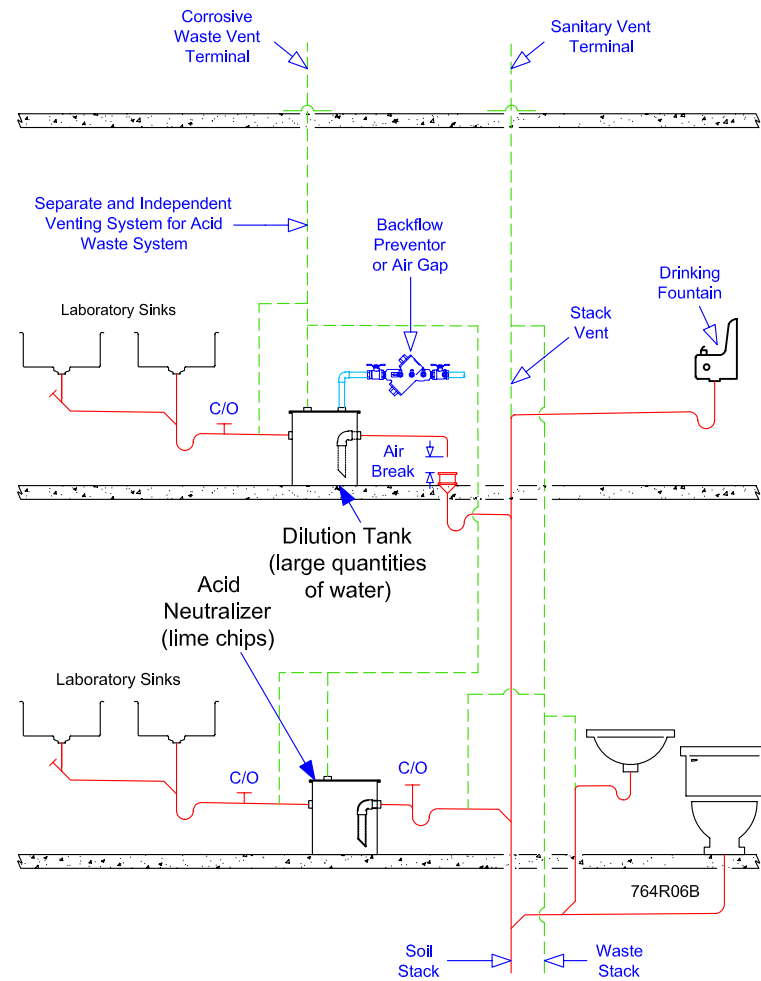
GREASE INTERCEPTOR INSTALLATION



7.4.4.3.(9) All Grease and Oil Interceptors require an internal flow control and if the height of the discharge exceeds 5-feet, a Secondary Flow Control is required (venting for the Secondary Flow Control is determined by the manufacturer).

A-7.5.5.2.(8). & 7.5.5.3.(1).

VENTING CORROSIVE PIPING, NEUTRALIZING TANKS AND DILUTING TANKS

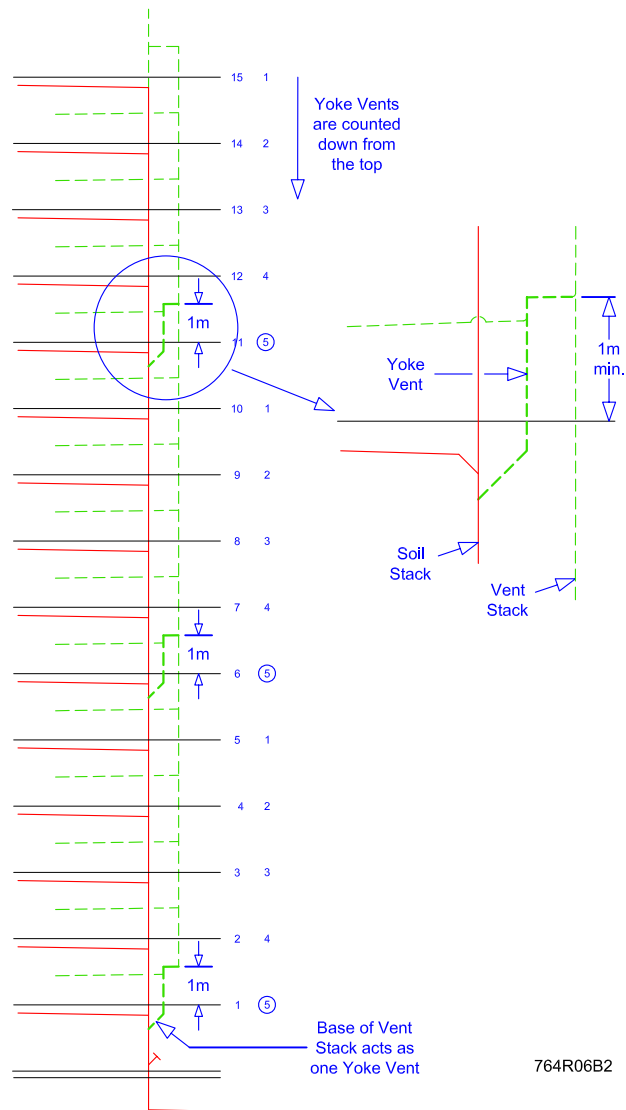


7.2.3.1.(2) The trap seal depth on fixtures draining to an acid waste system shall be a minimum of 50mm.

7.4.4.4.(1) A fixture discharging corrosive or acid waste to the sanitary system must connect using a trap or an indirect connection.

A-7.5.4.3.

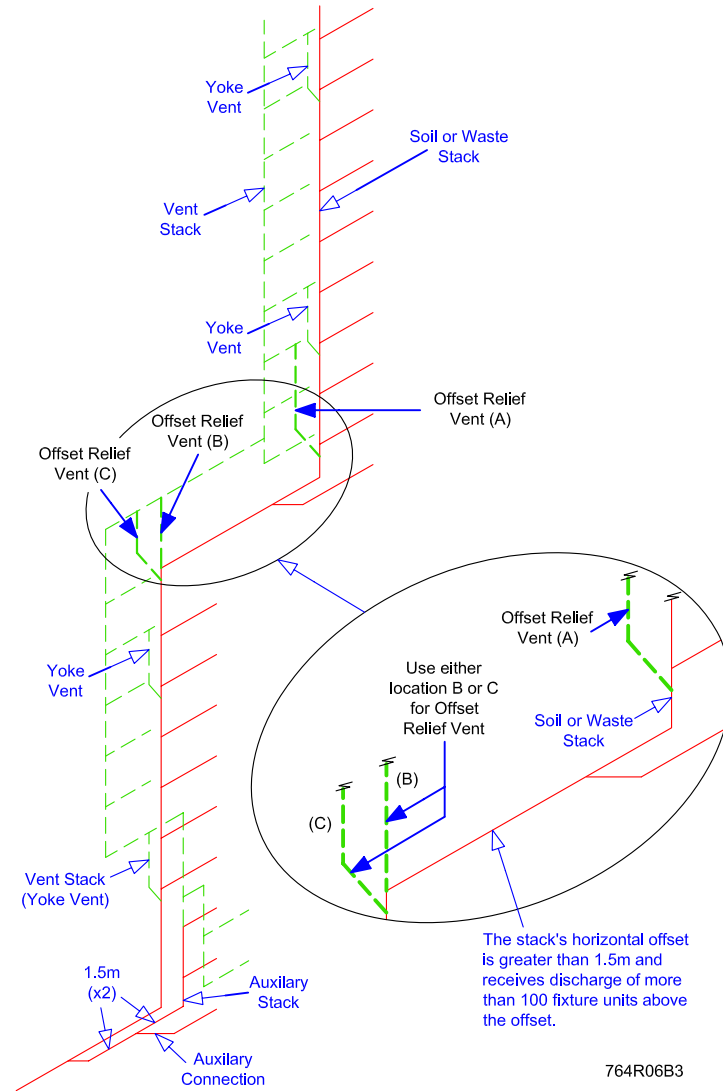
YOKE VENTS



A-64ii

A-7.5.4.4.

OFFSET RELIEF VENT

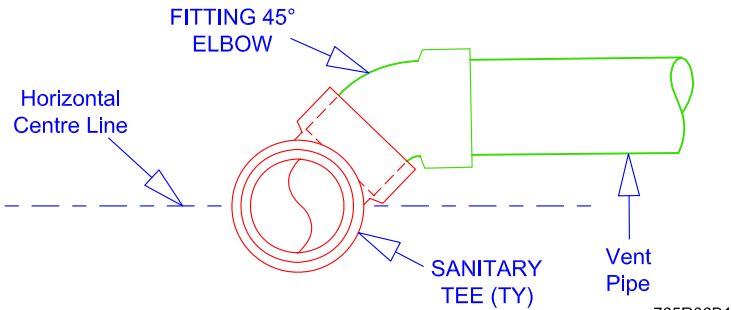


A-64iii

A-7.5.6.2.(1)&(2)

VENT PIPE CONNECTION

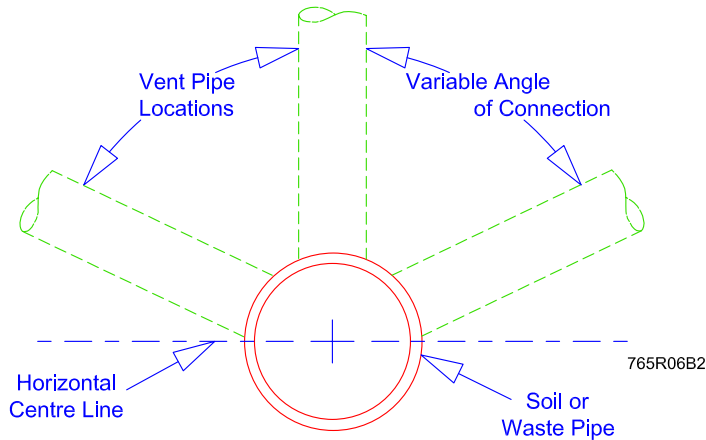
(a) Back Vent with Fitting 45° elbow above Horizontal Centre Line



765R06B1

7.5.6.2.(1) Horizontal runs of Vent Pipe below the Flood Level Rim should be eliminated when structurally possible.

(b) Connection of Back Vent Pipe must be above horizontal centreline



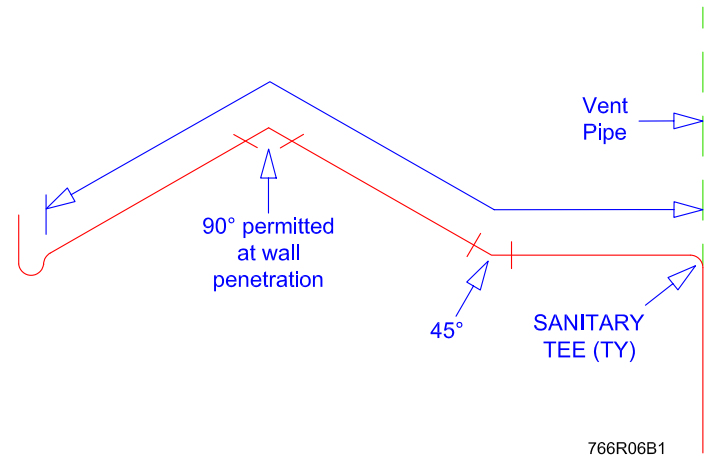
765R06B2

Fittings used to connect vent pipes to nominally horizontal soil or waste pipe are specified in Subsection 7.2.4.

A-7.5.6.3.(1)

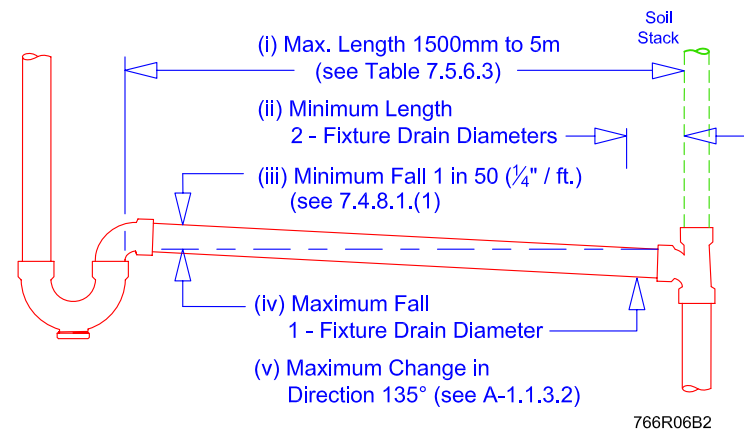
LOCATION OF VENT PIPES

(a) Change of Direction applies to fittings between the P-Trap and the Vent



766R06B1

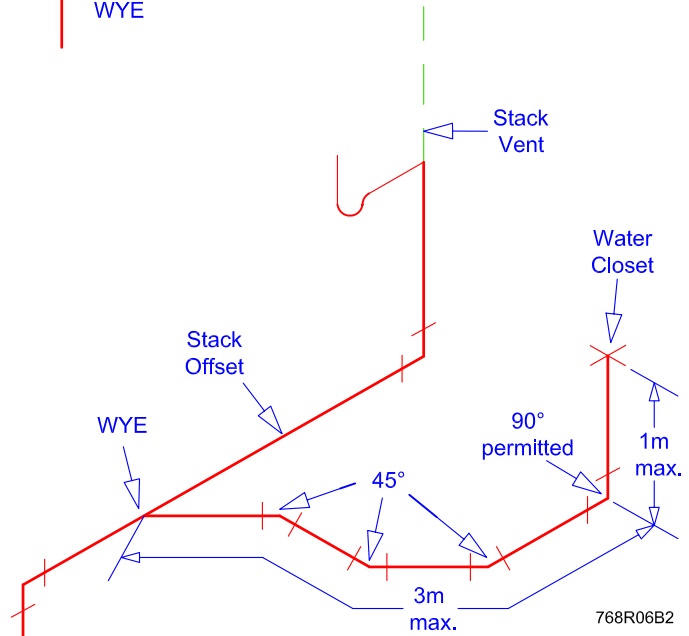
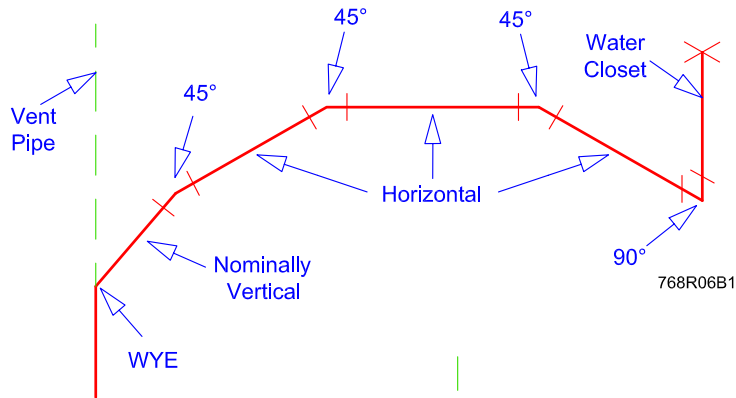
(b) Five Rules between a P-Trap and its Protecting Vent



766R06B2

A-7.5.6.3.(2)&(3)

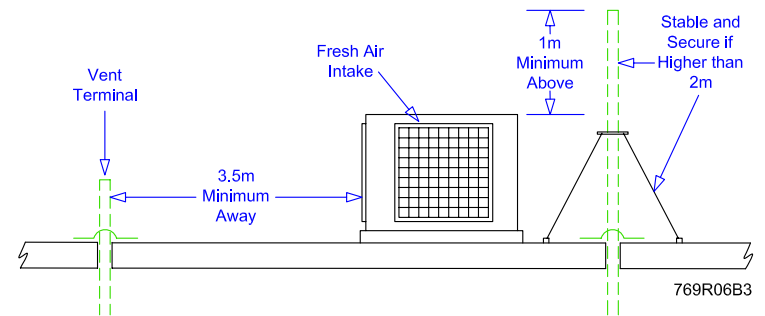
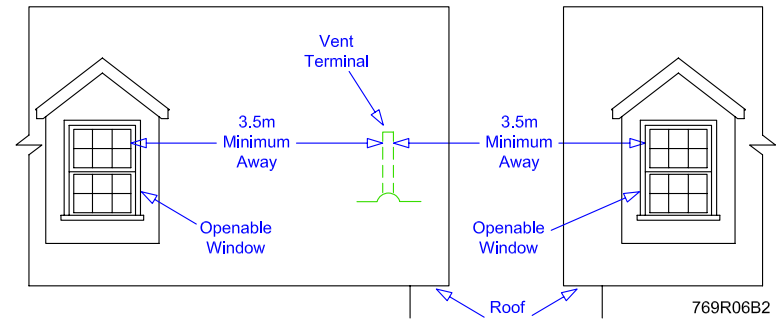
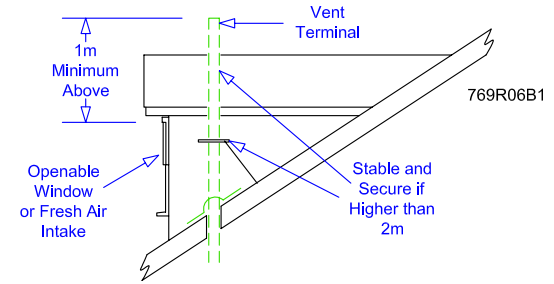
LOCATION OF VENT PIPES



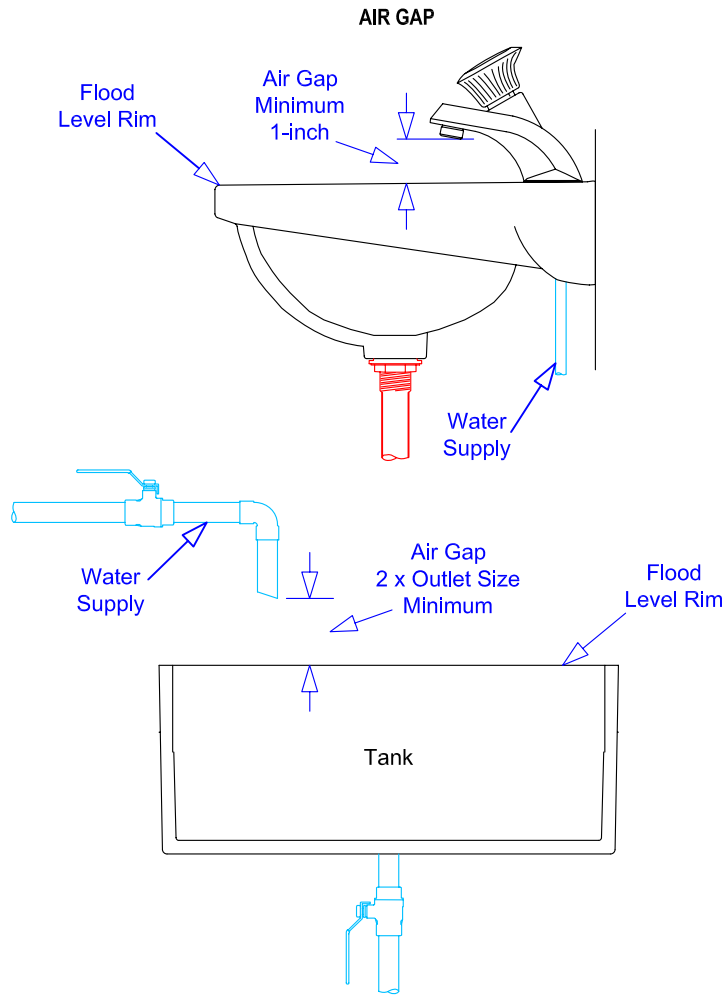
Cumulative Change in Direction for a Water Closet discharging Vertically is 225° to 1 metre on the vertical plane and 3 metres maximum on the horizontal plane.

A-7.5.6.5.(4)

LOCATION OF VENT TERMINALS



A - 7.6.2.9.



A-7.6.1.1. Potable Water Design Systems. The design procedures contained in Chapter 44 of the ASHRAE 1993 HVAC Applications Handbook, in ASPE Data Book, Chapter 3 "Cold Water Systems", ASPE 3 (1988) and in ASPE Data Book, Chapter 4 "Service Hot Water Systems", ASPE 4 (1989); are considered good engineering practice in the field of potable water systems. As an alternative, procedures contained in the Appentdix A of the National Plumbing Code of Canada 2005 are also acceptable.

A-7.6.1.10.(1) Check Valves. When a check valve is required by Article 7.6.1.10., or a backflow preventer by Article 7.6.2.3., or a pressure reducing valve by Article 7.6.3.3 of the OBC, protection against thermal expansion may be required.

A-7.6.1.12.(6) Relief Valves. A relief valve shall not be routed through or discharge to an area where freezing temperatures may occur.

A-7.6.1.13.(1) Water Hammer Prevention. Water hammer is a build-up of pressure in a length of horizontal or vertical pipe which occurs when a valve or faucet is closed suddenly. The longer the pipe and the greater the water velocity the greater is the pressure exerted on the pipe, which can be many times the normal static water pressure and be sufficient to burst the pipe. Ordinary kitchen and bathroom faucets can be closed quickly enough to cause water hammer with relatively low water pressure in the pipe.

Means of preventing water hammer should be installed wherever there are valves or faucets, particularly where they are at the end of long lengths of pipes. This may be done by installing either water hammer arresters which are manufactured for the purpose or air chambers installed vertically that are fabricated from pieces of piping with a closed upper end and connected to the end of the horizontal or vertical run of pipe.

The air chamber should be 300 to 450 mm long if made from the same size pipe as the water pipe it serves. If the chamber is made from a pipe with larger diameter than the water pipe, its length can be reduce accordingly.

Air chambers should be accessible if the are the manufactured type with the top air valve and a stop-and-waste valve or are of the diaphragm type.

A-7.6.2.12.(1) Flushing and Disinfecting Water Service Pipe.

Water service pipes of 100 mm in size or larger shall be flushed and disinfected. Flushed sections shall be protected from contamination.

After flushing is completed, water from the existing distribution system shall be allowed to flow at a controlled rate into the new piping. Liquid chlorine solution shall be introduced so that the chlorine is distributed throughout the section being disinfected. The chlorine shall be applied so that the chlorine concentration is 50 mg/L minimum throughout the section. Then the system shall be left charged with 50 mg/L chlorine for 24 hours.

Test the chlorine residual piping after 24 hours. If tests indicate a chlorine residual of at least 25 mg/L, the section shall be flushed completely and recharged with water normal to the operation of the system. If the test does not meet the requirements, the chlorination procedure shall be repeated until satisfactory results are obtained. After the system has been recharged, the disinfection procedure shall be repeated. The system shall not be put into operation until clearance has be given by the inspector appointed by the chief building official.