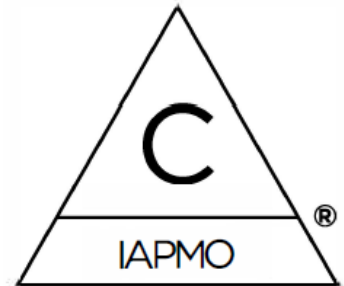


ProVent®

Guide to Design and Usage

ProVent Single Stack System

Handling ■ Installation ■ Corrosion
Ease ■ Simplicity ■ Resistance



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ProVent System Components

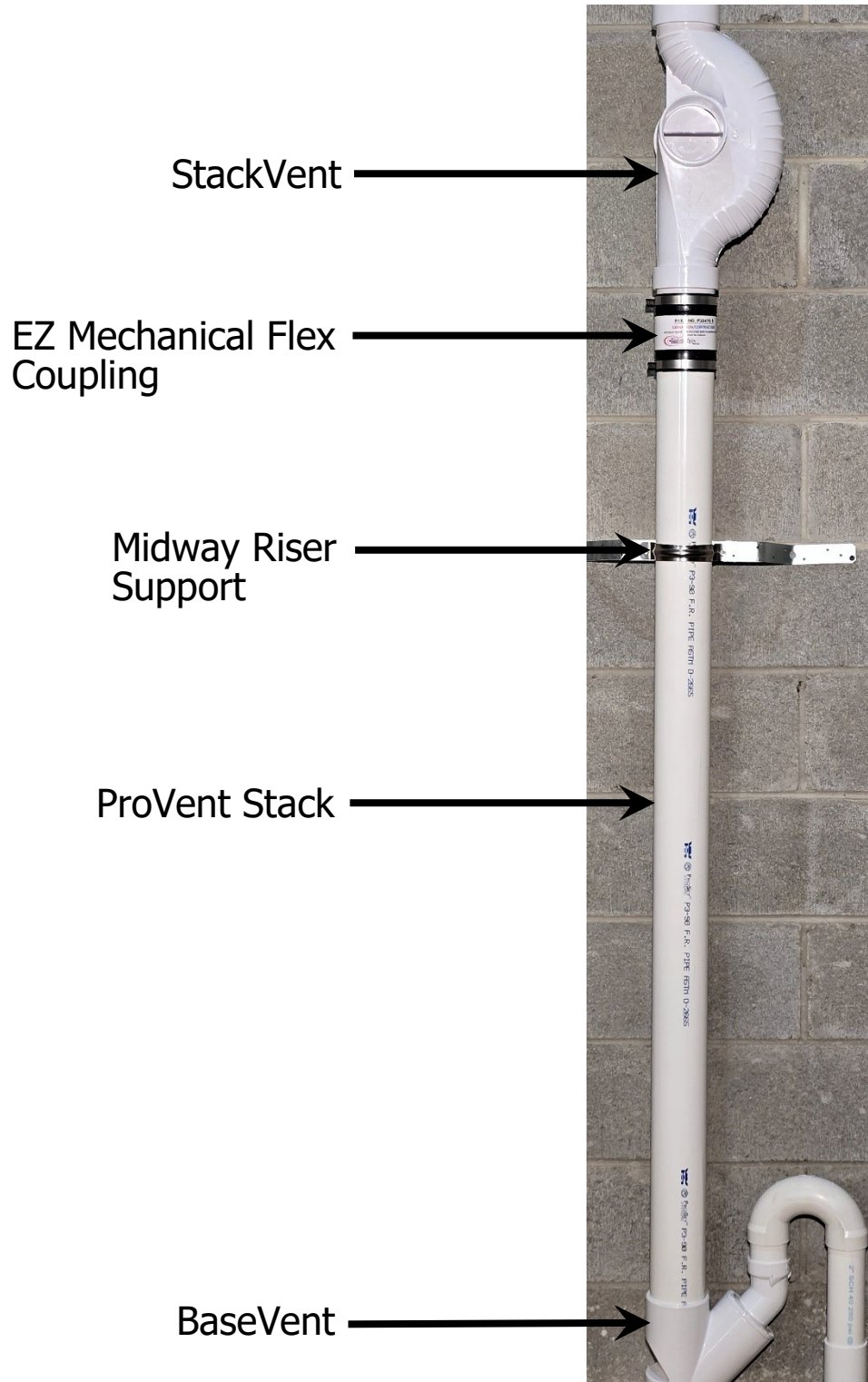




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Introduction to ProVent® Systems

A PVC Plastic Single Stack Waste and Vent System

The ProVent System® is a plumbing engineered single stack system that finally offers the industry a PVC equivalent to the cast iron Sovent® system. The ProVent System introduces the ProVent Stack Fitting® and the ProVent Base Fitting®. This major change from cast iron fittings allows the installation of a complete PVC single stack drainage and vent system.

If you use PVC but you want the benefits of a Sovent-style system, you can now use the ProVent System. Because the ProVent System is not subject to corrosion, you can safely use it in coastal regions.

The ProVent System is particularly effective in multi-story buildings such as hotels, condos, and apartments, where it creates considerable cost savings as well as enhanced performance and longevity. It increases the capacity of the plumbing stack, eliminates separate vent piping, and minimizes pipe penetrations.

The ProVent Stack and the ProVent Base Fittings reduce the maximum flow velocity, increase the stack waste water capacity, and control the interior air pressures that can cause siphonage and blowout of fixture traps.

ProVent Systems Fittings were designed to enhance acoustic performance by increasing wall thicknesses and providing sound absorbing ribs that greatly reduce the water noise associated with plastic piping. This new system creates a sound-tested "Whisper-Quiet PVC Plumbing System".

This type of single stack system has been used for over sixty years, with proven performance throughout the world. In addition to these proven benefits, the ProVent System provides the following:

- Flexible couplings that connect the piping from the Base Fitting to the Stack Fitting to provide for a pipe expansion and contraction system that works.
- A StackVent system that fits plumbing walls and will fit drop ceilings without requiring special recess boxes.
- Easier installation due to its light weight (7.5 pounds) and elimination of the need for hangers (when used with ProSet Systems fire-rated penetrations).

The plumbing approvals for using this new system are granted under the Alternate Materials & Methods or the Alternate Professional Engineers Design criteria in the Plumbing Codes based on ASSE 1043, ASTM D-2665, and NSF 14 Test & Design Standards.

Note: All of the following rules and drawings are shown as examples. However, there may be other piping options not shown that may also comply with the intent of the ProVent rules.



1. Rules for the ProVent® Stack and StackVent Fitting

1.1 The ProVent stack must be sized by the total number of fixture units (D.F.U.) discharging into it. Table 1 provides the number of fixture units by individual fixture. The sum of the fixture units for all fixtures discharging into the stack equals the total fixture units. Table 3 provides the required stack size by total fixture units. The stack size shall continue full size through the roof.

1.2 A ProVent Stack Fitting is required to be used at each floor level when the horizontal soil or waste branch collected is either the same size or one pipe size smaller than the vertical ProVent Stack Fitting.

1.3 Waste branches that are two (2) pipe sizes smaller (2½" included) than the stack can be connected with a sanitary tee or wye directly into the ProVent stack (between ProVent Stack Fittings).

1.4 If there are no branch connections at a floor level, there is no need to use the ProVent Stack Fitting. Instead, a double in-line offset may be used in its place. The vertical interval between the Stack Fitting and the in-line offset shall not exceed 20 feet and no more than two (2) consecutive in-line offsets can be used. When a conventional stack starts at the lowest level in a building and then travels up through vertical areas of twenty feet or more, an in-line offset shall be used every twenty feet until the stack turns into a ProVent horizontal collection system. The conventional stack may be optionally increased one pipe size instead of using inline offsets.

1.5 Offsets in the ProVent Stack of more than 60 degrees require a ProVent Base Fitting with a pressure relief vent line tied into the top vertical portion of the continuation of a ProVent Stack. If the vertical stack is not part of the ProVent System, the PRL can tie back into the horizontal drain. Branch piping can be connected to the offset soil piping above the centerline of the main drain. The offset piping shall be sized by Table 4 using all fixture units discharging above the offset, this may require resizing the stack. A 60 degree change in direction or less is considered vertical and not an offset.

1.6 The drain size of horizontal offsets greater than 60 degrees is determined by the total fixture unit load shown in Table 4 discharging upstream of the offset.

1.7 Stacks may offset above the highest fixture served. When the horizontal offset exceeds twenty (20) feet, the diameter of the horizontal offset and the vent through the roof must be increased one pipe size.

1.8 Combinations of vent stacks may be tied together above the highest fixture served before going through the roof. The combined vertical stack must be increased (1) one pipe size larger than the combined stacks. If the distance between the two (2) stacks that connect is greater than twenty (20) feet, the horizontal branch must be increased one (1) pipe size larger than the downstream stack. Sizing for three or more combined vent headers is based on the cumulative DFU total from each stack and capacities in the Multiple Header Ratings Table.

1.9 An additional ProVent or conventional stack may be connected to a ProVent vertical stack by installing a BaseVent Fitting with a capped PRL opening beneath the connection. Sizing of the branch is made by the DFUs upstream from the connection. Sizing of the main ProVent stack is made by the total DFUs from the combination of both stacks. When one ProVent stack is connected into another, the PRL from the BaseVent of the connecting stack must be tied back into the run of the drain.

1.10 Additional stacks may be connected to a ProVent stack by using a wye and 1/8 bend for one stack and a 1/4 bend for the other. The PRL from one of the BaseVents must be tied into the vertical stack; the other can be tied in above the centerline in the horizontal drain. Sizing of the offsets and stacks are made by the total DFUs draining into them.

1.11 Plastic pipe expansion and contraction shall be provided in all buildings exceeding 3 stories. The ProSet firestop couplings should be used to restrain pipe movement between the floors. The EZ Mechanical Flex Coupling should be installed to allow ½" up or down movement in-between each floor. The two-step anchor and flex combination controls plastic DWV pipe expansion and contraction within a building of any height. It is recommended that an EZ Mechanical Flex Coupling is installed on every other floor except for wood structures, where it should be installed on each floor. The EZ Water Tester may be used to water test the stack.



2. Rules for the ProVent® BaseVent Fitting

2.1 A ProVent Base Fitting must be installed at the base of each vertical stack before it enters the horizontal building drain. If the vertical distance to the closest ProVent Stack Fitting exceeds twenty feet (20'-0") an inline offset must be installed within five feet (5'-0") above the ProVent Base Fitting. The building drain size is calculated by using Table 4 in accordance with the fixture unit values (D.F.U.) for all fixtures discharging into it as shown in Table 1.

2.2 The ProVent Base Fitting has a pressure relief vent opening that extends up then makes a 180 degree turn downward using pipe and fittings that connect to the horizontal building drain at a point no less than 10 pipe diameters downstream from the center line of the vertical stack to the centerline of the branch wye. The pressure relief vent line may run parallel to the horizontal drain and must be the highest elevated line. The pressure relief line must connect above the centerline of the building drain as the last opening of the ProVent System.

2.3 A ProVent Base Fitting must be used on any stack offsets within the stack of more than 60 degrees with the pressure relief vent connection running from the Base Fitting back into the vertical drop portion of the ProVent stack. If the vertical stack is not part of the ProVent System, the PRL vent can tie back into the horizontal drain as shown in Drawing 2.2. A cleanout is required at the base of the stack. When there are no fixture openings taken off the horizontal building drain, a cleanout must also be added to the vertical PRL line.

2.4 Soil and waste branches can be connected into the building drain between the stack and the relief vent. Connections within 40 inches of the centerline of the stack must be made above the centerline of the building drain. Connections downstream of the relief vent shall be vented conventionally.

2.5 Waste branches at least (1) one pipe size smaller can be connected to the pressure relief horizontal vent line with the exception of washing machine wastes. No waste branch is allowed to connect to the 2" PRL. No connection shall be made into the vertical portion of the PRL.

2.6 Soil or waste branches may connect directly into the vertical stack directly below the ProVent Base Fitting only when the connections are made using fittings such as a combination wye and 1/8 bend.

2.7 Soil and waste branches can connect downstream from the pressure relief line to pick up remote conventional plumbing fixtures, including those on lower-level floors. Conventional plumbing vents can tie back into the ProVent vertical stack below the Stack Fitting using an upright wye and 1/8 bend. The vent load of these fixtures must be added to the total load on the ProVent vertical stack. Otherwise, the vents can be separately vented through the roof in accordance with locally accepted plumbing code venting methods and sizing.

2.8 Vertical openings that extend straight up off the building drain and within 40 inches of the centerline of the stack are not permitted. Instead, a wye can be installed 40 inches minimum from the centerline of the stack, using a 45 degree fitting to connect to any vertical fixture opening like a water closet.



3. Rules for **Branch Openings**

3.1 All branch piping sizes and loads should be in accordance with Table 2. Branch piping should have a minimum of 1/8" per foot pitch.

3.2 Horizontal branches that change directions three (3) times by 90 degrees should increase one pipe size at the offset nearest the stack. This increase does not apply if one (1) of the changes can be made with two (2) forty five degree fittings or a long sweep 90 degree fitting.

3.3 If two (2) 3.5 gpf public water closets are connected to the same branch, the first connection can be 3" then increased to 4" at the second connection. Two (2) 1.6 gpf low flush water closets may be connected to a common 3" branch. If downstream fixtures are added, the branch must increase to 4". Check manufacturers installation instructions for pressure assisted type water closets or large flush valves that may require special fittings or spacing requirements for back to back installations.

3.4 4" Size branches shall not exceed a developed length of 27 feet. 3" Size branches shall not exceed a developed length of 15 feet. 2" Size branches shall not exceed a developed length of 15 feet. These lengths include any horizontal pipe offsets but the length of the vertical drop arms is not included (see Rule 3.5 for restrictions on vertical drops). Horizontal to horizontal branch connections should be made with wye type fittings.

3.5 Vertical branches should not exceed 40". A 45 degree offset can extend the drop pipe to 40" from the top 45 degree fitting to the fixture outlet. Branch piping with a vertical drop into a horizontal waste exceeds 10 feet both must increase one (1) pipe size.

3.6 1-1/4" size fixture traps can be connected back to back into one 2" vertical drop. 1-1/2" size fixture traps require separate 2" drops. Washing machine waste branches can be 2". If another fixture is connected into the branch, the branch size must increase to 3". Horizontal waste branches without vertical drops are sized per Table 2.
Special Note: ProVent systems recommends and designs washing machine connections to serve washing machines which require the use of no sudsing high efficiency detergents.

3.7 An alternate to increase developed lengths can be done by using a revent line or by telescoping smaller to larger pipe sizes or by using an Air Admittance Valve where applicable and permitted. The revent line shall be routed vertically and horizontally and tie in above the flood rim level using a wye branch looking up.



Table 1: Fixture Unit Values Using Water Saving Fixtures

<i>Fixture</i>	<i>Fixture Units</i>
Bathrooms	
Water Closet: Flush Valve	6
Water Closet: Tank Operated	3
Urinal: Pedestal	4
Urinal: Non-Pedestal	2
Bidet	1
Bathtub (with or w/o shower)	2
Shower (per showerhead)	2
Lavatory	1
Bathroom Group 1: Lavatory, Bathtub (with or w/o shower), Flush Valve Water Closet	8
Bathroom Group 2: Lavatory, Bathtub (with or w/o shower), Tank Operated Water Closet	4
Kitchens	
Sink (with disposal with or w/o dishwasher connection)	2
Sink (scullery)	2
Dishwasher	2
Laundry Room	
Washing Machine	2
Laundry Tray (One or Two Compartments)	2
Specialty Fixtures	
Sink: Flushing Rim with Valves	6
Sink: Service (P-Trap)	2
Sink: Service (Trap Standard)	3
Sink: Surgeon	2
Sink: Hairdresser, Beauty Parlor	2
Miscellaneous	
Floor/Hub Drain: 2"	2
Floor/Hub Drain: 3"	5
Floor/Hub Drain: 4"	6
Drinking Fountain	1/2



Maximum Loading by Branch, Stack, and Building Drain

Table 2: Maximum Loading by Branch

	<i>Slope 2% (1/4" per foot)</i>	<i>Slope 1% (1/8" per foot)</i>
<i>Drain Size</i>	<i>Fixture Units</i>	<i>Fixture Units</i>
2"	6	5
2½"	12	9
3"	16	13
4"	90	72

*Only two water closets may be connected to a common 3" soil branch. Increase one pipe size when downstream fixtures are added.

Table 3: Maximum Loading by Stack

<i>Stack Size</i>	<i>Fixture Units</i>
3"	64
3" (over 7 stories)	102
4"	504
5"	1,010
6"	2,200
8"	3,900

*12 water closets are permitted into a 3" stack when using a 4" building drain.

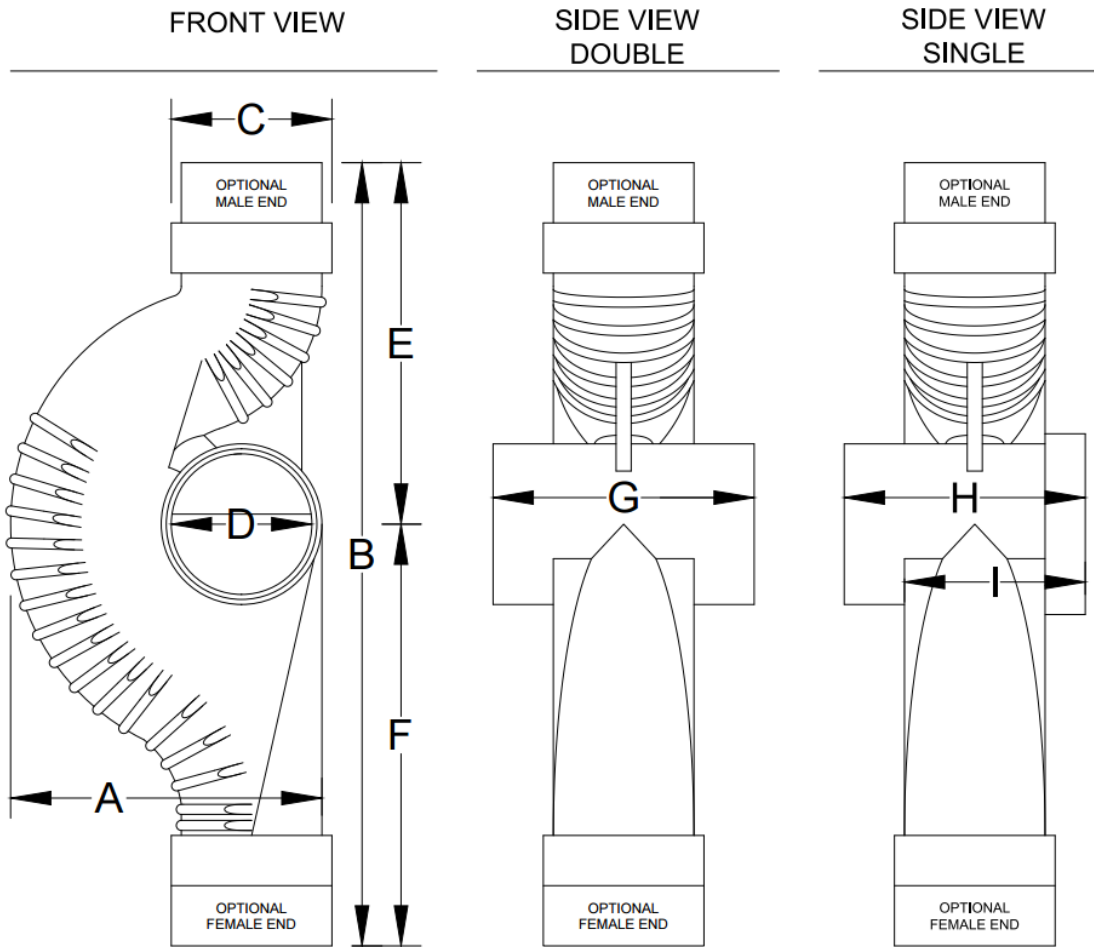
Table 4: Maximum Loading by Building Drain

	<i>Slope 2% (1/4" per foot)</i>	<i>Slope 1% (1/8" per foot)</i>
<i>Drain Size</i>	<i>Fixture Units</i>	<i>Fixture Units</i>
3"	42	36
4"	216	180
5"	350	280
6"	850	680
8"	2,700	2,160
10"	3,900	3,120
12"	5,800	4,640

*This table also applies to stack offsets for the combined load of fixture units upstream from the offset.



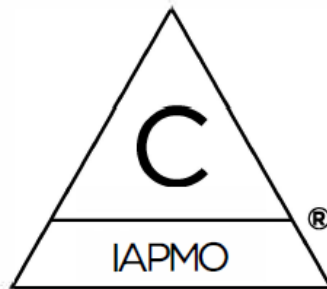
StackVent Dimensions



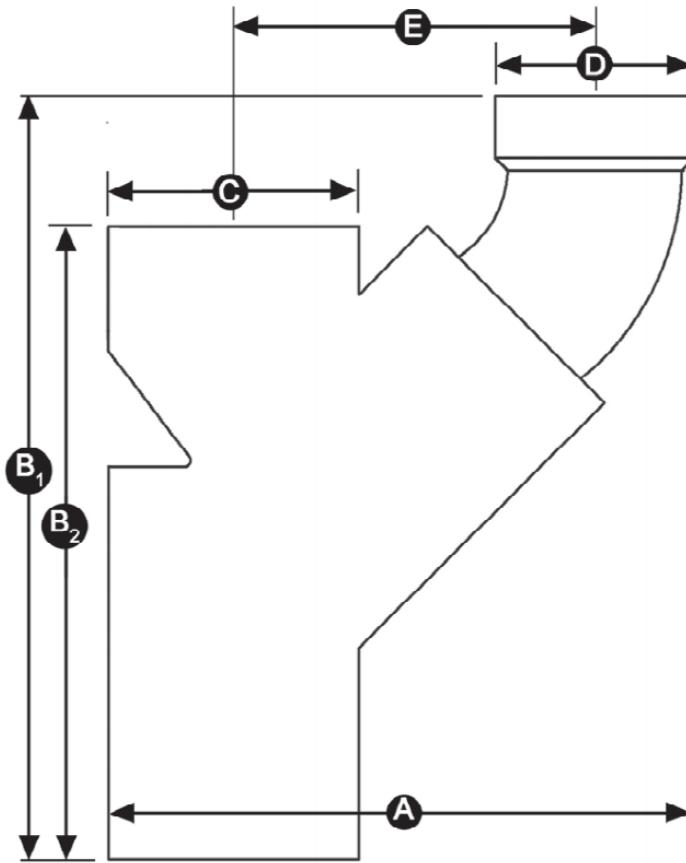
*The centerline of the vertical openings are offset 1/4" of the centerline of the horizontal branch openings.

	A	B*	C	D	E*	F	G	H	I
3"	7-3/4"	19-1/4"	3-1/2"	3-1/2"	9"	10-1/4"	6-1/2"	5-3/4"	4-1/4"
4"	9-3/4"	23-3/4"	4-1/2"	4-1/2"	10-3/4"	13"	8"	7"	5-1/4"

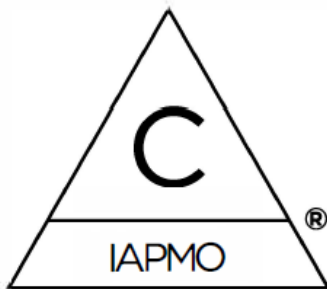
*Stack fitting can be ordered with optional mixed male or female ends



BaseVent Dimensions

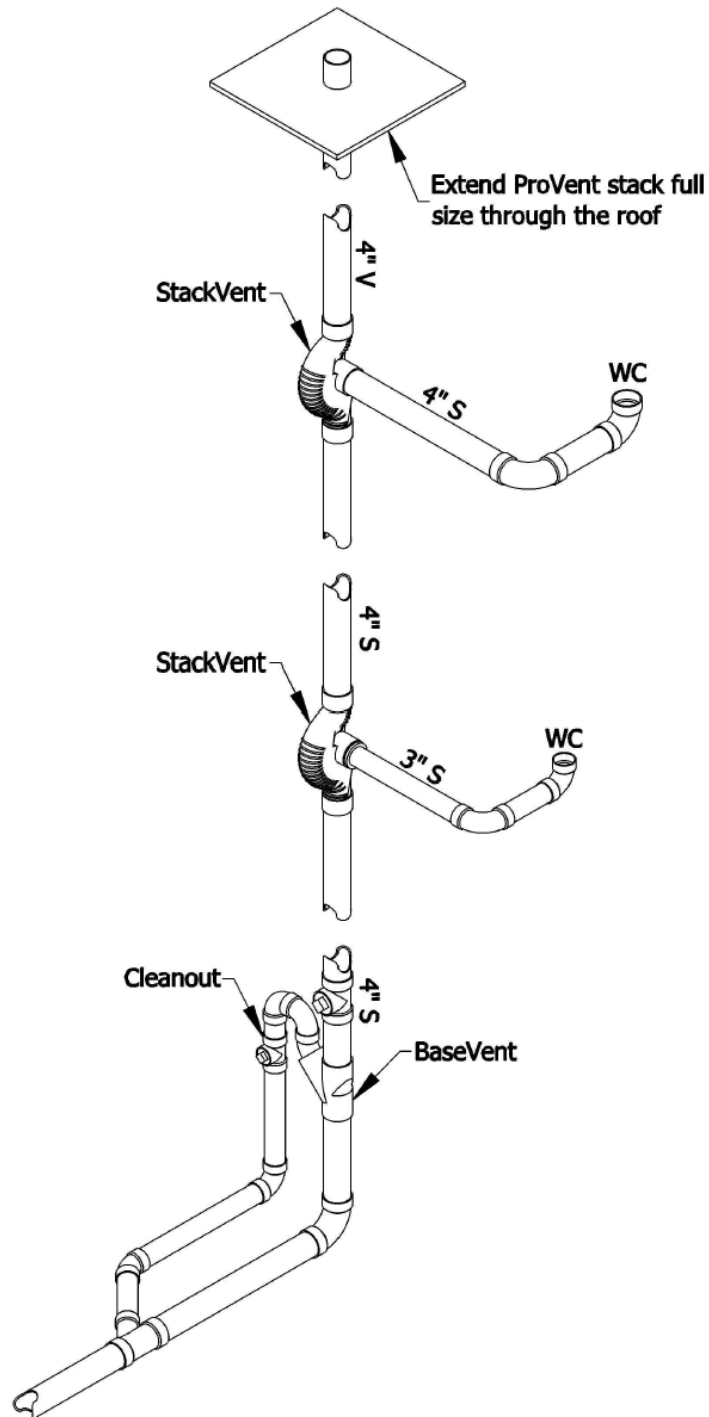


	A	B₁	B₂	C	D	E
3" x 2"	9-1/2"	11"	9-1/4"	4"	2-3/4"	6"
4" x 3"	11-1/2"	13-1/2"	11"	5"	4"	7"



Stack and StackVent Fitting Rule 1.2

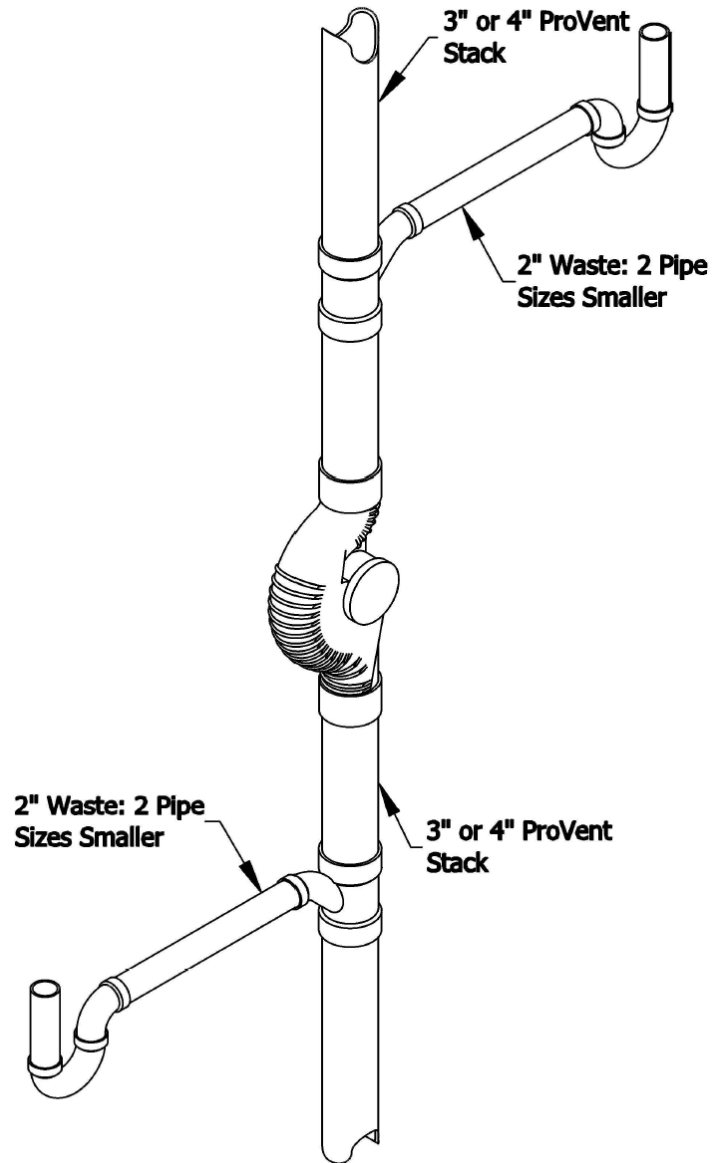
A ProVent Stack Fitting is required to be used at each floor level when the horizontal soil or waste branch collected is either the same size or one pipe size smaller than the vertical ProVent Stack Fitting.



Drawing 1.2

Stack and StackVent Fitting Rule 1.3

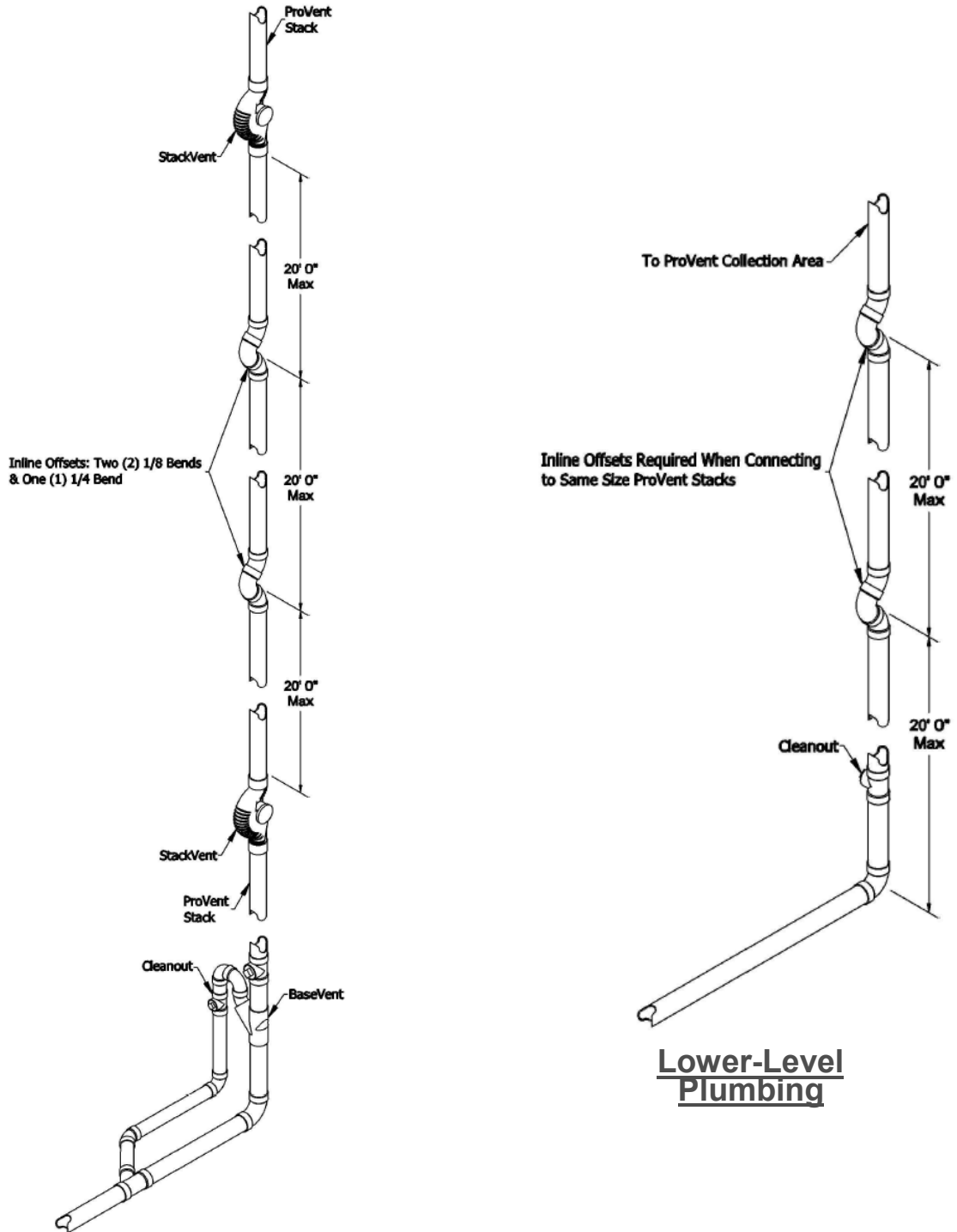
Waste branches that are two (2) pipe sizes smaller (2½" included) than the stack can be connected with a sanitary tee or wye directly into the ProVent stack (between ProVent Stack Fittings).



Drawing 1.3

Stack and StackVent Fitting Rule 1.4

If there are no branch connections at a floor level, there is no need to use the ProVent Stack Fitting. Instead, a double in-line offset may be used in its place. The vertical interval between the Stack Fitting and the in-line offset shall not exceed 20 feet and no more than two (2) consecutive in-line offsets can be used. When a conventional stack starts at the lowest level in a building and then travels up through vertical areas of twenty feet or more, an in-line offset shall be used every twenty feet until the stack turns into a ProVent horizontal collection system. The conventional stack may be optionally increased one pipe size instead of using inline offsets.

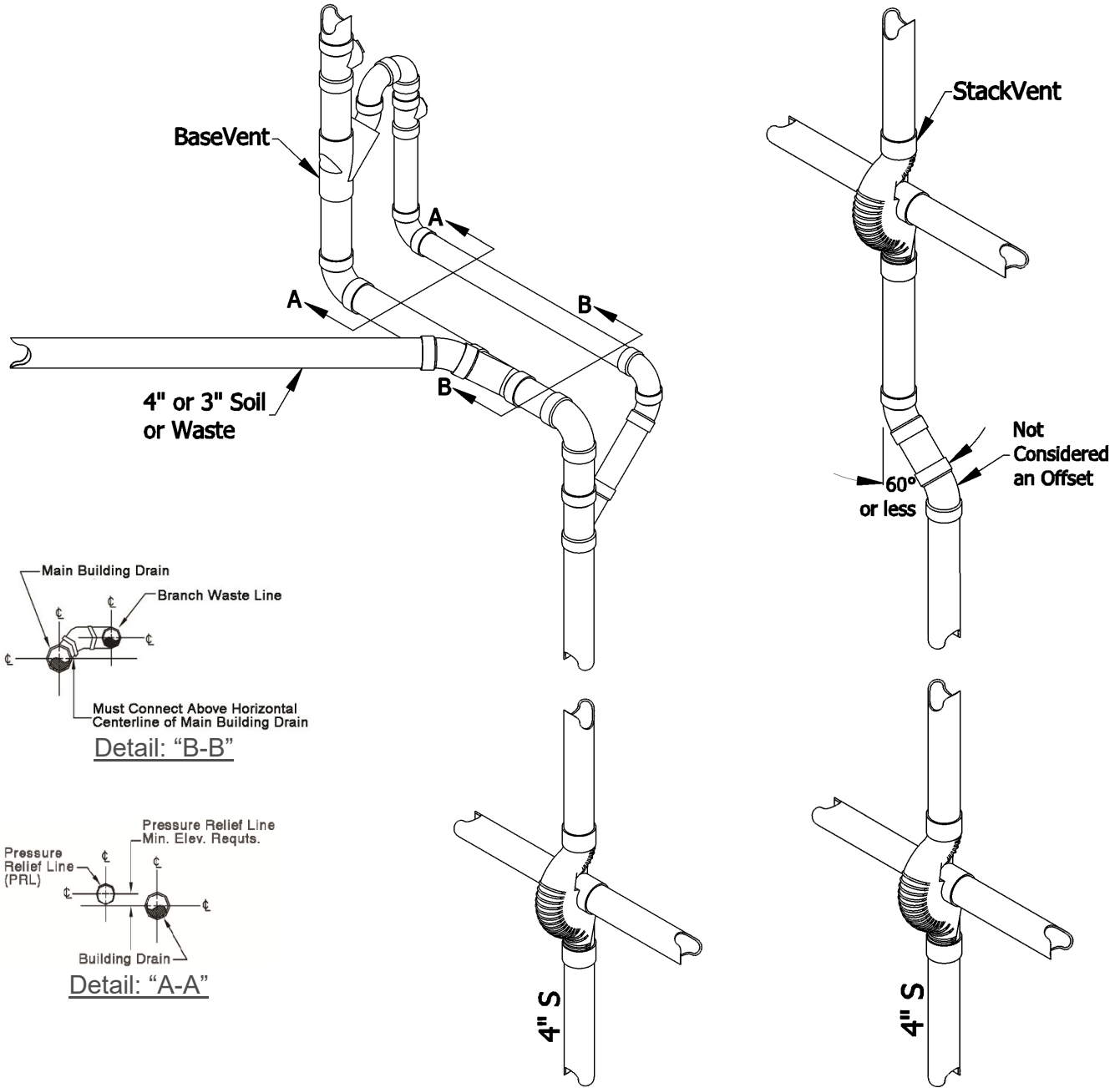


Drawing 1.4



Stack and StackVent Fitting Rule 1.5

Offsets in the ProVent Stack of more than 60 degrees require a ProVent Base Fitting with a pressure relief vent line tied into the top vertical portion of the continuation of a ProVent Stack. If the vertical stack is not part of the ProVent System, the PRL can tie back into the horizontal drain. Branch piping can be connected to the offset soil piping above the centerline of the main drain. The offset piping shall be sized by Table 4 using all fixture units discharging above the offset, this may require resizing the stack. A 60 degree change in direction or less is considered vertical and not an offset.

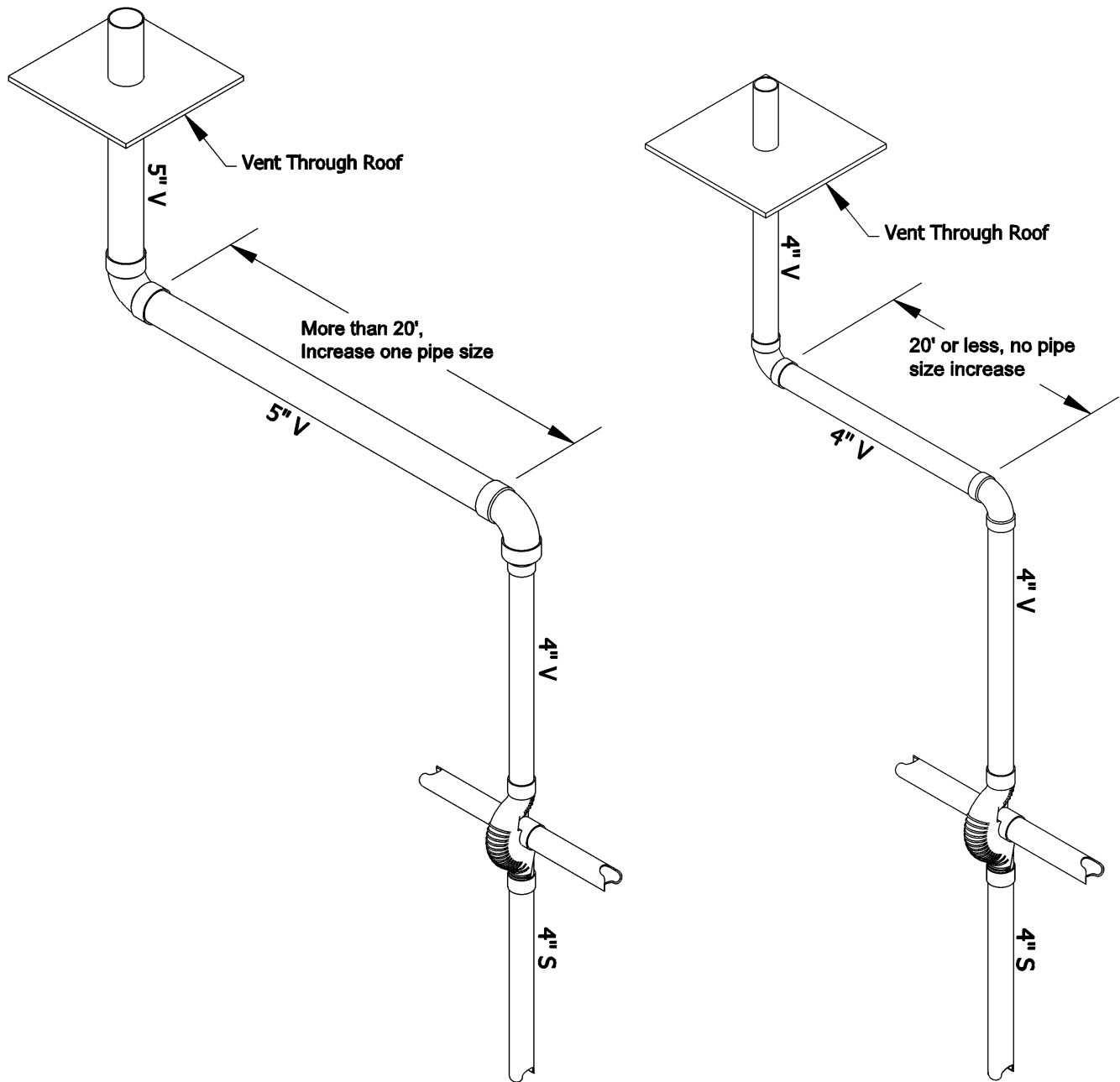


Drawing 1.5



Stack and StackVent Fitting Rule 1.7

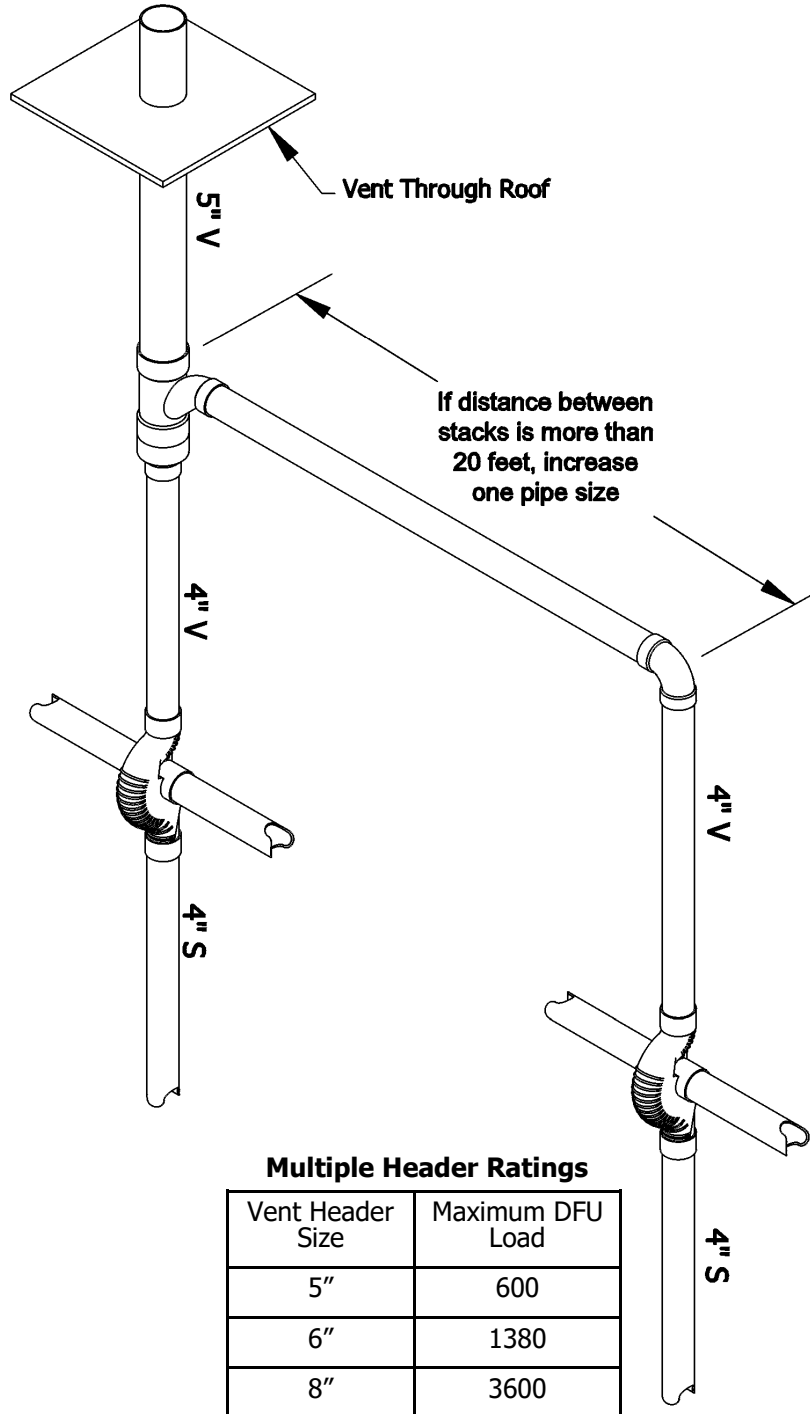
Stacks may offset above the highest fixture served. When the horizontal offset exceeds twenty (20) feet, the diameter of the horizontal offset and the vent through the roof must be increased one pipe size.



Drawing 1.7

Stack and StackVent Fitting Rule 1.8

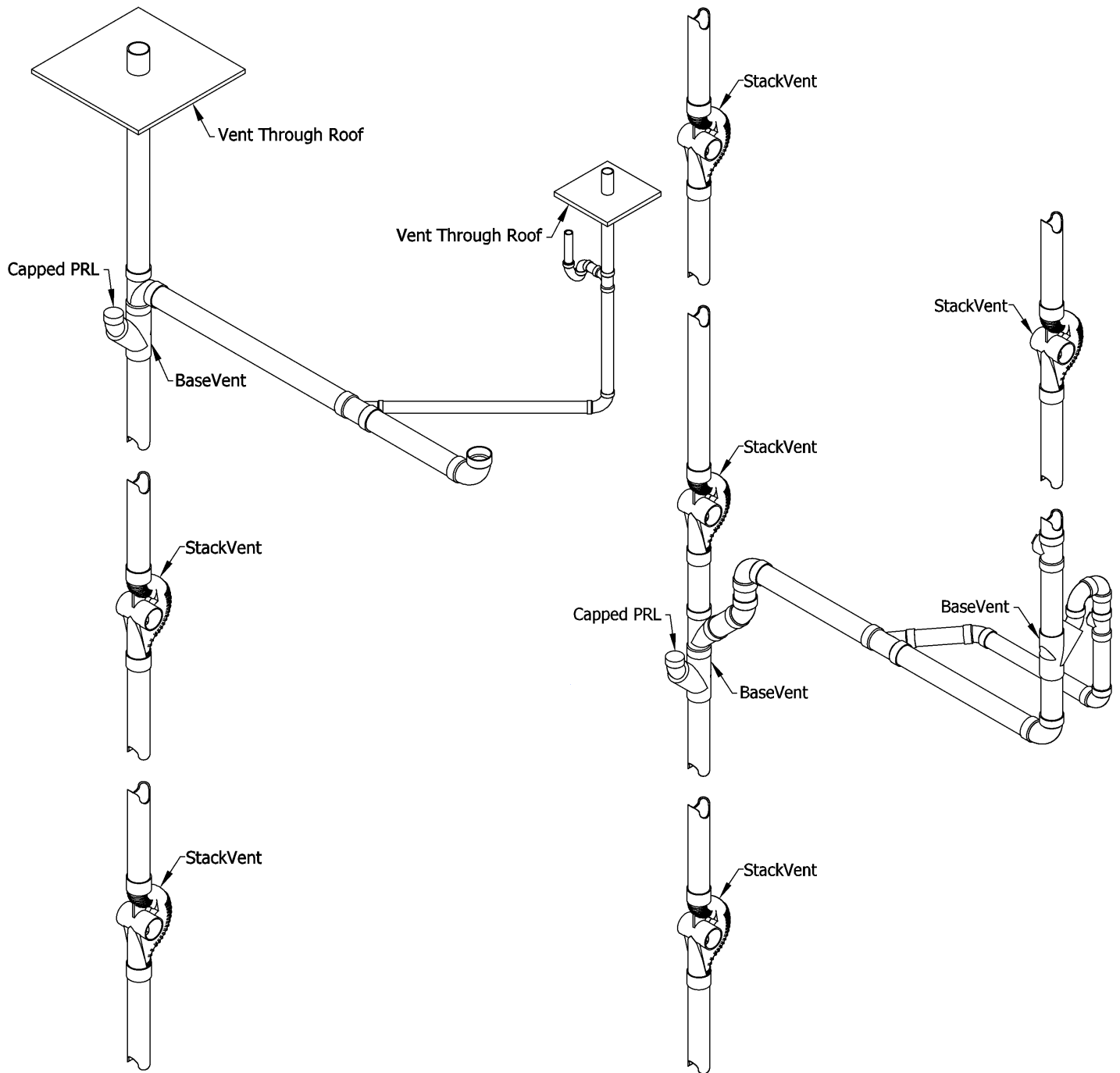
Combinations of vent stacks may be tied together above the highest fixture served before going through the roof. The combined vertical stack must be increased (1) one pipe size larger than the combined stacks. If the distance between the two (2) stacks that connect is greater than twenty (20) feet, the horizontal branch must be increased one (1) pipe size larger than the downstream stack. Sizing for three or more combined vent headers is based on the cumulative DFU total from each stack and capacities in the Multiple Header Ratings table below.



Drawing 1.8

Stack and StackVent Fitting Rule 1.9

An additional ProVent or conventional stack may be connected to a ProVent vertical stack by installing a BaseVent Fitting with a capped PRL opening beneath the connection. Sizing of the branch is made by the DFUs upstream from the connection. Sizing of the main ProVent stack is made by the total DFUs from the combination of both stacks. When one ProVent stack is connected into another, the PRL from the BaseVent of the connecting stack must be tied back into the run of the drain.

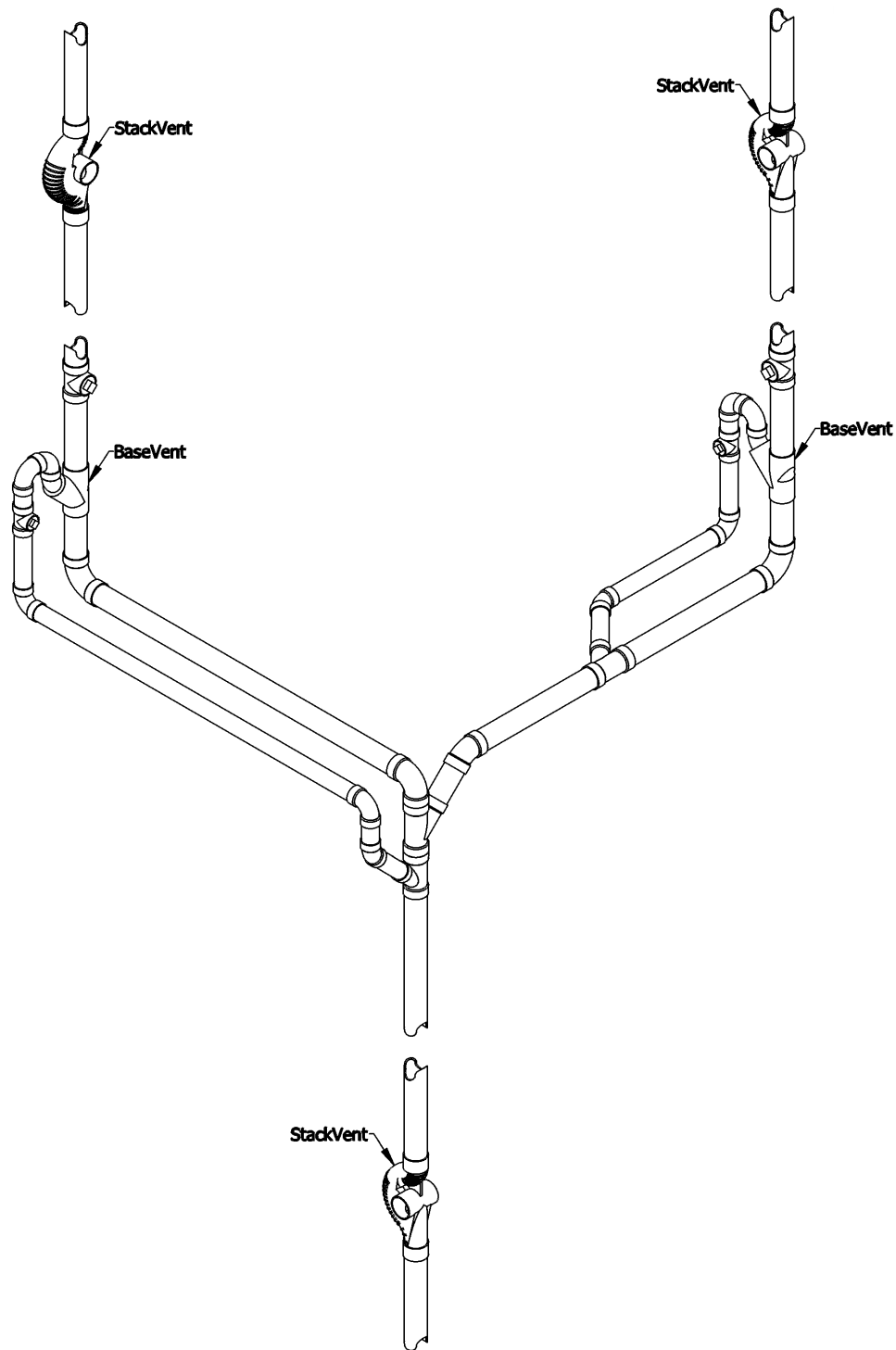


Drawing 1.9



Stack and StackVent Fitting Rule 1.10

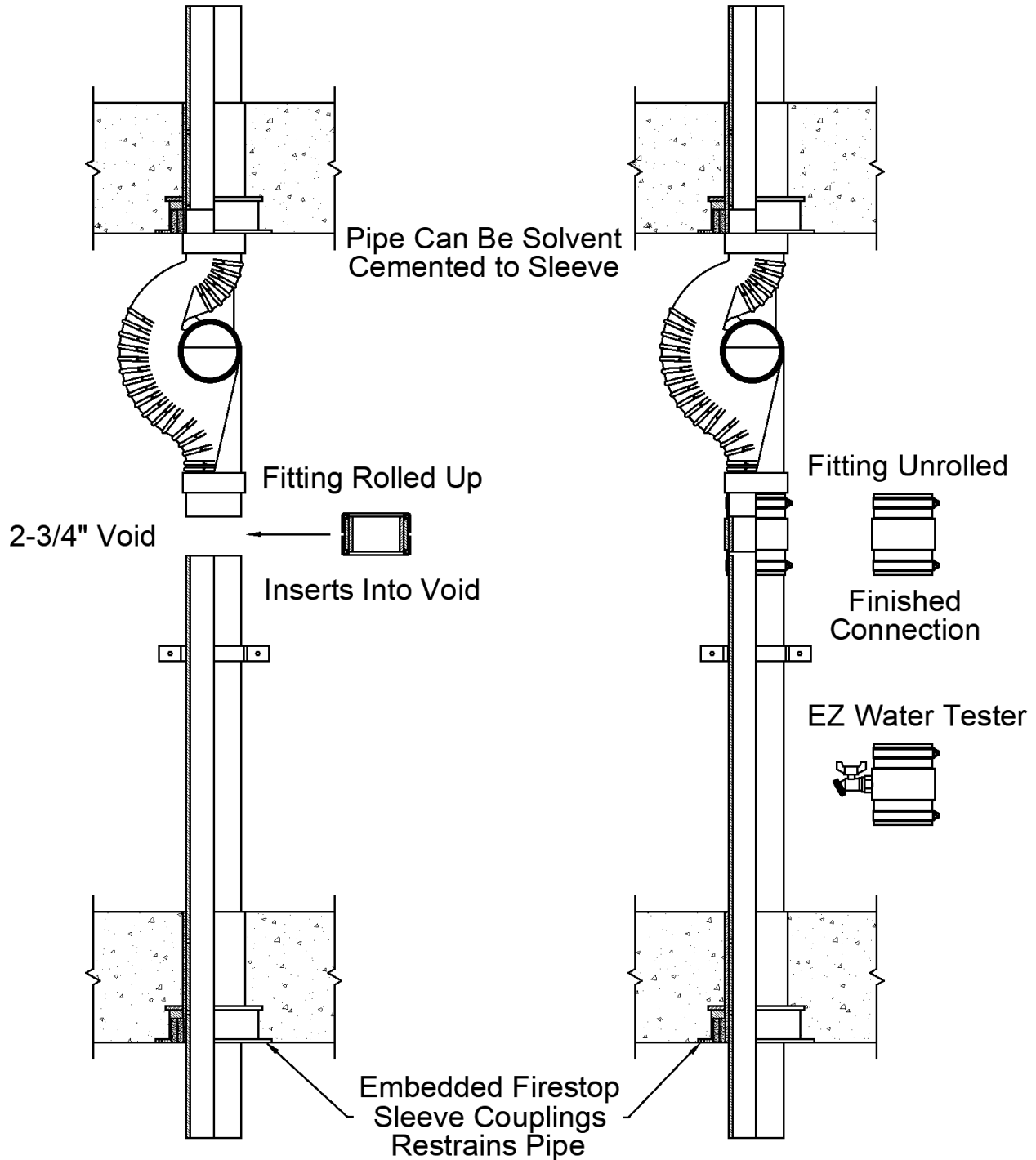
Additional stacks may be connected to a ProVent stack by using a wye and 1/8 bend for one stack and a 1/4 bend for the other. The PRL from one of the BaseVents must be tied into the vertical stack; the other can be tied in above the centerline in the horizontal drain. Sizing of the offsets and stacks are made by the total DFUs draining into them.



Drawing 1.10

Stack and StackVent Fitting Rule 1.11

Plastic pipe expansion and contraction shall be provided in all buildings exceeding 3 stories. The ProSet firestop couplings should be used to restrain pipe movement between the floors. The EZ Mechanical Flex Coupling should be installed to allow $\frac{1}{2}$ " up or down movement in-between each floor. The two-step anchor and flex combination controls plastic DWV pipe expansion and contraction within a building of any height. It is recommended that an EZ Mechanical Flex Coupling is installed on every other floor except for wood structures, where it should be installed on each floor. The EZ Water Tester may be used to water test the stack.



Drawing 1.11

EZ Mechanical Flex Installation Instructions

ProVent Stack Fitting



Leave a 2-3/4" gap between the pipes
1



Roll both flex ends to meet each other
2



Insert the rolled up ends into the gap
3



Roll back the two ends onto the pipes
4



Tighten up the stainless steel bands
5



EZ Flex joint flexes vertical
6

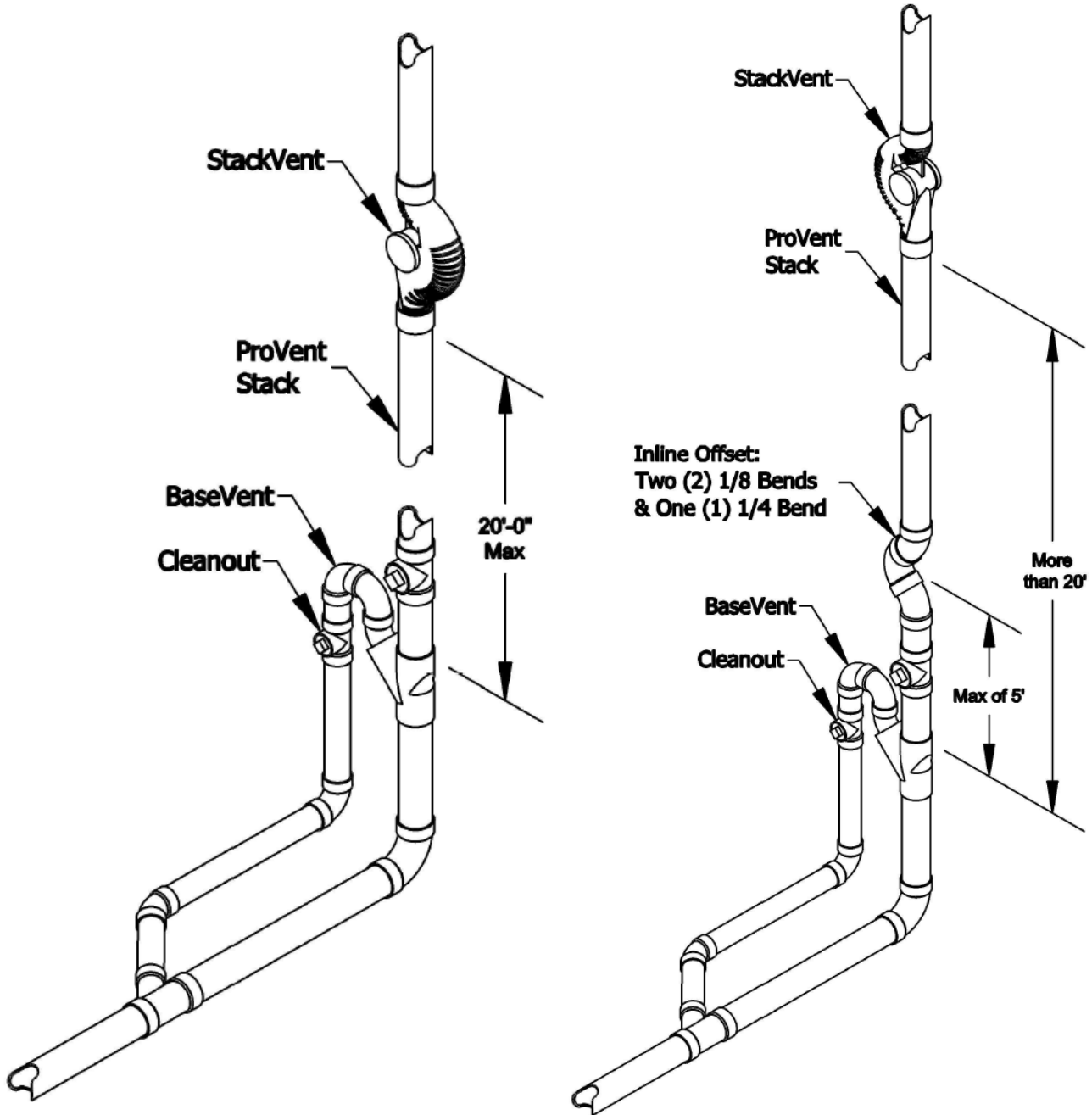


Mid-Way Stack Support



BaseVent Fitting Rule 2.1

A ProVent Base Fitting must be installed at the base of each vertical stack before it enters the horizontal building drain. If the vertical distance to the closest ProVent Stack Fitting exceeds twenty feet (20'-0") an inline offset must be installed within five feet (5'-0") above the ProVent Base Fitting. The building drain size is calculated by using Table 4 in accordance with the fixture unit values (D.F.U.) for all fixtures discharging into it as shown in Table 1.

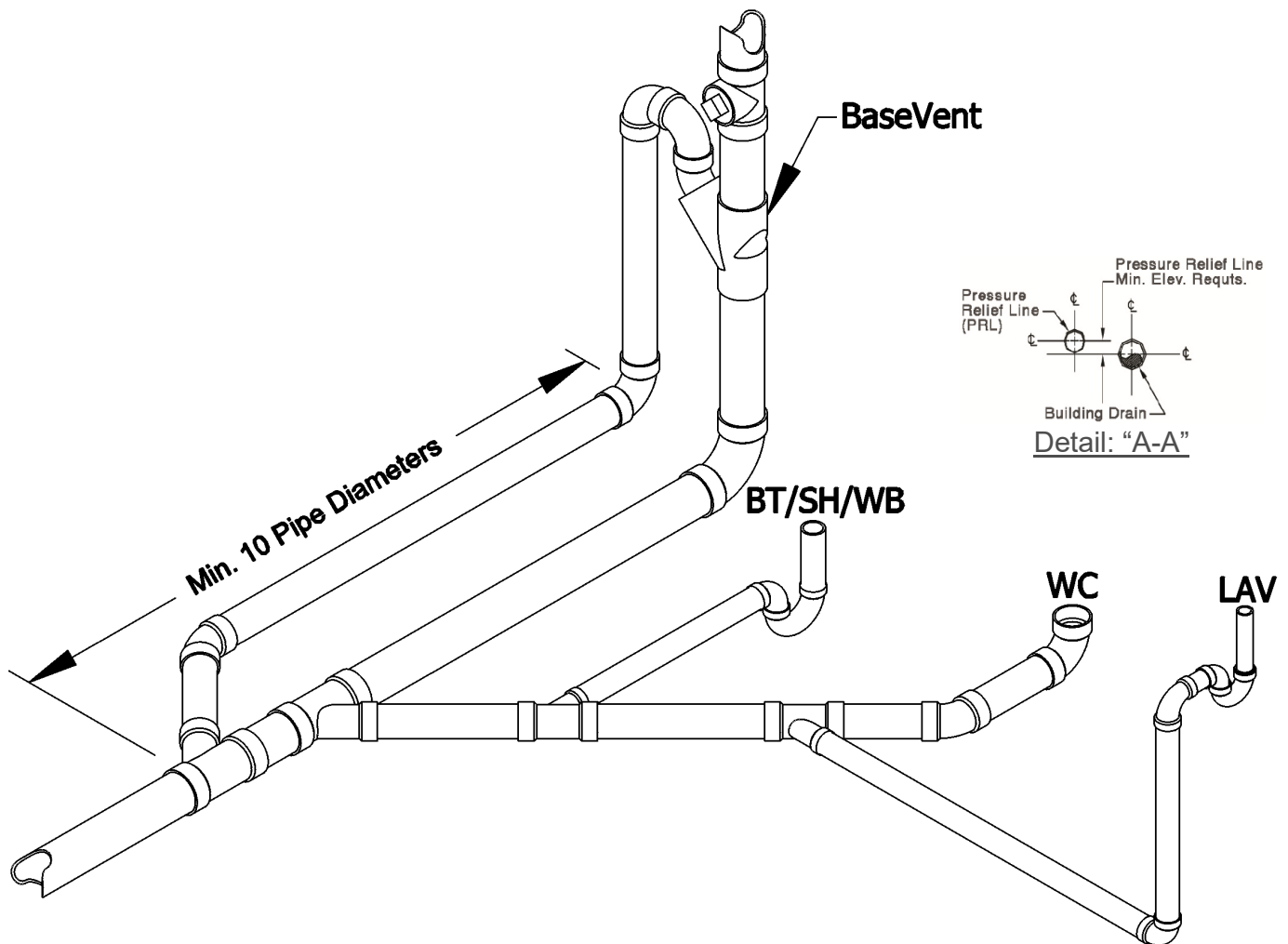


Drawing 2.1



BaseVent Fitting Rule 2.2

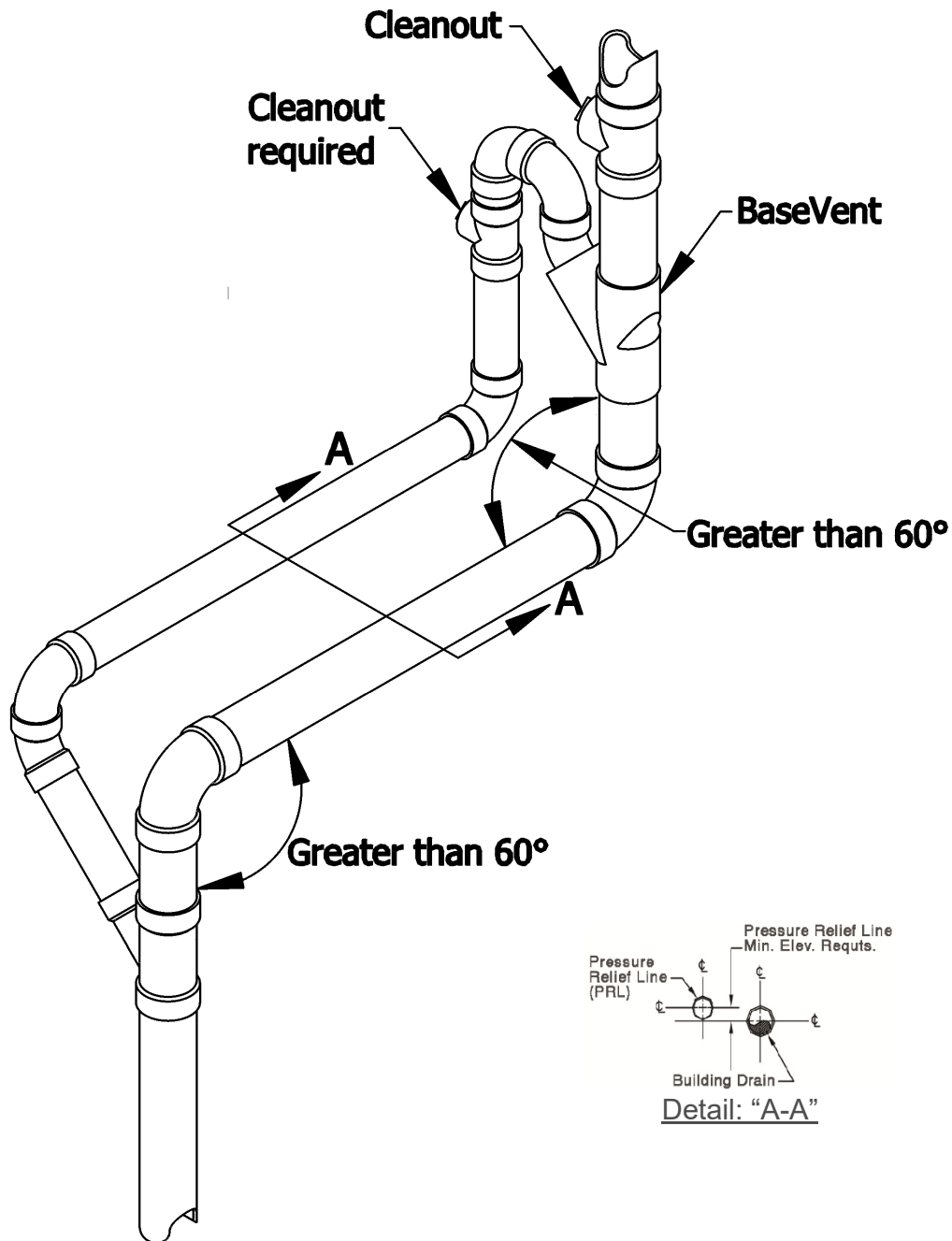
The ProVent Base Fitting has a pressure relief vent opening that extends up then makes a 180 degree turn downward using pipe and fittings that connect to the horizontal building drain at a point no less than 10 pipe diameters downstream from the center line of the vertical stack to the centerline of the branch wye. The pressure relief vent line may run parallel to the horizontal drain and must be the highest elevated line. The pressure relief line must connect above the centerline of the building drain as the last opening on the ProVent System.



Drawing 2.2

BaseVent Fitting Rule 2.3

A ProVent Base Fitting must be used on any stack offsets within the stack of more than 60 degrees with the pressure relief vent connection running from the Base Fitting back into the vertical drop portion of the ProVent stack. If the vertical stack is not part of the ProVent System, the PRL vent can tie back into the horizontal drain as shown in Drawing 2.2. A cleanout is required at the base of the stack. When there are no fixture openings taken off the horizontal building drain, a cleanout must also be added to the vertical PRL line.

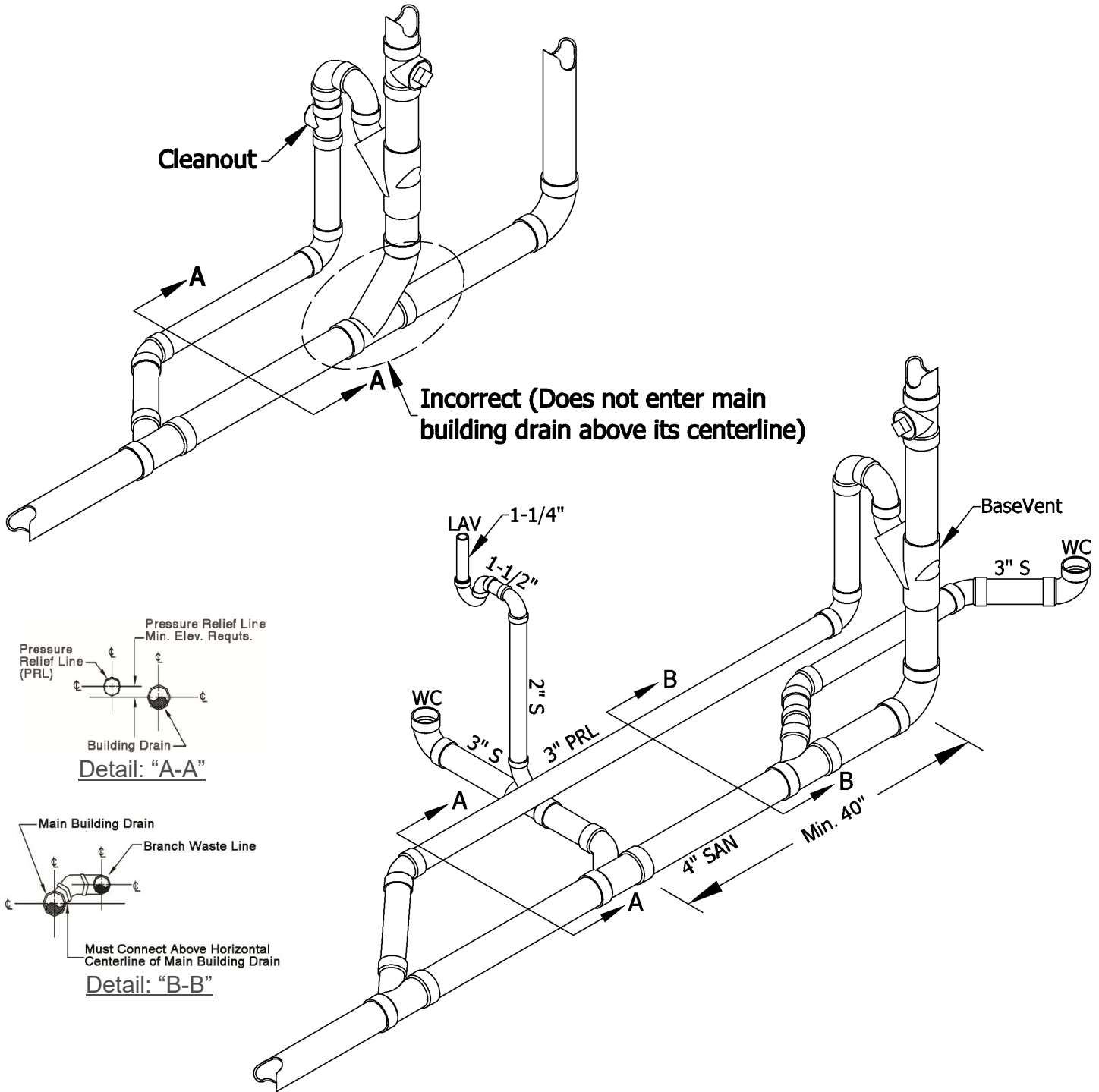


Drawing 2.3



BaseVent Fitting Rule 2.4

Soil and waste branches can be connected into the building drain between the stack and the relief vent. Connections within 40 inches of the centerline of the stack must be made above the centerline of the building drain. Connections downstream of the relief vent shall be vented conventionally.

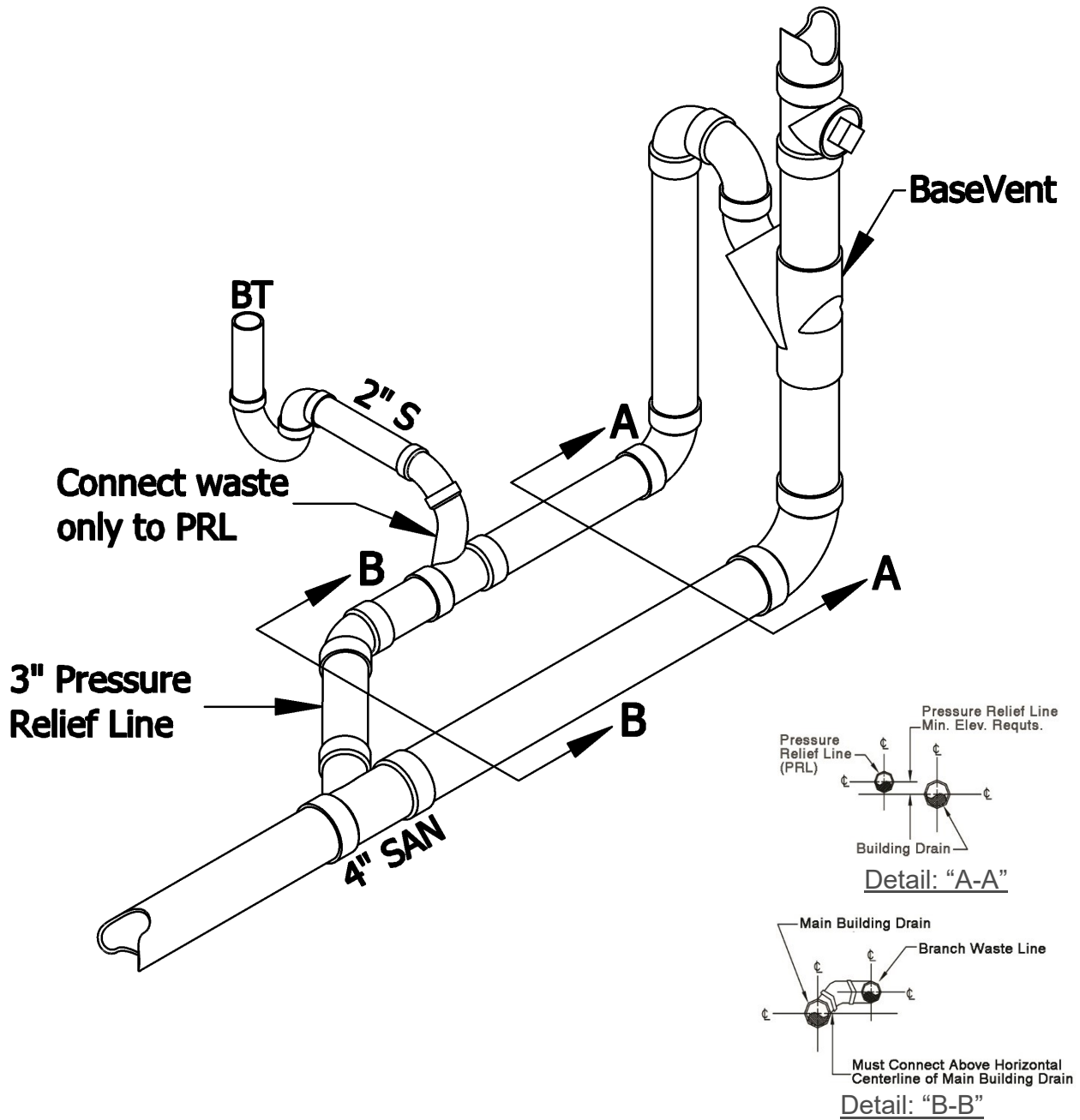


Drawing 2.4



BaseVent Fitting Rule 2.5

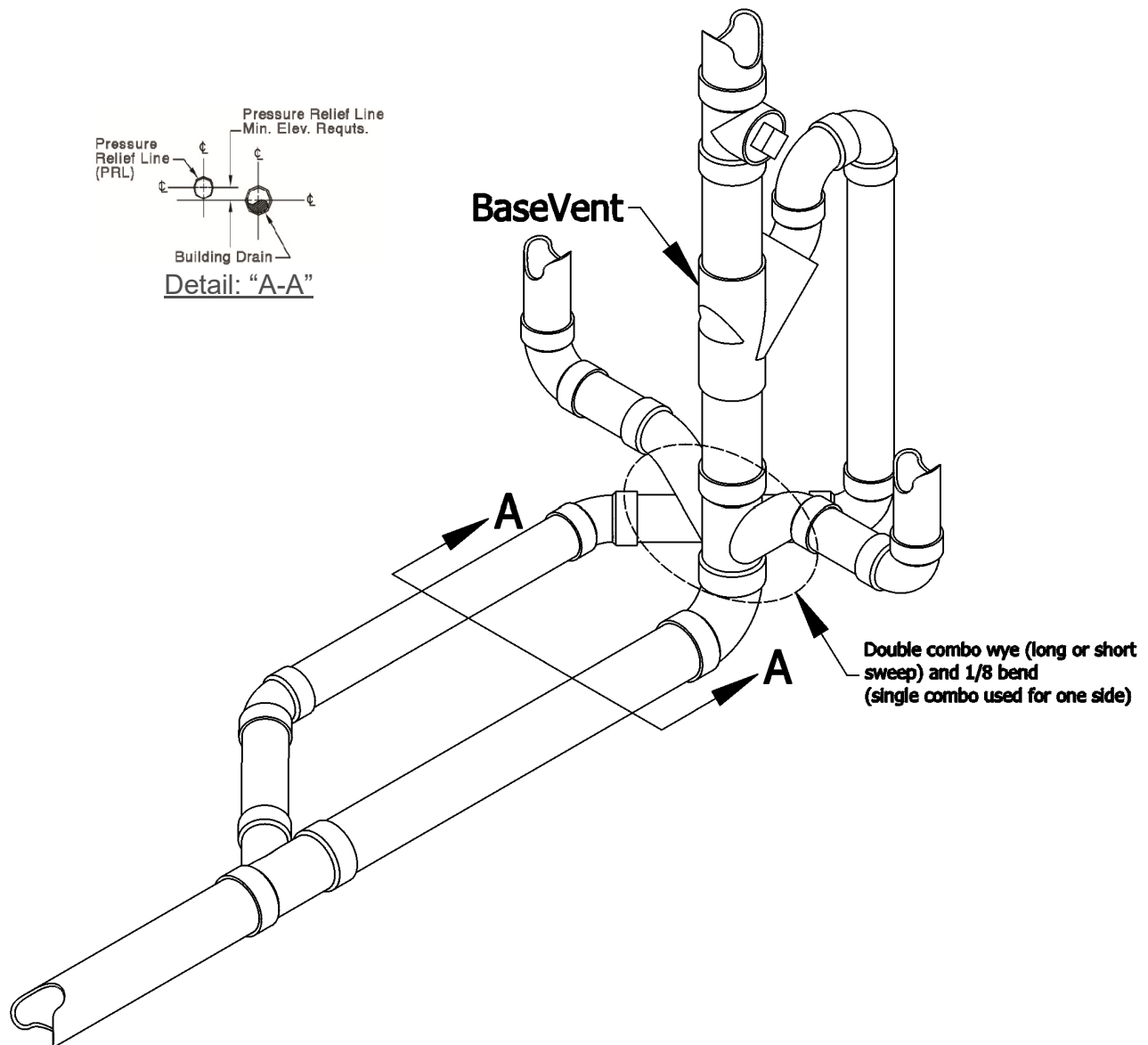
Waste branches at least (1) one pipe size smaller can be connected to the pressure relief horizontal vent line with the exception of washing machine wastes. No waste branch is allowed to connect to the 2" PRL. No connection shall be made into the vertical portion of the PRL.



Drawing 2.5

BaseVent Fitting Rule 2.6

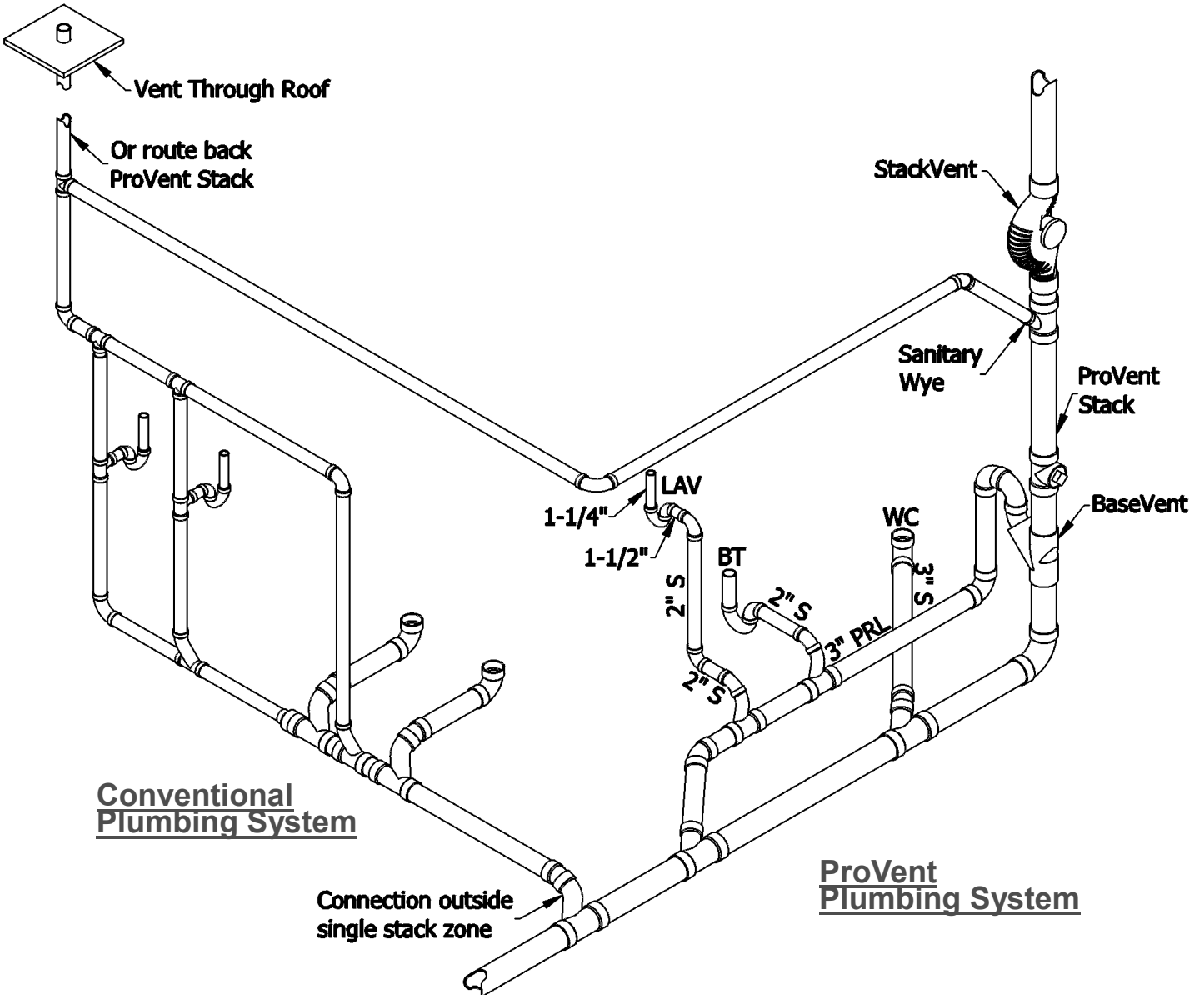
Soil or waste branches may connect directly into the vertical stack directly below the ProVent Base Fitting only when the connections are made using fittings such as a combination wye and 1/8 bend.



Drawing 2.6

BaseVent Fitting Rule 2.7

Soil and waste branches can connect downstream from the pressure relief line to pick up remote conventional plumbing fixtures, including those on lower-level floors. Conventional plumbing vents can tie back into the ProVent vertical stack below the Stack Fitting using an upright wye and 1/8 bend. The vent load of these fixtures must be added to the total load on the ProVent vertical stack. Otherwise, the vents can be separately vented through the roof in accordance with locally accepted plumbing code venting methods and sizing.

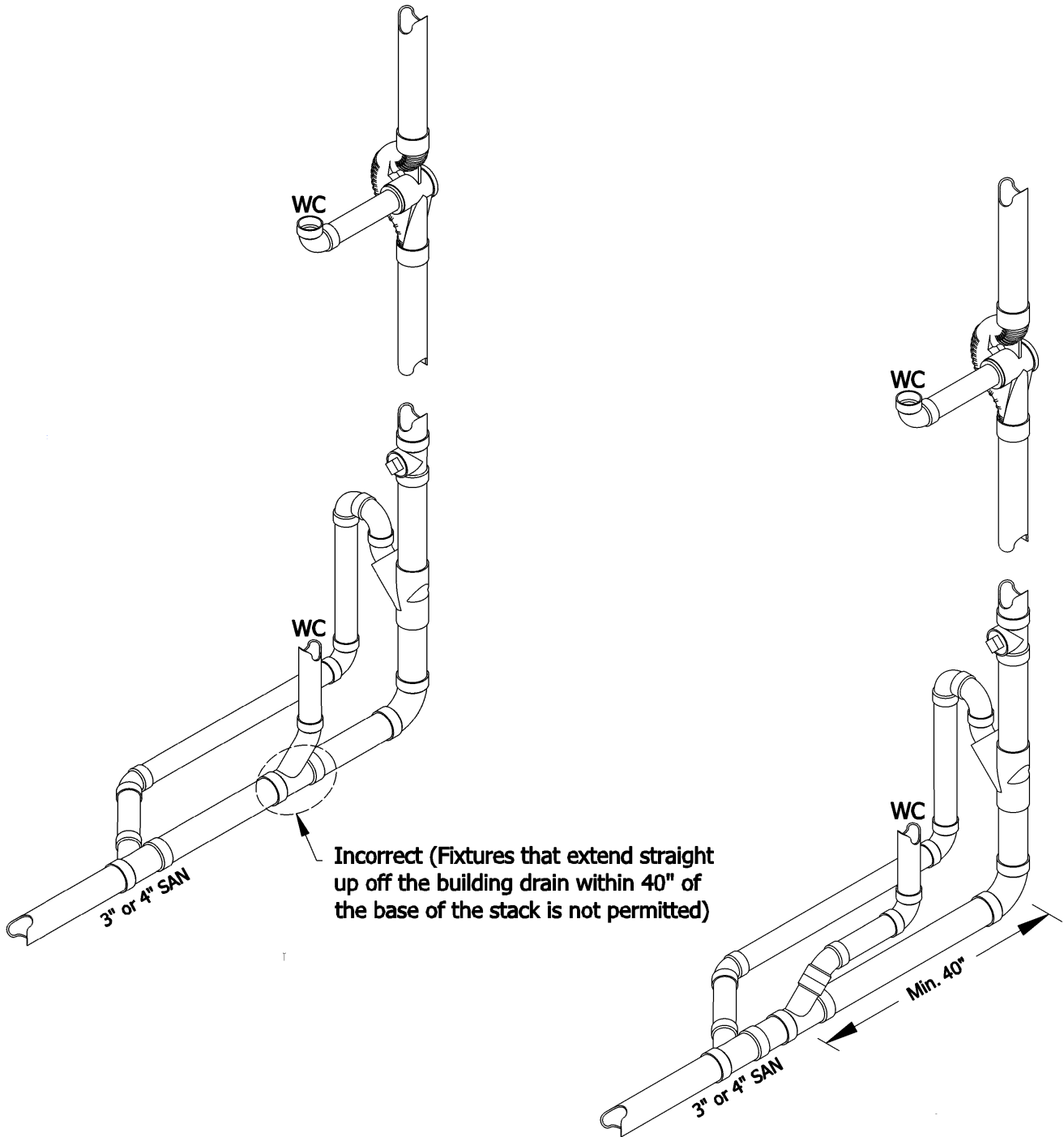


Drawing 2.7



BaseVent Fitting Rule 2.8

Vertical openings that extend straight up off the building drain and within 40 inches of the centerline of the stack are not permitted. Instead, a wye can be installed 40 inches minimum from the centerline of the stack, using a 45 degree fitting to connect to any vertical fixture opening like a water closet.



Drawing 2.8

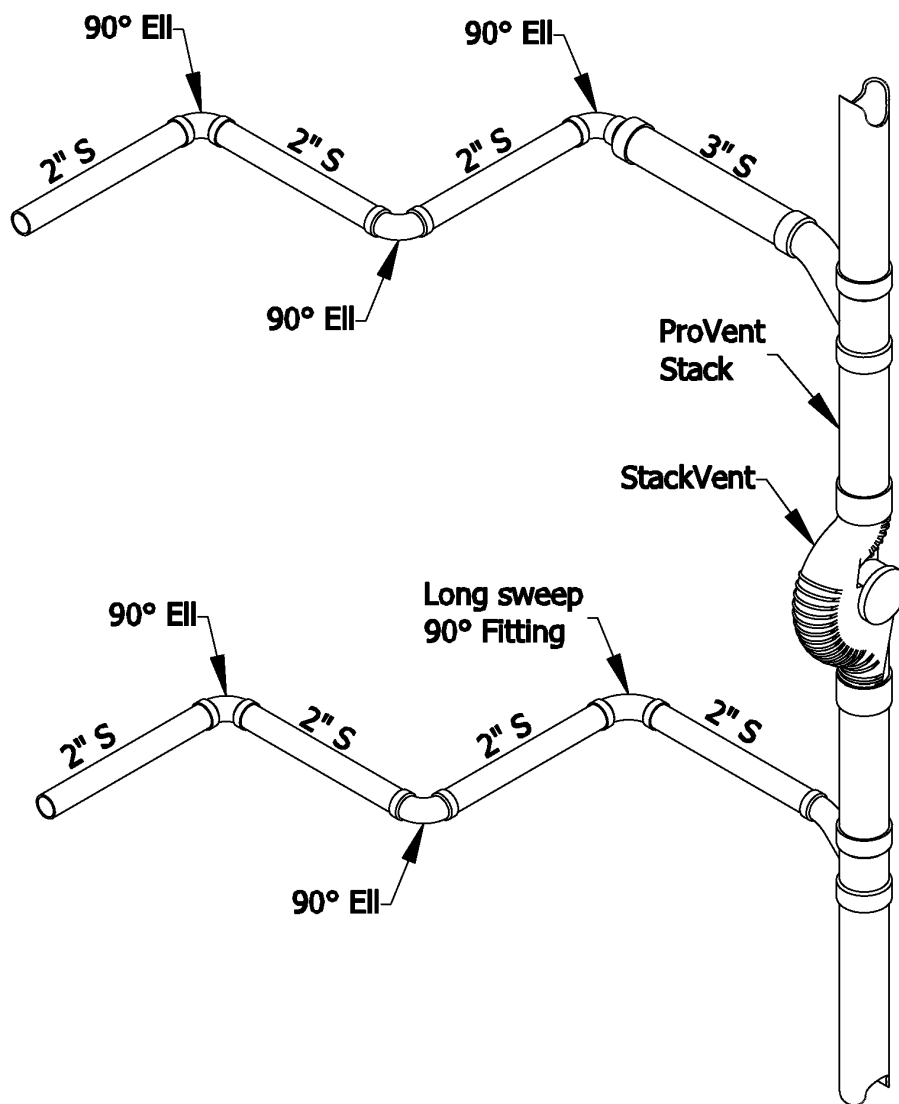
Branch Opening Rule 3.1

All branch piping sizes and loads should be in accordance with Table 2. Branch piping should have a minimum of 1/8" per foot pitch.

(See Table 2)

Branch Opening Rule 3.2

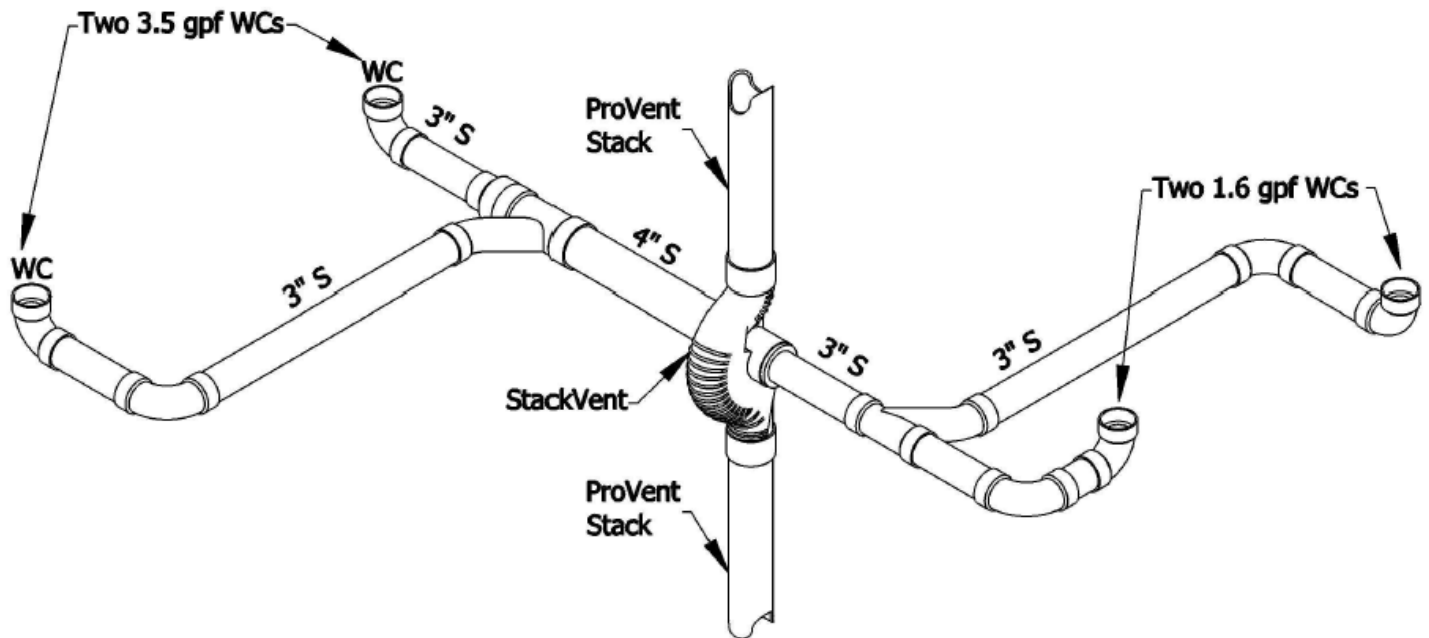
Horizontal branches that change directions three (3) times by 90 degrees should increase one pipe size at the offset nearest the stack. This increase does not apply if one (1) of the changes can be made with two (2) forty five degree fittings or a long sweep 90 degree fitting.



Drawing 3.2

Branch Opening Rule 3.3

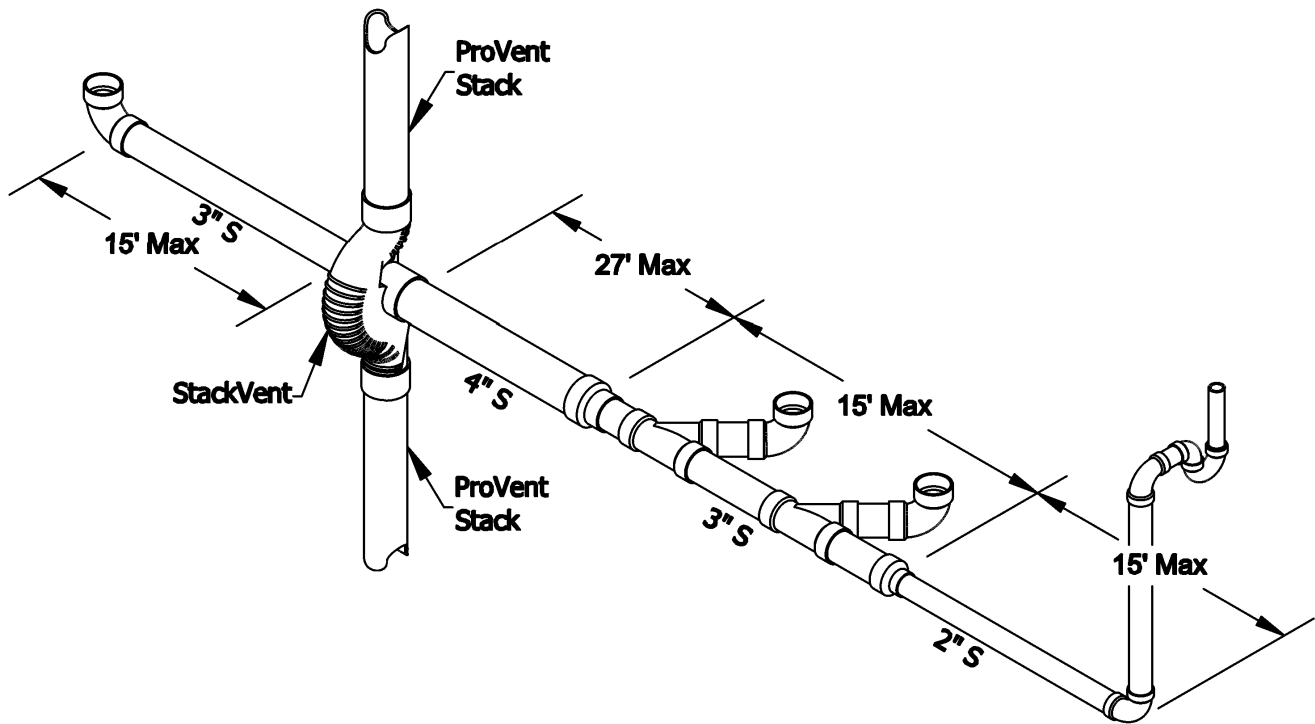
If two (2) 3.5 gpf public water closets are connected to the same branch, the first connection can be 3" then increased to 4" at the second connection. Two (2) 1.6 gpf low flush water closets may be connected to a common 3" branch. If downstream fixtures are added, the branch must increase to 4". Check manufacturers installation instructions for pressure assisted type water closets or large flush valves that may require special fittings or spacing requirements for back to back installations.



Drawing 3.3

Branch Opening Rule 3.4

4" Size branches shall not exceed a developed length of 27 feet. 3" Size branches shall not exceed a developed length of 15 feet. 2" Size branches shall not exceed a developed length of 15 feet. These lengths include any horizontal pipe offsets but the length of the vertical drop arms is not included (see Rule 3.5 for restrictions on vertical drops). Horizontal to horizontal branch connections should be made with wye type fittings.

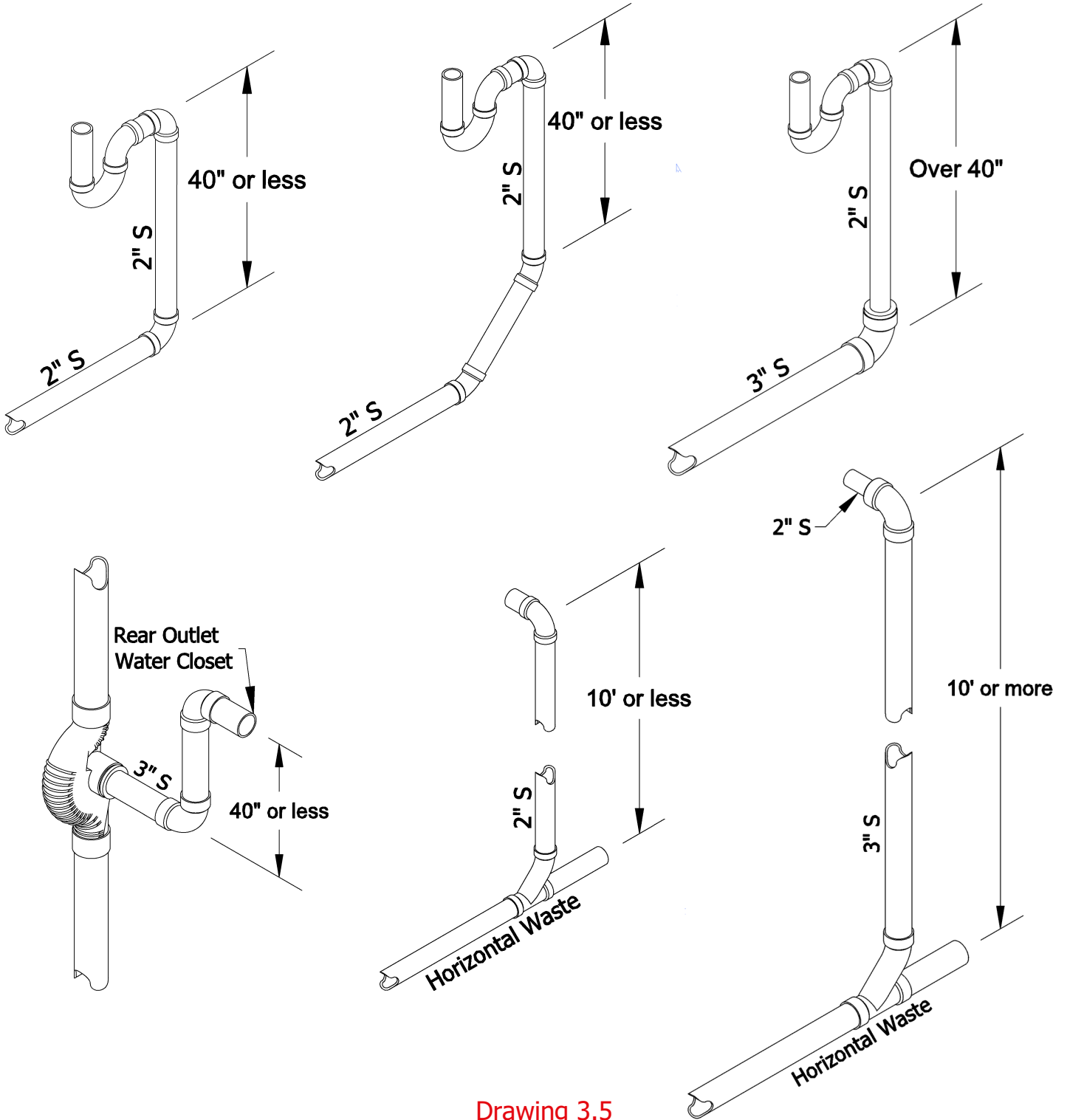


* A maximum distance of 27 ft. is allowed on a 4" soil branch. However, it is recommended that the use of 3" pipe be maximized for 1.6 GPF toilet systems.

Drawing 3.4

Branch Opening Rule 3.5

Vertical branches should not exceed 40". A 45 degree offset can extend the drop pipe to 40" from the top 45 degree fitting to the fixture outlet. Branch piping with a vertical drop into a horizontal waste exceeds 10 feet both must increase one (1) pipe size.



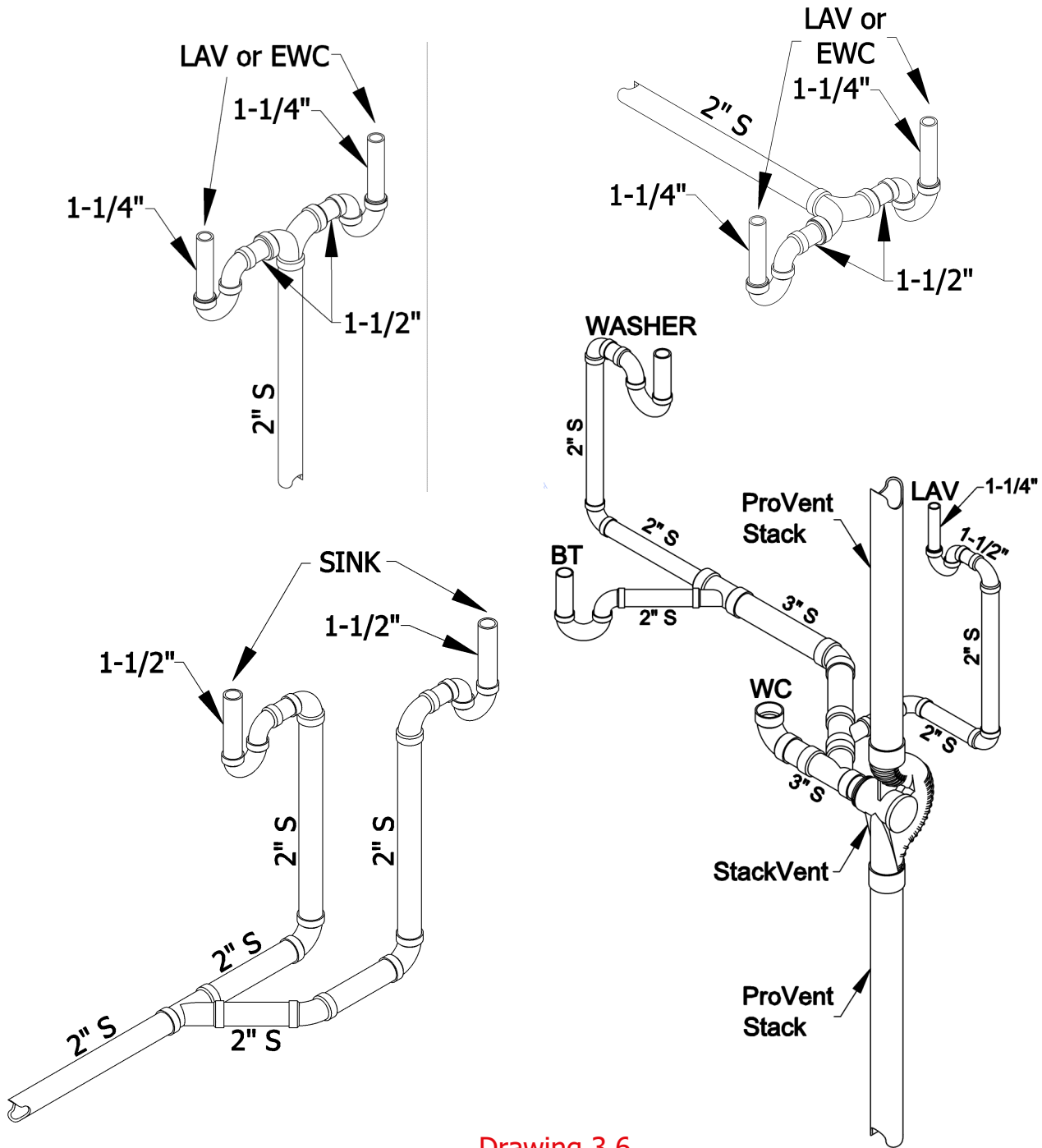
Drawing 3.5



Branch Opening Rule 3.6

1-1/4" size fixture traps can be connected back to back into one 2" vertical drop. 1-1/2" size fixture traps require separate 2" drops. Washing machine waste branches can be 2". If another fixture is connected into the branch, the branch size must increase to 3". Horizontal waste branches without vertical drops are sized per Table 2.

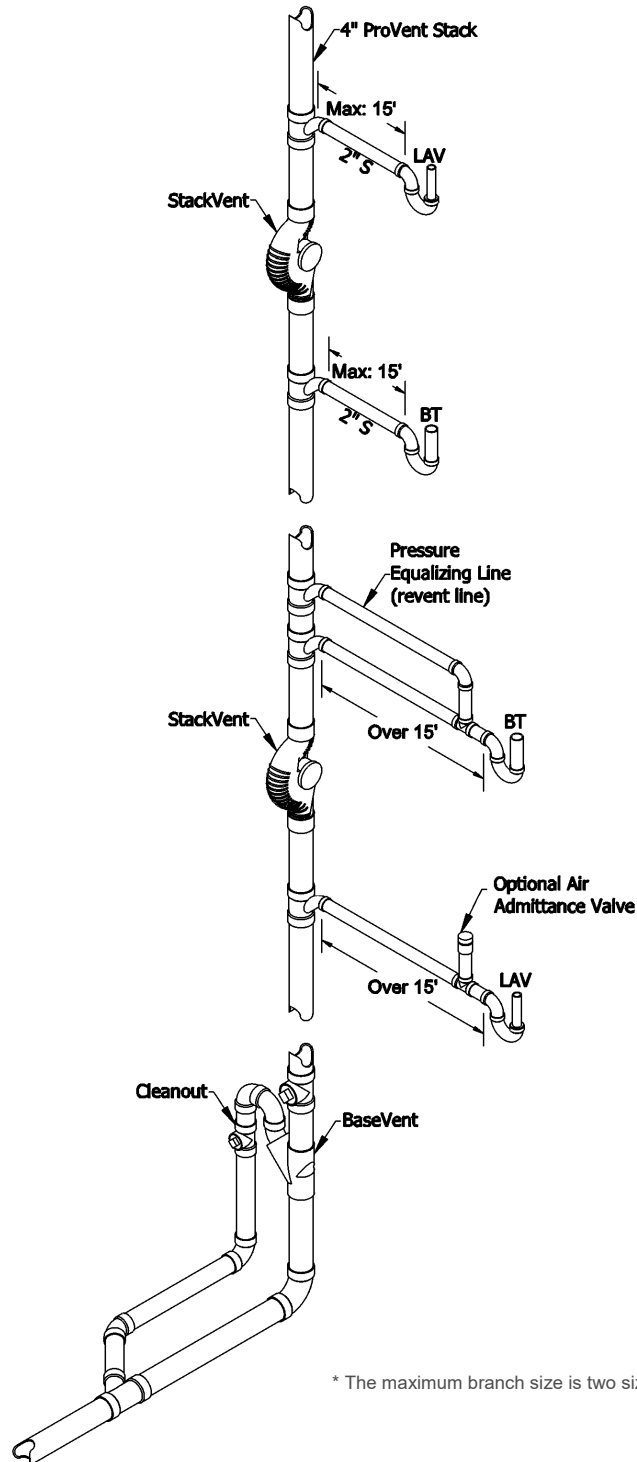
Special Note: ProVent systems recommends and designs washing machine connections to serve washing machines which require the use of no sudsing high efficiency detergents.



Drawing 3.6

Branch Opening Rule 3.7

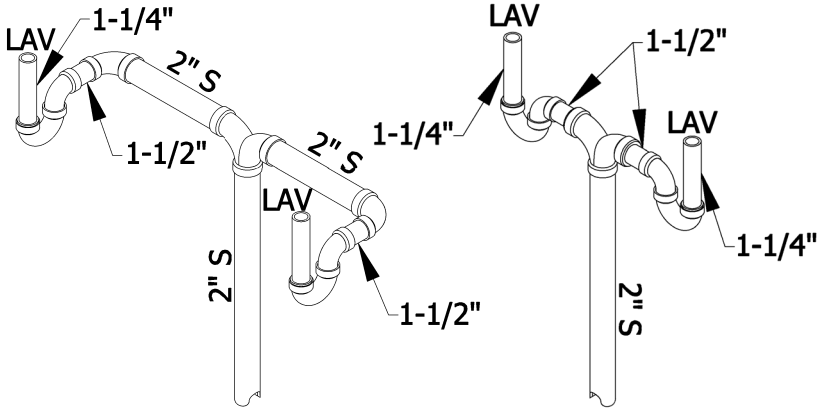
An alternate to increase developed lengths can be done by using a revent line or by telescoping smaller to larger pipe sizes or by using an Air Admittance Valve where applicable and permitted. The revent line shall be routed vertically and horizontally and tie in above the flood rim level using a wye branch looking up.



Drawing 3.7

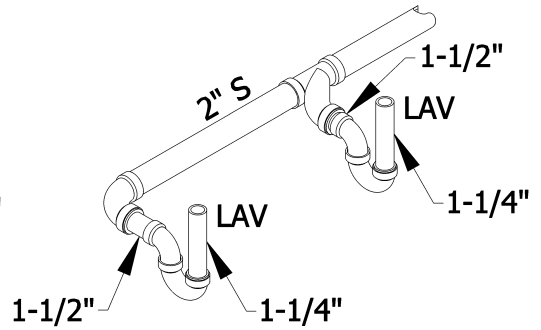
Other Examples of ProVent Fixture Branches

Lavatories: Vertical Branch



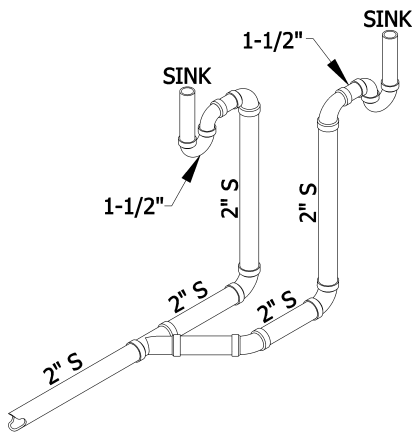
Drawing 31a

Lavatories: Horizontal Branch

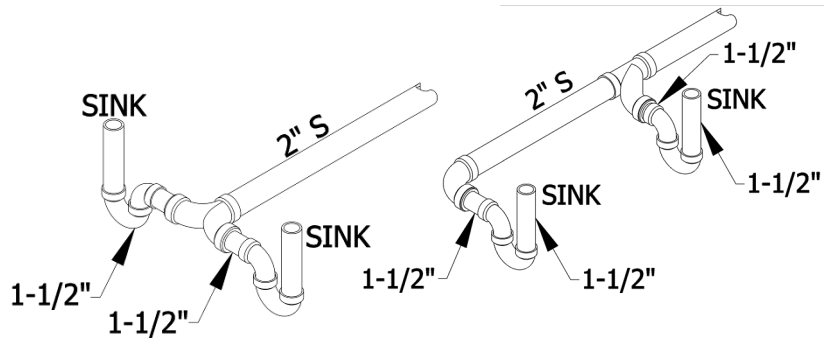


Drawing 31b

Sinks: Vertical Branch

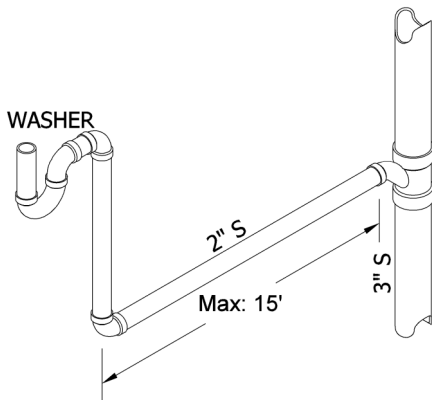


Sinks: Horizontal Branch

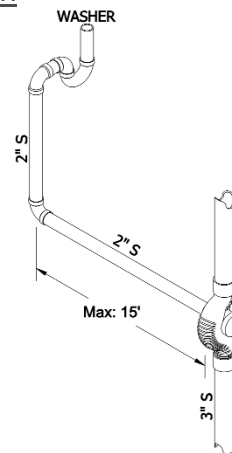


Drawing 31d

Washing Machines: Horizontal Branch
(Using HE Detergents)



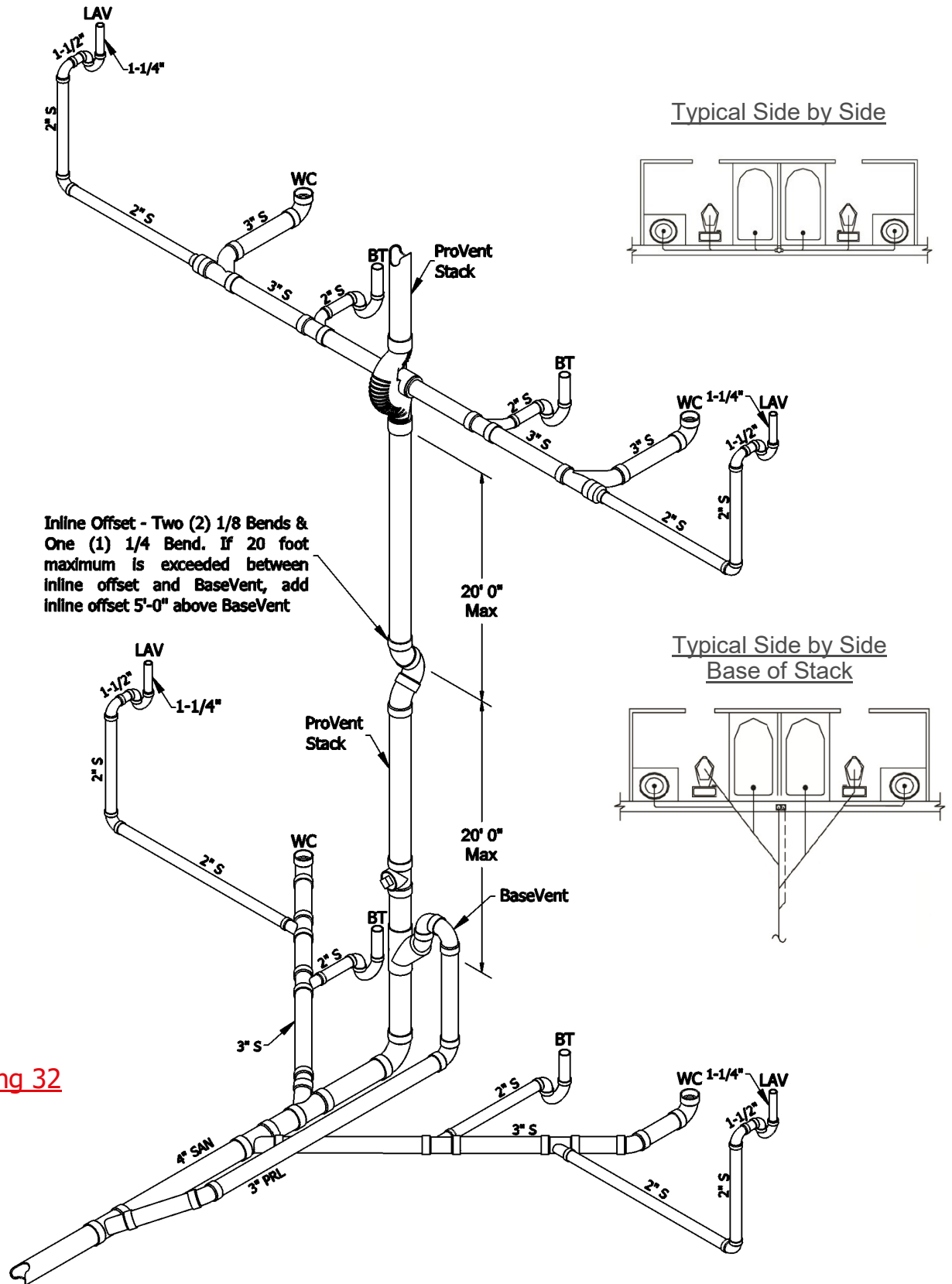
Drawing 31e



Drawing 31f



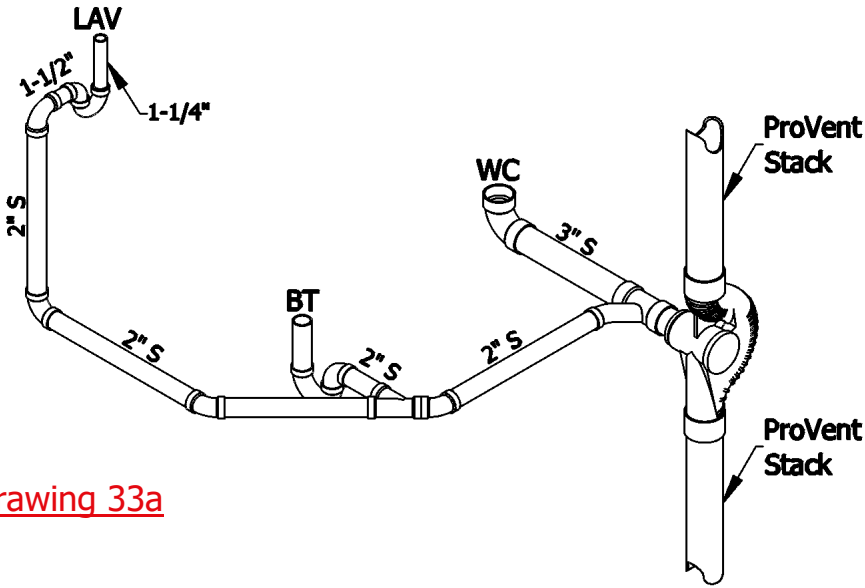
Example: Side by Side Layouts



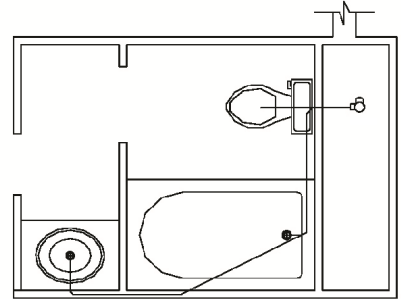
Drawing 32



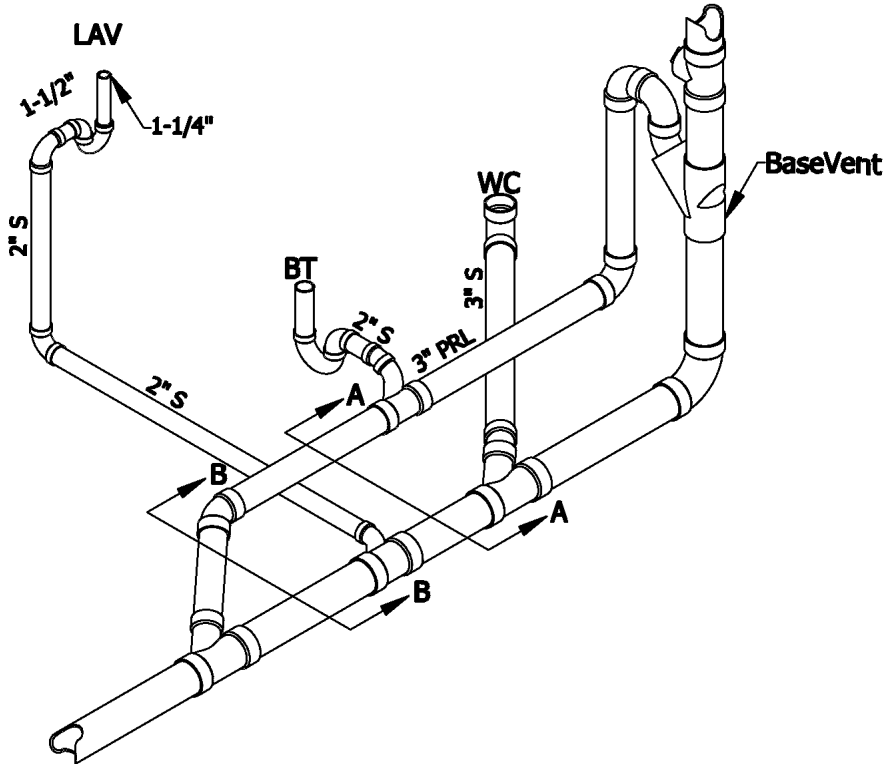
Example: Single Unit Layouts



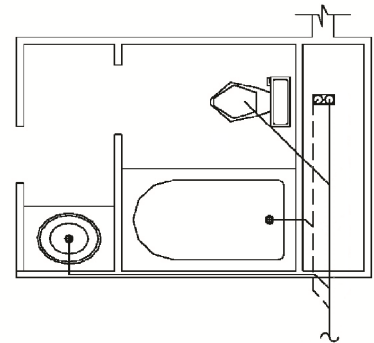
Typical Single Unit



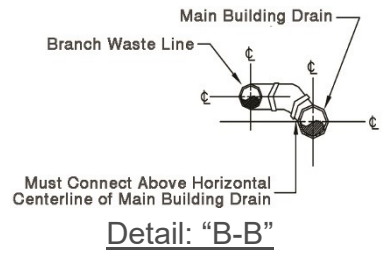
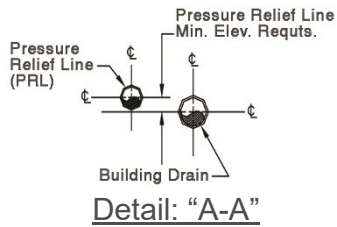
Drawing 33a



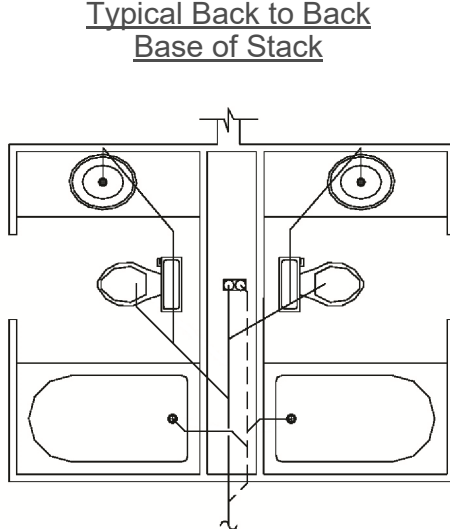
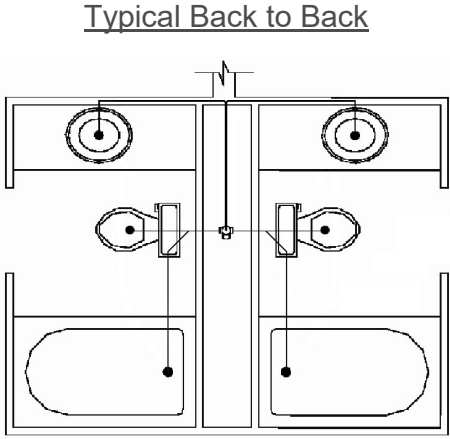
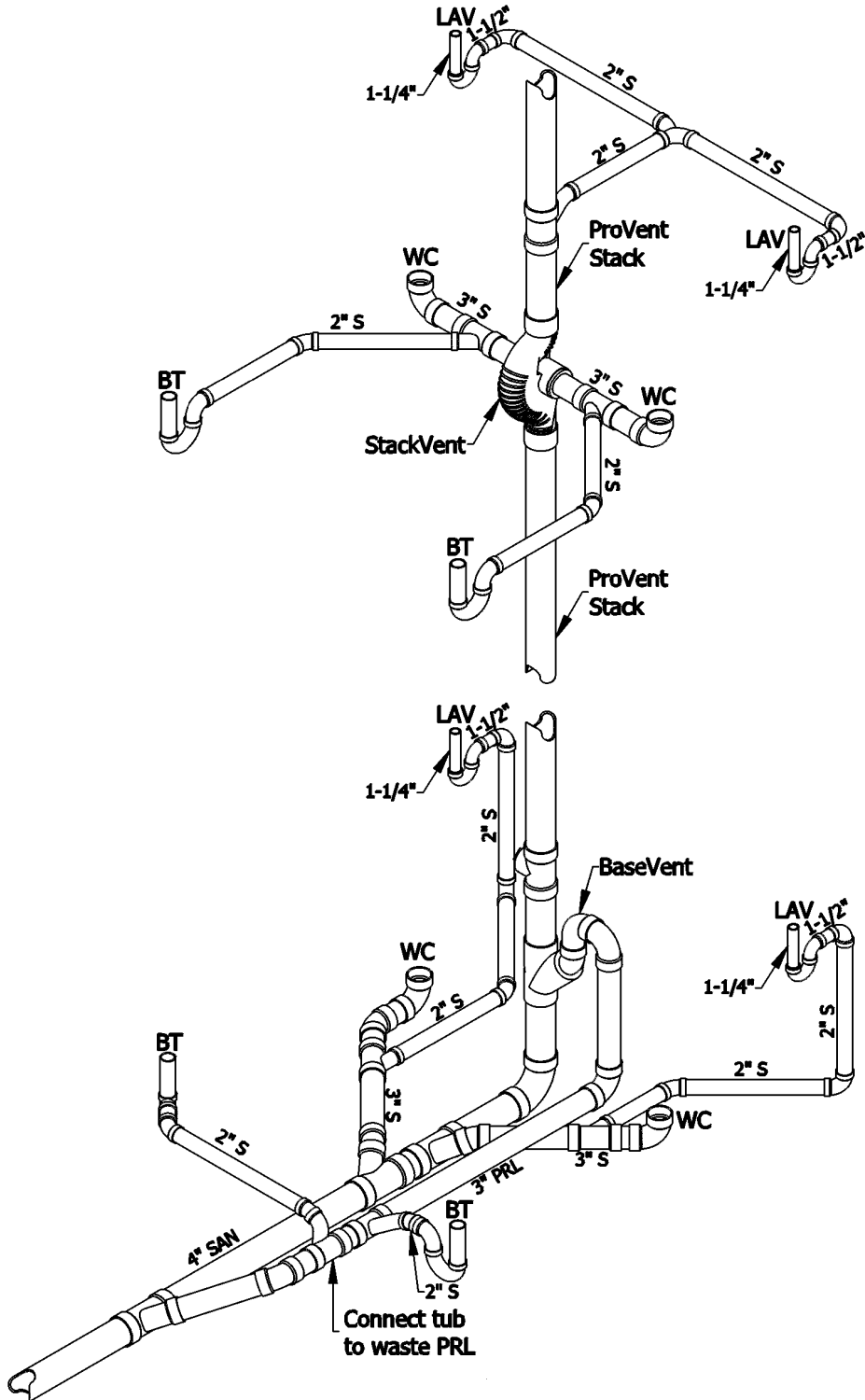
Typical Single Unit
Base of Stack



Drawing 33b



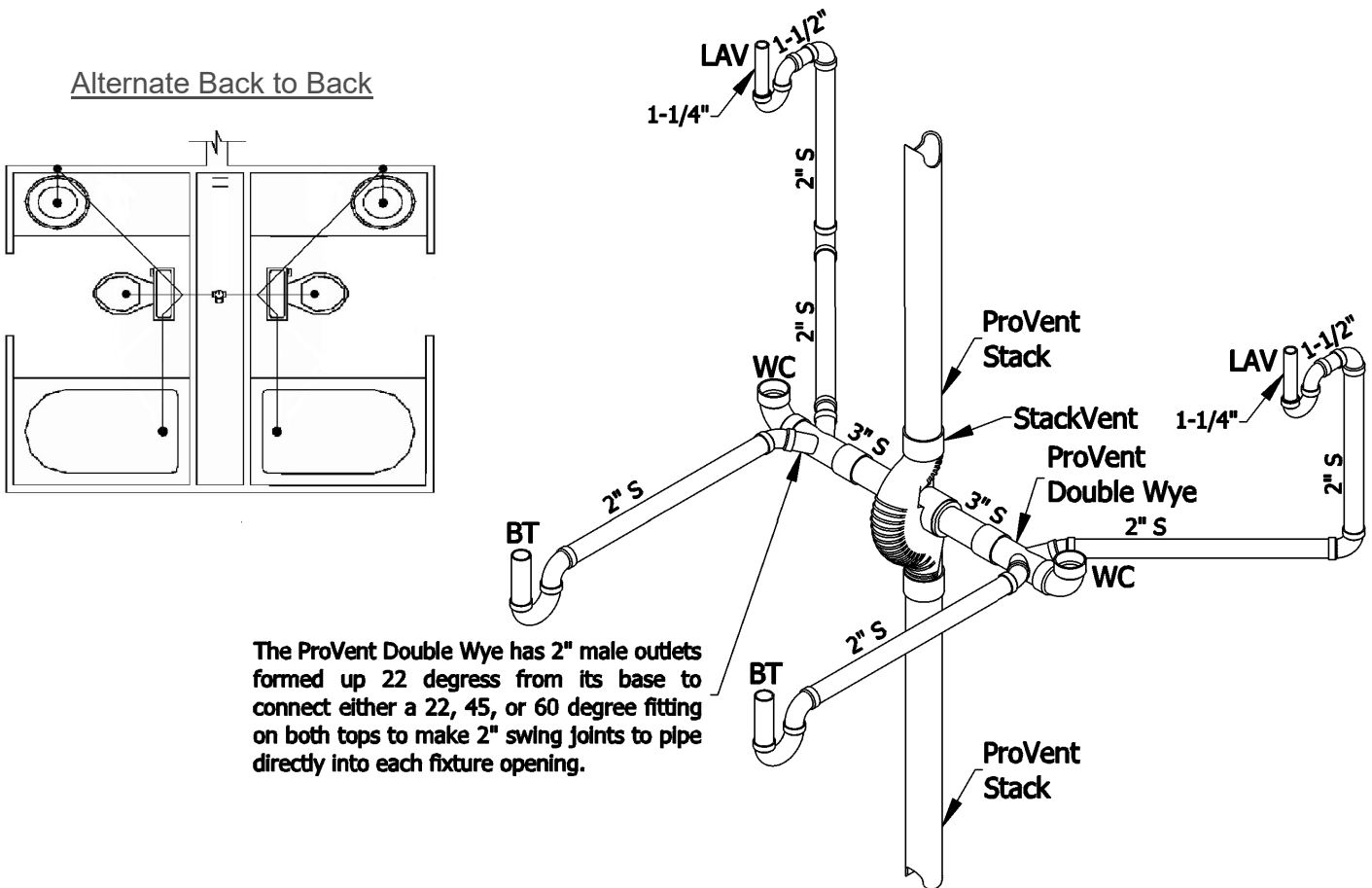
Example 1: Back to Back Layouts



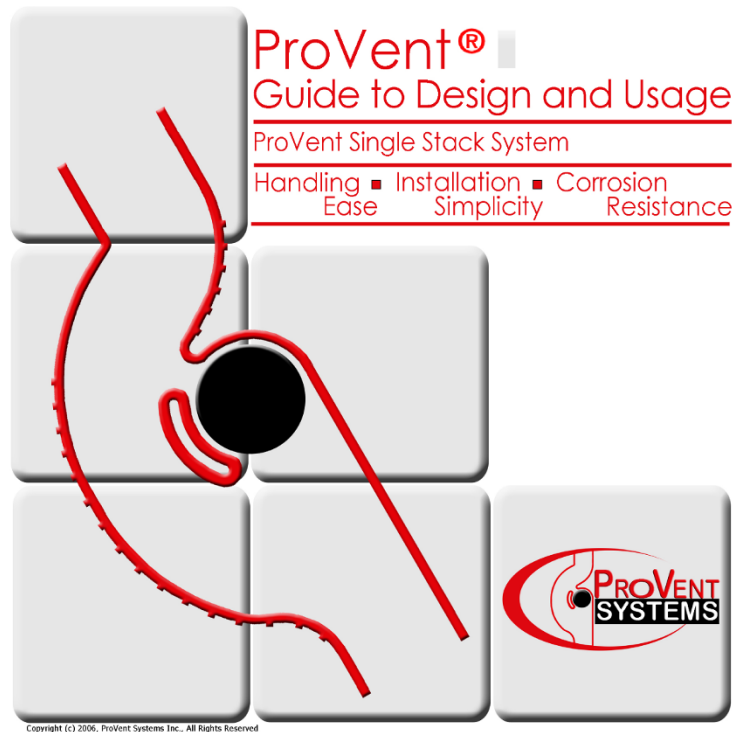
Drawing 34b



Example 2: Back to Back Layouts (Alternative Layout for Upper Floors)



Drawing 34c



IMPORTANT NOTICE

This manual shows the basic plumbing rules that have been used for over 60 years for both the copper and cast iron Sovent systems. The same rules apply for this PVC plastic ProVent System that includes both the ProVent Stack and Base fittings.

ProVent Systems may include conventional plumbing that must be installed in accordance with local plumbing codes. The vents from conventional plumbing may be tied into the ProVent stack as indicated within this manual.

ProVent Systems can assist in job design and inspections under certain understood conditions with the contractor or plumbing engineer. Job quotations may or may not include these services where required. Contact us for further information.

All additional piping, fittings, pipe supports, firestopping and other items that are supplied by others, should be in strict accordance with good piping practices and all applicable codes having jurisdiction.

When the rules used in this manual are adhered to without any deviations the system is known to function properly. However, any unknown deviation may reduce the integrity of this system. Therefore, the user must assume all responsibility for the integrity and performance of the completed DWV plumbing system and for adherence to all the rules included in this manual.

ProVent Systems cannot assume responsibility for the performance of the complete DWV system other than for the performance of the individual components supplied by ProVent Systems, as stated in the "Limited Parts Warranty", below.

LIMITED PARTS WARRANTY

Sellers products are carefully inspected for manufacturing defects; however, it is not always possible to detect hidden defects. Said products are warranted only to the extent that seller will replace without charge, products proved to have manufacturing defects within 6 months of the date of delivery thereof and provided seller has been given an opportunity to inspect the product alleged to be defective and the installation or use thereof. NO WARRANTY IS INCLUDED AGAINST ANY EXPENSE FOR REMOVAL, REINSTALLATION OR OTHER CONSEQUENTIAL DAMAGES ARISING FROM ANY DEFECT. THE WARRANTIES SET OUT ABOVE ARE THE ONLY WARRANTIES MADE BY SELLER AND ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PROPOSE.