

WATER CLOSET SUPPORTS TECHNICAL DATA



Smith engineers have developed an unusually complete line of fixture supports for mounting all types of "off the floor" fixtures. Supports have been designed for water closets, urinals, lavatories, sinks, drinking fountains and many special purpose hospital, institutional and industrial plumbing fixtures.

DEFINITION

Fixtures which are wall mounted and have no external contact with the finished floor are classified as "off the floor plumbing fixtures." Fixtures so mounted are supported on concealed cast iron or steel supports (carriers). These supports are completely concealed in the wall, and support the load of the fixture by means of a suitable face plate and base support which is firmly anchored to the floor. Thus the load of the fixture is effectively taken off the wall and transmitted to the floor.

WATER CLOSET SUPPORT SYSTEMS

By incorporating a waste fitting which functions in conjunction with the support section, an entire system of "Combined Fixture Supports and Waste Fittings" has been developed. Thus, when mounting "off the floor" water closets, a complete unit is available which supports the fixture and includes a fitting which will tie into the drainage piping system. Fittings are available in vertical and horizontal patterns. Used in combinations, these fittings can satisfy waste and vent requirements of most systems.

Smith engineers have worked closely with plumbing designers, contractors and code officials to develop a system which meets their rigid demands and requirements. Particular attention was given in design so that--

- the engineer can select supports with fittings to meet all problems created by architectural, structural, code or esthetic requirements.
- the plumbing contractor can easily and economically install a rigid and code approved support with fitting, which will function for the lifetime of the building.
- the code official is assured that fittings used with supports are designed to meet code requirements relative to the proper sizing for drainage piping and venting.

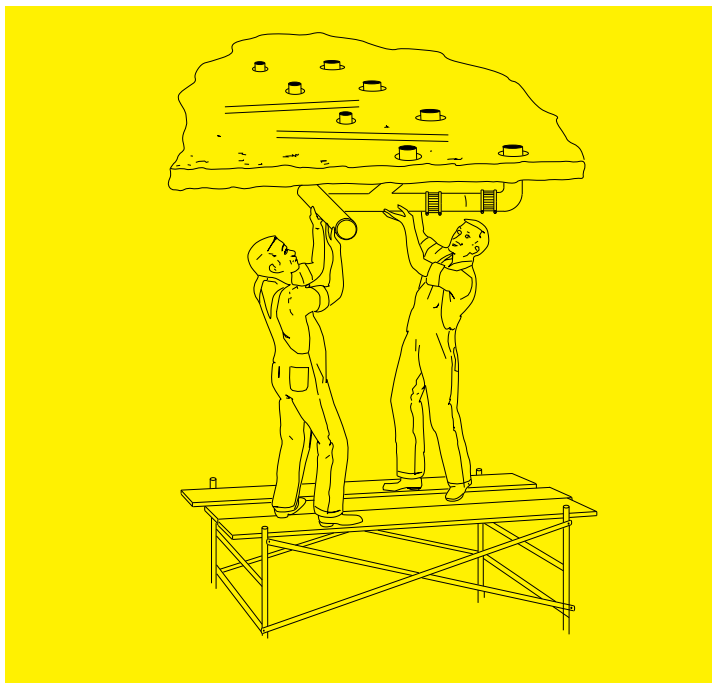


Fig. 1

INSTALLING PIPING FOR FLOOR MOUNTED FIXTURES

ADVANTAGES OF "OFF THE FLOOR" WATER CLOSETS OVER FLOOR MOUNTED

Design--The complete line of fittings available offers great latitude to architects and engineers when laying out the spacing, piping diagrams and wall space requirements for plumbing fixtures. The Smith system offers the engineer an option of designing a plumbing drainage system which is compact, yet extremely functional. The architect is assured that the system uses a minimum of floor space, with all the necessary components included.

Installation--Off the floor water closet systems can be installed more economically than conventional floor mounted systems. This comparison is particularly obvious in multi-story buildings which have batteries of water closets on each floor. The contractor is assured a simple, fast and efficient installation. Off the floor systems reduce costs for the following reasons:

1. Less sleeving. In most cases only one sleeve is required to take care of the vertical inlet fitting at the start of the horizontal run.
2. Since all the roughing is done on the floor and not in the ceiling below, no scaffolding, ladders or similar supports are required (Fig. 1).
3. The installer works on the floor (Fig. 2) and not in the ceiling below; thus, time is saved since working conditions are more favorable.
4. Because all the rough-in piping is on the floor above, "dropped ceilings" are not required; thus, ceiling space is saved. This enables building ceiling height to be lower, effectively saving overall construction costs.

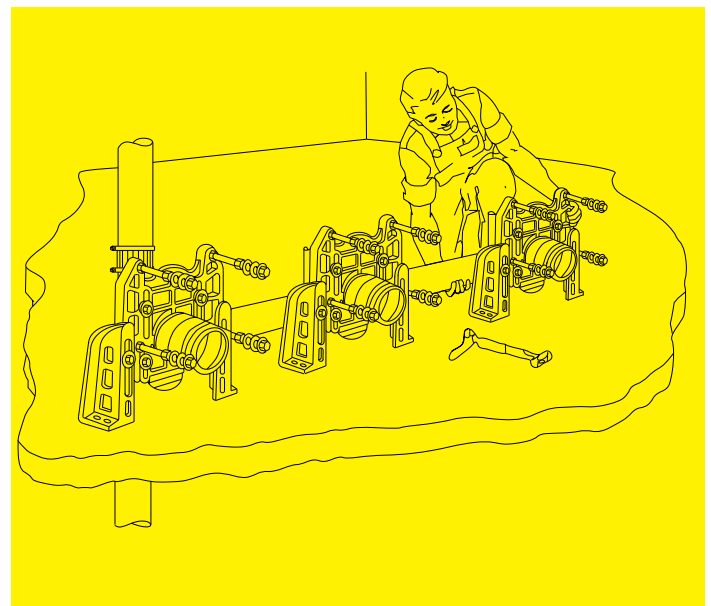
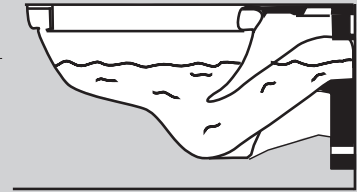
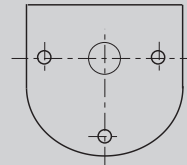
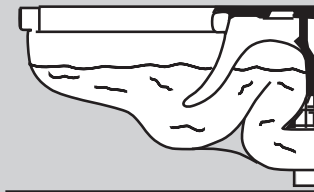
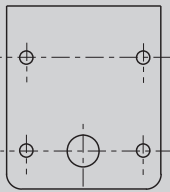


Fig. 2

INSTALLING PIPING FOR "OFF THE FLOOR" FIXTURES

Sanitation--After the building is turned over to the owners, cost for cleaning in the area under the "off the floor" water closets is considerably less than in similar areas which have floor mounted fixtures. A mop is easily passed under off the floor fixtures thoroughly cleaning the floor beneath as compared to the very difficult task of cleaning around and in back of floor mounted water closets. Cleaning costs are reduced, and the toilet room is maintained in a more sanitary condition.



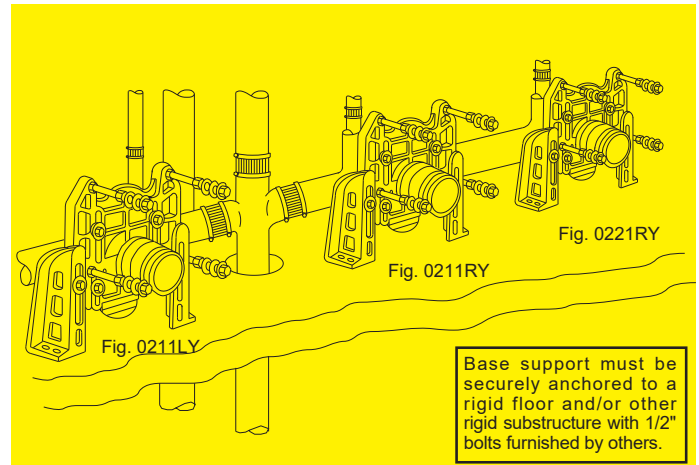
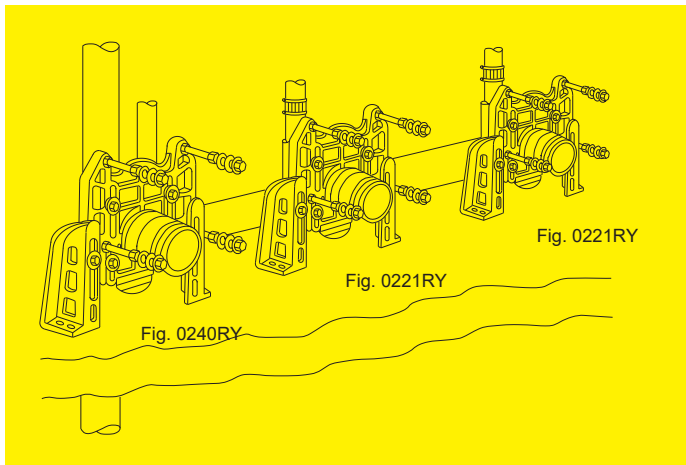
SIPHON JET

BLOWOUT

The siphon jet bowl is the most common because its action is relatively silent and economical in water usage. It operates by a jet of water directed through the trapway which quickly fills and starts the siphonic action immediately upon flushing. Its quiet action and large water surface, among other features, make it the most desirable bowl type. It is readily distinguished by the four bolt holes which receive the fixture support studs.

The blowout bowl is particularly adapted for public use as in airports, stadiums or plant washrooms. Its action is a driving one of high velocity. It is economical in water use and has a large water area and an unrestricted trapway. It is also more noisy than the siphon jet bowl because of its direct jet action. The blowout bowl is secured to the supports by three studs.

TYPICAL BATTERY INSTALLATIONS



Battery of horizontal fittings with adjustable closet supports used in conjunction with a vertical fitting.

Battery of horizontal fittings with adjustable closet supports connected to a stack fitting.

The architect's construction design and physical layout of the toilet room dictates the type of fittings that can be selected by the engineer for battery installations. The engineer's drainage and vent system design must be in accordance with the local plumbing code in force.

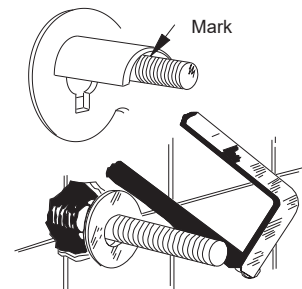
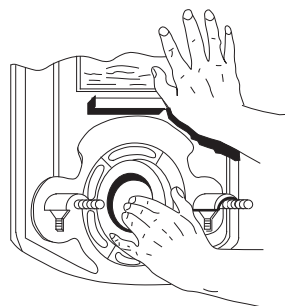
SUFFIX -M17 WATER CLOSET SETTING GAUGE



Smith's lightweight cast aluminum water closet setting gauge is available for siphon jet bowls. The gauge has the same dimensions as the rear of the "off the floor" siphon jet bowl and is designed to eliminate costly trial and error test mounting and reduce the number of bowl "lifts" per day. The gauge locates the correct position of bearing washers and nuts, locates the correct protrusion of outlet coupling and support studs and checks the plumb of the wall. When the bowl is lifted, it's ready to be installed.

Features of the Closet Setting Gauge include:

1. Leveling pads to check horizontal alignment.
2. Four openings to check vertical and horizontal stud alignment.
3. Four extensions to determine stud length.
4. Vertical plumb line.
5. Four recesses in back of gauge for positioning of bearing washers.
6. Opening with coupling setting locations for outlet connection.



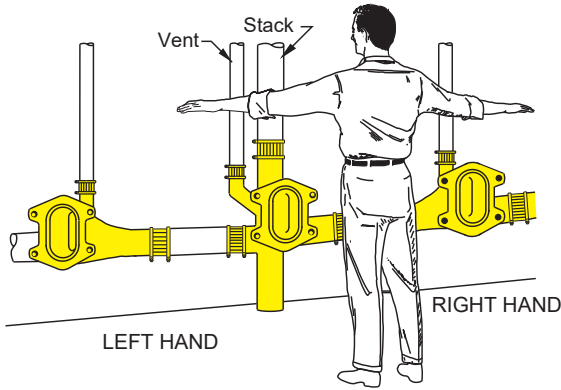
Slip gauge over studs and hold tight against wall. Check for plumb and level. Adjust bearing washers and nuts to fit tight against back of gauge. Make necessary adjustments for alignment of studs.

Hold gauge tight against wall and adjust outlet coupling flush with pad corresponding to closet horn depth.

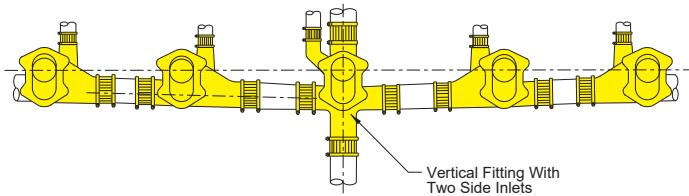
Hold gauge tight against bearing nuts and washers, and mark cut-off point of studs flush with gauge extensions. Remove gauge and cut off studs. Install bowl.



SELECTION OF VERTICAL FITTING WITH SIDE INLETS

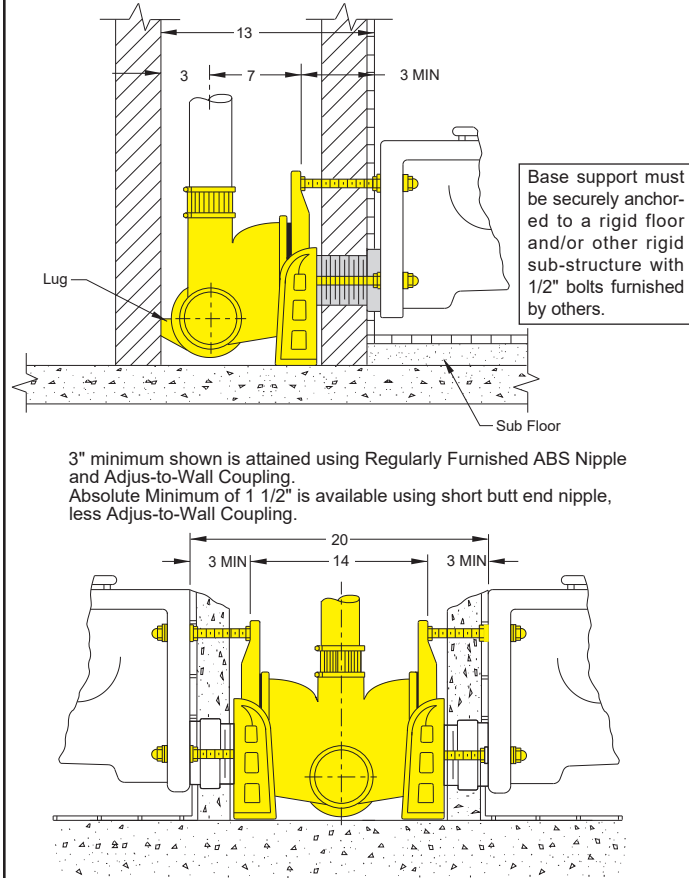


Selecting the proper vertical stack fitting is of prime importance since that fitting with side inlets is the start of the horizontal battery of fittings and supports. To determine left or right hand fitting, face the stack from the fixture side of the wall. If the inlet is to the left of the stack, it is a left hand fitting. If the inlet is on the right of the stack, it is a right hand fitting. The vent is always located on the same side as the inlet on a single inlet stack fitting.



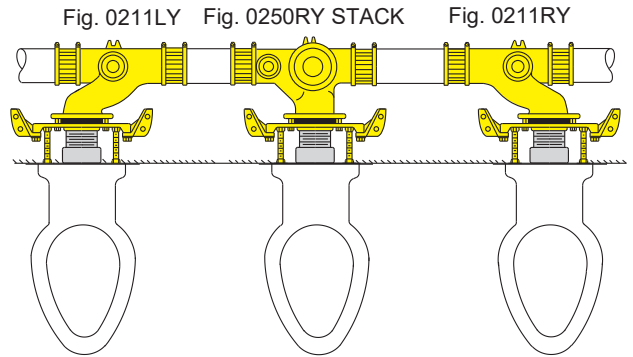
TYPICAL INSTALLATION

SPACE REQUIREMENTS FOR SINGLE AND DOUBLE HORIZONTAL SUPPORTS



Shown is the minimum pipe space required for a single and double horizontal support.

DETERMINING LEFT OR RIGHT HAND HORIZONTAL FITTINGS



LEFT HAND

FACE STACK FROM
FIXTURE SIDE

RIGHT HAND

Left or right hand fitting is always determined by facing the stack from the fixture side of the room. Closet fittings to the left of the stack are left hand fittings. Closet fittings to the right of the stack are right hand fittings.

FACE PLATE SELECTION

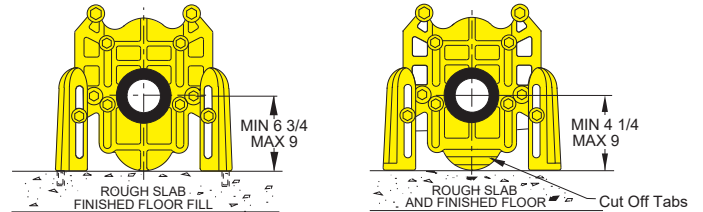


Fig. 0100

Fig. 0200

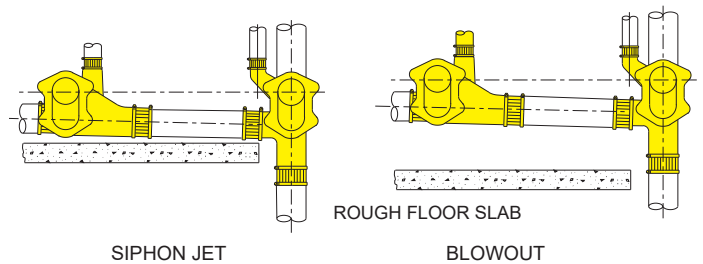
0200 Series 4" or 5" rough-in face plate available.

Fig. 0200 SERIES SHALLOW ROUGH-IN TYPE

The face plate is designed for one-pour construction, consisting of a single slab with fill and 1/4" finished material.

Cut-off grooves provided on 0200 Series face plates. This allows removal of tabs to accommodate 5" or 4 1/4" minimum roughs.

ROUGHING OF VERTICAL ADJUSTABLE FITTINGS WITH SIDE INLETS



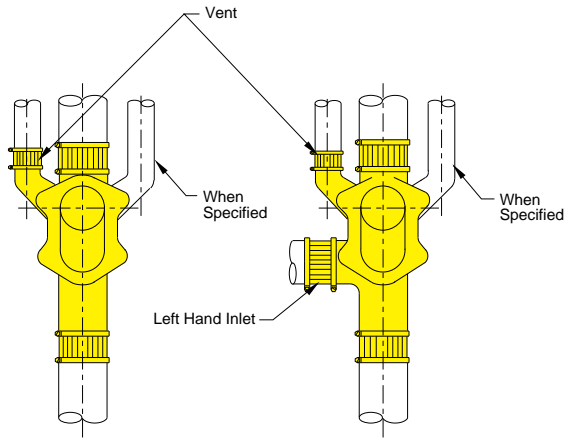
SIPHON JET

BLOWOUT

Siphon Jet--The location of the side inlet is determined by the center of the closet outlet to the finished floor plus the thickness of the finished floor materials. This will determine where the inlet will be in relation to the rough floor. For shallow roughing (0200 Series) or one-pour slab construction, the side inlet should always set on the slab floor.

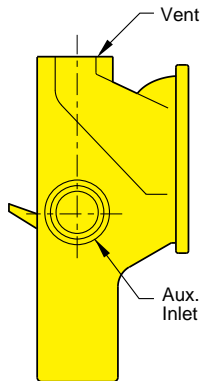
Blowout--The location of the side inlet should be set in the lowest position from center line of the closet outlet to center line of side inlet.

VENT LOCATIONS ON VERTICAL ADJUSTABLE FITTING



All Smith vertical adjustable fittings without side inlets are regularly furnished with a 2" vent on the left side. This vent can be located on the right side when specified. Smith vertical adjustable fittings with side inlet are regularly furnished with 2" vent on the same side as the inlet. The vent can be located on the side opposite the side inlet when specified.

AUXILIARY INLET CONNECTION SUFFIX -N15 SUFFIX -N2

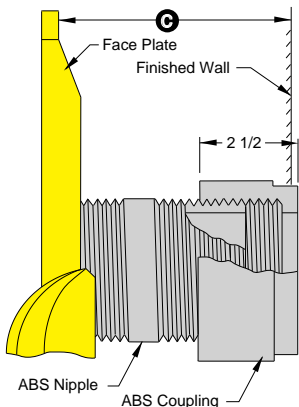


NOTE: Vent and auxiliary inlet, are always located on same side (unless otherwise specified).

All vertical adjustable fittings can be supplied with either a -N15 (1 1/2") or -N2 (2") tapped inlet, either side. To indicate auxiliary connection, add Suffix -N to the figure number and specify location and size desired. The auxiliary inlet is ideal for receiving waste from lavatories, urinals, etc., where local code will permit. When using soil pipe, the female iron pipe thread can be converted to hub with Smith Fig. 2645 adaptor, or to NO-HUB with Smith Fig. 2646Y adaptor.

Ⓢ DIMENSION - ADJUS-TO-WALL TYPE OUTLET CONNECTION

The Smith Adjus-to-Wall outlet connection provides adjustment at the face of the wall at the time the fixture is set; thus, compensating for wall construction variations. The Ⓢ dimension is measured from the front of the face plate to the face of the finished wall. To properly determine the length of nipple required, deduct 1" from the Ⓢ dimension. The Adjus-to-Wall coupling will provide 1/2" horizontal adjustment in either direction with the coupling extended 5/16" past face of the finished wall.

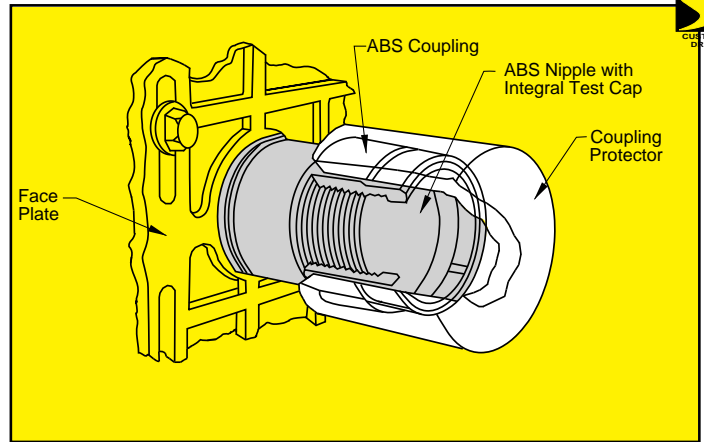


NIPPLE LENGTH	Ⓢ	
	MIN	MAX
2 1/2	2 1/4	3 1/4
*3 1/4	3	4
*8 1/4	8	9
10	9 3/4	10 3/4
12	11 3/4	12 3/4
15	14 3/4	15 3/4
18	17 3/4	18 3/4

*ABS (Regularly Furnished) other lengths PVC.

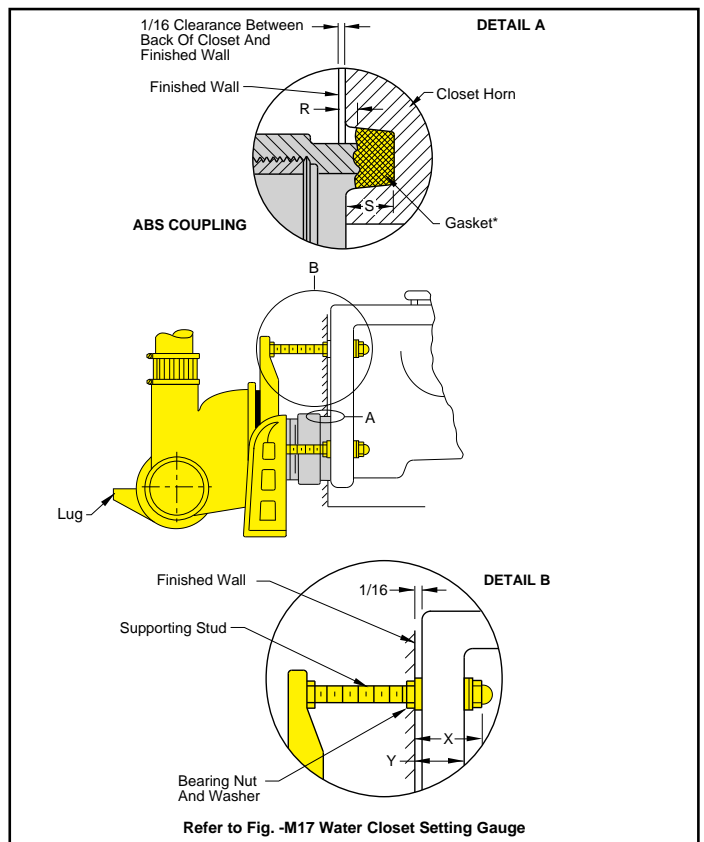
NOTE: When nipple lengths between 3 1/4" and 8 1/4" are specified, the 8 1/4" nipple will be supplied and must be cut to length by others.

COUPLING PROTECTOR



Every Smith Adjus-to-Wall outlet connection is furnished with a polystyrene coupling protector. This protector covers the outlet connection during the wall construction and later permits easy adjustment of the coupling to the finished wall.

RECOMMENDED SETTING OF CLOSET OUTLET CONNECTION AND FIXTURE STUDS



Refer to Fig. -M17 Water Closet Setting Gauge

Manufacturers have slight differences in the depth of the closet horn and flange thickness of their closets. Usually the fixture support closet connection should extend 5/16" beyond face of finished wall (Dimension "R") and the fixture studs 2 1/4" (dimension "X"). For exact dimensions, please use the formulas below:

DETAIL A $S + 1/16" - D = R$

R = Distance coupling should extend beyond finished wall.

S = Depth closet horn

1/16" = Distance closet is to set away from finished wall.

*D = 1/2" for felt gasket and 3/8" for neoprene gasket.

NOTE: When the fixture is installed, closet gasket must be compressed sufficiently to assure a gas and water tight seal.

DETAIL B $Y + 1/16" + 9/16" = X$

X = Distance supporting stud should extend beyond finished wall.

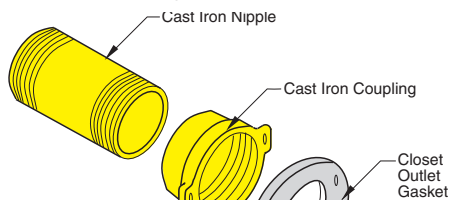
Y = Thickness of closet wall flange.

1/16" = Distance closet is to set away from finished wall.

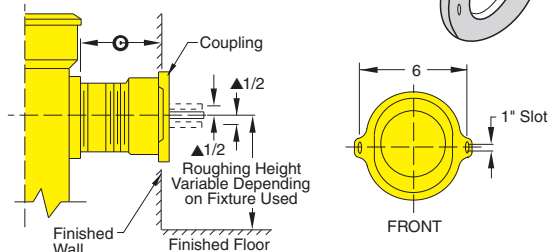
NOTE: Bearing nuts and washers must be set to take full loading from the fixture allowing 1/16" clearance between fixture and wall.

OPTIONAL CLOSET OUTLET CONNECTIONS

For use with floor mounted back outlet closets. Refer to previous page for proper \odot dimension and coupling adjustment. Nipple lengths available are also listed.

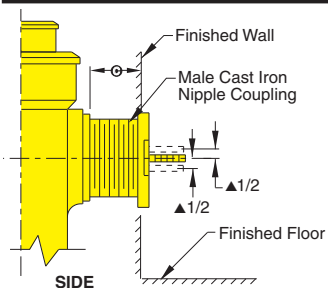


NOTE: Coupling should extend 5/16" beyond finished wall.



▲NOTE: The 4" adjustable coupling is provided with vertical slotted ears which permit a 1/2" adjustment up or down for variation in finished floor height.

TYPE NO. 2 CLOSET OUTLET CONNECTION

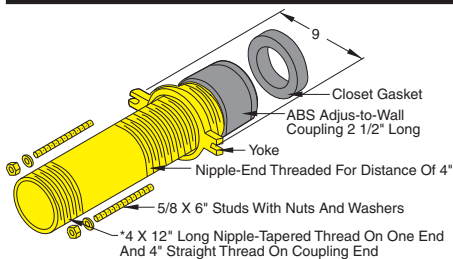


The type 2M outlet connection is used with floor mounted back outlet closets. The 2M connection is an integral nipple/coupling whose length is specified by the \odot dimension. The 2M can accommodate a smaller \odot dimension than the type 2 connection.

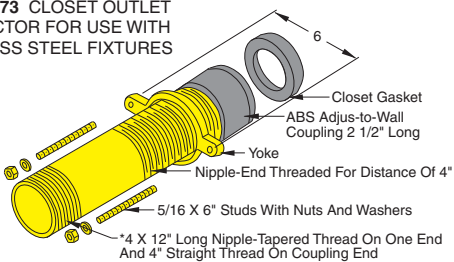
\odot	
MIN	MAX
1	3

▲NOTE: The 4" adjustable coupling is provided with vertical slotted ears which permit a 1/2" adjustment up or down for variation in finished floor height.

TYPE 2M CLOSET OUTLET CONNECTION



TYPE -M73 CLOSET OUTLET CONNECTOR FOR USE WITH STAINLESS STEEL FIXTURES



TYPE -M74 CLOSET OUTLET CONNECTOR FOR USE WITH STAINLESS STEEL FIXTURES

***NOTE:** See page 0-06 for Nipple lengths available.

COMPACT FIXTURE SUPPORTS

Smith compact fixture supports with waste fittings are designed specifically for installation where non-adjustable vertical fittings are suitable for construction requirements and minimum pipe space is of prime consideration. These supports are available in both offset and center line waste type.

The offset waste type features an absolute minimum center to back dimension and is arranged with vertical vent connection making it suitable for multi-story installation.

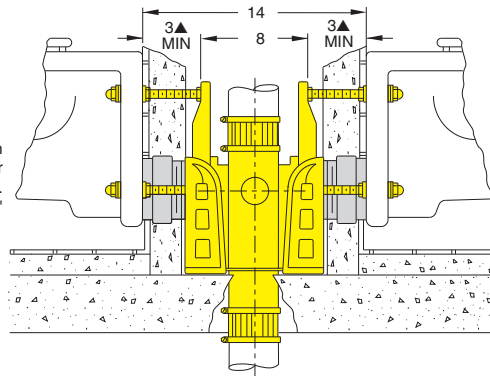
The center line waste type does not have the vent connection and is limited to single story installations. The extension of the vertical waste line is the stack vent.

Both types are available for siphon jet or blowout closet applications.

▲MINIMUM SPACE REQUIREMENTS FOR COMPACT FIXTURE SUPPORTS

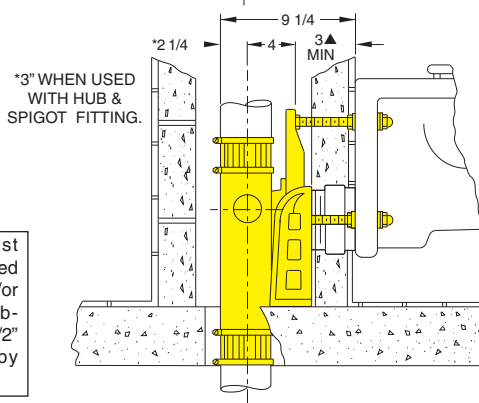
DOUBLE COMPACT OFFSET FITTING

Fig. 0410DY shown installed in a one-pour type floor construction. Dimensions apply to 4" size only.



SINGLE COMPACT OFFSET FITTING

Fig. 0410RY shown installed in a one-pour type floor construction. Dimensions apply to 4" size only.

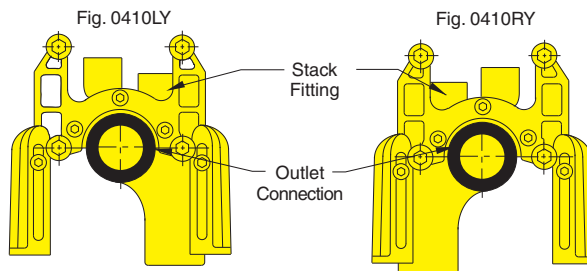


Base support must be securely anchored to a rigid floor and/or other rigid sub-structure with (4) 1/2" bolts furnished by others.

▲3" Minimum shown is attained using Regularly Furnished ABS Nipple and Adjust-to-Wall Coupling.

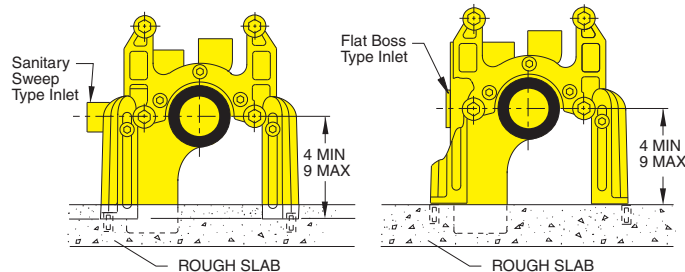
Absolute Minimum of 1 1/2" is available using short butt end nipple, less Adjust-to-Wall Coupling.

DETERMINING LEFT OR RIGHT HAND COMPACT FITTINGS



Face wall looking into closet outlet connection. If connection is on the left side of the vertical stack, it is a left hand support. If on the right side, it is a right hand support.

BASE SUPPORT ADJUSTMENT



Adjustment limitations are shown above for both one and two-pour construction.

All compact series fixture supports are available with auxiliary inlets. The offset series are available with either a sanitary sweep type inlet or a flat boss type connection. The center line waste type supports are available with only a flat boss type inlet connection. Both inlet types are available in 1 1/4, 1 1/2 or 2" thread. A 2" caulk and no-hub connections are available for the sanitary sweep type inlet.