

Code Essentials

Proper drainage pattern fittings are necessary for:

- Proper directional flow of wastes
- Reducing the possibility of blockages
- Maintaining airflow in the drainage system
- Effectively using drain rodding equipment ●

Joints and Connections

Gravity flow in drains can be impeded significantly by anything that causes excessive friction. Therefore, it is imperative that joints create a smooth interior surface free of ledges or reductions that can obstruct the flow. Additionally, fittings that properly direct the flow are necessary. IPC Table 706.3 lists the various types of directional pattern fittings and their proper use for changes in direction (Table 5-8). Naturally, horizontal to horizontal and horizontal to vertical changes in direction fittings with a larger turning radius are generally referred to as long-sweep bends, wyes and combination wye and eighth bend fittings. Note that a short sweep may be used in vertical to horizontal changes of direction in 3-inch or larger diameter drains, and both the quarter bend and the short sweep may be used for 2-inch or smaller fixture drains (Figures 5-10 and 5-11). When using IPC Table 706.3, note that both plastic and cast iron drainage fittings have a long sweep and a quarter bend, but cast iron also has a short sweep, which is a shorter radius than its quarter bend. Do not compare the radius of bend for one type of material to another. A good rule of thumb is to consider the radius of joining two eighth bends (45 degrees) of material to be equivalent to a long sweep of the same material.

TABLE 5-8 Fittings for change in direction (based on IPC Table 706.3)

Type of fitting pattern	Change in direction		
	Horizontal to vertical	Vertical to horizontal	Horizontal to horizontal
Sixteenth bend	X	X	X
Eighth bend	X	X	X
Sixth bend	X	X	X
Quarter bend	X	X ^a	X ^a
Short sweep	X	X ^{a,b}	X ^a
Long sweep	X	X	X
Sanitary tee	X ^c	—	—
Wye	X	X	X
Combination wye and eighth bend	X	X	X

For SI: 1 inch = 25.4 mm.

a. The fittings shall only be permitted for a 2-inch or smaller fixture drain.

b. Three inches or larger.

c. For a limitation on double sanitary tees, see Section 706.3.

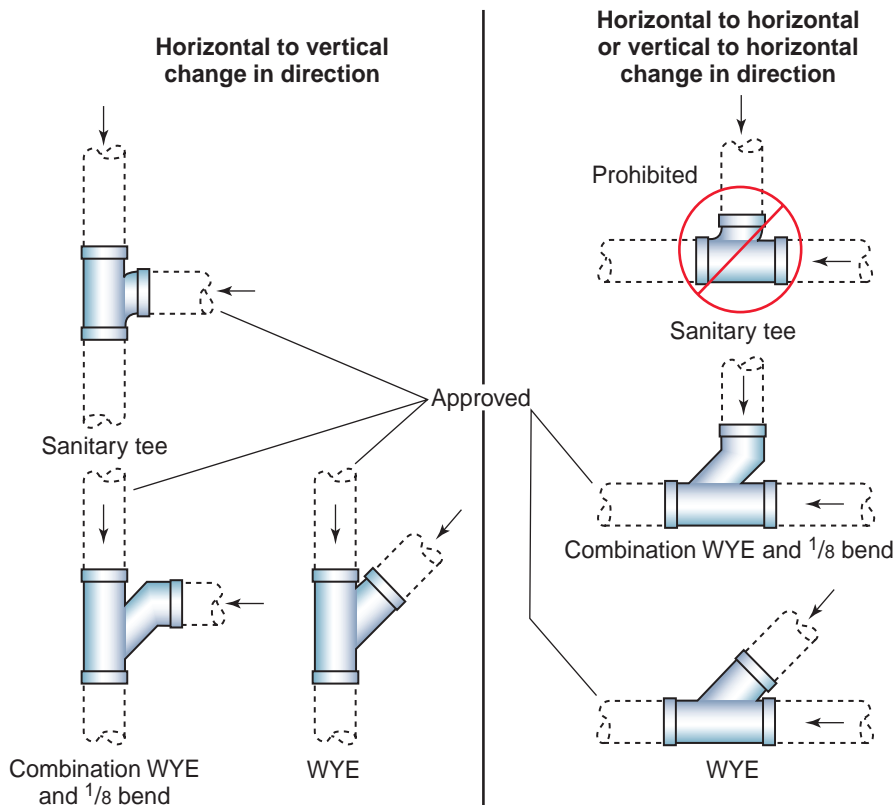


FIGURE 5-10 DWV fittings for change in direction

You Should Know

- Do not compare the radius of a 90-degree bend of one type of material to another. A good rule of thumb in determining what would constitute a long-sweep bend is to join two 45-degree bends of the same material together to determine the proper radius. ●

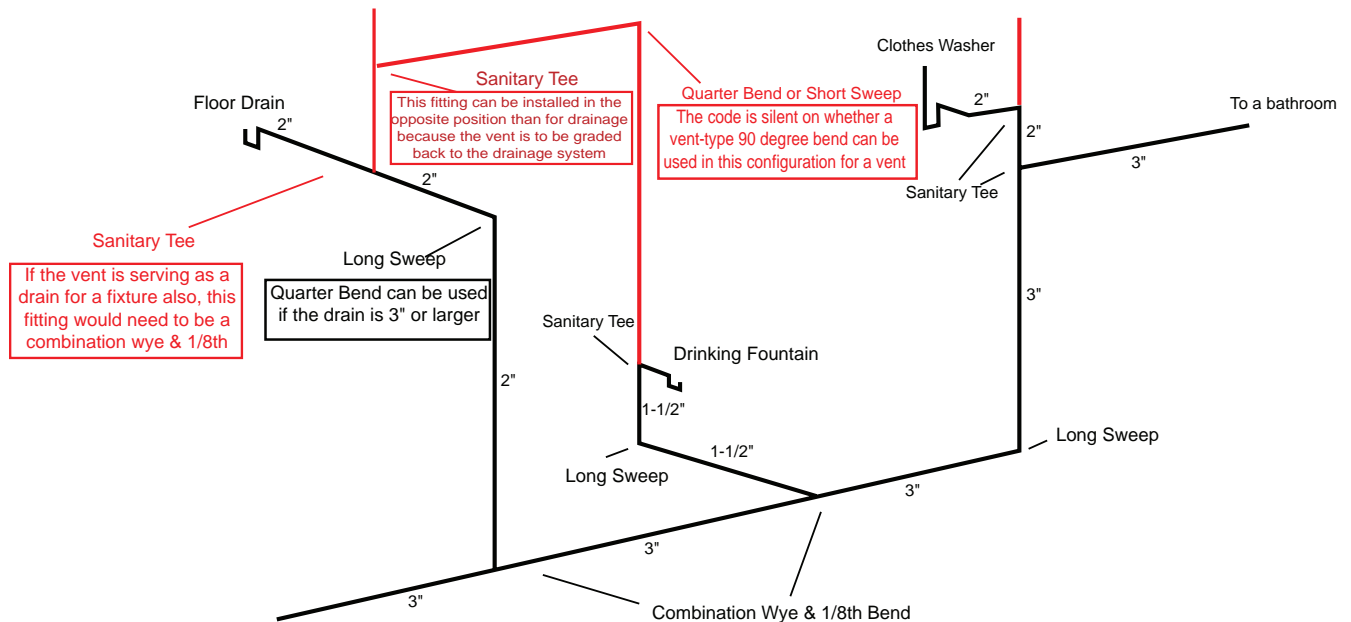


FIGURE 5-11 Fittings for vent connections