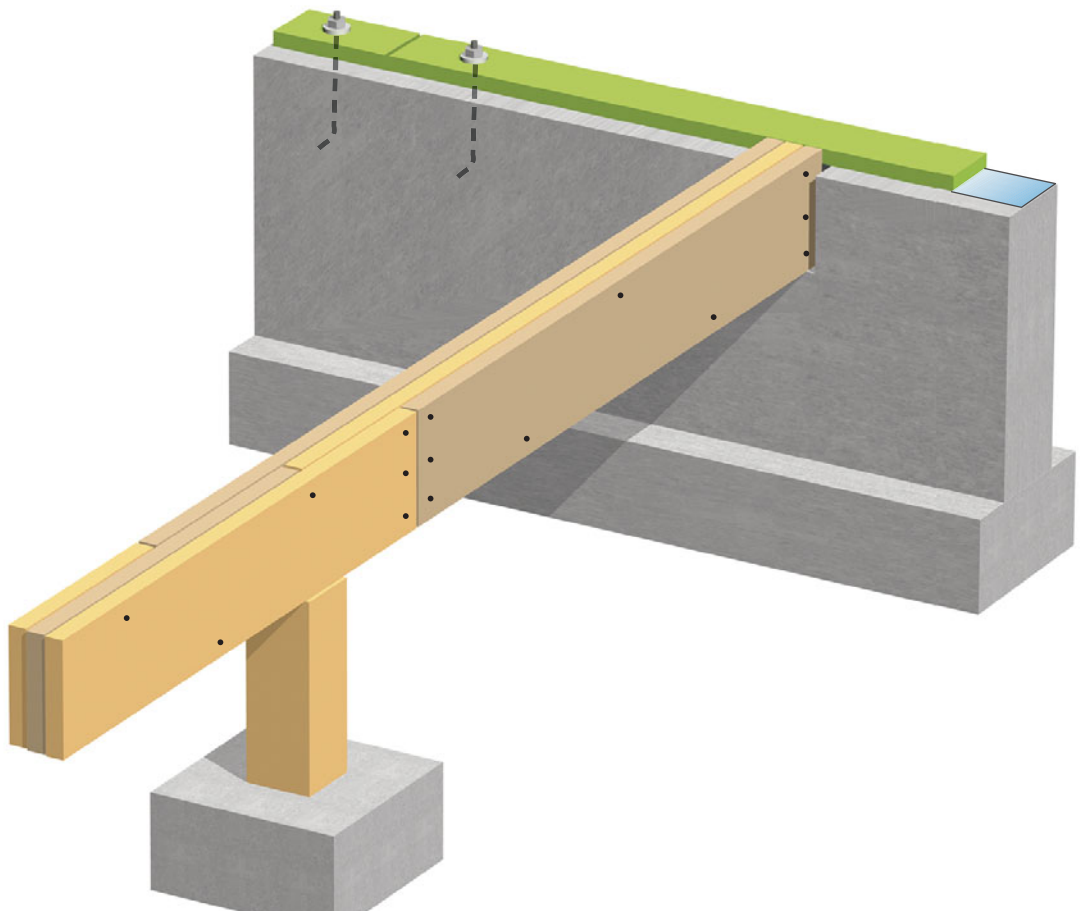
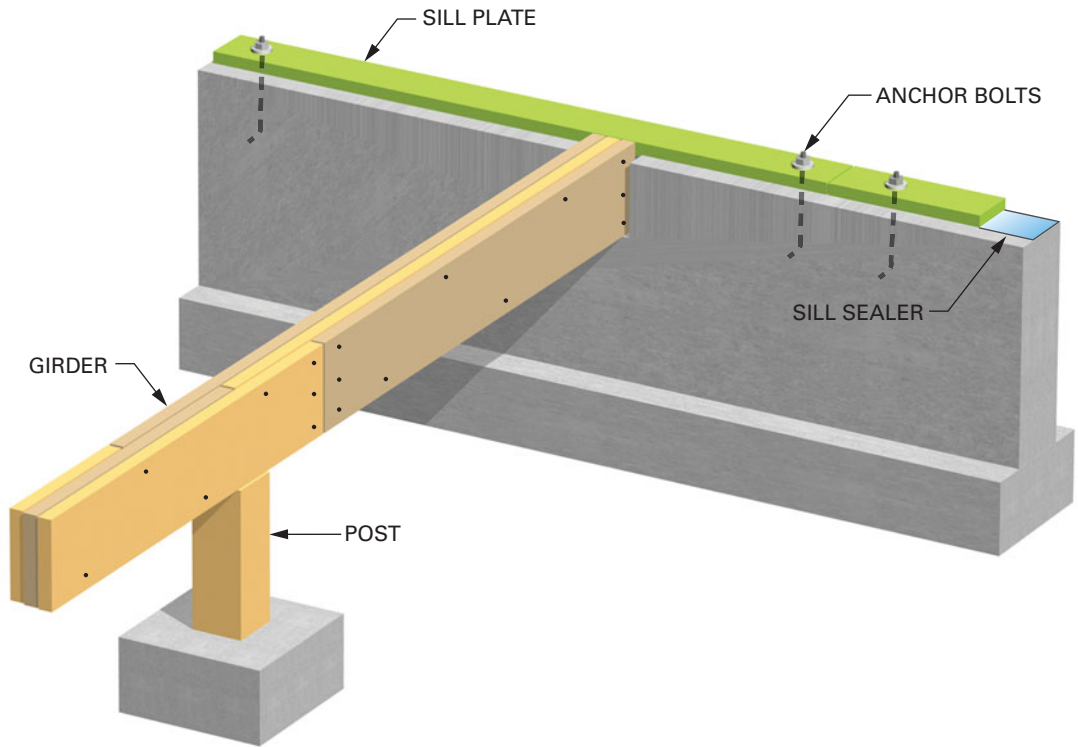


# SILLS, POSTS, AND GIRDERS



## SILLS, POSTS, AND GIRDERS

This is most commonly the starting place for a carpenter.



**Figure 3-1** The starting components for a floor system

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## Chapter Three Glossary

Refer to Figure 3-1 for locations of components described below.

**Anchor bolt**—A special fastener connecting the sill plate to the foundation wall.

**Girder**—A load-bearing horizontal framing member (beam). In this case it supports the load from the floor above it.

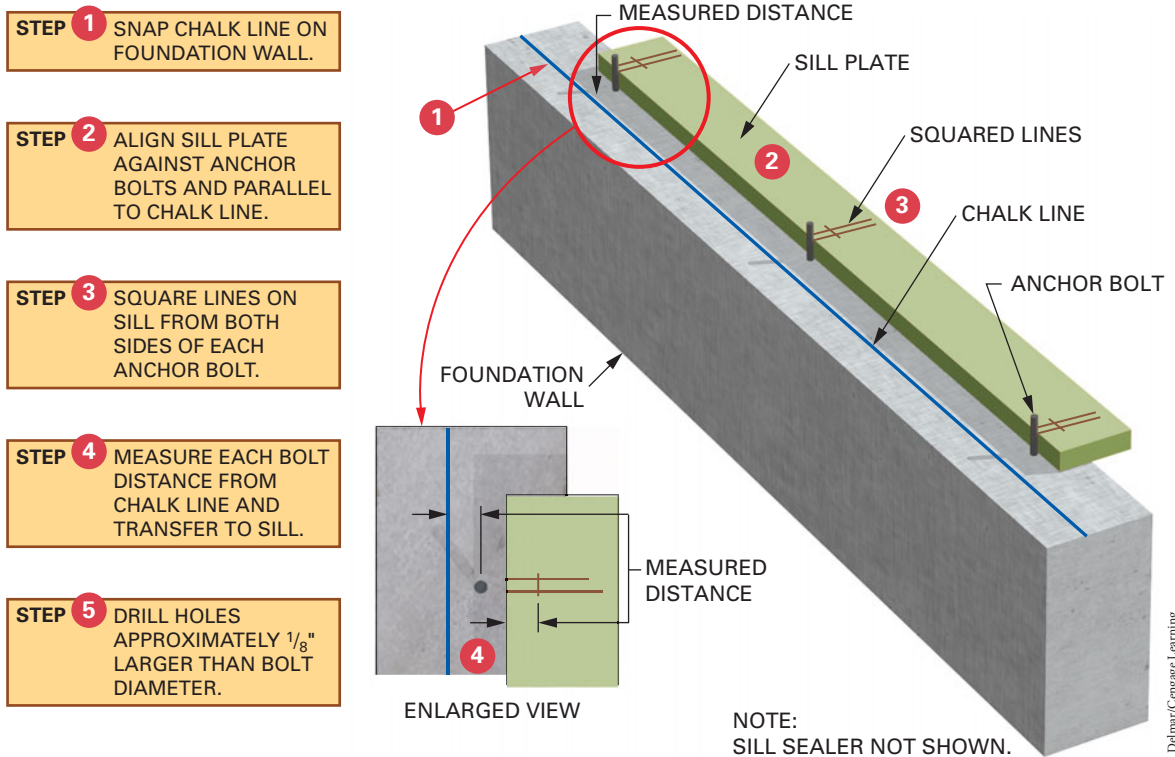
**Post**—A vertical support member that often helps to carry the girder.

**Sill plate**—Fastened to the foundation by anchor bolts, sills provide a wood surface to nail to. Generally a pressure-treated 2 × 6.

**Sill sealer**—A thin layer of insulation fitting between the sill plate and the top of the foundation wall. As building weight is added, sill sealer compresses and seals out drafts.

## SILL PLATES

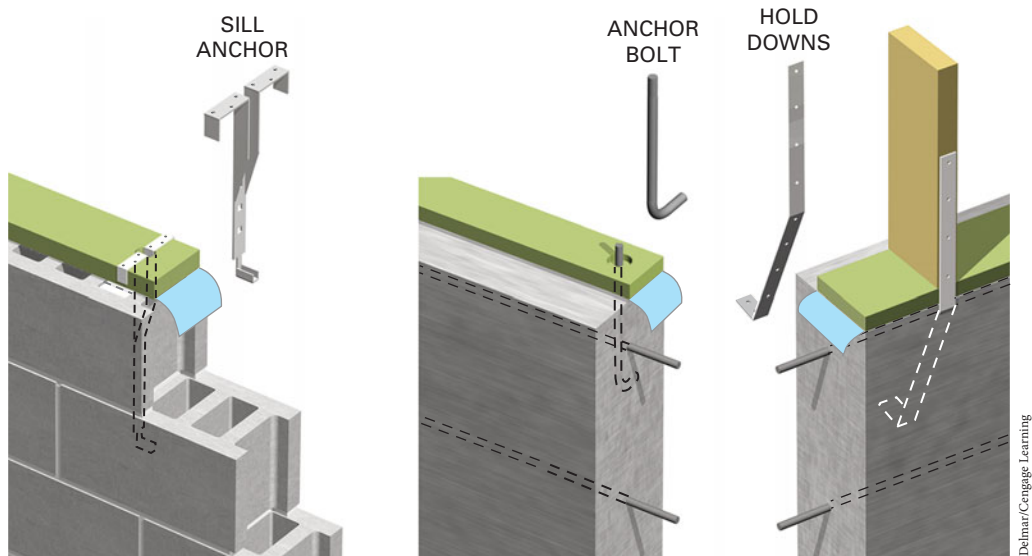
Installation of the sill plates is often the starting point for a carpenter. Typically a layer of sill sealer is first placed on top of the foundation wall, and then the sill plates are placed according to the procedure in Figure 3-2.



**Figure 3-2** Installing a sill plate on a foundation using anchor bolts

### Sill Anchors

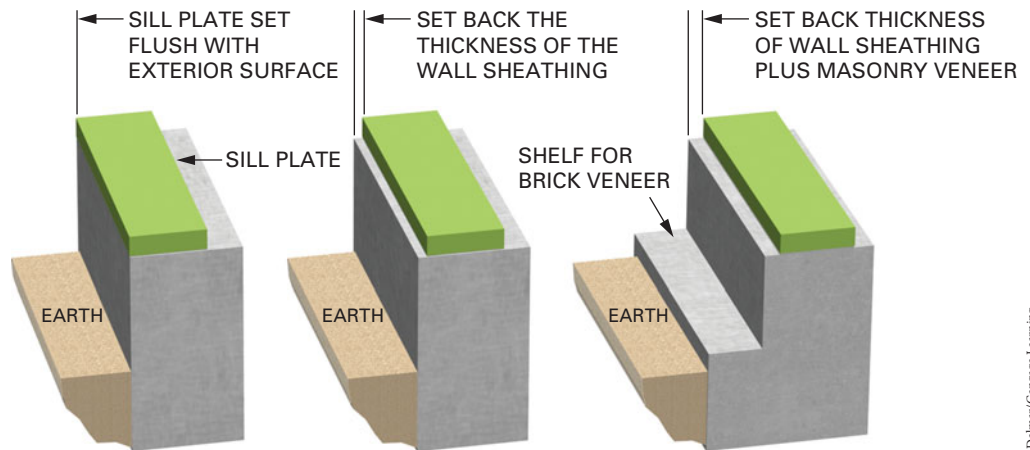
There are various types of anchors available to fasten sill plates to the foundation wall; see Figure 3-3 for some common variations.



**Figure 3-3** Sill anchors, anchor bolts, and hold downs connect frame members to concrete

### Variations on Sill Placement

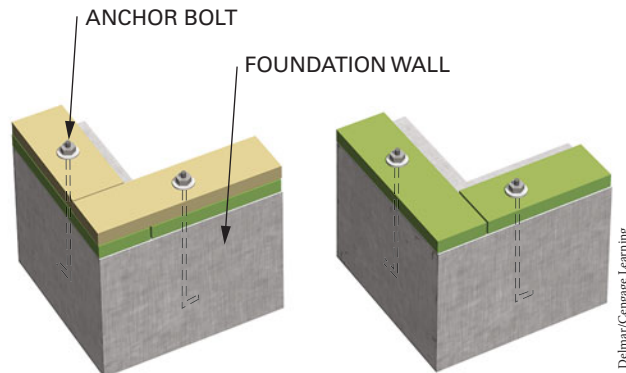
Sills can be placed flush with the foundation wall, set back slightly, or even overhang slightly depending on the exterior surface material (check local codes for the amount of overhang allowed). See Figure 3-4.



**Figure 3-4** A sill plate may be located with different setbacks from the foundation edge

*Anchors must be placed between 4" and 12" from the end of the sill plates and not farther than 6' apart elsewhere.*

Generally a single sill plate is adequate; however, adding a second sill plate is an easy way to raise the joists another 1½". This may be necessary to increase the headroom in a basement.



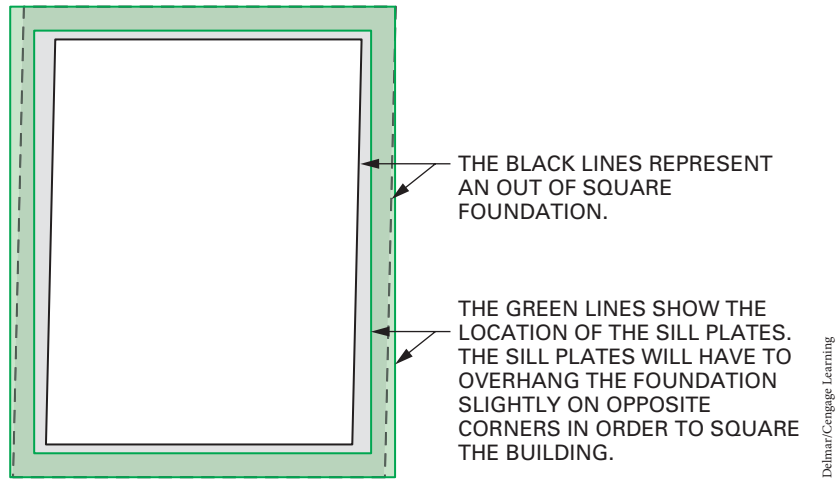
**Figure 3-5** Double sill (left) and single sill (right)

### Adding Anchors Where None are Present

Occasionally, due to an oversight or when remodeling, an anchor may need to be added. Various anchoring hardware is available to make this process possible. One such product is an epoxy system, where a hole is drilled for the anchor and a type of epoxy adhesive is injected into the hole, hardening around the anchor bolt. Other products include different types of expandable anchors, where an anchor made of several parts literally expands as it is tightened.

### Adjusting for an Out-of-Square Foundation

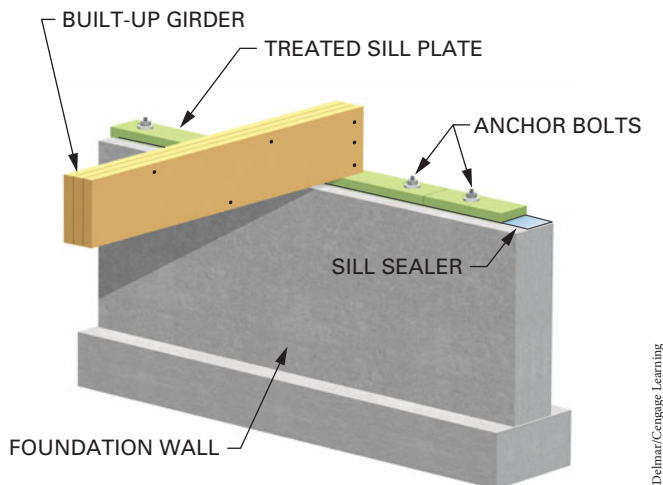
Before starting to build, the carpenter should always check the foundation dimensions for accuracy and for squareness (see “Squaring and Checking for Square” in Chapter 2). In the event the foundation is slightly out of square, corrections should be made before proceeding further. Minor corrections are achieved by hanging the sill over the edges of the foundation at the opposite corners. This will aid in an attempt to create 90-degree angles. Obviously there are limitations to the amount the sill plate can overhang—check local codes.



**Figure 3-6** Correcting an out-of-square foundation

## GIRDERS

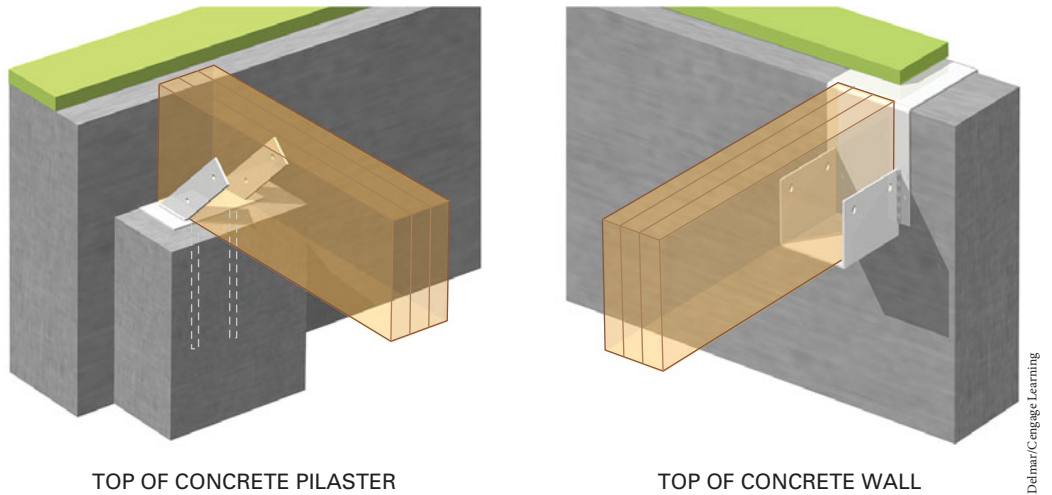
Girders act as intermediate supports for the joists. They may also carry weight from other sources above them. Girders can be framed flush with the joists (see Figure 3-7). They can be hung from the foundation wall with special hardware, or



**Figure 3-7** Flush girder

be placed on a support pilaster (Figure 3-8) integrated into the foundation wall (flush or dropped). Girders can also be “dropped” by placing them into a notch in the foundation wall called a beam pocket (Figures 3-9 and 3-10). When girders are dropped, the joists rest directly on top of them.

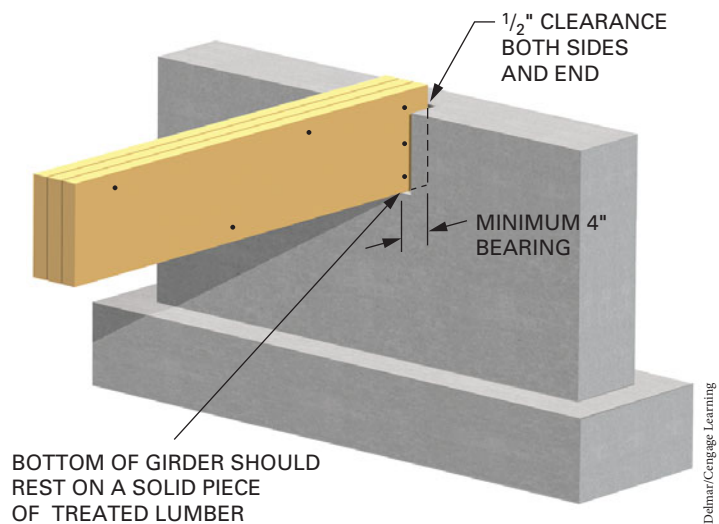
### **Girder Hardware**



**Figure 3-8** Girder and beam seats provide support from concrete walls

### **Girder Pocket**

During construction of the foundation, a pocket is formed within the wall, eliminating the need for special hangers. Note the minimum clearance/size requirements shown in Figures 3-9 and 3-10.



**Figure 3-9** A girder pocket of a foundation wall should be large enough to provide air space around the end and sides of the girder