

Builder Notes

Brick Veneer Construction: Advanced Flashing—Stepped Flashing, Bay Windows, and Arches

In brick veneer construction, flashing plays an important role. It redirects water that has passed through the brick veneer back out to the exterior. Through-wall flashing is easy to install at foundations as well as at window and door heads and window sills. However, when it comes to more complex wall elements—such as at foundations, bay windows, second-story walls over lower roofs, or arched wall openings—flashing may require added care in its design and installation.

Stepped Flashing

Stepped or “waterfall” flashing is typically used when brick masonry

intersects at an adjacent sloping surface. Rather than install a single piece of flashing laid flat, one must install several layers of flashing to protect the wall from moisture. The following recommendations are for areas where flashing may be more complicated to install.

Stepped Foundations

The grade around homes is seldom flat. With many homeowners desiring walk-out basements, there will be situations where the brick needs to follow the grade line down a slope. A stepped brick ledge can be constructed to support the brick and to provide a location for flashing. In all cases, the flashing and weeps should be above grade. If some portions of the brick veneer will be below grade, then the flashing must be placed above grade (see Figure 1). While this solution exposes about 6 inches of the foundation wall, the flashing at the top of the brick ledge will reduce the chances for water leakage.

Flashing Around Bay Windows

Bay windows are a common area where stepped flashing may be considered. While the rough opening in the brickwork is rectangular, some portion of the roof over the bay is usually sloped (see Figure 2). Although

FIGURE 1

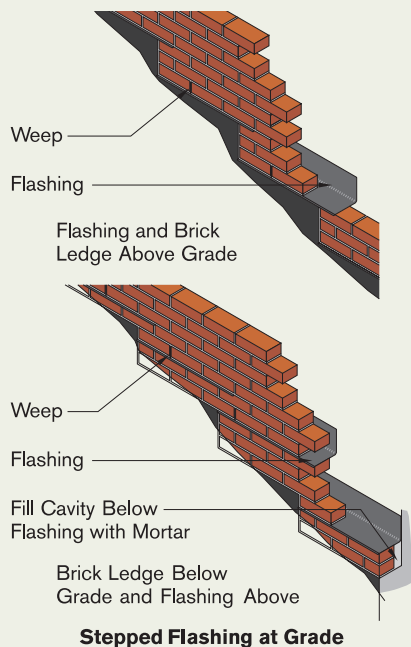


FIGURE 2

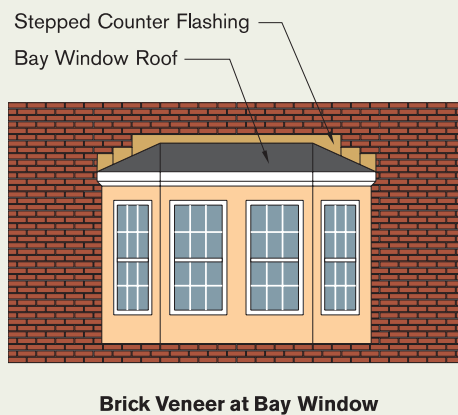
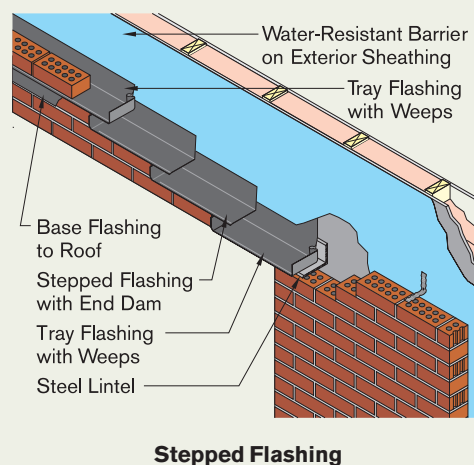


FIGURE 3



roof flashing is used, this alone does not address water that has penetrated the brickwork. As a result, through-wall flashing must be used.

To prevent water from penetrating the interior, one of two methods can be used. Both methods require tray flashing placed one or two courses above the roof of the bay and lapped with counter flashing on the roof. The first option is *stepped flashing*, which will prevent water that penetrates the triangular areas around the bay window from reaching the interior (see Figure 3). Alternately, for masonry openings less than 6 feet in length, *gutter flashing* may be placed

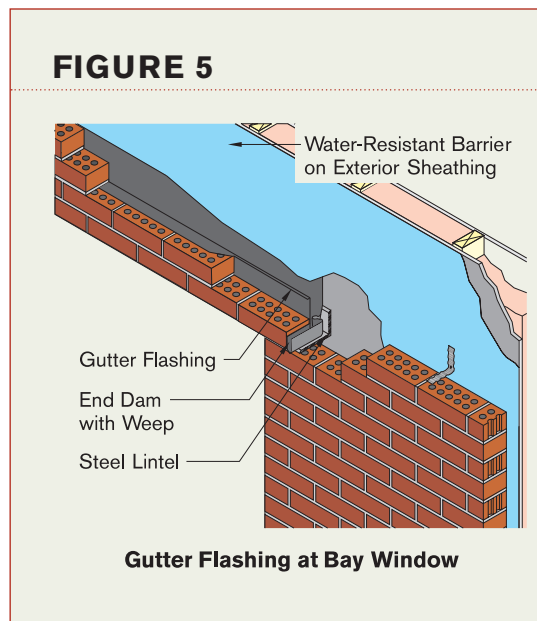
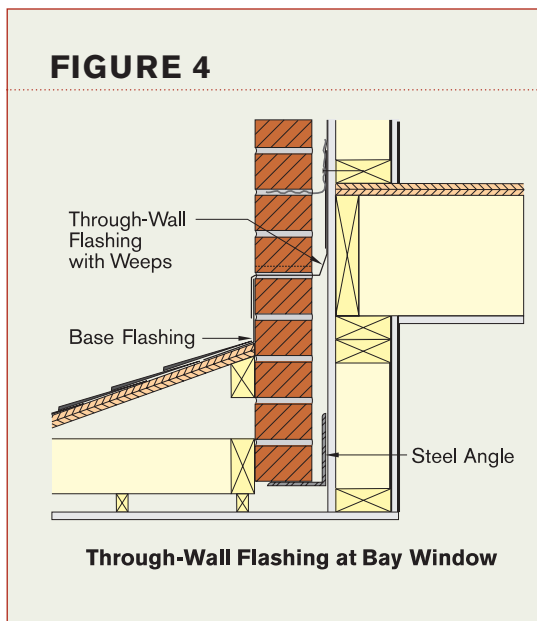
at the base of the brick masonry and directly over the lintel supporting the brickwork so that it captures any water that penetrates below the top tray flashing. Placed at each end, weeps drain water collected on the gutter flashing (see Figures 4 and 5).

Flashing Above Arches

Another common location of stepped flashing is the area above an arch. Ideally, the best way to provide complete flashing for an arch is to curve the flashing around the opening. This is the preferred method for the complete flashing of an arch. In reality, however, this is often too difficult or impossible to achieve. Instead,

arches can use stepped flashing in the brickwork above an opening similar to Figure 3. A single piece of tray flashing — a long piece of flashing located one or two courses above the top of the opening — is adequate for jack arches and arches with a low rise. Tray flashing should extend 8 inches into the brickwork on each side of the opening, should have weeps along its length, and should be turned up into a head joint at each end so that it forms an end dam.

The information contained in these *Builder Notes* is based on the available data and the combined experience of engineering staff at the Brick Industry Association. The information contained herein must be used in conjunction with good technical judgment and a basic understanding of the properties of brick masonry. *Builder Notes* are created by and for the use of the Brick Industry Association. Unauthorized reprints or reproductions are prohibited. ©2007 Brick Industry Association.



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