

Basics of Brick Veneer Construction & Workmanship Checklist

By design, brick veneer walls are a drainage-type wall system. Water is assumed to penetrate the brickwork; therefore, precautions must be taken to both minimize its entry and to redirect any water that does get in back out to the exterior. Proper flashing, weeps, and an air space are all necessary to create an efficient drainage system.

To verify that all components are in place, some job site inspection should occur. Correcting a drainage system after it is already completed can become very expensive. Accordingly, the Brick Industry Association has produced a Brick Veneer Construction Checklist (see checklist on next page) to assist with the installation of these key items.

Support of Brick Veneer

Brick veneer must be placed on a level support of adequate depth. The mortar joint on the brick ledge or slab will accommodate some variations in level, but the mortar joint should not be more than 3/4-inch thick. Model codes require that 2/3 of the brick thickness bears on the supporting foundation or lintel.

Air Space

Model codes further require a nominal 1-inch air space to drain water and to keep brick and mortar from making direct contact with the sheathing. Some mortar in the air space is to be expected due to the process of laying brick; however, the air space should not be clogged to the extent that it inhibits drainage.

Through-Wall Flashing

Foundations and lintels alone cannot redirect the water in a consistent manner; therefore, flashing must be installed to channel moisture out, and in doing so, to protect the interior (see Figure 1). Model building codes require flashing at the foundation, above window and door heads, at window sills, and where the roof of a one-story wing meets a two-story brick veneer wall, even at areas where a wall comes up against a lower roof. Flashing should be installed wherever the air space is closed off.

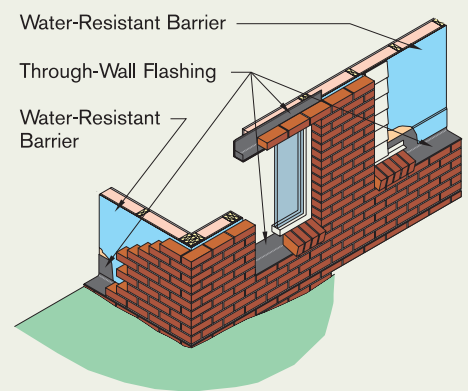
The flashing should extend from the outside face of the veneer, through the thickness of the brick veneer, across the air space to the backing, and then up behind the water-resistant barrier or attached over the water-resistant barrier with a termination bar. Where more than one piece of flashing is required, flashing pieces should be overlapped and sealed with a compatible mastic.

Weeps should be placed directly above the flashing to help water drain from the wall. These weeps are often open head joints, but they can be vents as well. Space weeps approximately every third brick, or 24 inches o.c. Poking a screwdriver into the wet mortar during construction or drilling afterwards is not a proper way to create a weep.

Water-Resistant Barriers and Air Barriers

Model building codes generally require a water-resistant barrier on

FIGURE 1



Workmanship Checklist Items

the sheathing. Typically, one can use #15 felt, although other water-resistant materials—such as Tyvek, some types of insulation, and other sheathing products that are approved by inspectors and conform to the code—are allowed. Water-resistant barriers will perform adequately only when joints, seams, and punctures are sealed properly with durable materials.

Wall Ties

Wall ties, sometimes referred to as anchors, fasten the brick veneer to the backing. Each wall tie should support no more than 2.67 square feet of brickwork. In addition, ties should be spaced no more than 24 inches o.c. horizontally and vertically. Since most studs are spaced at 16 inches o.c., the maximum vertical distance for tie placement is 24 inches o.c. On one

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

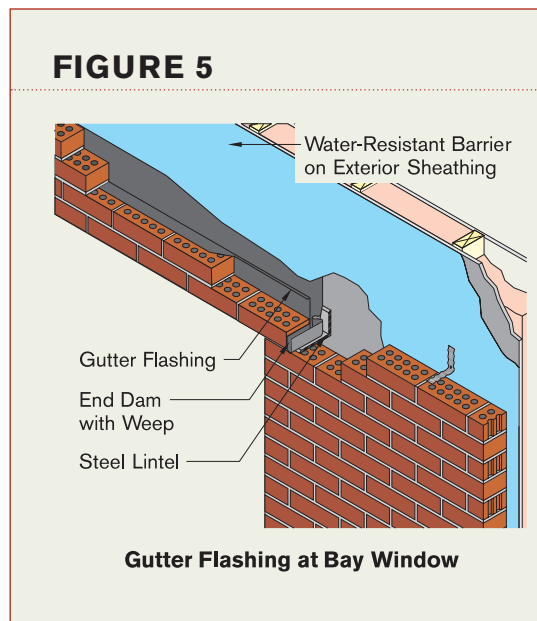
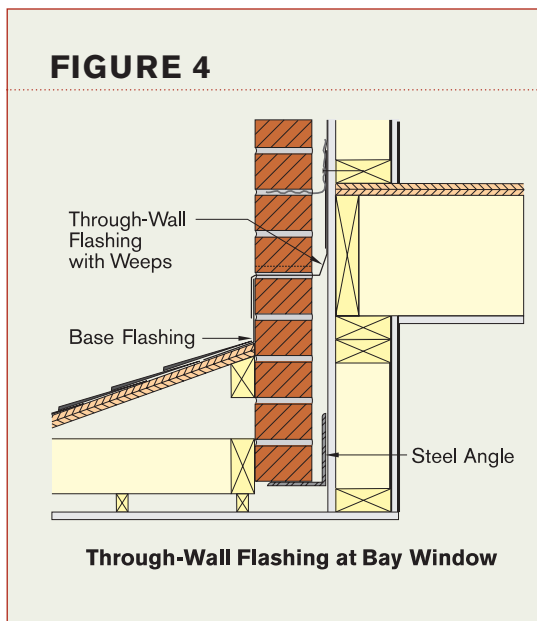
at the base of the brick masonry and directly over the lintel supporting the brickwork so that it captures any water that penetrates below the top tray flashing. Placed at each end, weeps drain water collected on the gutter flashing (see Figures 4 and 5).

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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