

Builder Notes

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.

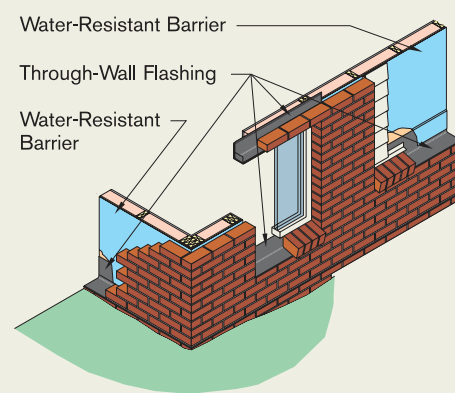
The flashing should extend from the outside face of the veneer, through the thickness of the brick veneer, across the air space to the backing, and then up behind the water-resistant barrier or attached over the water-resistant barrier with a termination bar. Where more than one piece of flashing is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

end, a tie must be embedded within a brick veneer's mortar joint so that it does not pull out. At the other end, it should be nailed to a stud and not just sheathing. Code requires an 8d nail, as it has better holding power than a roofing nail. Finally, the nail should be placed close to the bend in the corrugated tie to help in resisting loads.

Full Mortar Joints

Full mortar joints help walls resist wind-driven rain. As water follows the path of least resistance, partially filled mortar joints allow more water into the wall. Bricklayers sometimes scrape excess mortar from the brick just laid and incorrectly place it into the next head joint. Known as "clipping the

head joint," this does not provide enough mortar to fill the joint. Instead, buttering the brick on its end is the preferred method.

Tooling

Tooling a mortar joint after it has been installed and is "thumbprint hard" not only increases the strength of the wall, but also creates a more watertight and durable mortar joint. Untooled joints, conversely, allow more water to enter through the mortar. Recommended joints include concave, "V," or grapevine joints. Tooling these joints compresses the face of the mortar and seals hairline cracks that can occur at the unit/mortar interface just after laying. Other types of joints do not do this.

Cleaning

Cleaning, the final stage in laying brick, can also affect its final appearance. Cleaning brick masonry with proprietary chemicals, rather than raw muriatic acid, greatly reduces the chance of damaging masonry. Additionally, in the three-step cleaning process of wetting, cleaning, and rinsing, the use of low to medium water pressure will also avoid damage.

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.

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BRICK VENEER CONSTRUCTION CHECKLIST

Want to follow the best practices in brick construction? Just use the following checklist to assist in assuring compliance. If any part of your job is not found to conform, immediately address the issue before further construction progresses.

Site Information

Community _____
 Block/Lot _____
 Trade Partner (Mason) _____
 Builder Supervisor _____
 Inspection Date _____

Are all cuts through the roof made for the masonry chimney? Yes No

Are all materials on site for construction (brick, mortar, wall ties, flashing, brick shapes, etc.)? Yes No

Preparation

Is there adequate access to the site? Yes No
 Is the framing complete? Yes No
 Are backfills/trenches closed? Yes No
 Is the foundation's waterproofing in place? Yes No
 Is the brick ledge ready for brickwork (level and wide enough)? Yes No
 Is the water-resistant barrier installed? Yes No
 Is the mechanical work in place that would affect the brickwork? Yes No
 Is the hearth poured and the hearth opening correct? Yes No

Completion

Are the wall ties installed according to the correct spacing? Yes No
 Are the sills sloped to drain to the outside? Yes No
 Is the flashing installed at all indicated locations? Yes No
 Has the correct flashing material been used? Yes No
 Are weeps installed and clear? Yes No
 Is the mortar color consistent? Yes No
 Are the mortar joints tooled to the proper profile? Yes No
 Was the clean-down done in the correct manner? Yes No
 Has all the masonry debris been removed and cleared? Yes No

Items to repair: _____



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