

Brick Veneer Basics

by Rob Swanson

A few days' work by a masonry crew can add a feeling of permanence to new or existing homes

SANDY WERMERSKIRCHEN



Every kind of siding has its strengths and its disadvantages. Most builders are happy with any siding that is easy to install and looks good when it's new. And in the short run, that's fine. Often, it isn't until the occupants have lived in a home for years that they appreciate how much it costs to maintain the home's exterior. That's when people learn to appreciate an exterior siding that is durable and easy to maintain, and that gives a home a feeling of permanence and solidity. I've been able to satisfy a lot of these customers with brick veneer.

Brick adds lasting value to a home. Studies by the Brick Institute of America have shown that installing brick veneer to a home adds 5% to 6% to a home's value right away. Homes with brick siding appreciate faster and sell faster than homes with other kinds of siding, and maintenance costs are much lower with brick. Over time, it's worth it to put money into brick.

Installing the Brick Shelf

The first thing you need if you're going to have brick siding is a foundation for the brick to sit on (Figure 1, next page). Brick is heavy and it needs to be well supported. In new construction,

foundations are built with a brick shelf to support the brick. There are several different ways to do this, but they all have the same result: The load of the brick is transferred straight down to the footing.

In a retrofit job, one way to provide a brick shelf is to dig all the way down to the footing and lay a 4-inch block wall up to grade. But this involves a major excavation, since you need room for the masons to work safely. That much digging is a serious expense and can wreak havoc with the landscaping. At the other extreme, maybe the least expensive method is to bolt angle iron to the house's sill-plate and lay brick on top of that. But the model building codes won't allow brick to be supported by wood, or by steel bolted to wood. In some localities you can support a short brick wainscot (up to 4 feet) this way, but not an entire brick-face wall. When the foundation is poured concrete, it's better to drill through the concrete and bolt the angle iron to the wall. This kind of shelf can safely support 14 feet of brick, according to the Brick Institute of America.

The method I prefer to use, though, is a technique developed and patented by a masonry contractor in my area, Roger Roy of the Brickery, in Champlin,

Minn. Called the Haunchomaster (Figure 2, next page), this is a system for adding a reinforced concrete brick shelf to an existing block foundation. There isn't much digging involved, and we don't have to destroy the landscaping. Yet the system is engineered to safely support 18 feet of brick wall and can even be formed right into a new poured foundation, though I've never used it that way.

The key to the system is a patented steel bracket that extends into the cores of the blocks. To build the haunch, you first knock holes in the block wall two or three courses down from the top, 32 inches on center. Fiberglass insulation or newspaper is stuffed down into the cores so that the concrete grout to be added will only go down 2 feet. Then a bracket is hung from each hole. Rebar is tied to the brackets, and sheets of extruded polyurethane foam are attached to the outside of the brackets as forms for the concrete.

In a single pour, the brackets are grouted into the block cores and concrete is poured around the rebar and brackets, forming a reinforced concrete beam that is integrated right into the existing foundation. It doesn't take a

Support Options for Brick Veneer

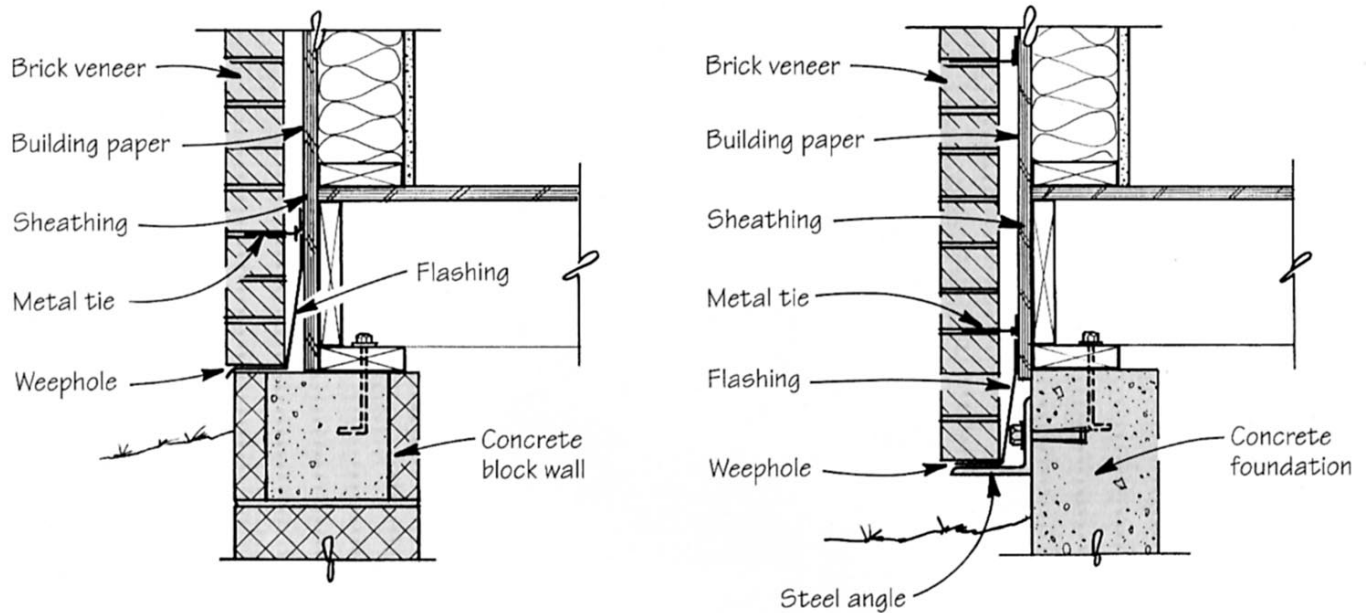


Figure 1. In new construction, foundation walls are poured or laid wide enough to provide a 4-inch shelf for the brick (left). A steel angle bolted onto an existing concrete foundation can support an add-on brick veneer wall up to 14 feet high (right). The steel shelf should be installed above grade.



Figure 2. For retrofitting brick veneer, the author likes the Haunchomaster system, which creates a reinforced concrete shelf on an existing block foundation at grade level. Steel brackets are inserted into holes punched in the block, and joined horizontally with double rebar (left). Extruded polystyrene forms are attached to the angled face of the brackets. The finished shelf (right) can support a brick wall 18 feet high.



Figure 3. The author speeds production of decorative quoins by using a bracket-mounted aluminum jig called a Speed Lead (left). Bricks that make up the corners of the quoin are tucked into the corner of the device, establishing a plumb corner and a perfect reveal (right). The lead can be marked with a pencil to establish the height of each course of brick.

lot of concrete — we mix it up in a mortar mixer right on site, using one bag of Portland cement to three bags of sand and gravel. After curing for a few days, the new shelf is ready for brick.

Adding a brick shelf to a house with this method takes two laborers and one skilled person about half a day. After doing dozens of them, I'm confident in pricing a Hauncho brick shelf at \$10 a linear foot.

The Hauncho system has been evaluated by an engineering testing lab and found to be capable of supporting over 30,000 pounds per linear foot. With this documentation, I've had no problem getting the system okayed by building inspectors. Haunchomaster brackets, complete with instructions, can be ordered from Wunder-Klein-Donohue Co., 5205 Hwy. 169 N., Plymouth, MN 55442; 612/550-0000.

Site Preparation

Before I bring my crew, equipment, or materials onto a job site, I always do a preliminary drive-by to talk things over with the general contractor and to make sure the site is ready for us. For a retrofit veneer job, the homeowner may be acting as his own general. In this case, it's even more important to walk through job procedures with the customer and make sure he understands exactly what his responsibilities are, and how much it's

going to cost if I do any necessary prep work.

The drive-by is my chance to verify that everything we need is there — that power and water are available on site, all the window, door, and garage door trim is installed, soffits are finished, and external fixtures like lights or water faucets have been installed with enough play to allow for installation of the brick. On a retrofit installation, it's the general contractor's job to make sure the external fixtures have been cut loose so we can move them, and to take care of repairing any broken or deteriorated window or door trim.

The general contractor should also make sure that the old siding has been removed. Brick is laid with a 1-inch space between the brick and the skin of the building. The added thickness of existing siding may hold the brick away from the house too far, creating a gap where the brick meets the trim. Also, it's easier to attach our wall ties to the house's sheathing than to any kind of siding.

With the siding removed, the sheathing should be protected from moisture. This is also usually the general's job; it'll cost more to have me do it. Code requirements for moisture protection vary by locality, but usually either housewrap or builder's felt is required. Protecting the sheathing is particularly important if the building

is sheathed with a material such as OSB that may be susceptible to moisture-related problems. The general should also cover any glass, trim, or fixtures with plastic to protect them from mortar splatters. This is a lot easier than cleaning bits of dried mortar off after we're gone.

One last thing the G.C. has to take care of before we start is to schedule any necessary inspections. In my area, the building department wants to okay the foundation details and the sheathing preparation before any brick is laid. I don't want my guys to be waiting around for that to happen.

Organizing the Work

Once I'm satisfied that the job site is ready, I set up to lay brick. I like to bring the laborers to the site a day beforehand to get everything ready. They set up any scaffolding we're going to need and distribute brick and mortar pans to various points along the wall.

On a retrofit job, I'll have my brick delivered on pallets to a spot by the driveway or on the lawn. From there, the laborers can move 100 bricks at a time with a two-wheel cart to spots near the wall. Then they'll break the bands and tong the brick where it needs to go.

Once the work starts, I assign one laborer to each bricklayer. I want my masons to concentrate on laying brick, not worry about getting water, brick, wall ties, and so on. If the laborers get ahead, they can work on striking the joints or brushing the walls.

I also encourage my laborers to get some tools and be ready to try laying brick if the opportunity arises, because it always does. There's a saying that "a good bricklayer was once a laborer, and a good laborer was once a bricklayer." I've found it to be true — you really have to understand both to do either one well. It's hard to find skilled masons, and I've had the best success by hiring motivated people as laborers and training them myself to lay brick.

Attention to Details

From the street, brick adds a look of substance and permanence to a house. But the perception of quality has to stand up to closer inspection. That's why we pay attention to the little details that show a mason's craftsmanship. And we also try to do this detail



Figure 4. The author uses an oversize ruler, marked with letters rather than numbers, to gain or lose height incrementally. The higher the letter used, the greater the height of each course. By adjusting course height, the author minimizes cutting of bricks below window sills and soffits or above headers.



Figure 5. In laying brick tight to a soffit, care has to be taken so that the last course falls at the correct height (left). On gable ends, bricks have to be cut at an angle. The mason's job is easier in cases where the carpenters plan to install a frieze board (below), which is set low enough to hide the stepped edge of the top course.

work efficiently, so we can offer special touches at a competitive price.

Flashing. One detail that doesn't show but is important is flashing at the foundation. The best way to accomplish this is to use a product such as Bitu-Mem (Nervastal Inc., 2 Sound View Dr., Suite 100, Greenwich, CT 06830; 203/622-6030). This is a bitumen-backed 50-mil poly that comes on a roll about a foot wide. The material is rolled out on top of the second or third course of brick and stapled to the sheathing. Weep ropes are then placed in the mortar joints of the course laid on top of the flashing, to wick any water out of the wall. This way, any water that happens to penetrate the brick veneer will trickle down the back of the brick, collect on the flashing, and exit the wall.

There isn't much water penetration in brick applied to homes, at least in my climate, and flashing is often omitted in residential applications because customers don't want to pay for this added step. Personally, I've never seen a problem caused by the lack of this kind of flashing in a residential application. But the Brick Institute of America does recommend that it be installed in all brick veneer applications, and it's part of a thorough job.

Corners. One way to add a special finish touch to the corners of a brick house is to build quoins (Figure 3, previous page). These have to be done just right to look good. Some masons charge by the quoin, around \$25 apiece in my

area. I charge by the linear foot and offer a lower price.

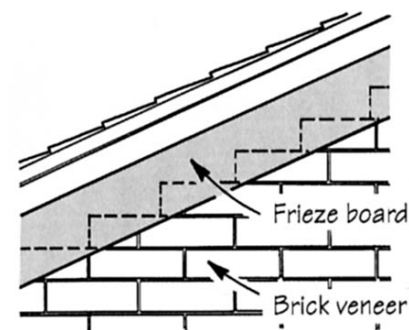
A tool developed in my area, the Post Speed Lead (Marv Post Enterprises, 2858 Sibley Hills Dr., Eagan, MN 55121), speeds production of quoin corners. Made of extruded aluminum, it attaches to the building sheathing with an adjustable bracket. We mark it in the proper increments for setting brick courses. Once the Speed Lead is fixed in place, we run a line from its inside edge for setting the running part of the wall. In building the corner, the projecting bricks of the quoin are tucked right into the channel of the lead, setting them at a perfect $5/8$ -inch reveal. The speed lead saves a lot of ruler and level work and improves our accuracy.

The speed lead also makes it easy to correct for the frame wall being a little out of whack. It's easy to adjust the brackets and set the lead dead plumb. After that, there's no messing around.

Windows. There are a number of ways to dress up the brick surrounding a window. One example is to set a "soldier course" — bricks stood on end — across the top. A keystone set at the center of the soldier course dresses it up further.

One challenge in doing any brick veneer, but especially on retrofit jobs where brick wasn't part of the original house plan, is managing to hit the bottom of the window, the window and door headers, and the soffit height on a mortar joint so you don't have to cut bricks at those points. Not only is the

Frieze Board Detail



appearance of a full brick better, but cutting brick can take up a lot of time. You get the courses to fall out at the right height by incrementally adjusting the height of each course.

To gain or lose a little height on each course, we use a graduated, or "oversize," ruler (Figure 4). Instead of numbers, this ruler is marked with letters, each letter corresponding to a different course height. If we set to a "D," we'll have regular three-inch courses. The "C" gives us courses a sixteenth shorter, an "E" a sixteenth taller, and so on. You just need to make sure the guy at the other end of the wall is using the same letter you are.

Soffits. I usually lay brick tight up against the soffit (Figure 5). On gable ends, that means making a lot of angle cuts. Sometimes that step can be saved by installing a frieze board at the top of the wall. In that case, carpenters will pack out the wall above the last course of brick, flush with the face of the brick wall. Then a finish piece of 1x8 or 1x10, usually cedar in my area, is nailed on, with the bottom edge hanging low enough to cover the top course of brick. ■

Rob Swanson is a brick masonry contractor in Carver, Minn.