Durable Brick Walkways

Lasting success requires precision detailing at every step

BY JOHN CARROLL

In the world of residential design, brick walkways don't get much respect. Most people see them as a way to keep their feet clean when walking from the car to the house. But as one of the first things visitors see, a paved walkway can significantly enhance the visual impact of a home's exterior. Recently, I was hired to build two brick walkways leading to the entrances to a 1928 house just a block away from Duke University.

There are two very different approaches to brick paving: flexible and rigid. With flexible paving, bricks are set dry in a layer of stone dust over a compacted aggregate base. The joints between the bricks are small and filled with dry sand after the bricks are installed.

For this project, I opted for rigid paving, in which the bricks are set in a bed of mortar on top of a concrete slab with fully mortared joints. Rigid paving is more durable, but it can be unforgiving to movement, with any deformation in the slab showing up as a crack in the finished brick surface. Grouting the joints can also turn into an unholy mess if you're not careful and patient.

LAYOUT FOR THE WALKWAY

The walkways started at brick gate posts that were 78½ inches apart and ended at steps 98½ inches wide. Because neither dimension worked with a 4-inch brick layout, I opted to make the walk 80 inches wide, notched around the brick posts and flared out the last couple of feet in front of the steps. The 80-inch width meant that I wouldn't have to cut bricks for every course on the walk.

Where the walkway met the stairs, the finished surface measured one riser height (about 7 inches) down from the first tread. At the other end, the walk had to be flush with the city sidewalk. Working down from the walk surface, I allowed 4 inches for the concrete slab and 4 inches for a layer of washed gravel. We excavated to that level and mechanically compacted the soil base. After setting up forms, we compacted the layer of gravel and were ready to pour the slab.

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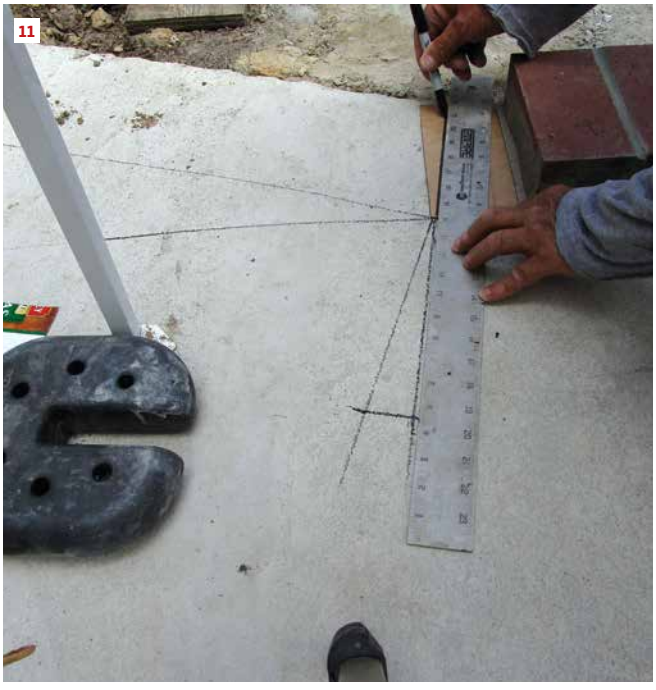
Photos: Mike Moore (3); Brett Arnold (19–27); all others, John Carroll

Getting ready for the bricks. Prep work begins with installing a concrete slab to serve as a foundation for the brick walkway. The author excavates down about 8 inches and compacts the subsoil before placing 4 inches of washed gravel. Next, he sets the forms for the concrete and compacts the gravel layer **(1)**. Angled gussets reinforce the forms that create the flare **(2)**. After the concrete is placed, a mag float smooths the surface of the slab **(3)**. An absolutely smooth and flat slab is not necessary. The morning after the concrete pour, the author uses a circular saw with a masonry blade to cut control joints in the concrete. These joints make it more likely that if the concrete cracks as it cures or settles in the future, it will do so in a straight line **(4)**.

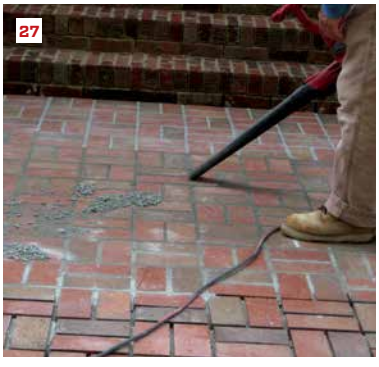
Border bricks. The first bricks to go in are along the edges of the walkway. Layout starts at a control joint to avoid having bricks span the joint and be subject to cracking **(5)**. The gap between the bricks that are on either side of the control joint will be filled with flexible sealant, instead of mortar, to allow the bricks to move slightly without cracking the joint between them. Mason's twine stretches the length of the walkway to guide brick placement. To keep the bricks following a perfectly straight line, the author installs them at precisely measured and laid-out intervals along the edge **(6)**. Then he adds a brick next to his first group and taps it into place, leveling over to the next brick in the sequence **(7)**. He leapfrogs in the opposite direction and adds a brick on the other side **(8)**. He completes the installation to the control joint and repeats the process from there **(9)**.



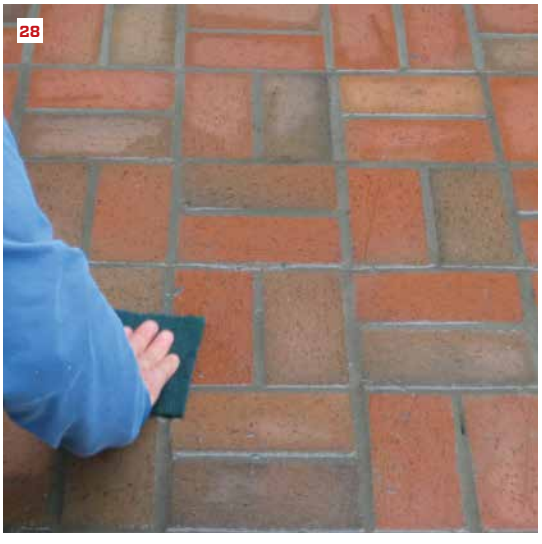
Fashioning the flare. After running the border bricks near the flare in the walkway, the author draws a layout line for the bricks along the flare's border. He uses squares to lay out the angle of the bend, and bisects this angle to define the cut angle for the bricks **(10)**. Next, he places a brick-size cardboard template at the intersection and uses a straightedge to transfer the angle **(11)**. He cuts the template—minus half of the mortar joint—along the cutline **(12)**. The template transfers the angle cuts to the bricks at the pivot point of the flare **(13)**, and the rest of the bricks can then be laid out for the edge of the flare.

Finicky fitting. To fit odd-shaped areas like the one around the railing post, the author first rough-cuts a brick-shaped cardboard template to fit against the steps and around the post **(14)**. Then using a small piece of aluminum angle against each of the flat surfaces of the post, he transfers the exact shape to the template **(15, 16)**. He places the template on a brick, lining up the piece of aluminum angle on the line drawn on the template and marking the other side of the angle to lay out the exact shape that will be cut out **(17)**. A 4 1/2-inch grinder with a diamond blade makes fast work of odd-shaped cuts such as this one. The cut brick then takes its place as the final piece in the flare border. Other bricks receive straight angle cuts to square off the rest of the flared section to the field tile **(18)**.

Paving process. The recipe for brick-laying mortar is two-and-a-half parts masonry sand to one part Type-S masonry cement plus water **(19)**. After combining the sand and the water together in a mixing tub, the author mixes in the masonry cement, stirring the mortar with a mixing paddle on a heavy-duty drill. When it's thoroughly mixed, he slowly adds water until the consistency is right. To ensure that the basket-weave pattern will be perfectly straight, he stretches masonry twine between the edges and staggers the first bricks, as he did with the border bricks **(20)**. For each brick, a layer of mortar goes down first **(21)** before he presses the brick into place **(22)**. Then using a mallet and a short heavy-duty level, he taps the brick into plane with the bricks on either side **(23)**.



Grouting and jointing. A narrow tuck-pointing tool delivers and presses narrow strips of mortar into the joints between the bricks **(24)**. When the joint is full, a concave jointing tool creates the finished surface of the mortar joint **(25)**. At this point, the excess mortar is left to dry on the walkway surface. Once the mortar has set up, the excess is scraped off the surface **(26)** and blown off with a leaf blower **(27)**.



Finishing up. After the mortar has cured overnight, a course scrub pad cleans off any residual mortar **(28)**. The final step is filling the brick joints over the control joints in the concrete slab. The author tapes the edges of the bricks, pushes foam backer rod into the joint **(29)**, and then fills the joint with a polyurethane-based caulk made specifically for use with concrete and masonry **(30)**.