Photos by Carter Silva

Upgrading a Rear-Entry Landing

BY EMANUEL SILVA

On rare occasions, I work on homes with grand entries, such as the one written about in the August 2017 issue ("Refinishing a Brownstone Stoop"). But most of my work is on more humble homes, like the one I was recently asked to re-side the back wall of. When I was looking at the job, I noticed that the landing for the rear entry—a tiny concrete platform—was horribly inadequate. There was no room to stand when you were opening the storm door, and the step down from the door was uncomfortably high. The client agreed that the landing needed to be updated.

One option was to break up the old landing and pour a new one, but the old concrete was extremely hard and removing it would have been difficult and messy. Pouring a new full-height stair would have also meant having the top of the concrete above the top of the foundation—a situation I wanted to avoid. Instead, we decided on a hybrid landing a step down from the door. We would encase the old landing with a new poured-concrete platform and top it off with mahogany decking. We would also pour a step below the landing.

TWO POURS FOR THE CONCRETE BASE

The brick-paver patio was three steps down from the door, so the rise for each step would be a third of the total height from the patio to the threshold. I poured the landing and the bottom step in separate pours.

I wanted the concrete below the decking to drain properly, so I sloped the surface of the landing at about 1/4 inch per foot. The highest edge of the concrete was along the wall adjacent to the back door. After forming a weather lip along that edge, I sloped the concrete down from there. The height of this step didn't need to be exact because I would make up for any difference when I installed the sleepers and decking.

I drilled and epoxied 1/2-inch rebar into the original concrete to tie it to the new concrete work, and then I formed the upper step with 1-by material **(1)**. I poured that step and let it cure completely so that I could strip the forms before forming and pouring the lower step.

To add a decorative touch, I curved the outer corner of the lower step **(2)**. To create the curved form, I cut

kerfs across a strip of 3/4-inch plywood, with the saw blade cutting through to the last ply. The plywood then bent easily into the shape I wanted.

TAPERED SLEEPERS FOR THE DECK

Once the concrete was cured and the forms were stripped, I could build the wood "deck" on top. Because the top surface of the concrete sloped for drainage, I was able to make the wood deck above it level, which I did by installing the decking on tapered pressure-treated 2-by sleepers that I made from a site-built template. To put the step down to the deck at the proper height, I added 3/4 inch to the rise measurement to allow for the decking, which then gave me the height the sleepers needed to be.

I had been careful with the pour, so the tapered template fit closely for all the sleeper positions across the step. To cut the tapers, I made a simple jig by screwing one 2x4 to a second 2x4 at the angle of the taper **(3)**. The overhang of the angled 2x4, plus the width of my saw table gave me a rip for the right height for the sleeper. After making the tapered cut, I cut a straight rip out of the remaining piece, giving me two sleepers from a single board.

I made the sleepers long enough to overhang the edge of the landing by 1/2 inch for anchoring the PVC trim; I also notched the end of each sleeper to fit over the weather lip. Once I had made all the cuts, I gave the freshly exposed wood a generous coating of Woodlife preservative.

To support the decking, I laid out the sleepers on 12-inch centers **(4)**. I set the sleepers in place and numbered the ends to keep them organized. I first leveled across the tops of the sleepers to make sure there were no high spots **(5)**. Next, I drilled counter-bore holes in the sleepers to accommodate the heads of the GRK concrete anchors. Again, I brushed preservative into all the holes.

As I set each sleeper in place, I leveled down its length, adding treated shims to fill any voids below the fasteners **(6)**. Then I drilled out the concrete **(7)** and drove in the fasteners to secure the sleepers in place **(8)**. Before adding the decking, I added a layer of flashing tape. I tucked the tape under the threshold flashing below the door, letting it extend out over the first sleeper.

On the adjacent wall, I tacked the WRB up on the wall temporarily and installed "L" flashing that I'd fashioned out of aluminum stock **(9)**. I attached the aluminum to the wall with flashing tape and used pieces of flashing tape to isolate the flashing from the treated sleepers. With the flashing in place, I let the WRB back down and fastened it over the flashing system.

DECKING AND TRIM

Before installing the deck boards, I sealed the sides and edges with a coat of Penofin decking stain and let them dry overnight. I started installing the boards at the outer edge of the landing **(10)**, letting the edge of the first board extend 1 1/2 inches over the ends of the sleepers—3/4 inch for the trim plus a 3/4-inch overhang.

To fasten the decking boards, I applied two 1/2-inch-diameter dots of 3M 5200 marine adhesive sealant at each sleeper. After setting a board in place (leaving a 1/8-inch gap between boards), I drove two 2-inch stainless steel finish nails at each sleeper to hold the boards tight until the sealant had dried. The holes from the finish nails are hardly noticeable in the stained boards, and once dry, the marine adhesive holds tenaciously. I left the decking boards long and cut them to length with a track saw after they were all installed.

To dress up the landing, I wrapped the riser of the top step in 1-by PVC trim. To allow clear drainage from the concrete surface under the decking, I stepped the trim out from the concrete using 1/2-inch spacers **(11)**. The spacers glued to the back of the 1-by on 12-inch centers, reflecting the same layout as the sleepers.

Before attaching the trim, I countersunk holes at each of the sleeper locations and then directly below at each spacer. Stainless steel screws through the top holes secured the trim to the sleepers; I drilled holes in the concrete and drove concrete anchor screws into the lower holes **(12)**. I finished up by filling the holes in the trim with PVC plugs that I make myself.

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Laying Out a Curved Walk

BY JOHN CARROLL

In the August issue, I wrote an article called "Durable Brick Walkways," in which I discussed the details for building a brick walkway to the entry of a home near Duke University, in North Carolina. That walk was one of two that I built at the house. The second walk began between two brick pillars and traveled along the side of the house. And while it may not have been as grand as the walk leading up to the main entry, this other walk presented some unique and fun challenges. Unlike the main entry, this "side" walk had to jog around some mature shrubbery next to the house **(1)**.

An angled jog would have made this mason's life much easier. But straight lines can be boring and, as in this case, awkward looking as well. Instead, I decided to use an S curve to shift the location of the walk. This gave me the chance to use one of my favorite under-appreciated tools—the lowly beam compass.

START WITH A DRAWING

A beam compass is essentially a large version of the dividers that most carpenters carry; I used my dividers to make a scaled drawing at the beginning of the project. The gateway was 44 inches wide, which set the brickwork at an even 5 1/2 units wide (7 5/8-inch brick + 3/8-inch grout joint). The transition would happen over a distance of 100 inches, and the two sections of the walk would be offset by 44 inches (the width of the walk). I also wanted the width of the transition area to be fairly consistent.

I started by drawing the transition between the two sidewalk sections as straight

This brick walk, along the side of the house, needed to shift position from the existing brick-pillar entry to run safely around mature shrubs growing next to the house. The author chose an S curve to transition between the two sections of sidewalk.

Photos: 1–4, 6–7, John Carroll; 5, Brett Arnold

diagonals (see Laying Out an S Curve, right). For the transition section to be the proper width, the starting point of the bottom diagonal had to be 8 inches farther along than the starting point of the top diagonal. I divided each diagonal line into two equal lengths of 54 1/2 inches, which gave me three points on each diagonal: A, B, and C on the top diagonal and D, E, and F on the bottom diagonal.

FINDING THE RADIUS

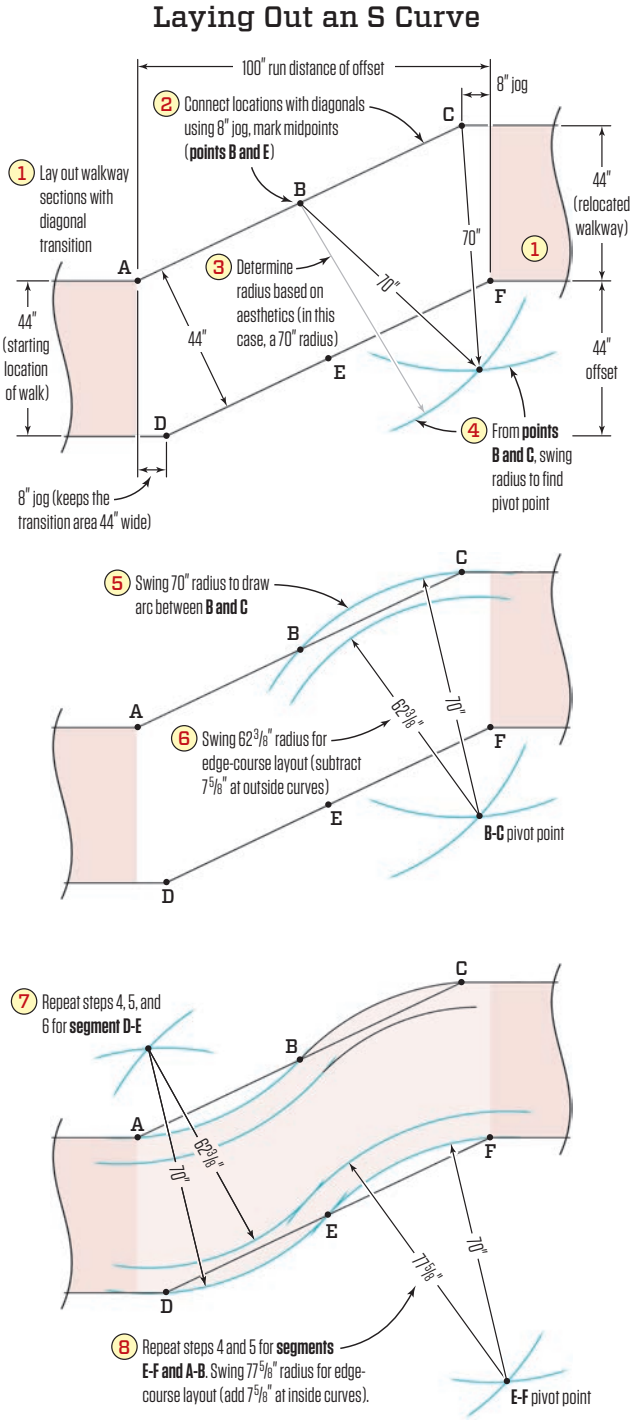
Each side of the transition section was to be an S curve with a double arc, so I needed to find a radius for the arc that looked right and that would work with the brick layout. In true Goldilocks fashion, I started with a 50-inch radius, but that gave me an arc that was too deep. A 100-inch radius produced an arc that was too shallow. I settled on 70 inches, which seemed just right.

To create the arc in my drawing, I scaled my dividers to 70 inches. I swung an arc from point B and did the same from point C; the intersection of the two arcs marked the pivot point for drawing the B–C arc. I repeated the process for the other three line segments and I had my matching S curves.

PLYWOOD TEMPLATES

The next step was to draw the arcs full scale. There were two arcs to the S curve: a concave curve and a convex curve. I set the points on my beam compass to 70 inches and used it to make plywood templates for both shapes to the dimensions on the drawing. As I swung the arcs for the template, I established the beginning and end of each curve, as well as the correct arcs for the curves **(2)**.

A crucial part of the templates was laying out the inside and outside curves of the border bricks and the positions and shapes of all those bricks. For the convex arc, I subtracted the length of a brick (7 5/8 inches) from the 70-inch radius and set the beam compass point to 62 3/8 inches. I swung an arc at that measurement from the same pivot point to find the inside edge of the bricks for the convex part of the S curve. For the concave arc, I *added* 7 5/8 inches to find the inside edge of the border bricks, setting my beam compass to 77 5/8 inches.



The author first drew the transition as diagonal lines. After dividing those lines into two sections, he swung arcs for the concave and convex parts of the S curve and then swung arcs for the border bricks.

Illustration: Tim Healey

To lay out the curves full size, the author swung an arc using a beam compass **(2)**. For the convex curve shown here, he subtracted the length of the brick and swung a second arc. Then he marked out the positions of the bricks **(3)** and used the side of the beam compass to mark for each brick **(4)**. He cut out the templates and used them to position the forms for the slab under the walkway **(5)**. When the slab was done, he set the template on the concrete and marked out the positions of the bricks **(6)**. He used the template to taper-cut the bricks and then installed them leap-frog style to keep them perfectly in plane **(7)**.

Having established the beginning and end points of the arcs, I was able to lay out the positions of the bricks along the outside edges of each arc **(3)**. Then it was just a matter of pivoting the beam compass to each layout point and drawing a line along the side of the beam to create the tapered shapes of the bricks **(4)**.

PUTTING THE PLAN INTO ACTION

As with the main walkway, I needed to pour a concrete slab to support the bricks, but for this walkway, I had the curved sections as well as the straight ones. I used the templates to rough out the forms for the slab. I wasn't too concerned with accuracy at this point; any concrete that extended past the outer edges of the brick would be covered with soil. I formed the S curve with bending plywood **(5)**.

After I had stripped the forms from the slab, I used the template to lay out the curves and brick positions directly on the slab **(6)**. I taper-cut all the bricks, custom-cutting the ones where one curve transitioned to the other and where the curves transitioned to the straight sections of the walk. I squared lines across the slab to establish a starting point for the border bricks. Then I used the same leap-frog installation technique that I used with the main walkway to install the border bricks through the curved section **(7)**. Once the border was complete, I just continued the herringbone field pattern from the main walk right through the S curves.

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