# Circling the Square

by Mark King



**A semicircular staircase offers a nice counterpoint to the deck's rectangular footprint and the home's tall back wall (A). The author heat-formed the curved treads and inlay ahead of time, using them to lay out the deck (B).**

Because I like to include curved features in almost all the decks I build, a circular theme highlighted each of the three design options I presented to my client in my proposal for her new deck. Built in a Lakeville, Minn., development, her year-old home was a blank slate in need of a backyard living space that would distinguish it from its neighbors. My client wanted to include a hot tub in the design, so creating a sense of privacy was another goal.

The plan that she decided on is essentially a rectangular deck with a wide set of semicircular stairs with deep treads leading to the backyard. To visually complete the curve started by the stairs, I designed the deck with a simple circular inlay. Set off to one side, a hot tub would be supported by its own slab and shielded on two sides by a privacy fence.

**Start with the curves**. Before I started framing, I heat-formed the circular inlay and curved treads in my shop and used them later to guide the exact placement of framing, decking, and fasteners as I laid out and built the deck. While the circular inlay consists of a single row of Azek Frontier 1x8 PVC trim, the treads consist of two rows of the same material, so I formed both the inner and outer rows for the treads in the same double-wide form.

While I formed the circular details, a landscaping colleague worked on site forming and pouring the slab for the hot tub. When we arrived on site later with the curved pieces to begin framing the deck, the hot tub was already installed.

**Framing.** The rectangular 10-foot-by-20-foot deck is simply framed, with the joists supported at the house by joist hangers fastened to a ledger. At the other end, the joists bear on a triple 2x10 dropped beam, which in turn is supported by three GoliathTech helical piers.

Cantilevering the joists allowed us to cut them to length as necessary to form the deck's circular projection. We used the curved lengths of decking as templates, laying them out across the cantilevered—but uncut—joists and tracing the curves in place. Then we cut the joists to length, adjusting the cut line to account for the thickness of the rim joist and fascia.

We used a triple layer of ½-inch PVC ripped to a 15-inch width from 4x10 sheet goods to form the rim joist on the curved section of deck. We laminated the layers together with PVC cement as we fastened them to the framing, first rough-sanding the mating surfaces to improve adhesion. Besides conforming easily to the curve, the oversized rim joist creates a solid connection point for the 15 stringers needed to frame the wide curved stairs and doubles as the finish riser.

**Decking.** When installing the grooved TimberTech Terrain (in silver maple) decking, we were careful to locate the hidden fasteners so that they didn't

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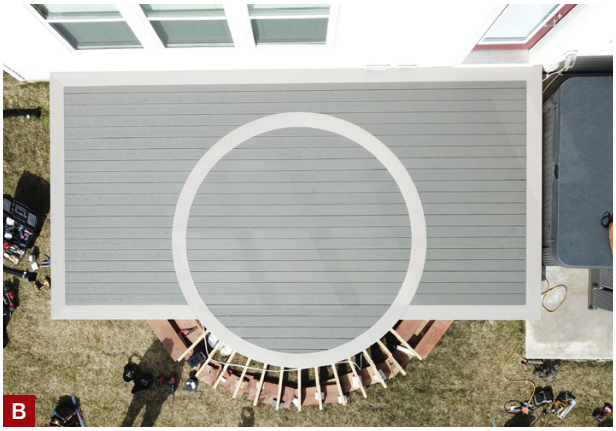


**When installing the decking, the author avoided using any hidden fasteners where the inlay would be located (A). After tracing the inlay's outline, he cut out the decking with a small circular saw and pressed the inlay into place (B).**



**The stair stringers were fastened to the curved PVC rim joist with HeadLok flat-head structural screws, driven from behind through the rim into the stringer stock (A). The extra-wide treads consist of a double row of 1x8 decking (B).**

intersect any cut lines for the circular inlay or border.

On the straight sections where we installed the picture-frame border, we cut to the lines with a track saw. We face-fastened the borders to the framing using the Cortex screw-and-plug system and reinforced the mitered corners with PVC biscuits and Azek's proprietary fast-cure PVC adhesive.

For the inlay, we cut to the curved lines with a cordless 6½-inch circular saw. Then we pressed the inlay into place, again using the Cortex screw-and-plug system to fasten the inlay to the framing.

**Stairs.** We had planned to pour a concrete landing pad to support the stair stringers, but our client liked the way the stairs seemed to spring up out of the lawn. So instead, we fastened the bottoms of the stringers to 2-by pressure treated material laid on the flat, trimmed back so the blocking would be concealed by the PVC risers. After shimming the blocking and stringers so that everything was level, we installed blocking between the two pairs of end stringers to support the treads, since the spans exceeded those recommended by the manufacturer.

Finally, we screwed the double curved treads to the stringers and installed the PVC risers, filling the holes with matching Cortex plugs.

**Railing and privacy screen.** Though the deck is low enough to not require a railing, our client asked to see some low-maintenance options and chose a custom-fabricated powder-coated-aluminum railing system from Railcraft, a Canadian supplier. For better visibility after dark, we fitted the top rail with Dekor's Infinite Lite LED strip lights.

To finish off the project, we installed a privacy screen around the hot tub. Manufactured by HideAway, the screen consists of four 3-foot-wide laser-cut powder-coated aluminum panels fastened to the manufacturer's aluminum mounting posts. ❖

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