

Backfill

Up the Dome Without a Chalk Line

New Harmony, Indiana's Roofless Church has been an area landmark since its dedication in 1960. Designed by architect Philip Johnson, it's an open park enclosed by a brick wall that's especially popular as a venue for weddings.

Despite its name, the church is not quite roofless. The altar is sheltered by a 30-foot-wide by 50-foot-tall wood-framed dome that's as much abstract sculpture as building, with a flowing, six-lobed form that resembles a draped sheet of cloth. After a half-century of exposure to the elements, the original cedar-shake roof was badly deteriorated, and it fell to local builder Jeff Koester to replace it.

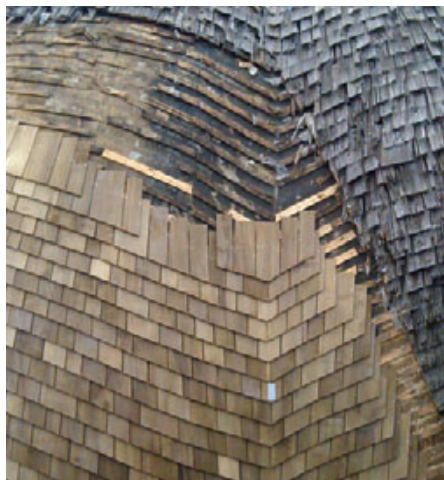
Dealing with the compound curves of the surface presented some obvious challenges, but according to Koester, the crew caught a couple of lucky breaks. Although many of the existing shakes were falling to pieces — particularly near the peak, where the angle flattened out — the laminated plywood sheathing underneath was in excellent condition. "It must have been laminated on the site somehow," Koester says, "but I have no idea how they did it." The 1/2-inch plywood nailing strips that provided a ventilation space between shakes and sheathing hadn't fared quite as well but were still largely intact. Where necessary, they were replaced with strips of PT plywood.

Because the quality of hand-split shakes has fallen over the decades, red cedar shingles were specified for the new roof. ("The shakes you get now are awful," Koester says, "mostly second growth. You can't get them to lie flat!") Installing the shingles would be tricky; as with the original shakes, the exposure of each successive course needed to decrease slightly — but not consistently — from the bottom of the structure to the top, to accommodate the structure's unique shape. Here, too, luck was on Koester's side: Johnson's surviving original drawings specified the required exposure for each individual course to the quarter inch.

Armed with those drawings, Koester's two-man crew used a boom lift to work their way methodically up the structure, tearing off the old shakes and shaping and hand-nailing the new shingles — a task that began in late August and ended just before Christmas. The first wedding under the new roof is expected to take place this month. — *Jon Vara*



The visual centerpiece of Philip Johnson's Roofless Church in Indiana is a swooping dome that covers the altar. For the crew that tore off and replaced the original cedar roof last year, its unique shape gave new meaning to the expression "go with the flow."



The roofers beveled the edges of opposing shingles that met in the valley bottoms. As each course advanced on a rising curved line out of the valley, the shingle butts were angled to the left or the right as required; the angle decreased from the valleys to the peaks of the lobes. Exposures decreased from the bottom of the structure to the top.



After following the complex layout and cutting all 24,000 replacement shingles with a chop saw on a boom-lift platform, the roofers found the actual hand-nailing to be the easy part. "The goal was to get it right," says contractor Jeff Koester, "not to see how fast we could do it."