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Conical Slate Roofs

by Joseph Jenkins

And How to Install Them

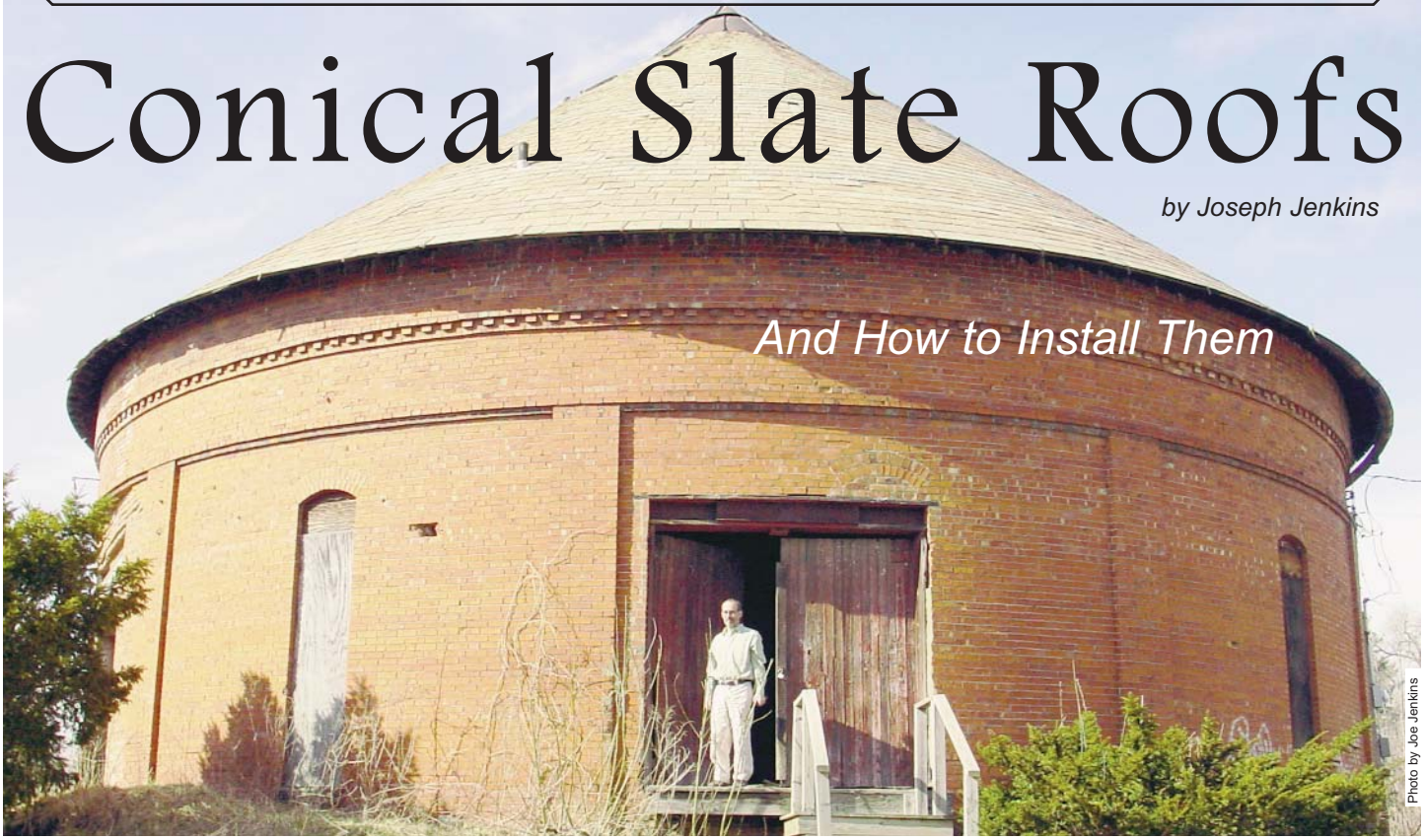

Photo by Joe Jenkins

Scotland

Photo by Dave O'Hare

Pennsylvania, USA

Photo by Joe Jenkins

How do you install flat, rectangular stones on a curved surface? Slate roofs on rounded turrets and domes are incredibly beautiful. But is it hard to install these types of roofs? How is it done?

The building shown in the top photo, built in 1889, is known as the Oberlin (Ohio) Gasholder. Remnants of the date, inscribed into the Vermont sea green slate roof with Vermont purple slates, still adorn the roof, but the roof is in dire need of repair. How many roofing contractors are up to the task of repairing or replacing the slate on a round turret?

The new slate roof in the left photo is located in Stirling, central Scotland, and installed by Dave O'Hare. The turret slates are Cupa heavy Spanish slates with English Burlington blue-grey random slates on the main roof. Note the "shouldered" slates (i.e. top corners cut off) and the diminishing widths as the slate climbs the turret. Rounded slate roofs require more time and more attention to detail, but they pay off in beauty and durability.

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All Photos this page by Joe Jenkins

SLATING CONICAL ROOFS

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The lower turret (page 1) is on a new Vermont mottled green and purple roof in western Pennsylvania installed by the author. More on this later.

Mr. O'Hare has been involved in about 12 round turrets in the 20 years he's been in the trade. He explains, "Once the turret is felted and assuming the turret rises to a point, insert a large six-inch nail or similar at the very top of the point, then hook a string line onto the nail."

O'Hare has a unique method for aligning the slates as they curve around the roof. First, he lays the slates onto a straight board on the ground or scaffolding. A strip of wood can be nailed onto the bottom edge of the board to act as a stop for the slates, which are then laid side by side on the board so that the bottoms of the slates are tight against the wood strip. Lay as many slates, face up, as the board will allow (maybe 10). Mark your slates at either end of the board and snap a line across the exposed surface of the slates *to mark the bottom of the overlying course*. "You are now ready to start slating the turret."

O'Hare explains, "The bottom course of slates is the most important as this has to be even round the turret. If this course isn't level, then the rest of the courses won't be level. There are many ways to ensure the slates are getting the correct overhang." One way is to use a tape measure and check the overhang on the starter course as you nail it around the bottom edge of the turret. O'Hare has done it enough times that he can simply use his finger as a measure. The author prefers a 1.5" slate overhang. Others may prefer a 2" overhang.

Instead of a cant strip under the starter slates, O'Hare finds that the carpenters in Scotland typically build the fascia board in such a manner that it acts as a cant, lifting the starter slates enough to give them the angle they need to lay properly. If a cant strip is used, it must be installed in short lengths. Such short pieces may need to be drilled and then screwed into place to prevent splitting of the wood. For 10" wide slates used as the first course on the bottom of a rounded turret, 10" long cant strips will do nicely as will 10" wide starter slates. For example, the rounded turret shown at left is slated with 10" x 20" slates, which have an 8 1/2" exposure. Therefore, the starter slates are 10" wide and 12" high, thereby creating a 3 1/2" headlap at the bottom of the turret. The starter slates are staggered so that the side joint on the first course of slates above the starter course falls right in the center of the starter slate. The remaining slates on the turret are all cut from 10"x20" stock.

What about the nail at the top center of the turret? This is used as an anchor for a string that hangs down over the turret roof as a slate-trimming guide. You can use a simple chalk line for this purpose — hook the end of the string over the nail and let the chalk box hang down over the eave of the turret. O'Hare explains, "Once you have positioned the first slate onto the roof, this is where the string line comes in. Hold the line at either [bottom] corner of the slate and mark the angle at which to cut the slate. It is important to try and maintain half bond [half side-lap] on the slates, but it isn't always possible. Concentrate on keeping the slates going round the turret even. I nail all slates three times — one at the head of the slate and two at either side. As I progress up the turret and the slates get narrower, I notch either side of the slate with my slate knife and [nail] the side nails into the notches. Use the string line as a guide to achieve a correct angle. We always cut the bed (rear) of the slates with a slate knife. Every slate has to be cut so that the slates go round the turret."

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Photo by Dave O'Hare

Photo by Joe Jenkins

Photo by Joe Jenkins

The middle photo at right shows the small turret in Pennsylvania as the slate is starting to be applied. The wooden cant strip has been attached to the roof sheathing in 10" lengths. The bottom photo at right shows how a chalk box and line are being used as a trimming guide in order to cut the proper angle on the sides of the slates. The string is moved around the turret as the slates are installed. Every slate must be trimmed in this manner. A GT Professional hand-operated slate cutter was used for this purpose. Nail holes were punched as needed using a slate hammer. The holes were punched in the slate prior to trimming the edges. All hole punching and cutting was done from the back of the slate. The top and middle photos on p. 5 show the work in progress and the bottom photo on page 5 shows the finished turret prior to the installation of the ridge.

The fact that every slate must be trimmed at an angle on a small turret such as this indicates that more time and fiddling around are necessary to get the job done right. Contractors must allow for this when bidding a job of this nature. In the end, however, such a slated turret can last well over a century, impressing people with its beauty and character, as the Oberlin Gasholder Building has proven. [Author's note: The Gasholder slate roof was installed in 1889 without any felt underlayment.]

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