

Slate roof repairs

*Tread lightly on the slates,
and follow these simple steps*

Slate is a very desirable roofing material. Once the hard, dense stone is properly laid, it will require little maintenance to keep it in prime condition. And as a product of nature, a slate roof will permanently add to the appearance and character of a building.

Houses are sometimes enlarged or remodeled, however, requiring slates to be removed and replaced. Slates are broken in various ways (sometimes by careless workers). When replacing a slate, it's absolutely essential to use the right size and to match the existing roof in both shade and texture.

The right size

The width of the replacement slates should be obvious. Some slates may be wider than the rest, such as those used along the rake or gable edge or in the valleys. The roof may also be made up of random-width slate having as many as five or six different widths.

Les Gove, of Middlebury Slate Co. in Middlebury, VT, specializes in the repair and restoration of slate roofs. This article is reprinted with permission from the Journal of Light Construction, RR#2, Box 146, Richmond, VT, 05477.



To remove the damaged slate, first hook the ripper on one of the two nails holding the slate.



Then hammer downward on the ripper to cut or pull the nail.



Next drive in a slate hook to hold the replacement slate.

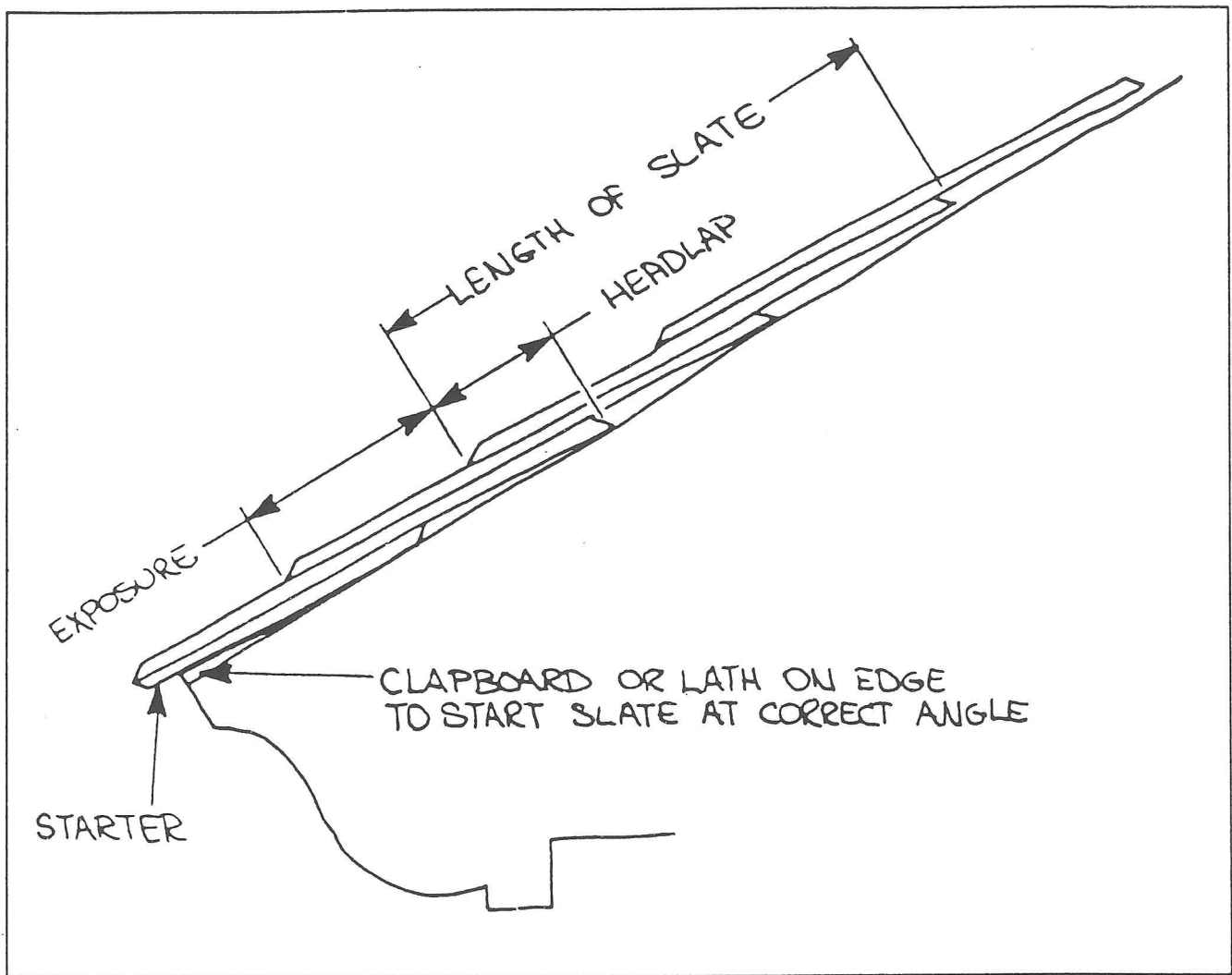


Figure 1. To find the size of the replacement slate, multiply the exposure by two, and add 3 inches (7.6 cm) for the headlap. Then round up to 12, 14, or 16 inches (30, 36, 41 cm) — the standard sizes of slates.

To find the proper length, it may be possible to measure the slate along a gable end or some other place where the underside of the slate is exposed. If this is not possible, calculate the length from the amount of the slate exposed to the weather (see Figure 1).

Measure the exposure, then multiply by two, and add 3 inches (7.6 cm) for the headlap. Bear in mind two factors: Slate comes in even lengths only — 12, 14, 16 inches (30, 36, and 41 cm) and so on. Also, steeper roofs such as mansards, or improperly laid roofs, may have only 2 inches (5 cm) of headlap (the area covered by three shingle layers).

Matching color

Slate color depends on chemical and mineral makeup, and it can vary drastically from quarry to quarry. The grey

and black slates quarried in Pennsylvania are very common in some areas. Many times they can be identified by obvious streaks or ribbons. A higher quality slate from Virginia is blue-grey to black in color. This is a very tough and durable slate. An equally durable slate is quarried along the Vermont-New York border. It comes in a wide variety of colors, including grey, green, purple, and red.

Color is further qualified as either unfading (permanent) or weathering. The former will not change in color over the years, whereas the weathering type may change to a brown, rust, or grey. This change occurs for the most part only on the exposed surface, so that the original color can be determined by looking at the inside of the broken slate.

Rippers and hooks

First, all remnants of the original slates need to be removed along with the nails that held them in. This first step is done with a tool called a ripper (see photos). Use the ripper carefully. When the ripper is slipped under the slate, it is very important to exert very little upward pressure on the slate above the broken one. Since slates break very easily, the result could be two slates to replace.

After sliding the ripper under the slate that is to be removed, hook the ripper on one of the two nails that hold it. Then hammer downward on the ripper to either cut or pull the nail out. (A rubber mallet will help the ripper last longer.) Repeat this procedure on the other nail.

The broken slate will now slide out. (Note: Some larger slates such as 24 x

14-inch [60 x 35 cm] and bigger have four nails holding them.) After all the slates are removed, install a slate hook (see Figure 2). The slate hook is installed in the joint underneath the slate that is being replaced. Drive the 3-inch (8 cm) shaft of the hook into the roof above the headlap of the slate below it. Then simply slide the replacement slate up into the area once occupied by the broken slate. The slate is pushed up past the hook — then pulled down (usually with the ripper).

Slate hooks are available at some lumber yards, but these are usually galvanized. These will start to rust after only a couple of years and can fail completely after 40 or 50 years. For a more permanent installation, you can buy copper or stainless steel slate hooks through the slate quarries in Vermont and New York.

Stagings

How do you get out onto the field of a slate roof to repair a slate or two? Many people work off a rope. This is economical, but in the end may cost more since slates may easily be broken. To spread the weight around, the work area can be padded with rigid foam insulation or plywood.

If it is practical, set up standard triangular roof brackets, but only after removing the slate where the bracket is to be nailed. Broken or missing slates offer good spots to place brackets.

The preferred method in most cases is to work off a ladder with a ladder hook attached. As with plywood, this puts the pressure on a large portion of the roof rather than in one spot. But each project should be examined individually, and a bit of ingenuity is often required for successful staging.

Larger repairs

If a larger area has to be removed — whether for an addition, dormer, or skylight — the same principles can be applied. Starting at the uppermost spot to be stripped, remove these slates using the ripper. From that point on, many of the slates can be taken off simply by pulling the nails with a hammer, with some help from the ripper.

When it's time to reinstall the slates, two preliminary steps are necessary: cutting the slates to size and making the

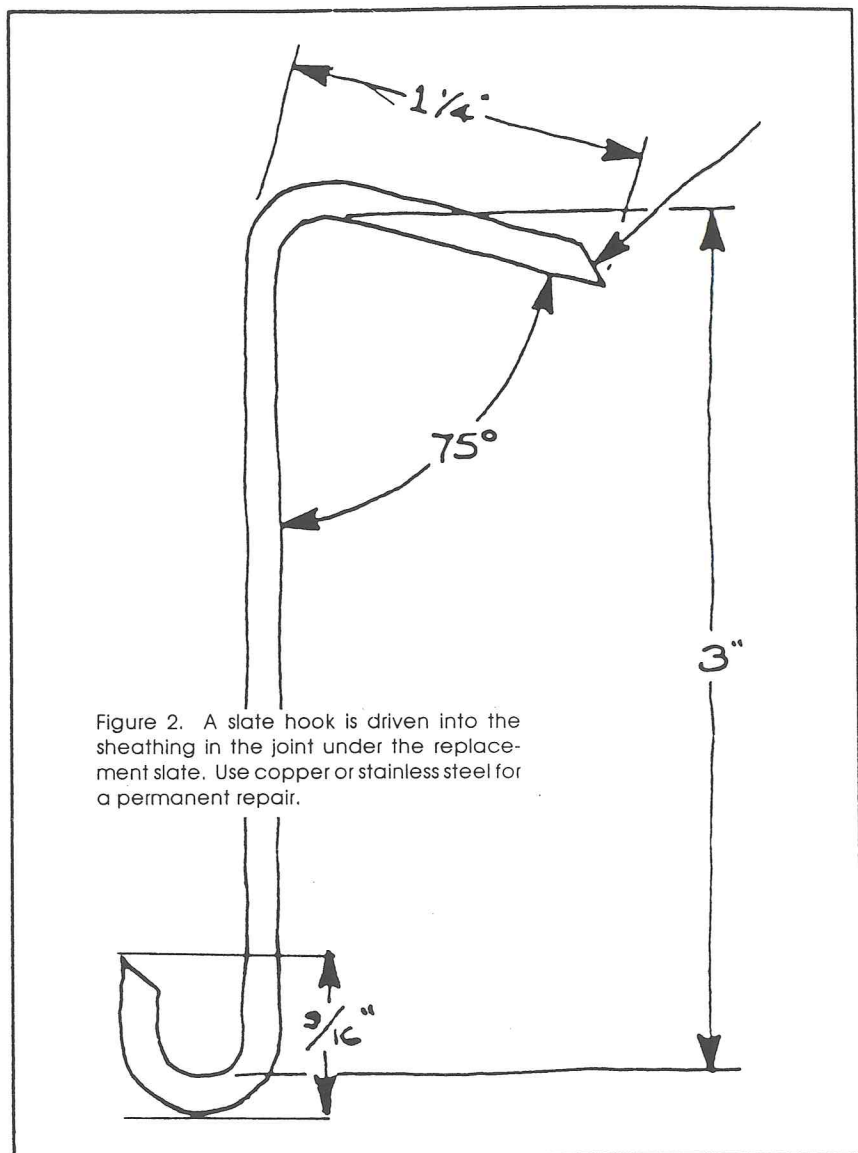


Figure 2. A slate hook is driven into the sheathing in the joint under the replacement slate. Use copper or stainless steel for a permanent repair.

nail holes.

There are two ways to cut slate. The old-fashioned, but still acceptable, way is with a slater's stake and slate hammer. A somewhat easier method for a novice would be to use a slate cutter. These tools are available through most slate quarries.

To make nail holes, either punch them with a slate hammer (one end of the hammer comes to a point specifically designed for this very use), or use a drill. A 3/16-inch (0.5 cm) masonry drill does very nicely. Punch or drill the holes, one quarter to one third the length of the slate from the upper end, and approximately 2 inches (5 cm) from the edge. On slates larger than 24 x 14 inches (60 x 35 cm), a second course of nails is recommended 2 inches (5 cm) above the regular holes.

As you reinstall the slates, work them

back into the areas that remain open, cutting them to fit where necessary. The joints in each course should be well broken with those below. They should never be any closer than 3 inches (8 cm) from the joint above or below.

Nail the slates so the nail heads just touch the slate. Do not drive them home or draw the slate into the roof. Rather, the slate should just hang on the nails. For a better quality job, use copper or stainless steel slating nails instead of galvanized.

If the new slate roofing comes up to a vertical wall or a skylight, use step flashing. If only half of the upper portion of a slate is exposed for nailing, use either a slate hook or use two nails on that side of the slate. Space the two nails as far apart as possible along the edge of the slate in the upper half, and these two nails will hold the slate firmly in place. □