SLATE ROOF REPAIRS

by Les Gove

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 is 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. Or slates are sometimes broken by various causes (including careless workers). When replacing a slate, it's absolutely essential that you use the right size and that you match the existing roof in both shade and texture.

The Right Size

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

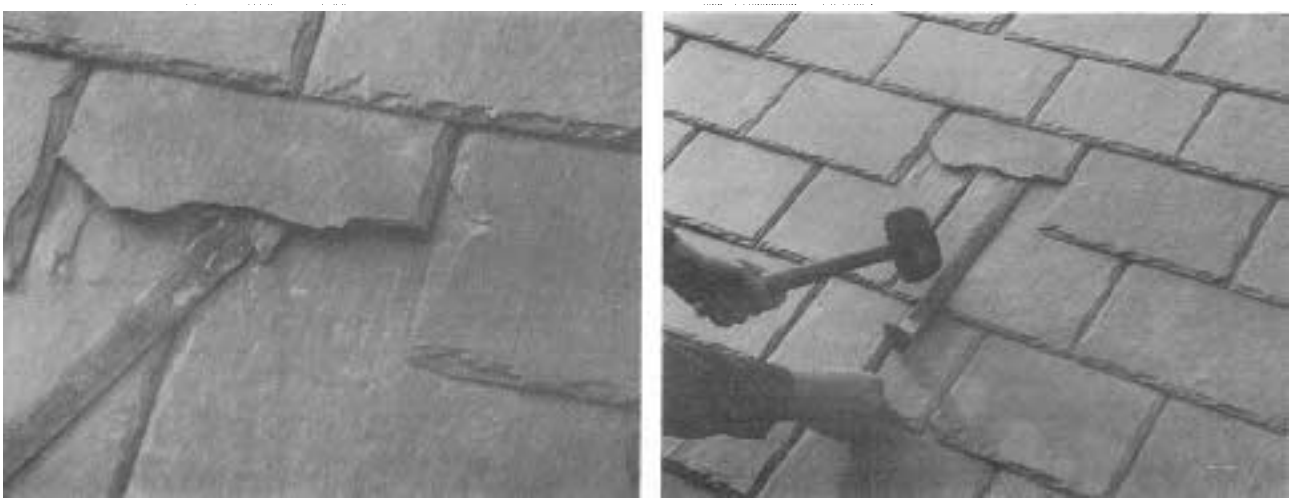
To find the proper length, it may be possible to measure the slate along a gable end or some other place where the underside of the slate is exposed. If this is not possible, you can calculate the length from the amount of the slate exposed to the weather (see Figure 1).

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

Matching Color

Slate color depends on chemical and mineral makeup, and can vary drastically from quarry to quarry. The grey and black slate quarried in Pennsylvania are very common in some areas. Many times they can be identifed 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 that 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 may change to a brown, rust, or grey. This change occurs for the most part only on the exposed surface, so by looking at the underside or the inside of the broken slate you can ascertain the original color. If you are still in doubt as to the color or origin of the slate, send a



To remove the damaged slate, first hook the ripper (left) on one of the two nails holding the slate. Then hammer downward on the ripper (center) to cut or pull the nail. Next drive in a slate hook (right) to hold the replacement slate.

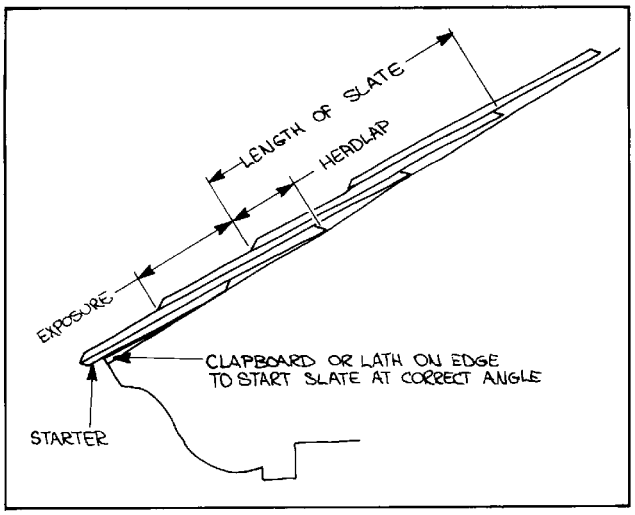


Figure 1. To find the size of the replacement slate, multiply the exposure by two, and add 3 inches for the headlap. Then round up to 12, 14, or 16 inches — the standard sizes of slates.

sample to one of the slate companies listed at the end of this article.

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. It's very important that when you slide it under a slate, you exert very little upward pressure on the slate above the broken one. Since slates will break very easily, you could end up with two slates to replace.

By sliding the ripper under the slate that is to be removed you can hook the ripper on one of the two nails that hold it. Then hammer downward on the ripper – you will either cut or pull the nail out. (You may wish to use a rubber mallet so your ripper will last longer.) Repeat this procedure on the other nail.

The broken slate will now slide out. (Note: Some larger slates such as 24x14 inch and larger have four nails holding them.) After all of 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 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).

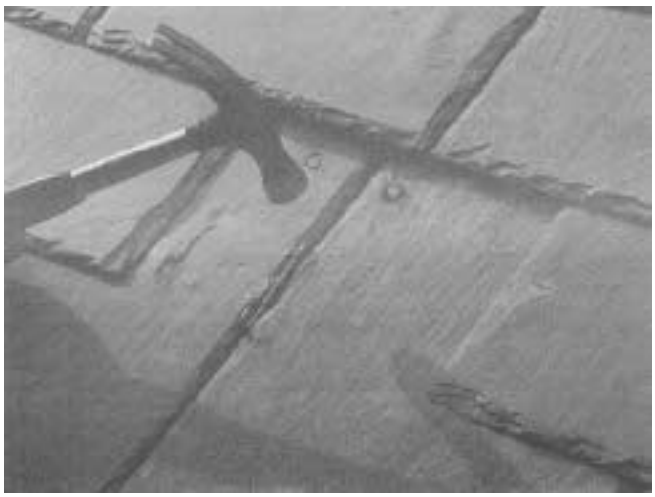
Slate hooks are available at some lumber yards, but these are usually galvanized. These will start to rust after only a couple of years and can fail completely after 40 to 50 years. For a more permanent installation, you can buy copper or stainless steel slate hooks through the slate quarries in Vermont 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 end up costing you more, since you can easily break more slates than you set out to fix. To spread your weight around, you can pad the area where you are working with rigid foam insulation or plywood.

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

The method we prefer 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



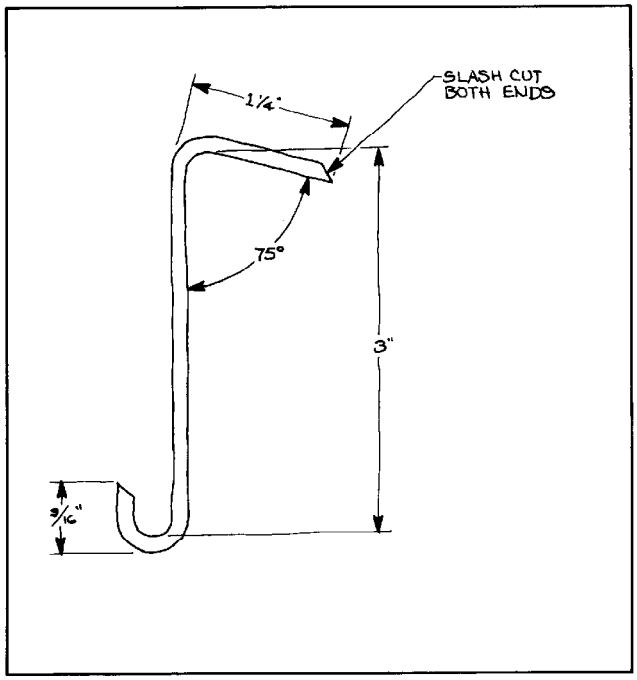


Figure 2. A slate hook is driven into the sheathing in the joint under the replacement slate. Use copper or stainless steel for a permanent repair.

case should be examined individually, and a bit of ingenuity is often required.

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, you can 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.

To make nail holes, punch them with a slate hammer or use a drill with a 3/16 masonry bit. Nail the slates so the nail heads just touch the slate. Do not drive them home or draw the slate into the roof.

When it's time to reinstall the slates, two preliminary steps are necessary: You must cut the slates to size and make 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 you can either punch them with a slate hammer (one end of the slate hammer comes to a point that is designed for this very use), or use a drill. A 3/16-inch masonry drill does very nicely. Punch or drill the holes, 1/4 to 1/3 the length of the slate from the upper end, and approximately 2 inches from the edge. On slates larger than 14x24 inches, a second course of nails is recommended 2 inches 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 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, you may want to use copper or stainless steel slating nails instead of galvanized.

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

If you are new to slate roofing, or need a good reference on the subject, a book entitled *Slate Roofs,* by the now defunct National Slate Association, provides a very detailed look at slate roofing. The book is available for $7.95 (delivered) from Vermont Structural Slate Co. at the address listed below.

For More Information

For information on slate, tools, and hardware you can contact the following quarries:

Vermont Structural Slate Co., Inc.
Box 98
Fair Haven, VT 05743
802/265-4933

Evergreen Slate Co.
34 North Street
Granville, NY 12832
518/642-2530

Buckingham Virginia Slate Corp.
Box 11002, 4110 Fitzhugh Ave.
Richmond, VA 23230
804/355-4351

Structural Slate Co.
222 E. Main St.
Pen Argyl, PA 18072
215/863-4141 ■

Les Gove, of Middlebury Slate Co. in Middlebury, Vt., specializes in the repair and restoration of slate roofs.