

Slate Roof Repair — Dos and Don'ts

Joseph Jenkins

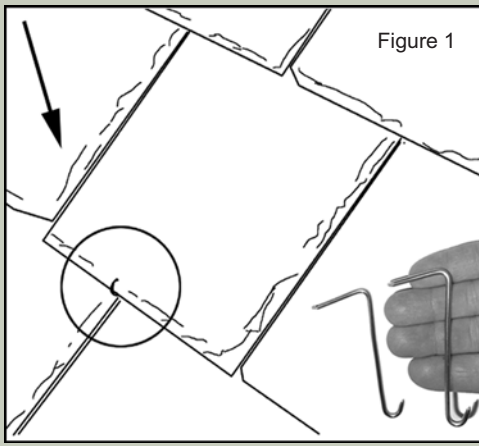


Figure 1

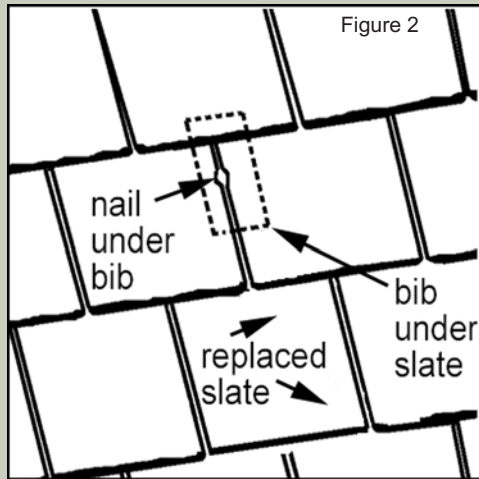


Figure 2

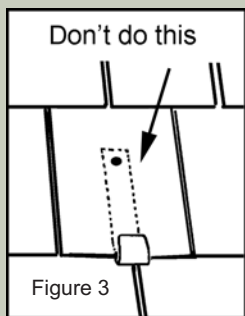


Figure 3

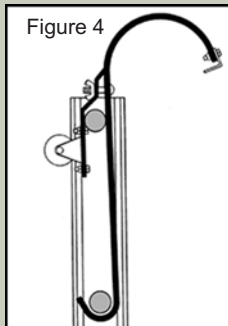


Figure 4

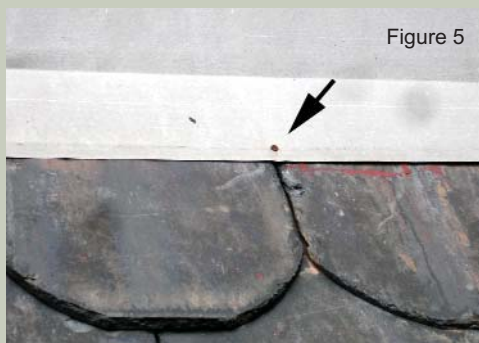


Figure 5



Figure 6



Figure 7

I bought one of the original old journals on Ebay the other day: from 1975. It had an article about slate roof repair that I wanted to add to my collection of slate roofing materials. When I perused the article, however, I noticed that it contained almost the entire list of wrong advice about repairing slate roofs that so often shows up on message boards, in literature and even in videos.

A few weeks before I got the article, I was up on a church roof looking it over for possible restoration. While there, I saw many roof repair errors and I photographed some of them to share with Traditional Roofing readers. I hope this information helps people who need a roof repaired or who are doing the repairs themselves.

Slate roofs need repair for two basic reasons — slates have broken or become damaged, or flashings have deteriorated. Therefore, the repair and restoration of slate roofs requires knowledge about replacing slates and flashings. Just as importantly, however, understanding the source of leakage and finding it is critical to the successful repair of these roof systems. If you don't know what a leak looks like, you will not be able to find it and repair it.

First, let's look at some common myths that are often repeated:

Myth #1) The felt paper underlayment has deteriorated and therefore all the slate must be taken off, the felt replaced, then the slates put back on. This is totally bogus. The felt paper is a temporary underlayment used to keep the building dry until the roof is installed. After that, it's essentially obsolete. Most older slate roofs have no functional underlayment and they do not leak. Many slate roofs never had

slate suppliers will recommend it. They only sell the slate; they don't have to repair or restore the roofs later. Slate salesmen and carpenters will tell you to use plywood. The slate professionals crafting a 100-200 year roof will tell you to use solid boards. Take your pick — it's your money, but for the best longevity, use solid wood decking, not a glued material. It's already tried and proven. Second, ring-shanks are weaker than smooth-shanks and tend to break when you try to pull them out during repairs. That leaves that nub underneath the slate which is a huge pain in the you-know-what. The last thing a slate roof professional wants to find is a roof installed with ring-shank nails.

Myth #4) Install replacement slates by using copper straps that fold up over the bottom edge of the slate. False. Just because you've "always done it that way" is not an excuse to keep doing the wrong thing. There are two replacement techniques that are acceptable: slate hooks (Figure 1) and the nail and bib method (Figure 2). Exposed straps (Figure 3) look bad and will open up if anything sliding down the roof hits them (like snow).

How are slate roofs damaged? The number one culprit: roofing-contractors. You do not want foot traffic on your slate roof, for example. Some contractors will tie a rope around themselves and tromp around the roof, breaking slates. Hook ladders (Figure 4) instead provide the perfect work surface from which to access a steep roof. There is no excuse not to have them. Otherwise, scaffolding or lifts are helpful. Aside from foot traffic, roofing contractors will damage slates by "repairing" them. They will nail through them, tar them, nail them then tar them, tar them some more, caulk them and nail them, screw them, I even saw one duct-taped. The funny thing is that it is easy and simple to properly repair slates. Why improper repairs are so common on slate roofs is anyone's guess. My well-publicized theory is that Neanderthals never became extinct, they just evolved into roofing contractors. Let's look at some of the common issues.

Figure 5 shows a common leak that is often overlooked. The exposed nail head on the apron flashing of the chimney will allow water to enter the building. Caulk the nail head. Next time, install the flashing with cleats (see TR6 for cleat info at traditionalroofing.com).

Figure 6 shows what I call a "hidden leak." There is a nail in the top of the slot where someone used the "nail and bib" method to replace the slate in the past. Figure 7 is a closeup of the nail. There is an old bib flashing there that completely rusted through, exposing the nail head. This allows water to directly enter the roof and shows why you should not use galvanized bib flashings (use copper, aluminum, or stainless). The reason this is a hidden leak is because it's hard to spot. When looking from above, it's virtually invisible, but it will seriously leak water. Remove the nail and bib and replace them with a new nail and a non-corrodible bib.

underlayment in the first place. Anyone telling you that you have to replace your underlayment does not know what they are talking about.

Myth #2) The slate ripper, which is the basic tool used to remove slates from a roof, slides underneath the slate and cuts the nails. False. The ripper pulls out the nails; it does not cut them. You do not want to cut the nails because that will leave a nub under the slate which will prevent the insertion of the replacement slate.

Myth #3) Ring shank nails should be used on slate roofs when plywood is used for decking or where a stronger nail grip is required. First, don't use plywood decks underneath slate if you want the best job, even though the

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Figure 8

Figure 8 shows an obvious leak. The slate has split, exposing the underlying nail. Water will enter through the nail hole and through the slot between the slates. The broken slate must be replaced.

Figure 9 shows another leak that is fairly common. The nail head has rubbed against the overlying slate and worn a hole in it. The nail either wasn't nailed down far enough when the roof was originally installed, or else it was nailed into a knot or something that caused it to back out when the wood dried. This illustrates why standard-thickness slates should be punched rather than drilled for nail holes. The punching creates a crater shaped hole that will allow the nail head to sit inside the slate, preventing the rubbing effect that can damage the roof over time.

Figure 10 shows another broken slate, this time where the exposed nail is barely visible. The broken edge of the slate can channel the water directly to the nail hole, creating a significant leak. The solution is to replace the broken slate.

Figure 11 shows a common repair error — the use of roof cement or “mastic” to repair a leak. There may be proper times and places to use roof cement, but on the exposed surface of a slate is not one of them. This sort of repair is unsightly and will remain so for many years. The correct repair would have been to simply replace the broken slate. It is imperative that people who repair slate roofs have a stock of salvaged slate for that purpose or know where to get them (such a directory is available at slateroofcentral.com). Otherwise, it can be very tempting to just slap some tar on the roof.



Figure 9

Figure 12 shows the sort of shoddy repairs that are commonly seen on older slate roofs. This is the sort of poor workmanship that slowly degrades a roof until it is ripped off by the owner in frustration and replaced with a cheap substitute. Anyone who hires someone who does this caliber of work should have his or her head examined. Unfortunately, slate roof repair work can be very difficult for a client to examine close up. Yet, replacement slates that don't match the original roofing in shape can be seen from the ground. Sometimes, this is the work of do-it-yourselfers or volunteers and is often seen on churches where well-minded but inexperienced congregation members with ladders decide they want to help.

Figure 13 shows another common “repair” that actually causes more leaks than it fixes. The replacement slate was simply “face-nailed,” or nailed through the exposed face of the slate. Then that darned tar came out. It would have taken less time to use a nail and bib or a slate hook and replace the slate correctly.



Figure 10

Figure 14 shows a repair done by an obviously blind roofer. The wrong shape and color of slate were used in the repair. When work is this poorly done, you can bet that the fastening method was off-base as well. Here's a tip: when a roof must be repaired and matching slates cannot be obtained, a section of the original roof can be “cannibalized,” or removed to acquire the needed matching slates. The cannibalized roof section should be one that is not very visible, like the side of a dormer roof on the rear of the building. Once the slates are salvaged, the removed section can be slated with either a salvaged or new slate. This technique also works well on unusual tile and asbestos roofs. A property owner will be happy to have a different shade of black slate, for example, on a rear dormer if the rest of the black slate roof on the building looks good, instead of a mishmash of unsightly repairs scattered across her roof.

Slate repair is pretty straight-forward: you locate the defective slates and replace them with matching slates. Use the correct fastening techniques and the right tools and everything will be hunky-dory. Flashing repair is another story. When flashings wear out, and they will (the slates usually outlast the flashings), they have to be replaced too. This is simply a matter of removing any slates that are covering the flashings, pulling out the old flashings down to the bare roof deck, then replacing the flashings with new metal. Then replace the original slates back into their original positions. This is all routine work for professional slate roofers (who are listed on the internet at www.slateroofers.org).

The cost to completely restore a slate roof is usually about 15% of the cost to replace it. As long as the slates themselves are still good, there is no need to replace the entire roof, but the subject of flashings and roof restoration could take up an entire book. But wait, there's already one in print called *The Slate Roof Bible* (see page 8). And it's a prize winner. So for more information, you know where to go! 📖



Figure 12



Figure 13



Figure 14

All photos this article by Joseph Jenkins.