

THE INCREDIBLE SLIPPING SLATES

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PEOPLE ARE ALARMED ABOUT THE "SLIPPING SLATES" THEY'RE SEEING ON NEW SLATE ROOF INSTALLATIONS.

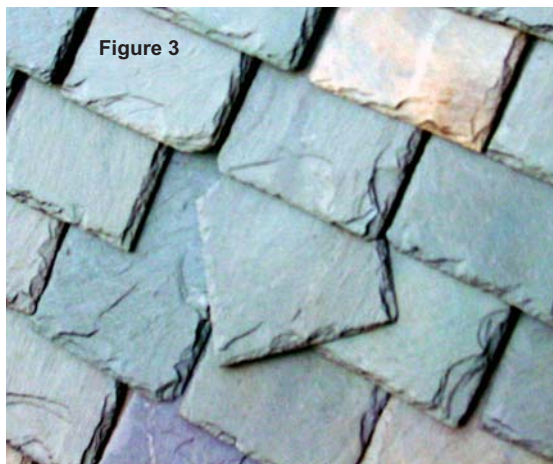
Being as invested in the slate roofing trade as I am, people are always contacting me with questions about slate roofs. When the same question is asked enough times, I make a note to write an article about the subject in the next TR. That is the genesis of this article — which can now be found online to be read by anyone at any time without me having to repeat myself over the phone to another stranger.

"Slipping slates" or "shedding slates" are slates that appear to be sliding out of place on a roof, or are missing (Figure 1). There may be a few, there may be hundreds, but in most cases, the defect is associated with new slate roofs. The slates may slide out days or weeks after the roof has been installed, or years later — usually within ten years, but most often within the first five. The questions most often asked are, "Are some slates supposed to fall out after installation?" "What is an acceptable number of slipping slates per square?" "What causes the slates to shed?"

Brief answers to these questions are this: no slates are supposed to fall out after installation and there is no acceptable number of slates that can fall out. A new slate roof installation should be 100% intact — nothing slipping, sliding, shedding or breaking. If there is a slate or two that looks like it's broken or sliding out, the installer should be back there pronto to repair it. This is a good reason, by the way, to not settle for a one year warranty on a new slate roof. Get a five year warranty at least. A good installation contractor will stand behind his work and repair any defect at no charge no matter how much time has elapsed since the installation.

But what causes slates to break and fall out? There are three main reasons:

1) The slates themselves. Of all the slate roofs I have looked at with shedding slates, this is the least likely cause of the problem. However, not all slate is the same. Slate is a natural stone that is hand-split into roofing shingles. Some stone types are more brittle and more irregular than others. For example, we installed two slate roofs, each having about 30 squares of standard-thickness (3/16" - 1/4") slate shingles. One was Vermont "sea green" slates produced by a conscientious manufacturer. Of these 30 squares, only about 3 slates had to be culled out because they were broken or defective. We never had to go back to this job and repair a single slate. On the other roof, we installed Vermont mottled green and purple slates from a



less-than-conscientious manufacturer. We had to cull out nearly a full pallet of defective slates. Five years later, we still have to go back to the purple roof every year and repair some broken slates that seem to be falling apart on their own.

The installation procedures were exactly the same on both roofs. The only difference was the type of slates and the manufacturing quality. This is not to suggest that Vermont mottled green and purple slates should be avoided — they should not, as they're some of the best slates in the world. What matters, however, is manufacturing quality. The sea green slates had been individually hand punched for nail holes. Each slate was handled by various people in the manufacturing process several times — splitting, trimming, punching and palleting, with plenty of opportunity to cull out defective slates. The purple slates, on the other hand, had been hand drilled in stacks, like pancakes. That meant that stacks of slates were being rushed through the manufacturing process without the needed scrutiny that would have eliminated a lot of cracked or defective slates. Also, the nail holes must be in the thinner end of a roofing slate. When the slates are individually hand-punched, the worker can make sure the holes are being punched on the thinner end (if there is one). When slates are being stacked and drilled, a number of them will be drilled on the wrong end. These will not lay well on a roof and must be culled out as rejects.

2) Another reason slates slide out is because they're "over-nailed." Properly manufactured standard thickness roofing slates have nail holes that are cratered to allow the nail head to sit down into the slate. If the nail is driven too hard, the head will punch completely through the slate (Figure 2), leaving one side of the slate hanging on nothing and the slate may look like it's dangling crookedly on the roof (Figure 3). If both nails are driven too hard, the entire slate will slide out. This may not happen immediately; it could take months or years for the defective slates to show themselves. The solution is simple enough: have the roof installed by experienced slaters who

know how to nail roofing slates. It's the lack of experience that causes the installers to over-nail or under-nail the slates. I have seen photos of roofing contractors installing slates with pneumatic nail guns (see TR#7). This is a mistake and a sure way to break out the nail holes.

3) And now for the main cause of slipping slates (drum roll please): walking on the slates during installation! I have seen literally hundreds of slates that appear to be sliding out of place on new roofs — that's hundreds on a single roof! On closer examination, it's clear that Bigfoot had been there, tromping all over the slates, probably with leather construction boots, especially when the slope is low enough to walk on.

Foot traffic damages roofing slates once they have been installed. If you lay a slate flat on a concrete floor, you can do a tap dance on it and not hurt it, which is one reason why slate is so popular for flooring. But once it's installed on a roof, it's no longer lying flat on anything. Every slate on a roof overlaps other slates and is therefore angled and fragile (Figure 7). When walked on, there is a good chance that the slate will crack and the bottom part of the slate will fall out (Figures 4 and 5). Again, this may not show itself immediately. The slate can be cracked and damaged but not break apart until a couple freeze/thaw cycles come and go. Figure 6 shows a cracked slate that was likely broken by foot traffic, although the defect is not visible without close inspection.

Unfortunately, if the installers are walking all over the slates, there's a really good chance they've made a host of other installation mistakes as well, such as over-nailing slates and then walking on them. There is really no excuse for this problem. Slate roofs should be installed by skilled and experienced craftsmen. If the installers do not have sufficient experience, they should do their homework before they dive into a slate roofing project. The roof must be properly staged so the workers are working on scaffold planks. Roof brackets, planks, roof ladders and hook ladders all provide means for working on slate roofs without walking on the slates. And guys, get the leather construction boots off and put on soft-soled shoes. Canvas or leather footwear *with rubber soles* is ideal for slate roofing. You can feel the roof under your feet, you can notice if you're breaking a shingle, and traction is ideal with rubber soled shoes.

Figure 8 shows all the mistakes rolled into one photo. Note the construction boots. Note that there is no roof scaffolding whatsoever on this job and the entire roof was installed by walking all over it, including carrying the slates up the roof.

Some slates may still break during installation, but it's up to the installer to thoroughly examine the roof when the scaffolding is being taken down to make sure any defective slate is found and repaired. When properly installed, the roof should be 100% intact. If any defect shows itself, the roofer should stand behind his work and fix it without delay. As a slate roof consultant (SlateExperts.com), what I have been running into are large slate roofs, such as churches and hospitals, installed by inexperienced workers, that have hundreds of slates sliding out. The one-year warranty has expired so the original installer won't repair the roof. It is this sort of scenario that is hurting the slate roofing industry in the U.S. today.

So what do you do when you run into the incredible slipping slate? You simply repair it. You replace it with matching slate and you install the replacement slate with either a copper or stainless steel slate hook or use the "nail and bib" method (Google "nail and bib slate repair"). If you have hundreds of slipping slates on the roof, you resign yourself to repairing hundreds of slates. A good slate roof repair contractor can replace hundreds of slates in a surprisingly short time and the repairs will be invisible. Make sure that whoever does the repairs is not stomping all over the roof in construction boots and doing more harm than good. Also, when installing a new roof, make sure you keep a supply of extra slates at the construction site to be used for repairs should they be needed in the future. This will ensure that matching slates will be available.

I hope this clears up the mystery of the incredible slipping slates and now, when the phone rings, I expect it to be people telling me about the beautiful, flawless slate roofs they have installed. ☑

Watch a video about Basic Slate Roof Repair at SlateRoofCentral.com/videos.html.

Buy slate hooks and bib flashings at SlateRoofWarehouse.com.



Figure 5

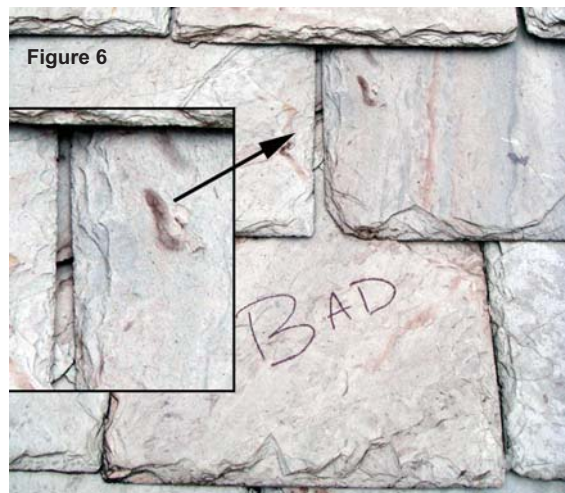


Figure 6



Figure 7

Roofing slates are all angled on the roof. None lies flat. Slate roofs are not supposed to be walked upon as it will damage, crack or break the slates. The shedding of slates is most frequently due to damage by foot traffic that occurred during the original installation.



Figure 8