

Slate Starter Courses

Joseph Jenkins

1) The starter course is incorrectly installed face up.

One can tell immediately if a slate installer is experienced or not by looking at the starter course. If the starter course is laid with the face side up, the installer is inexperienced and it's likely there could be additional mistakes in the roof installation. The starter course slate is the only slate on the roof that is supposed to be installed with the face down and the back up (Figure 1). All other slates on the roof are installed with the face up in order to expose the beveled edges of the slate (the face of the slate is the side that shows the beveled edge — the back doesn't). The reason the starter course is laid face down is because the drip edge of the starter slate then merges flush with the drip edge of the first course of slate (Figure 2). It just looks better. This is a traditional stylistic procedure that doesn't have any practical effect on the long term functionality of the roof system.

Furthermore, when ordering roofing slates from the quarry, it is advantageous to order the starter slates separate from the field slates (rather than use the field slates as starter slates). A good slate supplier will make sure the starter slates are punched for nail holes only along the top of the slate and the holes will be punched on the front of the slate (rather than the back as is done on the field slates). This allows the slate to be laid face down and the nail-head countersinking to be on the back of the starter slate.

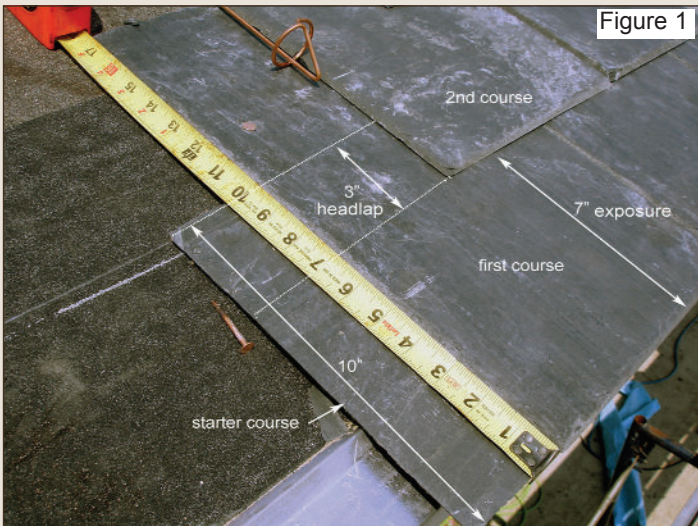


Figure 1

The starter course is supposed to be laid with the back side of the slate (the side without the beveled edge) facing upward, as shown above, and below right. When installed correctly, the drip edge bevels merge to a point, as shown below in Figure 2, right side. When installed incorrectly, as shown below left, it's an indication of an inexperienced installer and does not bode well for the rest of the installation.

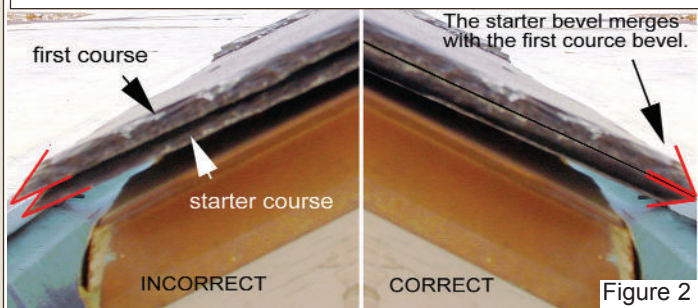


Figure 2

2) The proper cant or shim strip is missing.

The starter course must be angled on the roof in order to match the angle of all the other slates in the field of the roof (Figure 3). No slate lies flat on the roof because every slate is overlapping other slates. Since the starter course does not have any other courses of slate underneath it, something must be installed to create the proper angle on the starter course. Traditionally, this has been done by nailing a cant or shim strip made from wood under the bottom edge of the starter course, usually the same wood that is used to create the roof deck (Figures 4 and 5). Alternatively, the fascia board can be raised slightly in order to raise the bottom of the starter course. Also, if a metal drip edge is used, the drip edge can be formed with an inverted "V" groove that functions in the same manner as a cant or shim (Figure 6). Other types of shims have also been employed over the years, such as cedar shakes, plaster lath, etc. In any case, if the shim is left out, the slates will not lie cor-

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No slate lies flat on the roof. They are all angled, so the starter slate must have a shim or cant underneath it to create the proper angle.



Figure 4

An example of a traditional wooden cant strip on a slate roof being installed over a standing seam copper roof.

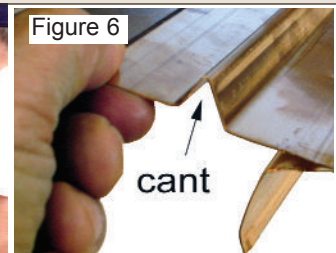


Figure 6

Traditional wooden cant strip (left) is usually made from the same wood as the roof decking material (i.e. 1" lumber) ripped to the correct thickness. A copper drip edge can be formed with an inverted V groove as a cant.

rectly on the roof. This is usually manifested as a gap underneath the bottom of the second to fourth courses of slates (Figure 7).

3) Inadequate side laps are installed.

The side laps, or lateral overlaps between the side-butts of the starter slates and the first course of slates, should be a minimum of 3". On a poorly installed starter course, these lateral overlaps will measure an inch or less (Figures 8 and 9). When the side-butts of the first course are too close to the side-butts of the starter course, a path is created for water entry into the building. The photo below shows such a scenario, where there is virtually no side-lap. This is a certain leak. The people installing this slate roof in Arizona were inexperienced and are facing litigation. The starters were laid face-up (incorrectly) and no cant strip was used.



Figure 7

Gapping under the slates is caused by the lack of a cant strip under the starter course. This slate had been removed by contractors who thought installing peel and stick underneath the eaves slates would somehow improve the situation. This, and the fact that they replaced the slates without a cant strip, are an indication the contractors had a poor understanding of slate roofs and how they work. This roof is in Maryland.

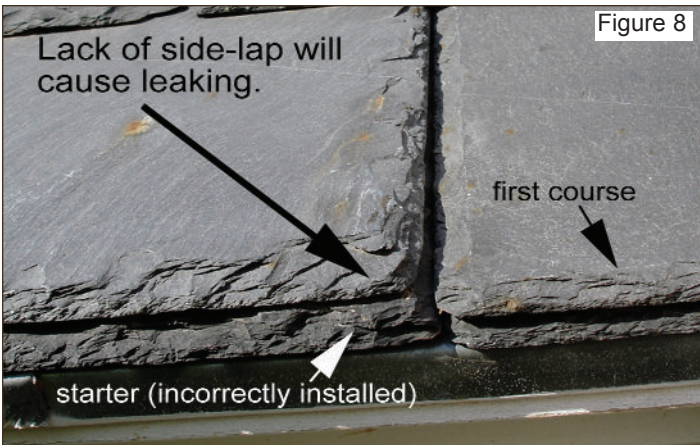


Figure 8

The above roof, installed in Arizona, shows the side-butts of the starter course and first course overlapping, with no lateral spacing. It also shows the starter slate laid face-up. These are two mistakes that could be easily avoided if the installer spent a few minutes educating himself before starting.

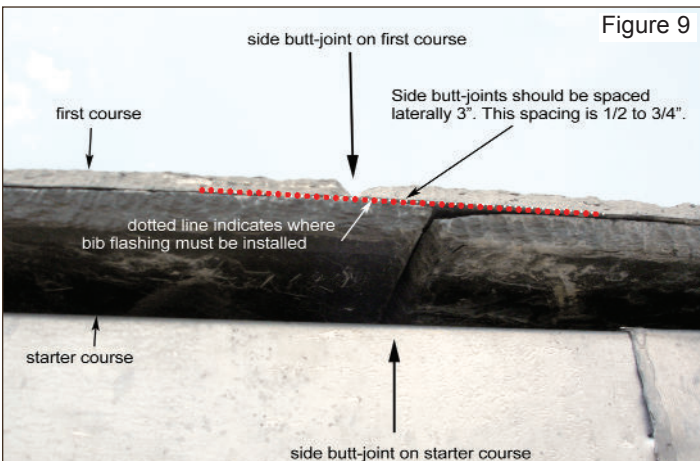


Figure 9

When improper lateral overlapping creates a leakage scenario, copper bib flashings may be installed between the slates to create an artificial side lap as a remedial procedure. However, correctly installed starter courses will avoid this problem. This roof is in Connecticut.

All Photos by Joe Jenkins

4) There is not enough headlap on the starter course.

This is a common mistake made when the field slates are turned sideways and used for starter slates and no adjustment is made on the first course exposure to allow for adequate headlap on the starter (Figures 10 and 12). The height (distance up the roof) of the starter slate must be at least 3" greater than the vertical exposure on the first course of slate (Figure 11). The exposure

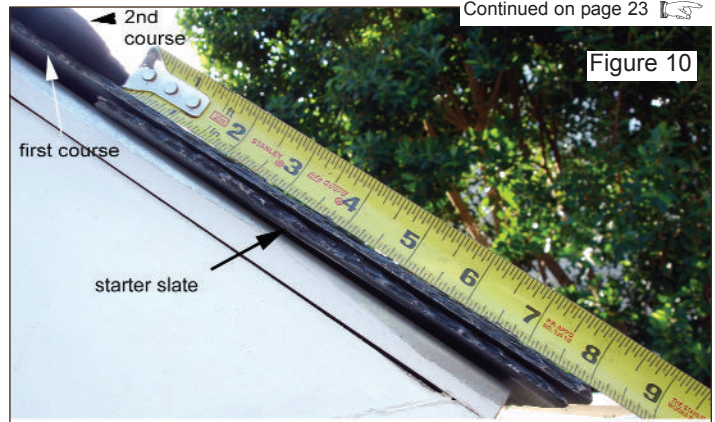


Figure 10

An 8" starter slate and an 8" exposure, as shown here, indicates no headlap at all. A correctly installed starter slate will have 3" minimum headlap. Note that the starter slate is incorrectly laid face-up. The people who installed this slate had no idea what they were doing and ended up in litigation. There is also no cant strip. This roof is located in Virginia.

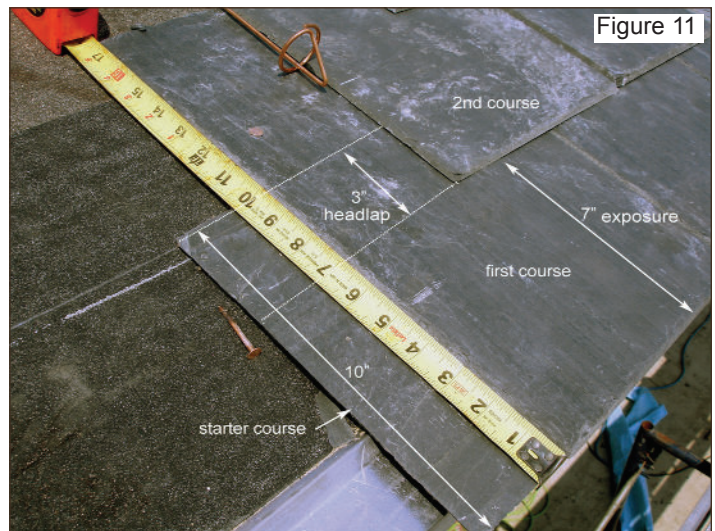


Figure 11

To determine exposure of field slates: $exposure = (length\ of\ slate - headlap) / 2$
A 20" long slate with a 3" headlap will have an 8.5" exposure [$8.5 = (20 - 3) / 2$].



Figure 12

This slate roof was installed with little or no headlap. It will have to be completely removed and reslated. It is a huge roof.

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on the first course of slates may be reduced by dropping the chalk line for the top of the second course of slates in order to increase the headlap on the starter course. This little detail is often overlooked by inexperienced slaters. Since the bottom of the roof has more water running over it than virtually any other part of the roof, it is imperative that the headlap on the bottom courses of slate be correct. If anything, the slates on the bottom of the roof should have more headlap than the field slates, not less.

5) The starter course is incorrectly installed ahead of the first course.

It is important that the starter course and the first course of slates be installed at the same time, although many installers tend to run the starter course out ahead of the first course (Figure 13). The exception to this rule is when the starter slates are the same width as the field slates (or a factor thereof), and the starter slates are only punched for nail holes on the top edge, then the starter course can be laid out ahead of the first course. In all other circumstances, such as when installing random width slates or using field slates turned sideways as starters, the starter course and the first course must be installed concurrently. This is the only way you can guarantee correct sidelaps and make sure you don't have stray nail holes in the starter slates in the joint between the first course slates, creating a leak (Figure 14). When you lay the starter and first courses concurrently, you can trim each starter slate to the correct length (or to remove stray holes), if necessary, to avoid these problems.

For example, let's say your field slates are 10"x20". For a 3" headlap, you will need an 8.5" exposure on the field slates. However, if you turn the slates sideways and use them for starter slates, you will only have 10" of slate going up the roof on the starter course. An 8.5" exposure on the first course of slates, then, would only leave a headlap of 1.5" on the starter course — a mistake. The exposure on the first course of slate must instead be dropped to 7" in order to create the 3" headlap on the starter course.

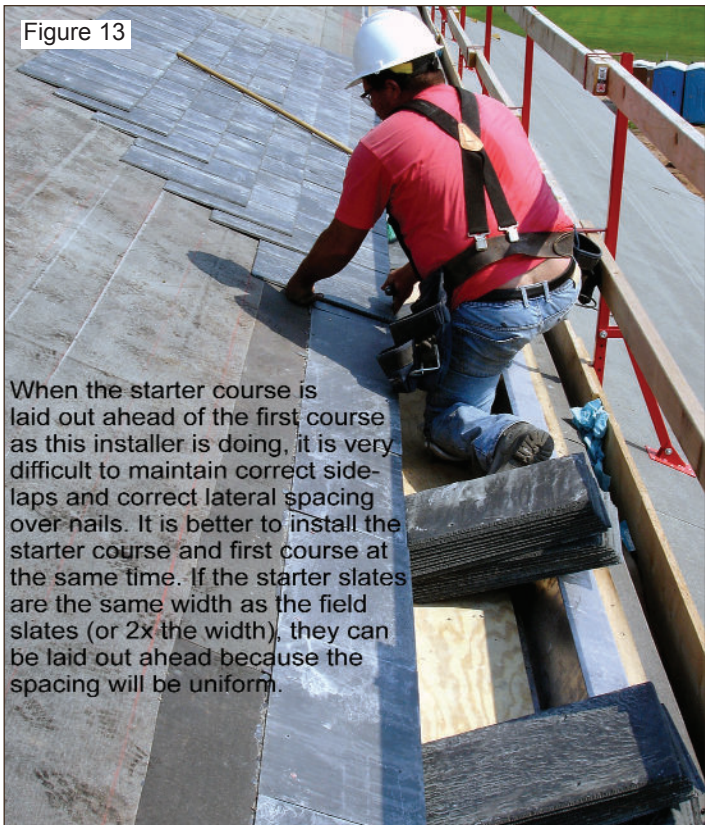


Figure 13

When the starter course is laid out ahead of the first course as this installer is doing, it is very difficult to maintain correct sidelaps and correct lateral spacing over nails. It is better to install the starter course and first course at the same time. If the starter slates are the same width as the field slates (or 2x the width), they can be laid out ahead because the spacing will be uniform.

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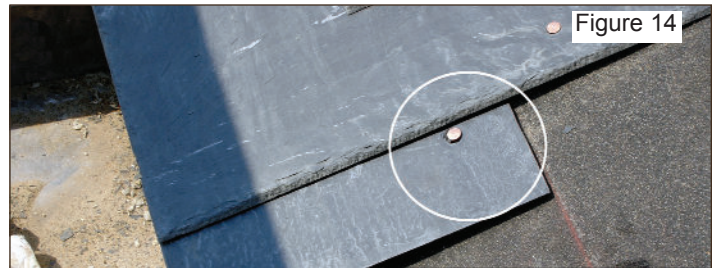


Figure 14

Note proximity of nail head to side butt joint of first course. The nail is too close to the joint. This could be avoided by installing the starter course and first course at the same time. Although this nail will be covered by the 2nd course headlap, it still creates a weak point that could be subject to water penetration during, for example, ice-dam conditions.

Alternatively, you could use a 12" high starter slate, thereby guaranteeing a 3.5" headlap on the starter course and an 8.5" exposure on all field slates. In fact, when you ordered the 10x20 field slates from the quarry, you should have also ordered 10" wide and 12" long (high) pre-punched starter slates. That would ensure you an easy, fool-proof job and you could go ahead and lay the starters out ahead of the first course.

In addition, if you use the field slates turned sideways as starter slates, then you have to punch an extra nail hole on one side of each starter slate in order to nail the slate to the roof sideways as all slates on the roof must be nailed with two nails. This will leave you with a "stray hole" (an original nail hole) along the bottom of each slate which can create leaking problems if it falls in the slot between two overlying first course slates. So even though the 20w x10h starter slates are a factor of the width of the 10" wide field slates, they cannot be laid out in advance of the field slates without risking a stray hole falling in an overlying joint. The starters and the first course must be laid concurrently in this situation.

The starter course, even though invisible, is arguably one of the most important courses on a slate roof. If it's done right, you're off to a good start. If it's done wrong, you have created a slate roof with built-in long-term headaches. Some new installations even go into litigation because of problems with the starter course. If you do a little homework, educate yourself, and see and understand these potential problems before you start installing a slate roof, you will be doing both yourself and your roofing clients a big favor in the long run. ☒

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Triple M Contracting
 148 Treble Cove Road, N. Billerica, MA 01862
 Ph: 978-671-9523; Fax: 978-667-5873
 Web: triplecontracting.com
 Email: kevin@triplecontracting.com

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