

## Q. Birdsmouths in Rafters: Are They Necessary?

*Why are we still cutting birdsmouths in rafters? We now have power tools that can easily rip a continuous beveled strip that can be added to the top plate to attach the rafters. Plus, we have steel connectors to ensure the attachment.*

**A.** *Mark McKenzie, an engineer in Brewster, Mass., responds:* Although this alternative framing method could work in some instances, I think that the issues raised outweigh the benefits when compared with conventional (and properly executed) birdsmouth rafter cuts.

To begin with, how well the rafter was attached would depend directly on how well the ripped strip was attached to the plate, which would require an engineered attachment schedule to ensure that the ripped strip stayed put. And my guess is that the narrow strip would most likely split when you tried to nail through it.

Another problem with this method occurs when the rafters attach to the top of a wall instead of to a plate on the floor deck. The angled strip on top of the wall plates would prevent the ceiling/attic joists from bearing properly on the top plate, and the strip itself would not provide adequate bearing for those joists.

Placing the joists on the strip above the plate would also make it more difficult to attach the top edge of the wallboard.

Structurally, a rafter sitting on an angular bearing point (the inclined plane of the ripped strip) would require that the rafter-plate connection deal with the horizontal and vertical components of the force differently than with a birdsmouth. A lot of force is transferred down the length of the rafter, and the seat cut on the birdsmouth transfers that force directly to the top plate. With the ripped strip installation, there would be no horizontal bearing surface to resist that force. Granted, a structural ridge can lessen the amount of force on a rafter — but even then, I would not attempt a ripped-strip rafter installation without having the entire system approved by an engineer.

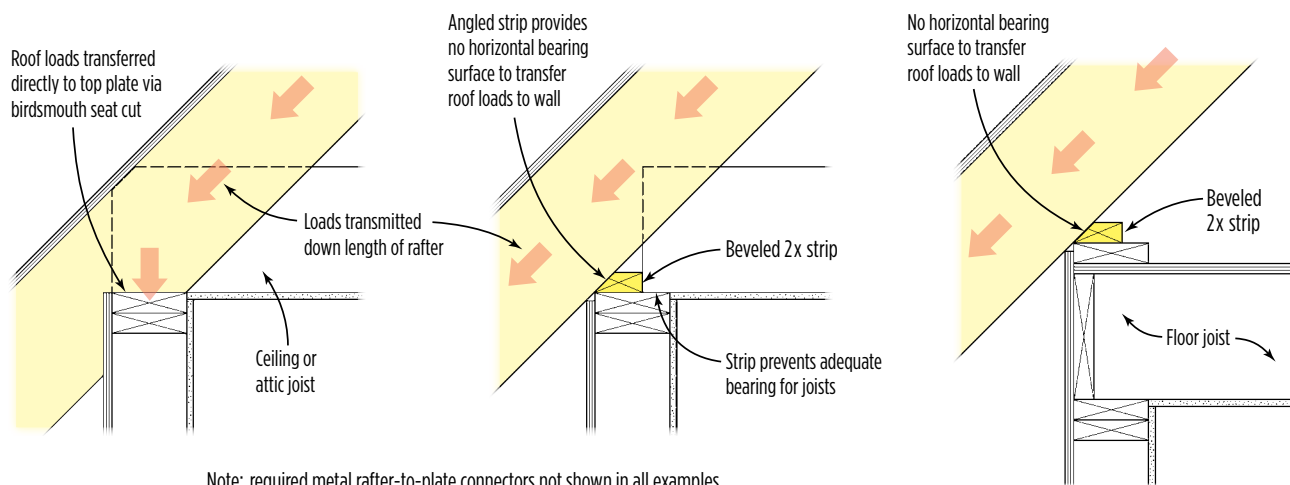
The solution of simply adding metal clips can also be problematic. Again, an engineer should be consulted to ensure

that any metal clips used are rated for the additional loading from the elimination of the birdsmouth, in addition to dealing with any standard regional conditions such as wind uplift or seismic.

In general, while the ripped-strip installation does eliminate the need to make two cuts for the birdsmouth, it's debatable whether there are any real labor savings. Ripping the attachment strip requires a completely different setup with a different tool, whereas most framers I know cut the birdsmouths as just a small additional part of rafter-cutting "production." Those two cuts add just a few seconds to the whole process.

As a final admonition, make sure that any framing detail — such as the rafter-plate connection — is done in a properly engineered manner. It's always better to have an engineer review and approve your methods before you start cutting and nailing.

## Rafter Attachment



## Q&A

### Q. Pros and Cons of Epoxy Grout

*I've heard that epoxy grout is better for some types of tile installations. But I've also heard that it's expensive and difficult to work with. Assuming all of these claims are true, when is it best to use epoxy grout, and what are the keys to working with it?*

**A.** *Michael Byrne, a veteran tile installer and consultant and the moderator of JLC's ceramic tile forum, responds:* In my experience, regular and latex-cement grouts can be relatively trouble-free — even in harsh environments — if they are used correctly.

For any grout, you need to follow the manufacturer's instructions: Use the correct proportions of wet and dry ingredients (grout that is applied too wet is practically useless), fill the grout joints

**Today's epoxy grouts are less prone to sagging and discoloration than older versions, and are much easier to install and clean.**

properly, clean with a minimum amount of water, and then allow the grout to cure completely before the tile installation is put into service.

That said, epoxy grouts generally have higher chemical resistance and are more flexible than regular cement grouts, which supposedly makes them more durable and more stain-resistant for places like kitchens and entry halls, and in commercial installations such as restaurants. However, epoxy grouts can be used on any interior installation and with any ceramic or natural stone tile (unless otherwise noted by the tile manufacturer). Most epoxy grouts clean up with water and generally do not need to be sealed

after installation. They also usually cost more than other grouts.

In the past, I never liked using epoxy grouts because they were difficult to install and clean properly. The worst problem was that pinholes often appeared after the grout had been cleaned. This happened because many epoxy grouts sagged once placed in the tile joints, which forced trapped air upward in tiny bubbles. These bubbles always seemed to reach the surface just as the epoxy components began to harden, creating the pinholes. The pinholes were all but impossible to fix quickly because the leftover epoxy grout was too hard to spread to fill them. (I should point out that pinholes can also result from air escaping from under tiles that have not been bedded properly.)

Older versions of some epoxy grouts were also prone to discoloration when exposed to the ultraviolet rays in direct sunlight.

However, in response to concerns voiced by installers, many manufacturers have solved the problems that affected earlier versions. Through research and technological improvements, epoxy grouts are available that do not sag or discolor and that are much easier to install and clean.

In fact, some epoxy grout can actually be fun to use. Laticrete (800/737-8345, [laticrete.com](http://laticrete.com)) epoxy grouts outperform and are easier to work with than their predecessors. The fun part is that the company makes one additive called "Dazzle" that produces a bright metallic look, and another called "Glow" that — you guessed it — makes the epoxy grout glow in the dark.

# YOU COULD SAVE YOUR CUSTOMERS \$850\*

on average by installing the  
No Leak Solar Powered  
"Fresh Air" Skylight.

Eligible for  
**30%**  
Federal Tax  
Credit

**Top 3 reasons  
this product is revolutionary:**

Solar powered so no wiring is needed  
to open it up and let fresh air in.

Your customers get the No Leak Promise  
— a 10-year installation warranty.

Easy to sell, and your customers  
may save money when they qualify  
for the 30% tax credit.

\*For information go to [veluxusa.com/taxcredits](http://veluxusa.com/taxcredits).



**VELUX®**  
Skylights