

A Durable Roof-Valley Repair

Peel-and-stick membrane and metal flashing are the best practice for new or old valleys

BY STEPHEN HAZLETT



WHY DID THIS VALLEY LEAK?

In the process of unzipping this valley, one of the causes of the leak was revealed clearly. When the original valley was trimmed, the underlying shingle was cut accidentally. This damage probably was caused by trimming the valley with a roofing hatchet rather than a hook blade in a utility knife. The valley also had no flashing, no peel-and-stick membrane, and no underlayment of any kind under the shingles. It was a leak waiting to happen from day one.



When I started my roofing business almost 20 years ago, I quickly found myself specializing in roof repair, mostly reflashings valleys and chimneys on older roofs. Years later, those projects are still my favorites. Repair work has provided me with an excellent opportunity to learn from other peoples' roofing mistakes.

Old roofs usually aren't worth fixing

The quality and efficiency of a valley repair are determined largely by how well you can unzip the old valley. Thirty-year dimensional shingles in pretty good shape are a perfect candidate for valley repairs. Old wafer-thin 20-year shingles usually are not worth repairing because they're too delicate. It's better to replace the entire roof than to fool around with patches. Ironically, 50-year shingles are nearly as unsuited to repairs, but for a different reason. The seal-down strip is too good, which makes it almost impossible to separate the shingles without causing extensive damage. Here's one tip: You may be able to cut the seal-down strips on 50-year shingles using a long, thin knife, such as an old bread

knife. Warm the blade with a heat gun, and use the back of the blade (not the serrated cutting edge) to slice through the sticky tar.

During warmer months, I usually start a valley repair around 7 a.m., when the shingles are cool and easy to separate. I try to unzip the valley quickly because by 9 a.m., the shingles are often too hot to separate cleanly. During cooler months, I start later (from 8:30 a.m. to 9 a.m.) to give the shingles a chance to warm enough to be pliable.

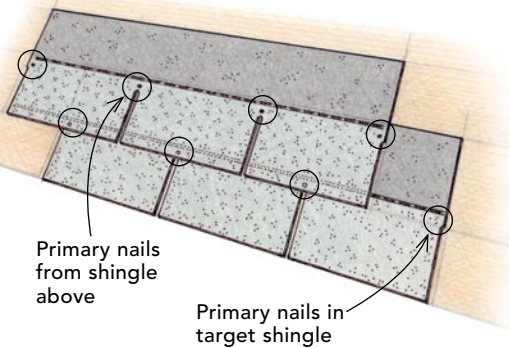
Roofing tools work better than carpentry tools

A few basic tools are necessary for a valley-flashing replacement project. First, you need a utility knife with a hook blade rather than one with a straight blade. The hook blade allows you to cut an underlying shingle from the top without damage to the membrane below. A standard utility-knife blade, on the other hand, forces you to cut from below the shingle with the blade tip protruding above the

YOUR BEST DEFENSE IS A GOOD BEGINNING



Remove shingles from the top down. If reusing the shingles you remove, take care not to rip the shingles, and keep them in order. Four primary nails are driven into each shingle just below the tar line, but the primary nails from the shingles above it also penetrate the target shingle. When removing shingles, pull all eight nails to avoid damage.



A clean valley is a happy valley. Sweep all nails and other debris out of the valley. Loose debris could puncture the peel-and-stick membrane or interfere with its adhesion.

SPECIALIZED TOOLS MAKE THE JOB EASIER

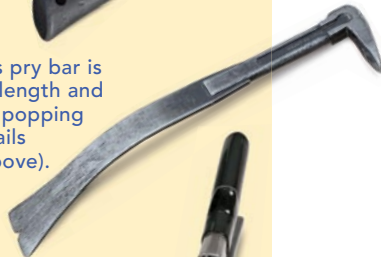
A hook blade in a utility knife won't damage the underlying surface.



A short, heavy roofing hatchet with a tapered head makes quick work of separating shingles in tight spaces.



A roofer's pry bar is the right length and angle for popping shingle nails (photo above).



A metal seamer makes straight, clean bends in metal flashing.



Backup layer. Granulated peel-and-stick membrane provides a safe walking surface and a watertight seal. Sink a button-cap nail in the upper corner of the peel-and-stick membrane, then pull off the backing. After the backing is removed, slip the membrane under the shingle ends.



shingle being cut. This slow technique is a pain in the neck.

The second item is a roofing hatchet. I prefer an Estwing hatchet (www.estwing.com) for its all-steel construction and its flat, blunt blade, which tapers to a wedge-shaped head. These features make the hatchet ideal for separating shingles from each other. With heavy weight and a short handle, this tool has enough punch even in tight spaces. Typical carpentry hammers are too light and have a long handle that interferes with the short strokes needed for remodel roofing. They also lack a tapered hatchet blade.

The third tool is a roofer's pry bar. It must have just the right length and just the right angle in the shank to reach under a shingle and pop out roofing nails. I now use an Estwing Roofers' Bar, which is almost perfect (it has a little too much spring for me). Ordinary carpenters' flat bars don't have the right weight, angle, and length for the job.

Although not pictured, another indispensable item is a 2-ft. by 3-ft. piece of foam rubber about 4 in. thick. This pad provides a nonskid surface to kneel, sit, and place tools and materials on. It saves a lot of wear and tear on roof shingles as well as on my knees.

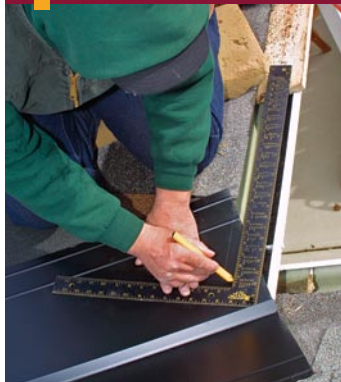
Unzip valleys from the top down

Begin removing shingles from the top, and work your way down the valley. If the roof you are repairing is a second-layer roof, be careful to remove only the top layer of shingles from the valley.

Roofs have two types of valleys: cut and woven (sidebar p. 57). If you have been cursed with a woven valley, you'll have to dismantle both sides of the valley at the same time. To unzip a cut valley, work one side at a time, starting with the overlying side. Break the seal on the course above the first shingle you want to remove using a roofing hatchet or a pry bar. Next, break the seal under the target shingle. Slide the pry bar under the shingle, and tap it under the head of each roofing nail. Pop out each nail using the pry bar as a lever. Finally, because two sets of nails penetrate each shingle (drawing facing page), remove the nails holding the shingle above the target shingle.

At this point, I'm able to move fairly quickly, breaking the seal and pulling out the nails on each shingle, working my way down the roof. After removing the shingles from one side of the valley, I throw down the stack of shingles onto a ground tarp, and I repeat the

FIT THE FLASHING TO THE VALLEY

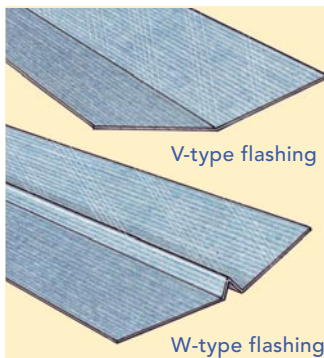


Fold the metal over the drip edge. Lay the first length of metal flashing in place, and cut it about an inch beyond the roof's edge. Then use a metal seamer to bend the flashing over the drip edge. This prevents water from freezing its way up the roof in winter. Also, bend flaps over the raised ridge to keep out insects.



Keep nails at the edge. I nail within the outer inch of the valley flashing about every 10 in. When reinstalling the shingles, I don't let any shingle nails penetrate the metal.

Use a string to keep the valley straight. I stretch a string from the bottom to the top of the valley and align the first piece of flashing to it. As I add successive pieces of flashing, I restretch the string to keep the alignment perfect.



WHY USE W-TYPE VALLEY FLASHING?

W-type valley flashing performs better and is easier to work with than V-type valley flashing. The extra rib in the center stops water rushing down one roof slope from pushing its way under the shingles on the opposing slope. The rib stiffens the metal so that it's less likely to bend while being carried. Also, the rib absorbs most of the expansion of the metal on sunny days, so W-flashing is less likely to buckle.

FOR ROOF REPAIRS, EXISTING SHINGLES SET THE LAYOUT



Keep nails out of the valley. Lay shingles over the valley flashing to be cut later. The existing shingles provide a layout guide.

Make a tapered line down the valley. Because the bottom of the valley handles more water than the top, you should taper the shingle cut. It also looks better. I use my utility knife as a guide: the thin side for the valley top and the wide side for the valley bottom.



Cutting shingles is a two-step process. Cut down the valley first, then work your way back up to trim off the underlying shingle corners (see drawing, facing page). By cutting the leading edge of shingles in a valley, you can discourage water from working its way into the interior of the roof.



process on the second side of the valley. Last, I sweep the exposed roof decking clean, and I inspect for damage and missed nails.

The start of a durable valley: peel-and-stick membrane

I begin the new valley installation by putting down a layer of peel-and-stick underlayment membrane. I prefer an underlayment with granulated coating because it's safer to walk on, but for longer life, smooth membranes are less abrasive to the underside of the valley flashing. The backing on this material can be slippery, so when using long pieces, I put a button-cap nail along the top edge to stop the entire piece from sliding off the roof. With the underlayment positioned, remove the split-sheet backing one side at a time. I carefully lift adjacent shingles, then slip the underlayment up under them if necessary.

When installing peel-and-stick membrane, you must work fast because as the temperature grows warmer, the sticky side becomes stickier. Before installing the membrane, keep it in the shade or in the garage and as cool as possible. If working during warm

weather or if working alone, it's easiest to install overlapping short pieces (about 8 ft. long) of underlayment. Work from the bottom up to cover the entire valley.

Valley flashing has a track record

I follow the membrane with W-type valley flashing (sidebar p. 55). In almost 20 years of roofing, I never have been called to repair a W-valley. I can get painted-aluminum W-type valley flashing in black or brown from my supplier. Copper is also available.

The top and sides of the metal tuck under the shingles, but the bottom needs to be bent to fold over the roofline. Because the valley featured here was formed by the junction of two unequally pitched roofs, the angle cuts at the bottom were weird; rather than cutting by eye, I used a framing square to trace the cuts. After trimming with tin snips, I bent the bottom with an ordinary hand seamer to form a neat return, which hooks onto the drip edge. A few small bends on the center notch that fold back on themselves close the gap that would be sure to attract ice dams, wasps, leaf debris, and other undesirables.

When I'm replacing a valley less than 10 ft. long, one piece of flashing can run the entire valley, and I can place it accurately by eye. If I need several pieces of flashing to run the length of a valley, I use a chalkline to align the flashing. I align these sections as I work up the valley with the string stretched the length of the valley. Getting the metal as straight as possible is important because any irregularity will be magnified when the valley is shingled. I nail the flashing about 1 in. from the edge, every 10 in. or so.

When installing shingles, cutting corners is a good thing

With the valley flashing installed, the project is nearing completion quickly. The existing courses of shingles act as layout guides for



You can't start in the valley if you have to match existing shingles. But because I stripped the small roof on the right side of this valley, it was like working on a new roof. Run the shingles through the valley and cut them later after snapping a chalkline. Keep nails out of the valley, although it's OK to nail in the outer inch of the flashing.

Taper the valley cut to accommodate more water at the bottom.

Trim the corners to direct water back into the valley.



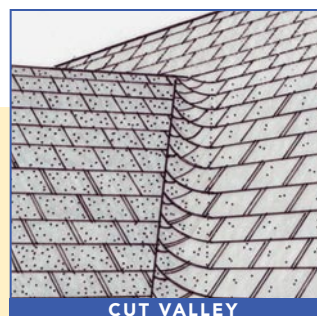
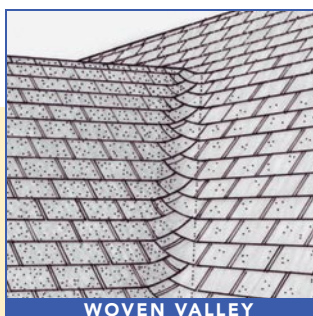
reinstalling the valley shingles one side at a time. Lay the shingle ends over the valley flashing, but keep nails in the outer inch of the flashing.

After completing one side of the valley, I snap a chalkline and trim that side with a hook blade. Using the fat and skinny profiles of my utility knife as a gauge, I mark a slightly narrower reveal at the top of the valley and expand to a wider reveal at the bottom. Long valleys or those draining a large area should have a larger reveal so that during heavy runoff, water won't work its way under the shingle edges.

After both sides of the valley are reshingled and trimmed, be absolutely certain to

clip the top corners of the shingles with a slight back cut. Clipping these shingles prevents leaks caused by a shingle tip diverting water out of the valley stream and back under the shingles. Old shingles with broken seal-down strips can be resealed with roofing caulk (I like Geocel; www.geocelusa.com). I don't run a bead of tar up the valley along the edges of the shingles because the tar could prevent water from draining out if it got in via windblown rain or through undiscovered imperfections. □

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CUT VALLEYS ARE EASIER TO UNZIP THAN WOVEN VALLEYS

There are two types of closed valleys. In woven valleys, shingles are interlaced from adjoining sides; in cut valleys, they are laid one side over the other. Both options work, but an open valley with metal flashing is the most durable choice.