Replacing Rain Gutters

A professional's advice on installing aluminum and galvanized-steel gutters

by Les Williams

When I installed my first set of gutters a dozen years ago, my boss started me out with these bits of information: "Water always takes the path of least resistance, never return to the truck empty-handed and payday is on Friday." Now that I've got my own sheet-metal and gutter-installation business, I know from experience that two of those statements are always right. Paydays, unfortunately, aren't always on Fridays when you work for yourself.

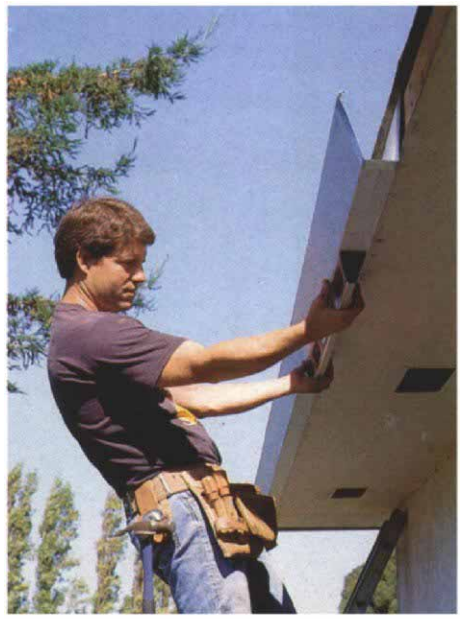
I work around the San Francisco Bay Area, where nine out of ten of the gutter jobs that I do involve replacing worn-out gutters on existing homes. Although replacing gutters presents its own set of challenges, the principles are the same for new construction—replacing gutters is just harder to do.

Clients sometimes ask, "Why do I even need gutters?" For one, in some jurisdictions the code insists on them. But more than that, gutters just make sense in areas that have periods of heavy rainfall. They can prevent water from splashing against the house, causing premature paint failure and wearing out window frames. And they keep heavy runoff from eroding the soil around foundations. As David Helfant pointed out in his article on drainage *(FHB* #50, pp. 82-86), diverting roof runoff away from a foundation can make a big difference in the stability of some kinds of soil. Also, in many cases the gutters serve as trim for an otherwise unfinished-looking eave.

Styles, sizes and materials—Gutters are one of those architectural elements that can be put in the spotlight as decoration, or blend into the lines of the roof. Off-the-shelf gutters range from the simplicity of the fascia gutter (top photo), to the more traditional ogee style (bottom photo). A simple half-round gutter is also a stock profile. If your house requires something more distinctive, sheet-metal shops can custom-make gutters with almost any combination of reveals, coves and S-curves that you may need.

Ogee and half-round gutter dimensions commonly range from 4 in. to 6 in., measured across the top from the back of the gutter to the front. Fascia gutters are an exception. They are called 5½-in. or 7½-in., which refers to their depth.

I haven't seen any stock metal gutters that weren't large enough to handle the amounts of rainfall in the Bay Area. The primary consideration in getting rid of the water is the size and number of downspouts. A rule of thumb for determining downspout requirments is that a 2x3 downspout can take the average rainfall from 600 sq. ft. of roof. Another way to figure it is 1 sq. in. of downspout cross section per 100-sq. ft. of roof. This downspout-to-roof ratio will drain runoff in Dade County, Florida, which receives the most intense rainfall in the continental United States.



A fascia gutter is a simple U-shaped channel with a flat face that tilts outward. Here the author checks a section for positive drainage toward the outlet.

The face of an ogee gutter has an S-curve and a couple of reveals to cast shadow lines. Here the author drills a hole through an outside miter strip prior to pop-riveting the miter strip to the gutter section.

Standard gutters are available in aluminum, galvanized steel, wood, copper and plastic. I seldom work with wood and I don't work with plastic gutters. While I like to make and install copper gutters, they are pretty pricey. The cost for the materials for the aluminum and galvanized gutters shown in this article is roughly $l/ft.; copper is five times more expensive.

Making comparisons—In this article, I'll talk about the two most common types of gutters that I install: aluminum ogees and galvanized-steel fascia gutters. Both materials have their assets and their drawbacks.

On the plus side for aluminum, the kind I install (Alcoa Building Products, P. O. Box 716, Sidney, Ohio 45365; 800-621-7466) are Prepainted and carry a good warranty. They won't rust or corrode, they don't require soldering and they have a slick expansion-joint system. They are large-capacity gutters, and Alcoa can supply different kinds of hangers for varied applications that don't restrict the movement of the gutters, allowing them to expand and contract without buckling, breaking seams or working the fasteners loose.

On the other hand, some clients consider the preformed "miter strips" that join the sections of gutter at 90° corners to be visually obtrusive, and site-formed odd-angled joints are potential weak spots. Alcoa's corrugated downspouts aren't beautiful; the gutters only come in two sizes of ogee and the colors are limited.

Galvanized gutters are available in many styles and sizes, and the site-formed, soldered intersections used to join them at splices and corners are strong and clean-looking. Galvanized gutters are stronger than aluminum, and their round- or rectangular-section downspouts look good.

The downside to galvanized gutters includes a higher installation cost than aluminum because of the soldering involved (I charge about 25% more). Galvanized gutters have to be painted, eventually they rust out and the hanger selection is limited.

Hangers—Galvanized and aluminum gutters are secured to the roof in different ways. The aluminum gutters that I install are attached by way of hangers. There are basically two types: roof-mounted and fascia-mounted (drawings facing page). Most roof-mounted hangers are one-piece affairs that are nailed through the

sheathing and into the rafters. The flange on the fascia-mounted hanger allows it to be nailed to the side of the building, making this hanger the choice for replacement gutters because it can be installed without disturbing the roofing. The hooks on the ends of the hangers engage the lips on the outside edges of the gutter, supporting its weight. They also hold the front of the gutters in a straight line and help to keep the gutters from being crushed when someone leans a ladder against them.

The two-piece hanger consists of a threaded rod that is installed the same as the one piece hanger, but it has a separate brace, which is attached to the gutter and is adjustable by means of two nuts on either side of the gutter brace. They are typically used with decorative rafter tails. This hanger also allows you to slope the gutters after the hanger is installed.

Alcoa makes three roof-type hangers and three fascia-type hangers. Installed correctly, they all work well. My favorite fascia-type hanger has a turned-down nailing flange making it a little easier to install when a row of shingles is overhanging it. This hanger also allows the gutter to be installed a little closer to the shingles, which I think is more attractive and better for catching heavy runoff.

Galvanized gutters are nailed through the back to the fascia. Then a spacer called a strap-hanger is affixed to the roof that also supports and aligns the front of the gutter. One type of fascia-mount system that should be avoided is the spike-and-ferrule. It consists of a 7-in. spike that is driven through the front of the gutter, then through a spacer tube, through the back of the gutter and into the fascia or the ends of the rafters. If the spikes don't split the rafters right away, the weight of the water and the expansion and contraction of the gutters will be enough to cause the spikes to loosen and eventually fail.

Getting started—Task one is to decide where the downspouts should go. They should be in unobtrusive locations, out of traffic patterns. In cold climates, they are best kept away from north walls to reduce the chance of freezing. Next I decide how I am going to lay out the gutters so that I have as few joints and scraps as possible. Most of the gutter I use comes in 20-ft. or 21-ft. lengths. If I have a section that is 22 ft., I will usually install a piece about 17 ft. long and another piece to fill out the run. It isn't a good idea to install a very short piece at the end of a long piece because it is difficult to make the whole thing look straight. I also try not to put a seam right over the front entrance of the house. Common sense is the key.

I don't slope gutters more than ¾ in. in 20 ft. because they start to look out of kilter. The worst situation is when severe settlement pitches the roof in the direction opposite the downspout. When that happens, the downspouts should be moved. I typically start a gutter job at the hardest part of the house—either the highest wall, the most complicated corner or the toughest place to reach.

After I've torn off the old gutters, I work 1-in. by 3-in. metal flashing under the existing roofing. The flashing is made to the pitch of the roof out of 26-ga. galvanized sheet-metal, and it prevents runoff from wicking behind the gutter or along the bottom edge of the roof sheathing.

Installing aluminum gutters—Up to now, I could be installing either galvanized or aluminum gutters. The hangers are one detail that set the two apart; I'll talk about the aluminum ones first.

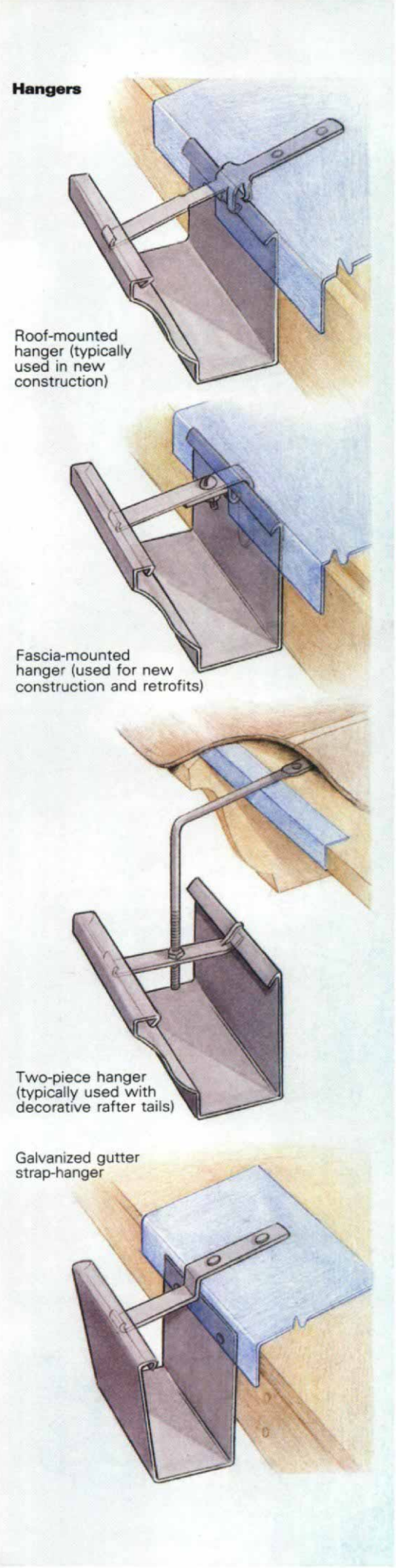
With the flashing in place, I nail a hanger at the high point of the gutter section and another at the low point. If the section is 20 ft. long or less, with end caps on both ends, very little slope will be necessary. I snap a chalkline along the bottom of the hangers to guide the placement of the rest of the hangers. Then I nail on the remaining hangers, one every other rafter (no more than 5 ft. apart). It is often necessary to notch the flashing to accommodate the hanger tops. Alcoa says to use aluminum screw-shank nails for attaching the hangers, but I don't. They bend too easily, so I use 8d hot-dipped galvanized nails. From what I've read and observed, galvanized steel next to aluminum doesn't cause a significant corrosion problem in this kind of application.

Now I measure from corner to corner to see exactly how long a piece of gutter I need. If one end terminates at a gable, I extend the gutter ½ in. past the gable to catch all of the water coming off the roof.

Adjacent gutter sections that join at 90° angles are connected to one another by way of miter strips that overlap the gutter ends (bottom photo, facing page). If a gutter section between two miter strips is too long, it can cause problems. So I subtract ⅛ in. per miter strip from my overall gutter measurement.

Cutting gutters—To cut the gutter sections, I use either a good old-fashioned hacksaw with a 32-tooth per in. blade or a Makita 14-in. miter saw with a 120-tooth carbide blade. I only use the miter saw for aluminum or copper gutters, and I use a contoured block of wood inside the gutter to back up the cut.

When cutting the gutter with a hacksaw, I first mark the miter or straight cut on the bottom and back of the gutter. Then I grasp the gutter with my left hand and begin my cut with the hacksaw blade at approximately a 45° angle from the bottom of the gutter (top photo, next page). Using light-to-medium pressure, I follow the line on the bottom of the piece until I get to the back of the gutter. Then I finish off the cut down the front of the gutter, eyeballing a plumb cut line. I finish the cut along the back with my tin snips. By the way, a slightly dull hacksaw blade binds less. Also, a loose blade will have a tendency to wander, so I make sure that the blade is very taut. I use a standard hacksaw, but I replaced the wing nut with a hex nut so I can really tighten the blade. It takes some practice to be able to make a cut without the blade binding, but as long as you are cutting straight and not applying too much pressure on the gutter, you



should be able to accomplish the task without a lot of aggravation.

To install a miter strip, turn the gutter upside down, lining up the back of the miter strip with the back of the gutter. At this point you'll see how well you made your cut. If the blade drifted outward, you may need to trim the front with snips to make the strip fit well. If the blade drifted inward, you'll probably still be okay because the miter strip will cover the difference. Once the miter strip is lined up, drill a hole through the prepunched hole in the bottom of the strip and install a rivet; then do the other two.

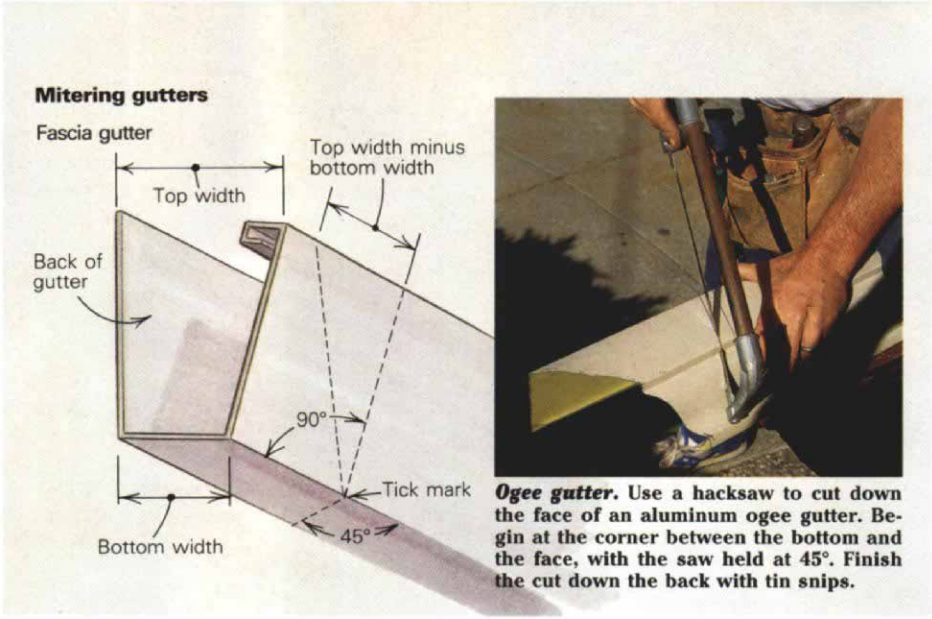
Rivet, rivet—The secret to joining the modular elements in the aluminum gutter system is the pop rivet. Color-matched, aluminum rivets are available from the gutter supplier, and they can be installed on site in seconds using a hand riveter (photo right).

The miter strips and outlets are predrilled. Once the sections are in place, I use a small cordless drill with a ⅛-in. bit to make corresponding holes in the adjoining piece. Then I use a Duro Dyne PR-4 pop-riveter to install the rivets (Duro Dyne Corporation, 130 Rte. 110, Farmingdale, N. Y. 11735; 516-249-9000). This is the best hand-riveter I've ever used. It can accommodate several sizes of rivets, and replacement parts are available. I recommend getting extra springs because these will break occasionally.

A rivet joint isn't finished until it's been sealed with Gutterseal, a proprietary sealant supplied by the manufacturer. I don't seal the joints until the gutters are in place because the stuff can drip off a gutter that's being moved around, and it is very difficult to remove. When I seal a joint, I'm not stingy with the sealant (I'll typically use between one third and one half a tube per miter). All the rivets need to be covered, and I poke the tip into the joints to make sure I get full penetration. As it dries, the sealant shrinks significantly.

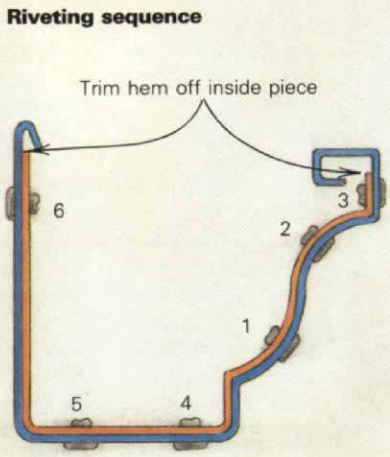
Running gutter—To hang the gutter, I first make sure that the nuts are loose on the hanger retainers. Then I hold the gutter in approximate position with its back parallel to the ground. I hook the front of the hangers into the front lip of the gutter and gently roll the back of the gutter upward into position, making sure I didn't miss any hangers before hooking the back lip into the retainers. I use a small pair of adjustable pliers to hold the nut as I tighten the retainers. If the shingles overhang the screw, this can be a tedious job that requires nimble fingers.

I continue to measure and install sections in as logical a sequence as possible, trying not to have two short sections coming together at a corner. It's best to install a piece of gutter with an outlet in it first; subsequent pieces should lap into it, allowing the gutter to drain completely. If a gutter section has miter strips on both ends, only one should be installed on the ground. The other should be fitted on the scaffold to make sure the inter-



Ogee gutter. **Use a hacksaw to cut down the face of an aluminum ogee gutter. Begin at the corner between the bottom and the face, with the saw held at 45°. Finish the cut down the back with tin snips.**

A pop-riveter is an essential tool for miter strips and gutter sections.



An expansion joint should be installed between sections of gutter more than 40 ft. long, or between fixed corners. Note how the hems have been trimmed off the piece on the left.

Drawings: Bob LaPointe

secting gutter doesn't end up pinched to its wall or hung out in space.

To splice two sections of gutter together, I cut 2 in. off the hem on the back and front lip so that it fits tightly when installed. Then I drill holes ½ in. from the edge of the outer piece—two on the bottom, three on the front and one on the back (bottom drawing, facing page).

On straight runs of gutter longer than 40 ft., or between fixed corners (as on a hip roof), aluminum gutters need expansion joints. Alcoa's version is a neoprene strip sandwiched between aluminum flanges that match the inside shape of the gutter. The flanges are riveted to each section of gutter, leaving the sections free to slide past one another as the gutters expand and contract. Straight runs of gutter are finished off with preformed end caps.

Outlets, miters and downspouts—I use an outlet as a template to mark its location on the bottom of the gutter. I draw a line on the inside of the outlet, and with an old wood chisel I punch a starting hole. Then, using my red-handled aviation snips (red for left cuts; green for right cuts; yellow for straight cuts), I cut just slightly wide of my line—just enough for the thickness of the metal of the outlet (photo, p. 43). I install the outlet through the inside of the gutter, tap it into place using a hammer and pop-rivet it.

Sometimes I have to make a section of gutter turn a corner that isn't 90°. Bay windows, which are typically 135°, are usually the reason. There aren't factory strips for these corners so I custom fit them, first bisecting the angle by making 67½° miters on corresponding sections of gutter. On one section I use my snips and hand seamers to make tabs that allow the sections to be riveted together (left photo, next page). They should be joined in place and liberally coated with sealant.

In addition to draining more water, larger downspouts are less likely to clog with leaves at the elbow where the downspout bends toward the house. The elbows and the section of downspout between the outlet and the wall is called a return. The piece of downspout between the elbows should be long enough to allow 1½ in. of overlap at both ends.

Installing galvanized fascia gutters—A fascia gutter is a no-frills, U-shaped gutter with a face that angles outward (top photo, p. 38). Fascia gutters come with or without wings—a combination nailing flange/flashing that extends up the back of the gutter to bear on the roof sheathing. On the plus side, the wing adds rigidity to the gutter and it's easy to install on a new roof before the shingles go down. On the minus side, it's hard to slope a gutter with a wing, and it's difficult to tuck one under existing shingles during a retrofit. So as with the aluminum gutters, I use an independent flashing under existing roofing.

Fascia gutters are anchored to the building by 8d galvanized nails driven through the back of the gutter into the rafter ends. A combination strap-hanger nailed to the roof sheathing

Soldering galvanized sheet-metal

Soldering gutters is a difficult skill to master. I've soldered thousands of roof outlets on a bench, and I still find it tough to solder gutters. The vertical seams are the main problem because the molten solder has a tendency to drip off the iron rather than onto the work. But for those of you who think you can do it, here is how it should be done. It's a skill that's also handy for assembling custom galvanized flashings.

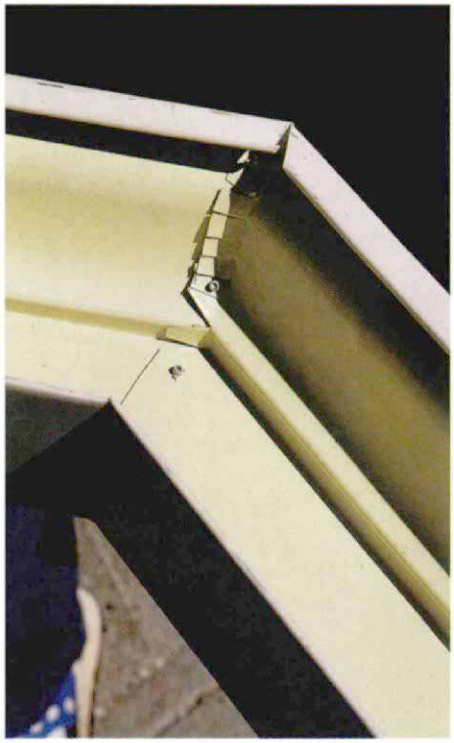
Successful soldering depends on several things, including a properly tinned and heated soldering iron (sometimes called a soldering copper), proper flux, the correct tip and properly prepared work. I typically use a 1-lb. iron for this type of work. You can get the tools and materials at a sheet-metal supply house.

Tinning the soldering iron is simply coating the faces of the tip with solder. To do this, heat the iron red-hot over a propane furnace and then clamp the iron in a vise. File all four facets of the tip with a coarse file, followed by a finer one. Next, melt a few drops of 50/50 all-purpose solid solder on a block of sal ammoniac (ammonium chloride) and rub the faces of the iron back and forth across the block until they are coated with a thin layer of solder. Do this outdoors, and don't breathe the toxic fumes that billow up during this operation. During soldering, I keep the iron as clean as possible with a wire brush. I will usually need to re-tin my iron after a day of constant soldering.

Now that your iron is properly tinned, you are ready to solder a joint. Start with a piece on a level surface. At the end of the seam, apply a small amount of pure muriatic acid with an acid swab (top left photo, below). Wear eye protection, don't get acid on your skin and once again, avoid breathing the fumes. Place the iron at the end of the joint and melt a small amount of solder onto the metal (bottom left photo, below). Remove the iron, but keep pressure on the seam with the bar of solder until the solder cools a little. Keep the face of the iron on the upper piece of metal and try to sweat the solder between the joint by moving the tip back and forth across the joint. Don't try and do too much at one time—you may remelt already soldered areas. Do about ½ in. at a time, and then stop to let the solder cool slightly before continuing. Reapply the acid occasionally, if necessary.

The iron should be a little shy of 800° F for best results. If it's smoking or if the solder *is* turning black, it's too hot. There are lots of variables, but figure that you will have between one and two minutes of working time between reheatings.

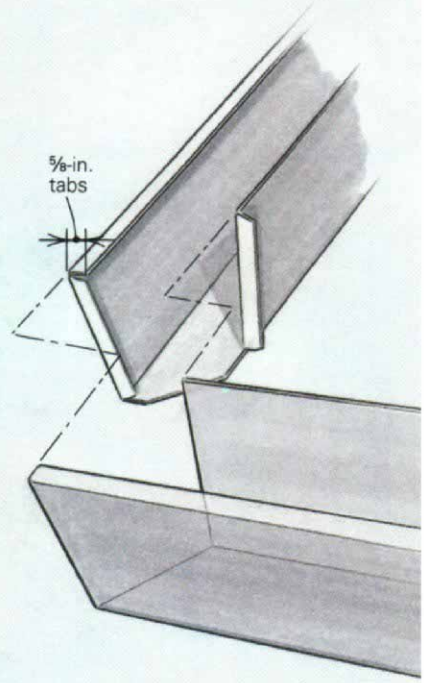
Once you've completed a level seam (large photo below), try a vertical one, like the backside of a splice between two gutters. The trick is to apply as much solder as possible to a vertical joint, from the top down, without it all running or dripping to the bottom of the gutter. Once the back is complete, do the front and then the bottom using the solder that didn't stay in the joint. If your first attempt is anything like mine was, you probably will have enough excess solder to finish the rest of the job. Remember, the idea is to sweat the solder between the two pieces of metal, similar to sweat-soldering a copper plumbing fitting. The difference is that the solder is drawn into the joint with the heat of the iron and not a torch. If you try to solder gutters with a torch, you will only burn off the galvanized coating on the steel and the solder will never stick. —*L. W.*



Mitered angles that don't fit off-the-shelf miter strips are reinforced with tabs and rivets. Note how each tab has been formed by removing V-shaped sections on either side. At the gutter's contours, the point of the "V" corresponds to the inside and outside corners.

Corner tabs
At inside and outside corners, galvanized gutters are attached by tabs. The tabs are typically formed on the end of one gutter and fit inside the adjoining gutter. They provide an overlap for rivets and a bead of solder.

A mitered corner on a fascia gutter is attached by tabs on the end of one of the gutters. Here Williams uses a pair of hand seamers to bend back the solder tabs.



keeps the front of the gutter straight and braces the gutter against ladders.

I measure the gutter sections from corner to corner as with the aluminum gutters, but accuracy is a must because I don't have the luxury of the corner strips to make up for slack. Always take measurements from the back of the gutter, and lay out miters from those points.

Outside miters—Let's install a section with a typical outside miter. This section will have no tabs. Start by scribing a line with a scratch awl at 45° across the bottom of the gutter. Make a small tick mark where the line meets the face of the gutter, and square a line up to the top of the gutter (top drawing, p. 40). Next, measure over a distance equal to the top width of the gutter minus the bottom width, and draw a line from there to the tick mark. Cut the gutter on that line with the appropriate snips. If you're cutting farther than 12 inches from the end of the section, cut the gutter outside the layout line with a hacksaw and clean up the cut with the snips (snip tip: when cutting, don't close the blades all the way—this will cause a burr like the barb on a fish hook).

Once the old gutters are removed, mark the rafter centers with a lumber crayon on the shingles. With a helper, hold the gutter in place and align the back of the miter with the corner and let it extend past the corner no more than 1/16 in. Hold the gutter as high and as straight as possible and tack an 8d nail at the high end of the gutter. Using a level, lower the other end to ensure a positive flow toward the outlet (1/2 in. in 20 ft. is plenty) and tack another nail in place. If the piece is long, you may need to tack another nail at the middle of the gutter to keep it from sagging. If everything looks good, nail it off every 2 ft. to 4 ft.

Now slide the flashing under the roofing felt and over the sheathing until it is flush with the back of the gutter. Secure it with roofing nails. If nails from old roofs, flashings or hangers block the new flashing, pull them with a pry bar. A slater's bar can be a big help in yanking out the old nails.

To install a strap-hanger, hook it into the front of the gutter by pushing the gutter's lip inward a bit with your fingers until the strap's hook engages. Set the strap so its depth gauge rests against the back of the gutter and nail it through the sheathing into the rafter. Adjoining sections of gutter should overlap one another by 1 in. for rivets and soldering. Gutters without corners terminate at preformed gutter-ends.

Galvanized gutters also need expansion joints in straight runs of more than 60 ft., or in runs over 40 ft. between two fixed corners. I make an expansion joint by overlapping—but not connecting—two sections of gutter. I put a gutter-end flush at the end of one section of gutter. This section fits inside the adjacent section, which has a gutter-end recessed about 3½-in. from its end. This spacing allows a 1-in. gap between the two sections of gutter and a 2½-in. lap. It doesn't matter how the overlaps are ordered because both sections require their own outlets.

Miter tabs—The galvanized gutter that meets our mitered corner will have a miter cut running in the opposite direction, and it needs soldering tabs for attaching the two pieces. They should be about ⅝ in. wide. Notch the tabs to measured layout lines and bend the back tab to 90° and the front tab to about 80° or 85° with hand seamers (top right photo).

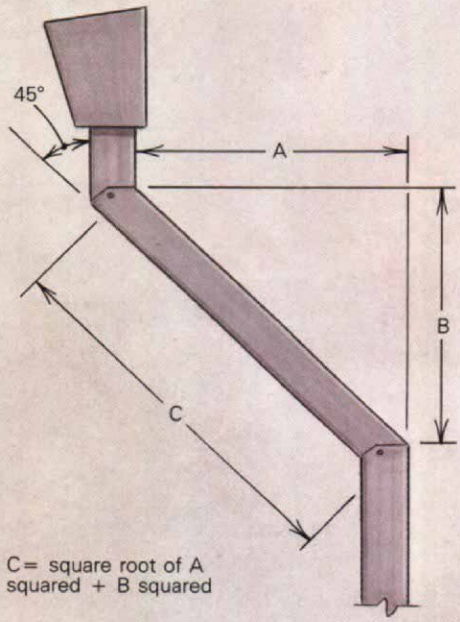
Once I get the miters to fit properly on the wall, I join them with several steel pop rivets (three in front, two in back) prior to soldering them. The joints in galvanized gutters can be waterproofed with sealant, but the better method is to solder the joints (see sidebar, previous page). If you use a sealant, the best I know of is a polyurethane called Vulkem (Mameco International Corp., 4475 E. 175th St., Cleveland, Ohio 44128; 216-752-4400).

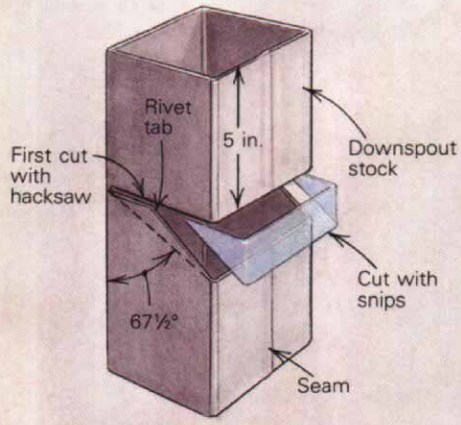
Downspouts and returns—Galvanized downspouts come in many standard sizes of round and rectangular shapes. Standard sections are 10 ft. long. Diameters of round pipe range from 2 in. to 6 in., in 1-in. increments. Rectangular downspouts range from 1¾ in. by 2¼ in. up to 3 in. by 4 in. The standard gauge for downspouts is 28 ga., but you can special-order heavier ones. Elbows are available for most downspout stock, but be sure to inspect them carefully for manufacturing defects such as holes at the corners or open seams—that's where they'll leak.

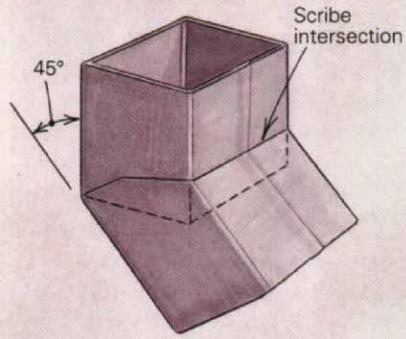
To make up a return using elbows, slip two elbows together as far as they will go, but don't force them. Hold the elbows on the outlet and measure the distance from the wall to the back of the elbow closest to the wall, on the angle of the elbows, and add 1½ in. Cut a piece to that length, but don't cut it off the

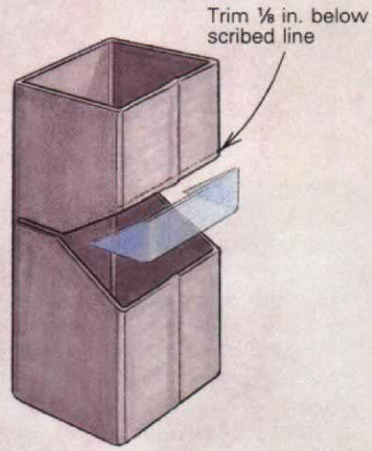
Making custom returns
In addition to being more attractive than returns with elbows, custom returns can be used in situations where elbows take up too much space. In this example, the return is at a 45° angle to the wall, creating an outside angle of 135°. The 67½° layout line in the drawing to the right bisects the outside angle.

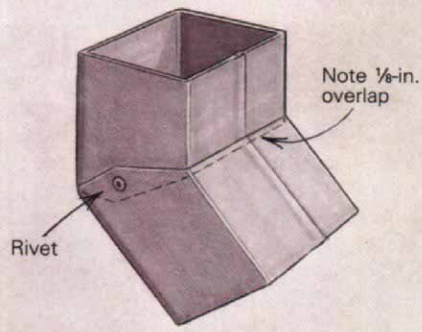
After making an entry slit with a chisel, Williams uses a pair of aviation snips to make a cutout for a downspout outlet.











crimped end—there's a tool for that called a single-blade hand crimper made by Malco Products, Inc. (Highway 55 & County Rd. 136, P. O. Box 400, Annandale, Minn. 55302; 800-328-3530). Crimp one end of the piece, beginning with the four corners and then the four sides. Slip one elbow into the uncrimped end of the piece and then fit the crimped end into the other elbow. Remember that each piece slips into the next from the top down. Put the rivets on the top, or high up on the sides of the elbows, or they will leak. Never use 90° elbows for returns because a horizontal return will rust out prematurely.

At the wall, the return slips into a section of downspout. The downspout should be plumb and anchored to the wall at top and bottom with galvanized straps. Rivet the top elbow to the outlet. If the downspout is over 10 ft. long, keep adding full pieces and strapping them to the wall. I try to conceal the joints with the straps.

Custom returns—Sometimes elbows won't work for a return. For example, let's say that you have a gutter where the back of the outlet is 4 in. from the wall. You can't make the return with elbows because a couple of stock ones take up about 6 or 7 in., and to trim them is to ensure a leak.

To make a custom return, measure down about 5 in. on a piece of downspout, and scribe a line along the back—that's the seam side (drawings at right). Extend the lines along the sides of the downspout, and then mark a line from front to back at a 67½° angle. Use a hacksaw to cut from back to front along the first cut line, but stop when you're finished cutting the sides. The front portion of the downspout will work as a hinge when you bend it. Use snips to cut the sides and back, leaving tabs on both sides for rivets. Now fold the top portion down, inside the tabs, and mark the trim line along the back as shown.

To calculate where the lower elbow occurs next to the wall, use the Pythagorean theorem (drawing above). Repeat the process to make this elbow, but make sure to fold the rivet tab inside at the bottom.

Gutter care—Gutters will load up with windblown dirt, leaves and the tiny aggregate that protects asphalt shingles. The extra weight puts a strain on the hangers and if the mix stays soggy, it will work to rust out galvanized gutters prematurely—especially if the gutters collect acetic debris such as redwood or pine needles. Keep them cleaned out. Galvanized gutters will last longer if they are painted on the inside. Prepare them first with a metal etch applied with a pump-type sprayer. Then paint them with latex primer and paint made especially for metal.

Outlets with leaf strainers—the ones that look like upside-down whisks—are less likely to clog when big leaves accumulate. From my experience, screens over the tops of the gutters don't do much good. □

Les Williams owns and operates L. A. Williams Gutters and Sheetmetal in Richmond, California. Photos by Charles Miller.