



REPLACING GUTTERS AND DOWNSPOUTS

If you were to stand in the rain and watch the water roll down your roof into your gutters, you'd be very surprised at the amount. Watching your gutters work can help you appreciate what a big job they do, carrying rainwater safely into the sewer system. If all that water weren't controlled by the gutters, then much of it would end up in your basement and, in the process, push in some basement walls and heave up part of your driveway.

Installing replacement gutters is a fairly easy repair for most people and will generally be a lifetime repair, unless a falling tree limb or leaning ladder forces a section out of shape. However, you first need to know a few things about buying, assembling, and installing them.

Buying Gutters: Gutters come in various materials – copper, vinyl, galvanized steel, aluminum, and wood. Most people use aluminum replacement gutters for their lower cost and ease of installation. We'll be talking here about aluminum, but the general principles apply no matter which material you use. Aluminum gutters come in different thicknesses, or gauges. .027 is usually the lightest gauge allowed under the building code. A gutter with a gauge of .032 is a better choice, although it may not be readily available at retail stores; it will better withstand the weight of someone on a ladder, or the pressure of ice build-up in winter. The diameter of the gutter is standard for residential work. If you look at the chart, you will see the parts commonly used in assembling gutter systems.

Assembling Your Gutters: It helps to make a drawing of the gutter system you are replacing before you take it down. Then, you can use the old gutter pieces as a pattern for measuring the new ones. Tin snips work best when cutting the gutters to length. It's easiest to make a "rough cut" beyond your final cutting line, to get rid of the excess gutter length, and then carefully trim to your desired length, using a square to mark a straight line. You can cut the gutter with tin snips or a hacksaw; to make a hole in the gutter for the downspout "drop," trace around the piece you'll be inserting, drill holes near the corners, and then carefully cut along your line with tin snips.

The gutter parts are all designed to slip together. Remember – patience pays off here! If you try to force or beat the pieces together, you'll quickly end up with a dented, leaky, unattractive gutter. After assembling the section you are replacing on the ground, you'll need to drill some holes and "pop-rivet" the pieces together. A pop rivet is a metal fastening device that holds the different pieces of aluminum together. You use them with a rivet gun, which lets you join the pieces without much effort on your part. 1/8" pop rivets are the best size for gutter work.

Gutter Installation: At this point, another set of hands is very helpful. The proper amount of slope or drop for a gutter is 1/8" to 1/4" per foot; so, a ten foot long gutter should be 1-1/4" to 2-1/2" lower at one end than the other. You can mark this slope with a chalk line.

There are several different ways to attach your gutters to the house (*see last page*). Most gutters in the Cleveland Heights area were installed using **spikes** (long nails) and **ferrules** (hollow tubes spanning the width of the gutter, through which the spikes pass.) The spikes are generally spaced approximately 3 to 4 feet apart and are nailed into a fascia board that is only 3/4" thick. The problem with spikes is that they often back out of the fascia board, allowing the gutter to pull away from the house.

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Using a **hidden hanger system** helps prevent this problem. The hangers hook under the front lip of the gutter and slip over the back gutter wall. They are installed using screws that go into the wood 1-1/2 inches. Because the screw is driven home using a 1/4" nut driver on a cordless drill, the gutter is also spared the hammer damage that can occur from driving in a spike. Screwing a hidden hanger into each rafter tail (generally 16" on center) will ensure that the gutter can resist the weight of water, snow, and ice.



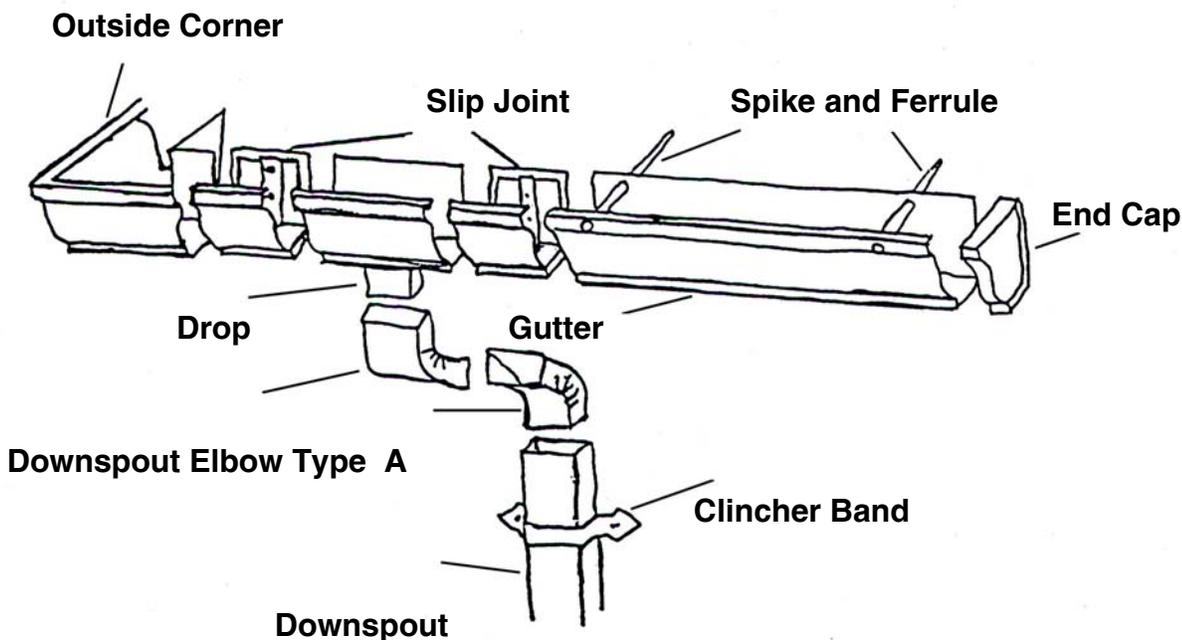
Hidden hanger



No matter which type you choose, nail each gutter hanger into the ends of the roof rafters for better support. Start at one end when nailing, and work towards the other. When you have finished nailing, caulk all the joints on the inside with a good quality silicone-based caulk.

Downspouts and elbows are made to slip together. When assembling downspouts, the piece on top slides *into* the next lowest piece, and right on down the line, so water won't leak out as it flows down the spout. When you get to the bottom of the downspout where it goes into the drain tile, seal the downspout to the crock with mortar to keep debris out of the drain.

Regular maintenance will involve seasonal removal of leaves and other debris, plus any needed snaking of footer drains and storm sewers. Because tree roots frequently invade the storm sewer system, most people will periodically need to snake their downspout drains. A **cleanout** at the bottom of each downspout, where it enters the tile crock and connects to your storm sewer, can provide easy access for the snake cable. **It's a good idea to add cleanouts when you replace your downspouts.** (See separate handout on "Adding a Cleanout" for how-to information.)



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GUTTER PARTS:



Gutter
Comes in 10" to 32" lengths;
different thicknesses (gauges)
of aluminum



Drop
Used to connect downspout to
gutter



End Caps
Right and left ends for the
gutter



Outside Corner
Used to go around the
outside of a corner



Inside Corner
Used to go around the
inside of a corner



Slip Joint
Used to connect two
pieces of gutter



DOWNSPOUT PARTS:

Downspout
Used to carry the water
from gutters to the drain



Clincher Band
Used to hold downspout
to side of house



Downspout Elbow Type A
Used to move downspout
in or out from wall

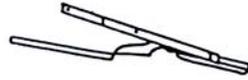


Downspout Elbow Type B
Used to move downspout
to left or right

MOUNTING BRACKETS:



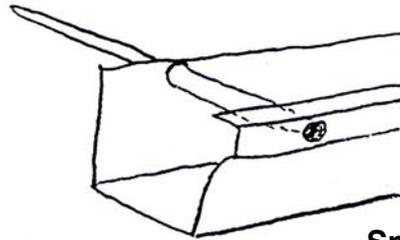
Fascia Bracket
Used to mount gutter to
fascia board



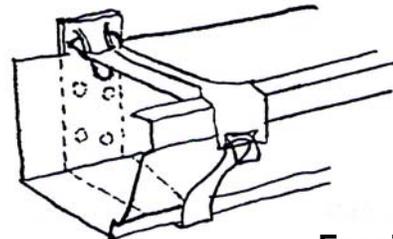
Strap Hanger
Used to hang gutter from
the roof



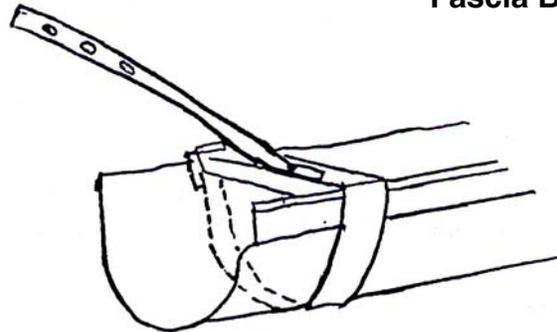
Spike and Ferrule
Used to hold gutter to
fascia board



Spike and Ferrule



Fascia Bracket



Strap Hanger