HOMEOWNER REPAIR GUIDE

REPLACING GUTTERS AND DOWNSPOUTS

For do-it-yourself repairs

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 GAUGE	NOTES
.027	Aluminum gutters come in different thicknesses, or gauges. .027 is usually the lightest gauge allowed under the building code.
.032	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.

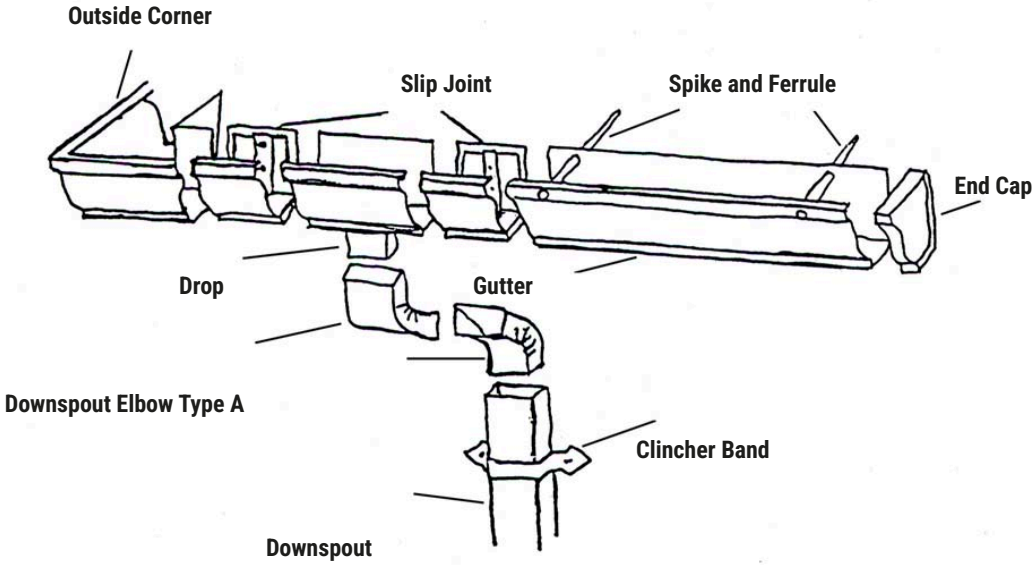
The diameter of the gutter is standard for residential work. If you look at the chart at the end of this handout, you will see the parts commonly used in assembling gutter systems.

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.

> **PATIENCE PAYS OFF**
>
> 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.



A typical gutter and downspout system

GUTTER INSTALLATION

At this point, another set of hands is very helpful.

> **SLOPE**
> 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 mounting brackets at the end of this handout). 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 ¾" thick. The problem with spikes is that they often back out of the fascia board, allowing the gutter to pull away from the house.

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 ¼" 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

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.

MAINTENANCE

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.

ADD CLEANOUTS

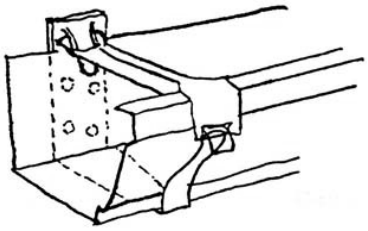
It's a good idea to add cleanouts when you replace your downspouts. (See separate handout on *"Adding a Cleanout"* for how-to information.)

GUTTER AND DOWNSPOUT PARTS

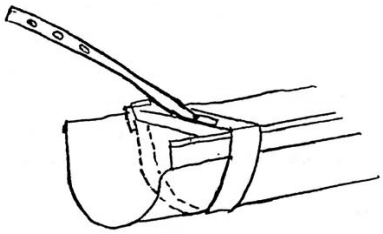
	PART	USE
	**Gutter**	Comes in 10" to 32" lengths; different thicknesses (gauges) of aluminum
	**Drop**	Used to connect downspout to gutter
	**End Caps**	Right and left ends for the gutter
	**Outside Corner**	Used to go around the outside of a corner
	**Inside Corner**	Used to go around the inside of a corner
	**Slip Joint**	Used to connect two pieces of gutter
	**Downspout**	Used to carry the water from gutters to the drain
	**Clincher Band**	Used to hold downspout to side of house

	PART	USE
	**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

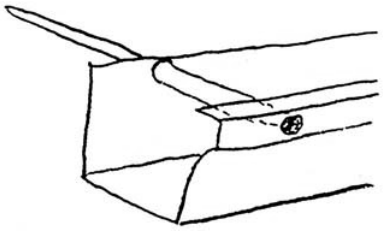
MOUNTING BRACKETS



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

Home Repair Resource Center empowers homeowners to maintain their homes for sustainable and diverse communities.

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