

Fixing Common Gutter Blunders

Design and install gutters as if they prevent damp foundations, peeling paint, and mold—because they do

BY BRENT BRIGGS

As a home-improvement contractor for the past 30 years, I've seen an inordinate amount of damage to homes that can be attributed to rain-gutter problems. From stains on the siding, to major foundation problems, to flooded basements and interior mold, poorly installed rain gutters always cause a host of problems. Here are fixes for the most common ones I encounter. Many of these problems can be corrected easily, except for poor

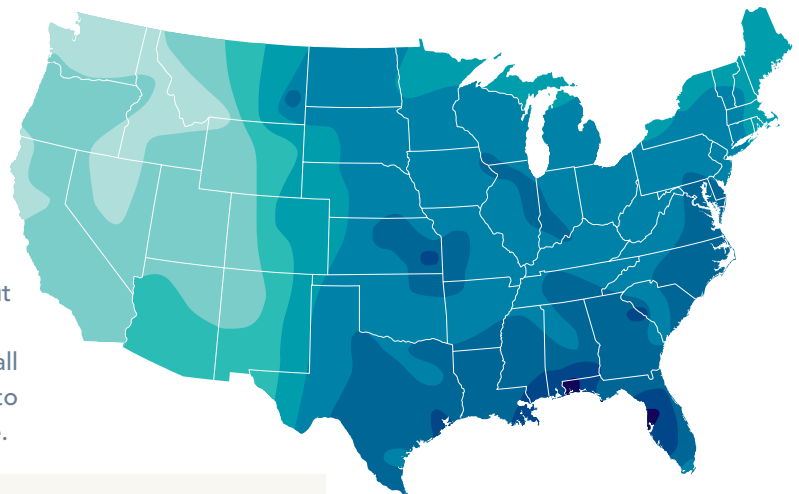
roof design, which is often based more on looks than practicality and is very difficult to change after the roof has been built. Even then, installing a larger gutter or increasing the number of downspouts can make a difference. Here, I explain how to get gutters right the first time, including how to size them correctly based on roof size and climate.

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Sizing gutters and downspouts

Most builders default to 5-in. K-style gutters, the most commonly available size and style. Yet correctly sizing gutters is simple and can prevent them from being overwhelmed with rain. Gutter capacity is directly related to downspout capacity: Double the number of downspouts, and you can nearly double the capacity of the gutters.

Calculate the area of roof draining into each downspout (length x width). For a roof pitched more steeply than 5-in-12, multiply the area by 0.85. Find your design rainfall intensity from the map, and match it with your roof area to determine the recommended gutter and downspout size.



Example

Say that the roof area to be drained measures 21 ft. by 40 ft. (840 sq. ft.), that the pitch is 4-in-12, and that the local rainfall intensity is 5 in. per hour. That requires at least a 5-in. K-style gutter with at least a 2-in. by 3-in. downspout.

Rainfall intensity (inches per hour)								Gutter size and type	Downspout size
3	4	5	6	7	8	9	10		
Roof area (square feet)									
775	581	465	387	332	291	258	232	5 in. half-round	3 in. dia.
1272	954	763	636	545	477	424	382	6 in. half-round	3 in. or 4 in. dia.
763	572	458	382	327	286	254	229	4 in. K-style	2 in. by 3 in.
1399	1050	840	700	600	525	466	420	5 in. K-style	2 in. by 3 in. or 3 in. by 4 in.
2279	1709	1367	1139	977	854	760	684	6 in. K-style	3 in. by 4 in.



Poor sealants: Silicone, tar, and regular gutter sealants often fail.

Poor design: Large roofs and gutters draining onto other roofs or into small sections of gutter concentrate flow and can easily overwhelm gutters.

Gutter spikes: Spikes loosen with time, allowing gutters to sag and pitch the wrong way.

Back pitch: Gutters that pitch away from the downspout don't drain.

Mitered corners: Turning the corner to make downspouts less visible obstructs flow.

Bad flashing: Water that gets past gutter ends soaks walls and causes rot.

Overhanging trees: Leaves are a major source of clogs.

Poor drainage: Water dumped next to the house is a major cause of damp foundations.

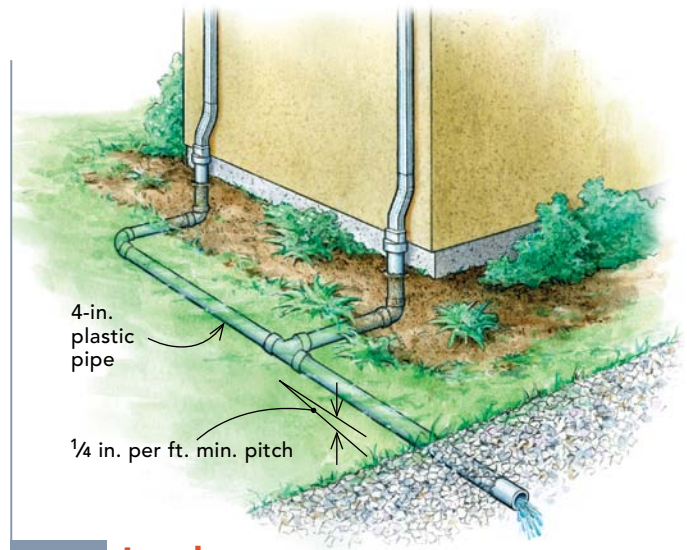
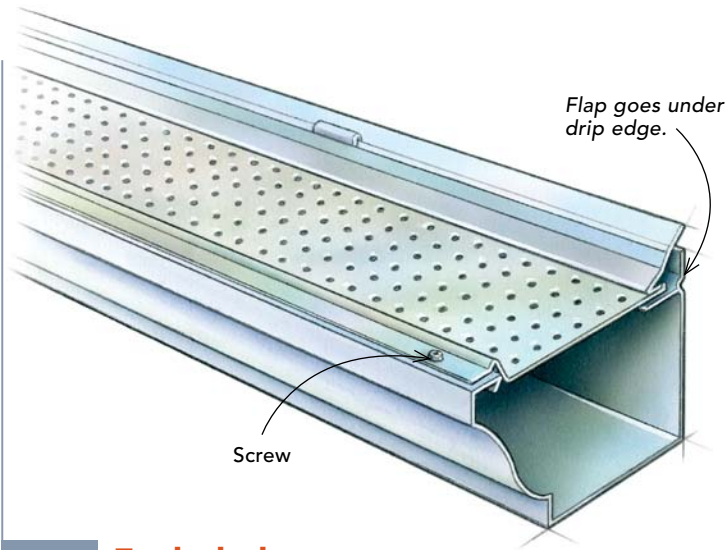
Inadequate downspouts: Long gutters with only one downspout can't drain fast enough and so overflow quickly.

GUTTERS DONE WRONG

Gutter problems often begin with an architect or designer drawing a roof without considering how to handle water runoff. The problems can be compounded with inadequate gutters and downspouts, poor workmanship, and leaves.

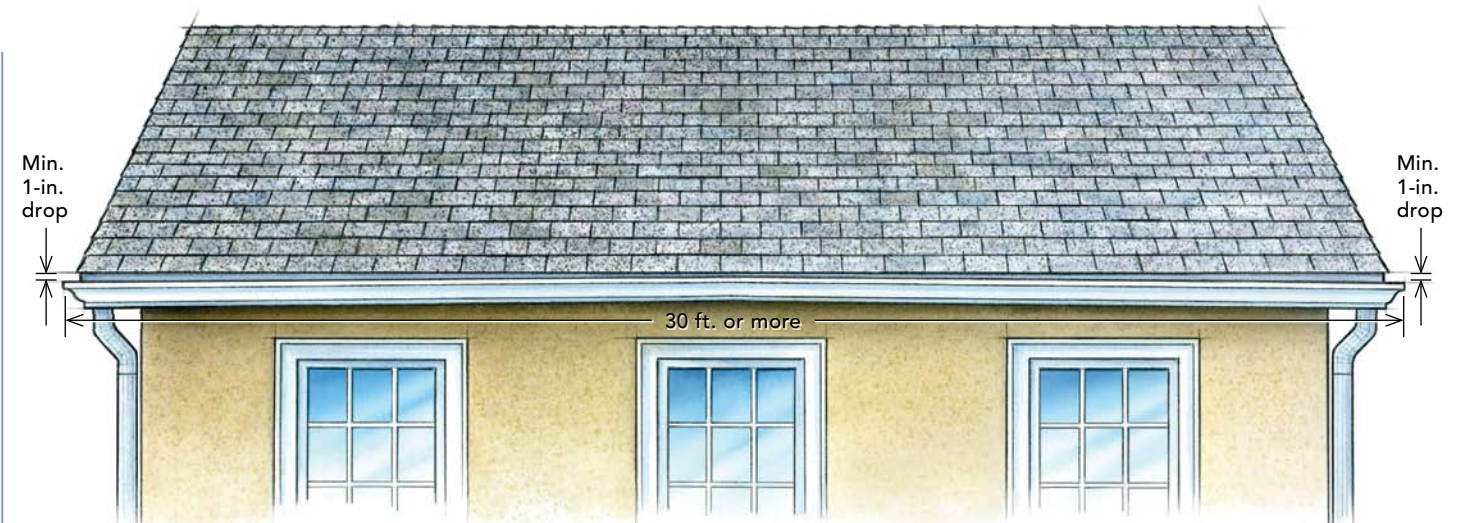
NINE WAYS TO DO GUTTERS RIGHT

Fixing the gutter blunders exemplified on the house shown here requires a three-pronged approach. The first is good design: Avoid details that concentrate flows, and size gutters for the climate and roof size. The second is proper construction: Pitch gutters to drain, and install them with an eye to avoiding restrictions that cause clogs and overflows. The third is the right materials: Use durable sealants, fasteners that stay tight, and quality guards that keep out leaves and debris.



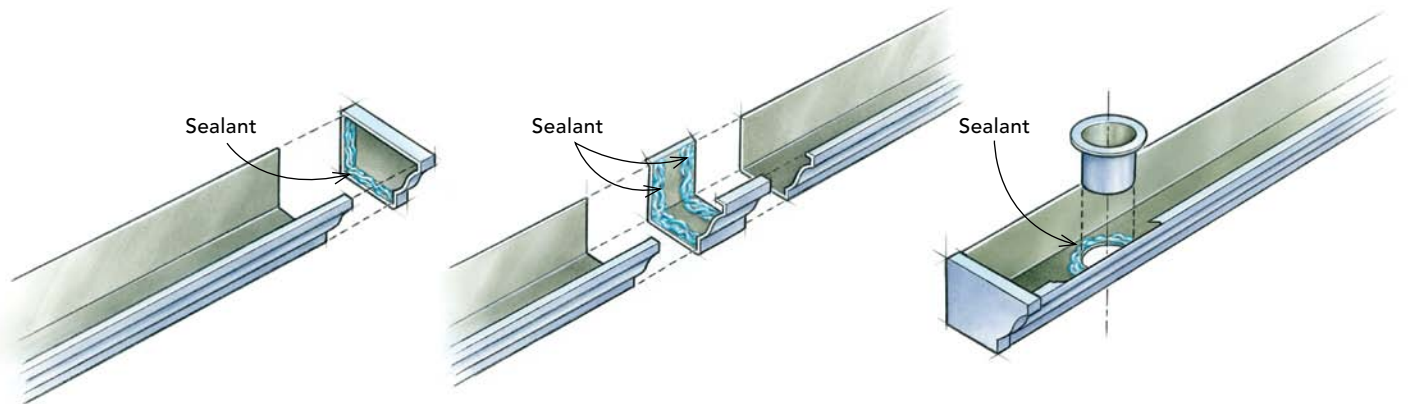
1 Exclude leaves
Trim overhanging trees, and use gutter guards. PlyGem's guards (\$3.20 per ft.) also stiffen gutters, so they're less likely to bend if a ladder is leaned on them.

2 Lead water away
Buried pipes lead water to daylight or to a dry well at least 10 ft. from the house.



3 Install more downspouts
If gutters are longer than 30 ft., pitch them from the middle toward a downspout on each end. The second downspout doubles the capacity of that gutter.

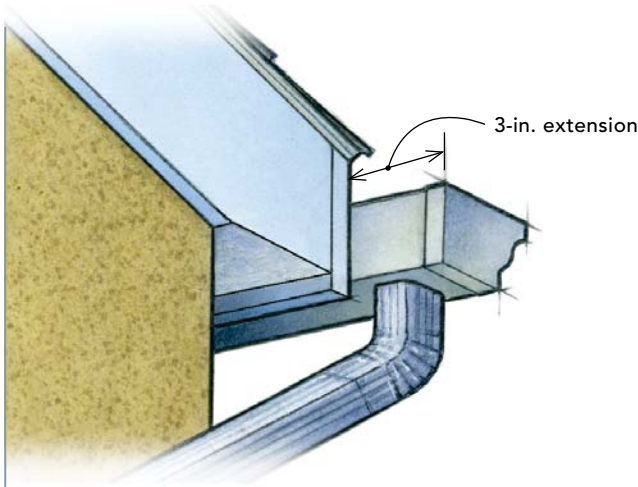
4 Pitch gutters properly
To keep water moving, pitch gutters at least 1 in. over their length. A greater pitch is better but may not look as good.



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Use the right sealant

To avoid slow drips at joints, use elastomeric sealant such as Quad or Geocel that resists UV rays and stays flexible for the long term.



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Extend corners

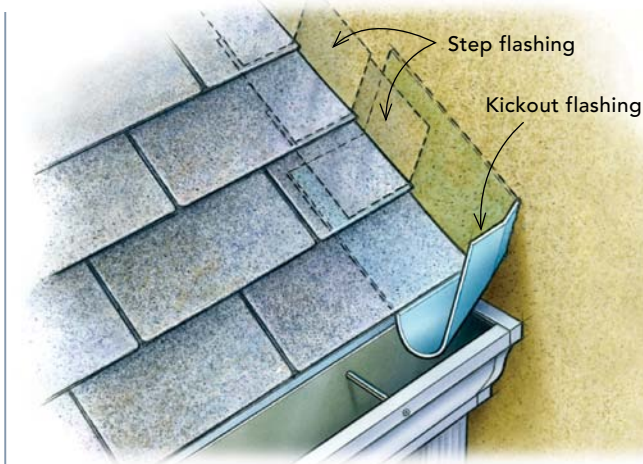
To hide downspouts on the side of a house, extend the gutter 3 in. beyond the eave.



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Design wisely

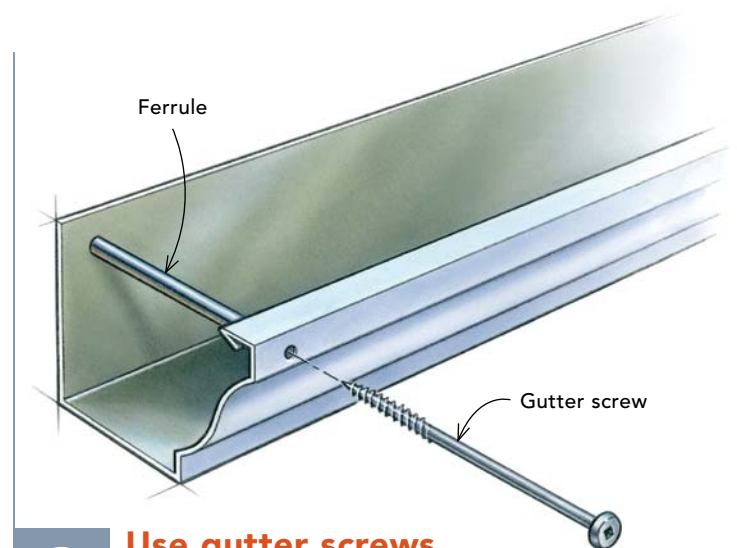
The best roofs don't concentrate flow, and their upper gutters drain through downspouts leading to lower gutters and downspouts.



8

Install kickout flashing

Integrated with the step flashing by the roofer, kickout flashing diverts water away from the wall and into the gutter.



9

Use gutter screws

Unlike spikes, which back out and allow gutters to sag and overflow, screws hold tight. Space them every 2 ft.