Designing Overhangs with the Sun in Mind

by Jerry Germer

The intersection of a roof and wall is an area where seemingly minor design decisions can have a much larger effect on a home's feel and function. At a bare minimum, an overhang must be substantial enough to prevent rain and melting snow from soaking the siding, especially at the eaves. But from the standpoint of homeowner comfort, the most important characteristic of a well-designed overhang is the ability to control the amount of sunlight and solar heat that enter south-facing windows.

Sunlight and Shadow

Most houses benefit from sunlight in the cold winter months. Any heat gained from the sun cuts fuel bills while the natural light lifts spirits on short winter days. But while an abundance of south-facing glass may look great from the outside, it can be tough to live with: If the overhang doesn't provide sufficient shade, the free heat that is so welcome in January can turn an interior into a glare-filled hotbox in July.

Overhangs by the Numbers

Several variables enter into the seasonally varying amount of shade an overhang provides, and sizing it by guesswork can yield some unpleasant surprises. But fortunately, it's easy to calculate the optimum overhang extension for your area and your windows with the information contained in the table below:

Latitude	Representative Location	Overhang Factor
28°	Tampa, Fla.; San Antonio, Texas	0.09
32°	San Diego, Calif.; Dallas, Texas	0.16
36°	Las Vegas, Nev.; Nashville, Tenn.	0.22
40°	Denver, Colo.; Philadelphia, Penn.	0.29
44°	Boise, Idaho; Minneapolis, Minn.	0.37
48°	U.S.–Canadian border (western)	0.45

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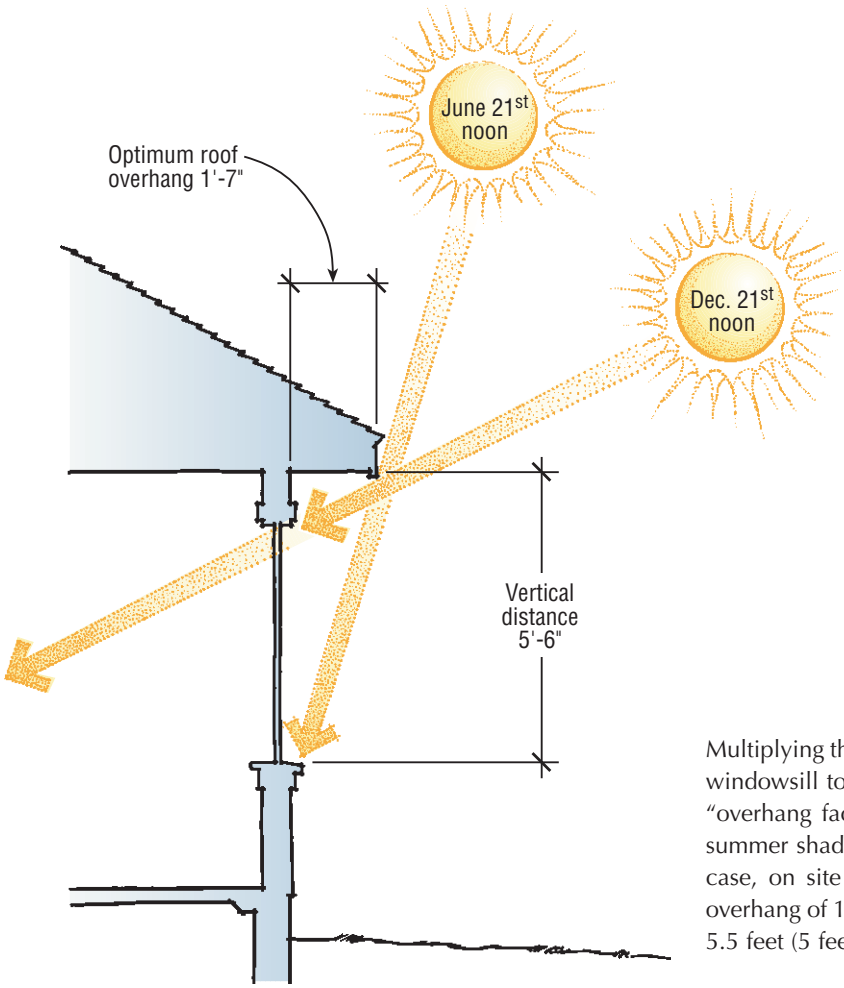
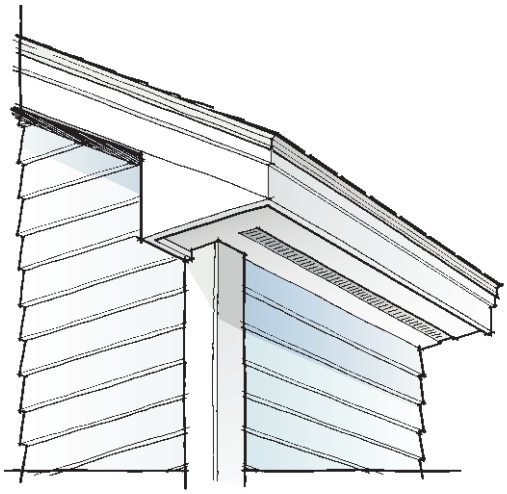
Calculating Roof Overhang Length

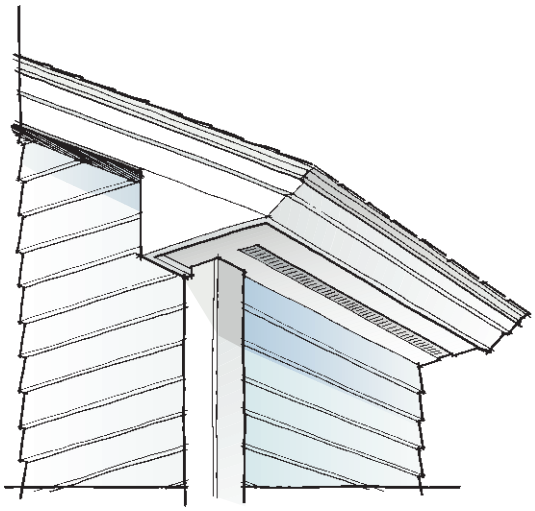


Multiplying the vertical distance from a south-facing windowsill to the roof overhang by the appropriate "overhang factor" provides a width that combines summer shading with maximum winter sun. In this case, on site at latitude 40°, the window gets an overhang of 1 foot 7 inches through this calculation: 5.5 feet (5 feet 6 inches) x 0.29 = 1.6 feet.

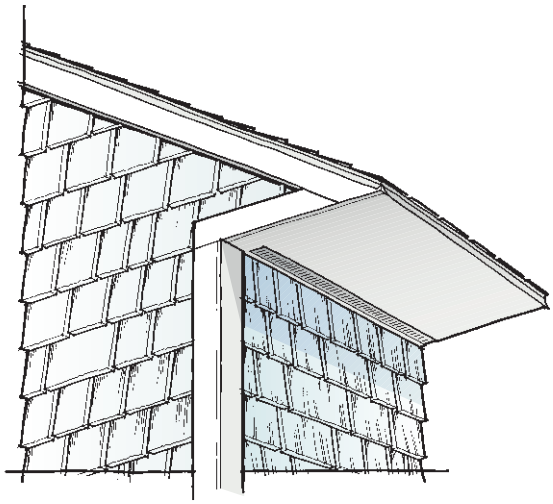
Roof Overhang Options



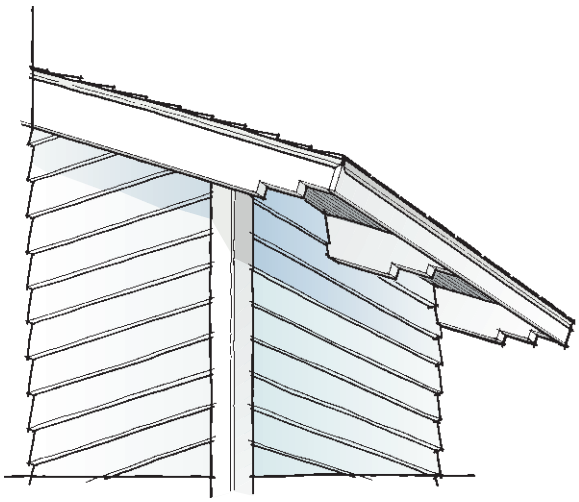
This pared-down version of the ornate cornice returns common on older homes works best where a relatively narrow overhang is called for.



Replacing the flat eaves fascia with a sloping one gives a more contemporary look that's appropriate where more shading is needed.



Do away with the eaves fascia board altogether for a modern approach that looks best with a steep roof and an overhang of 30 inches or more.



Another option is to leave rafter tails exposed and cut them into ornamental profiles, as in many bungalows and Arts and Crafts houses from the early 1900s.

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As illustrated in the illustration on the previous page, simply select the appropriate "overhang factor" for your latitude and multiply it by the vertical distance between the windowsill and the lowest point on the overhang. The resulting dimension is the overhang width that will provide complete noontime shade on the longest day of summer, and full sunlight on the shortest day of winter.

If there's a lot of glass low on the wall, the required overhang may be several feet wide, making it a prominent exterior design element as well. That's another issue, and one that can be addressed in any number of ways. The drawings above show some designs that may work well when a broad overhang is needed.

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