Q&A

Q. Capping a Chimney Chase

I have to build a framed chase for a gas fireplace's 6-inch vent pipe. What's the best way to finish the top of the chase? I had planned to use a metal cap, but I've noticed that a lot of these caps tend to be rusted.

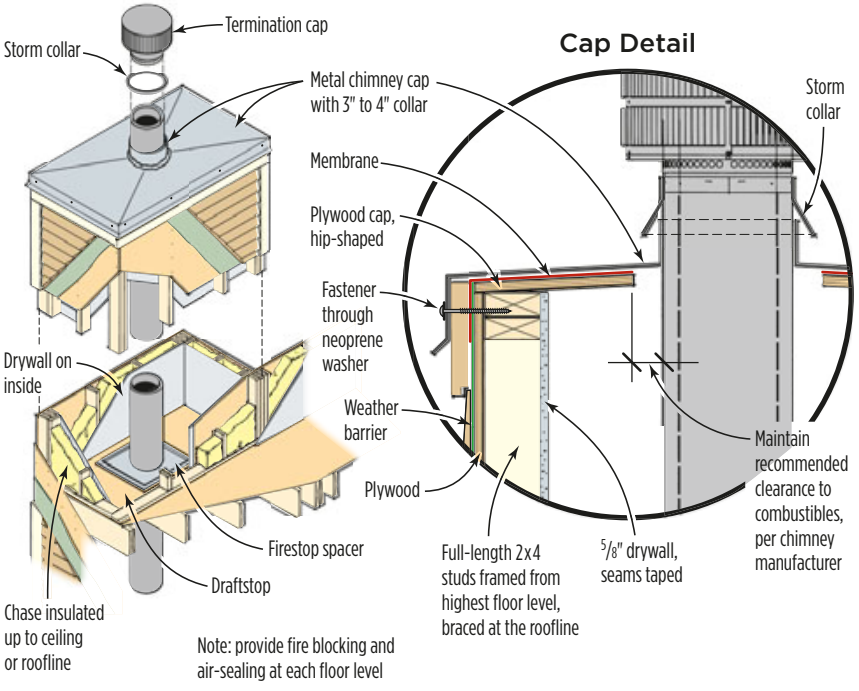
A. *Patty McDaniel, owner of Boardwalk Builders in Rehoboth Beach, Del., responds:* We finish chimney chases with sheet-metal caps made for us at a local metal shop. We've used both galvanized and stainless steel, though we prefer stainless because galvanized will rust after several years in our coastal environment.

For stability against high winds, we typically frame the chases with full-length 2x4 studs that run back to the attic floor level. We sheathe the chimney on all four sides and the top with exterior-grade plywood. The chase gets insulated to the ceiling or roofline, with intermediate fire blocking and air-sealing at each floor level. The interior of the chase is drywalled and taped.

We cover the plywood top with a peel-and-stick modified-bitumen membrane, lapping it over the weather barrier on the chase walls.

The chase cap looks somewhat like a shoebox lid, with a collar around the hole for the pipe, and a hem bent down around the chase on all four edges. On a small chase, we use a flat cap, with a 3- to 4-inch-tall collar sized to fit snug to the chimney pipe. On a larger chase, the metal cap is creased to make it more rigid — like a miniature hip roof, in which case the plywood cap is also detailed as a mini-hip.

Framed Chase for Vented Gas Fireplace



Q. Which Window Area Ratio Is Better?

I've seen window glazing area recommendations for energy-efficient houses stated in two ways: as a percentage of conditioned square footage and as a percentage of exterior wall area. Which is most useful, and why?

A. *Contributing editor Paul Fisette responds:* While there are many excellent sources that relate window area to square footage of living space, I'm not a fan of this approach. Conduction and air leakage are the main ways that heat escapes a building envelope, so any meaningful energy analysis should be directly related to these dynamics.

Conduction is a function of the surface area of the wall, the thermal properties of the wall assembly, and the difference between the inside and outside temperature. Surface area is critical; the footprint of the living area is not.

Air exchange is calculated by measuring the rate at which a volume of air moves through the skin of the house, the heat capacity of the air, and the difference between the indoor and outdoor temperature. What is important here is the volume of air contained within the indoor conditioned space and how often it is replaced with unconditioned outdoor air. This rate of exchange can be expressed as air changes per hour (ACH) or as a rate of exchange in cubic feet per minute (cfm), but in any case, you're looking at volume and rate, not square footage of living space.

While a rule of thumb that relates window area to

footprint of living area may provide homeowners and builders with a quick ballpark estimate, it dumbs down the analysis. This approach might make sense for lighting design, but not for energy analysis.

Consider a simple example: A builder constructs two homes with identical square footage of living space. However, the first home has 8-foot walls and casement windows, while the second has 10-foot walls and double-hung windows. Not only does the second home have more surface area and thus higher conductive heat flow through the walls, but it will also be leakier. The impact of these conditions is best expressed in terms of surface area and leakage rates, not window area per square foot of living space.

Q. How Far Can SIPs Be Cantilevered?

When building with structural insulated roof panels, how far is it safe to cantilever (or project) the ends of a panel past the top plates? I like the idea of creating a protective overhang for the siding and windows.

A. *Paul Malko, an engineer with Foard Panel in West Chesterfield, N.H., responds:* Unless the snow, seismic, or wind loads are unusually high, roof SIPs can be cantilevered for a third of their dimension. This means that if you're running 4-foot-wide panels horizontally, your maximum eaves overhang would be 16 inches, while your gable overhang could be several feet, depending on the length of the panel. Many SIPs manufacturers make 8-foot-wide panels; running an 8-foot panel along the eaves allows you to extend the eaves overhang up to 32 inches. That's why it's common in a SIP roof package to have a course of 8-foot-wide panels along the eaves and 4-foot-wide panels on the rest of the roof.

GOT A QUESTION?

Send it to Q&A, *JLC*,
186 Allen Brook Lane,
Williston, VT 05495;
or e-mail to jlc-editorial
@hanleywood.com.