DETAIL

SEALING AROUND WINDOWS

Compiled by Clayton DeKorne

Tips for tightness to combat heat loss

A popular joke among energy enthusiasts defines a "tight house" as one without any windows. Certainly a window can be an enormous energy drain in a well-insulated wall. While some of the heat is lost through the glass and the frame, as much can be lost through the gap around the window if it's not well-sealed. This joint can also be the site of moisture condensation from interior air or water damage from exterior leaks.

Often the vapor barrier is cut roughly around the window and the gap is stuffed with fiberglass. But fiberglass won't stop the air and it won't even serve as a very effective insulator in this gap unless you stop the air from moving through.

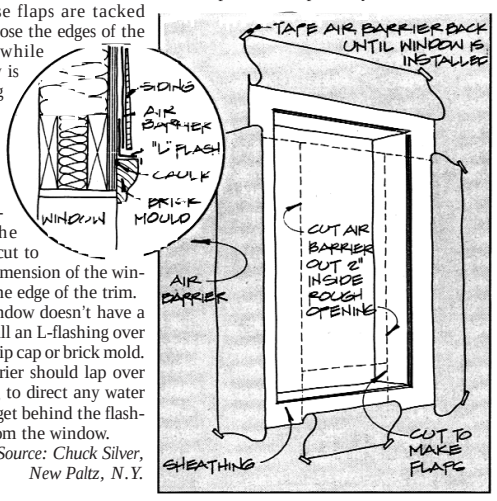
Expanding foam is commonly used to make a tight seal. This is most effective when the interior vapor barrier is tucked into the gap between the rough opening and the window jamb and then foamed. This way, the expanded foam will hold the vapor barrier in place. But this method has several drawbacks. The first is the risk of overfilling the gap. Overfilling may push the foam against the window jambs and bind the window. At the least, the excess foam will need trimming. Other drawbacks include the sticky mess, the environmental hazard of CFCs, and a possible toxic hazard to workers.

On this page are two techniques for sealing between the interior vapor barrier and the window jamb. Neither technique relies on foam. A third detail shows how to seal between the exterior air barrier and the outside of the window.

Sealing the air barrier. Caulk forms a dubious bond on most air barriers, such as Tyvek and Typar. So when sealing the outside of the window, it's best to caulk the flange (if there is one), or the exterior trim, directly to the sheathing. The seal along the top of the window, of course, is the most important.

The house is usually wrapped after it's sheathed but before the windows are installed. And if the house wrap is run right across the window openings and simply X-cut, it is difficult to caulk to the plywood.

Instead, cut the barrier about 6 inches horizontally at the top of the rough opening and then cut up about 8 inches at the top corners of the opening as shown in the drawing. This creates a flap along the head. The side and bottom can also be cut as shown, but this is less important and probably not worth the time. These flaps are tacked back to expose the edges of the sheathing while the window is being installed. After installing the window, pull the air barrier over the flange and cut to the exact dimension of the window or to the edge of the trim.



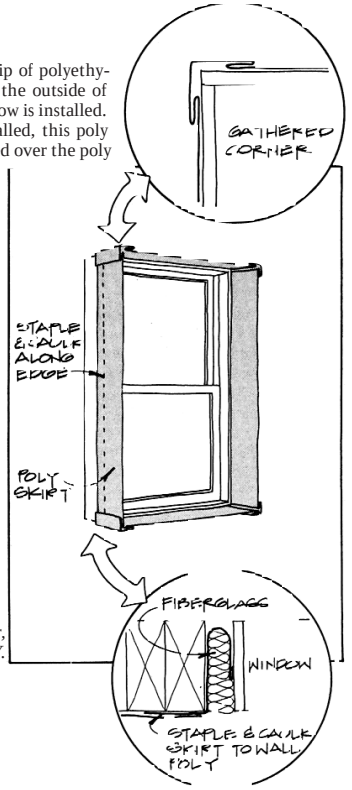
If the window doesn't have a flange, install an L-flashing over the wood drip cap or brick mold. The air barrier should lap over the flashing to direct any water that might get behind the flashing away from the window.

Source: Chuck Silver, New Paltz, N.Y.

A poly skirt. Cut a 6-inch strip of polyethylene sheeting and staple this on the outside of the window jamb before the window is installed. After the window has been installed, this poly skirt can be folded back and lapped over the poly on the walls or taped to rigid foam insulation if it is used on the interior. A bead of caulk should be used where the poly is stapled to the window and the jack studs. An acoustical sealant is recommended because it will stay flexible over time.

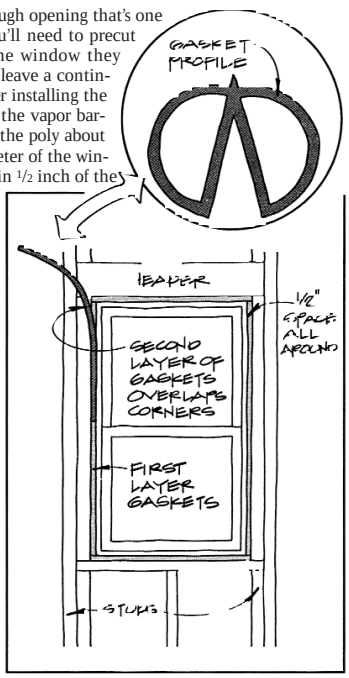
Two tricks make this technique work well: First, gather extra poly at the corners as shown in the drawing. By doing this, you won't have to X-cut the corners when the skirt is folded back. This eliminates the need to come back later to apply a "band aid" at every corner. Second, use an extra wide strip of poly so that it's baggy when it is stapled to the jack stud. This leaves room to stuff fiberglass insulation into the void from inside the house.

Source: Chuck Silver, New Paltz, N.Y.



Rubber gaskets. The bond between caulk and polyethylene (even expensive acoustical caulk) has questionable reliability. So this detail was devised to avoid caulk altogether. It uses specialized EPDM rubber gaskets in place of a skirt and caulk. The product, called *Gap-Gaskets* can be purchased for about 60¢ per linear foot from Resource Conservation Technology (2633 N. Calvert St., Baltimore, MD 21218; 301/366-1146).

First, install the window in a rough opening that's one inch larger than the window. You'll need to precut the shims so when shimming the window they recess back from the framing and leave a continuous channel for the gaskets. After installing the window and jamb extension, run the vapor barrier across the window. Next, cut the poly about 2 inches in from the inside perimeter of the window and X-cut the corner to within 1/2 inch of the rough opening corner. This leaves a flap on each side of the window.



Cut four gaskets, one for each side of the window. Each gasket should be 1/2-inch longer than each side of the window. The gaskets have a profile that looks like Pac-man (see drawing inset). A putty knife can be slipped into the "mouth" to push them into the gap. Wrap the 2-inch flap of vapor barrier around a gasket first. The large-size gaskets are made to fill a gap from 3/8 to 3/4 inch, so they fit snugly in the 1/2-inch gap.

For added protection, add a second layer of gaskets over the first. On this second layer, position the end of each gasket at the midpoint of each side. This covers the joints at the corners without using an additional sealant.

Source: Rick Reed, Williston, Vt.

Building Details Wanted

Do you have a building detail—rough or finish, interior or exterior—that works well for you and might be a help to others? If so, please send us a readable drawing along with a brief written description of the technique. Send your ideas, along with name, address, and phone number, to JLC Details, 1233 Shelburne Rd. Suite C1, So. Burlington, VT 05403. Contributors will receive $50 plus a one-year subscription, or extension, for each detail published. ■

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