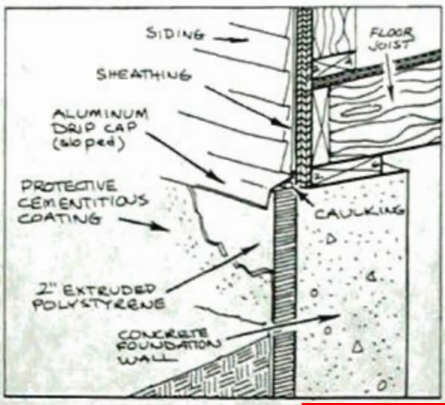
if you can find the right size. Otherwise, a sheet-metal contractor can form a simple flashing for you. If the bottom edge of the siding forms a fairly straight line, a simple wooden drip could be used—made by rabbeting and beveling a length of pressure-treated wood or redwood. In any case, slope the drip edge to shed water so it does not back up to rot the bottom of the siding or to flow behind the insulation. Squeeze a healthy bead of caulk behind the flashing to cut infiltration at the sill area.



Insulating part way down a full fo... usually the best strategy in a retrof... caulking the top of exposed insula... out water and cut costly air infiltra...

If the foundation walls are relatively flat, the insulation panels can be secured with a mastic compatible with the foam used. Some mastics eat some foams, so go with the manufacturer's recommendation of adhesive. I prefer mechanical fastening of all exterior work, even if an adhesive is used for backup. In new concrete, use masonry nails with large (1½-inch) washers (or cast a pressure-treated wooden nailer into the foundation wall). Special anchors for this application, called Fast'ners®, available from Insul/Crete, work well in any concrete or masonry wall. The Fast'ner is a cross between a galvanized nail and an expansion bolt, and hammers into ¼-inch holes drilled through the insulation into the foundation. Use a hammer drill or you'll waste a lot of time and masonry bits. Starting a few inches below the siding, nail the insulation 16 inches on center both ways down to the grade line.

Make sure you overlap all corners—at recesses for doors and windows and at building corners. Research has shown that heat loss is greatest at building corners where the large mass of adjacent earth acts as a heat sink. You might backfill part way before coating the above-grade portion of the insulation board. When you finish the job, add backfill sloping away from the house so water will run off to where it belongs.

An interesting strategy for foundation insulation, borrowed from the Scandinavians, places the insulation vertically down a couple of feet and then out horizontally four to six feet. Because this interrupts the thermal bridge to the ground's surface, it works well for both heating and cooling, and eliminates the problems associated with freezing and frost heaves. While this makes sense thermally, it requires a lot of extra digging in a retrofit and plenty of care in installation and backfilling. If the insulation moves over time creating gaps, much of the benefit will be lost.

Protecting the insulation

Polystyrene needs to be protected above-grade from ultraviolet degradation and physical damage. A variety of premixed cement finishes are available for this application. Most use an acrylic or acrylic latex bonding agent (either in the dry mix or added as a liquid); the stronger ones add chopped fiberglass to the cement mixture. These finishes can be easily applied with a heavy brush or a trowel. Textures can be created or colors added depending on your taste. I'll take plain gray.

For all these applications, it is advisable to rough up the finish of the insulation board with a wire brush prior to applying the finish. This doesn't take long and will keep the stucco from peeling off later. If the foam has been exposed to the weather for awhile, make sure you scrape through the dust, which will have formed on the surface. One type of Dow's Styrofoam has a thin protective film that must be removed before coating the foam. While ecommend it, he seams and lon tape (the plaster). This will minimize movement and cracks at these joints. A metal or nylon corner bead will help make a neat detail at highly visible outside corners. A thick coat of the fiberglass-reinforced mixtures should resist an occasional lawn mower bump or minor hammer blow. Minor impact damage will be easy to repair with leftover material.

For those who don't like to play in the mud, a neutral gray fiberglass sheet product, called Insul-Guard™, from Trend Products is a good alternative to cement coating. An "L" on the top of the sheet hooks over the top of the insulation board; the bottom is carried just below grade. Vertical joints can be overlapped or joined with PVC moldings supplied by Trend. In new construction, nail right through the Insul-Guard and insulation board into the middle of the sill. Along with the proper adhesives behind insulation and covering, this will hold the assembly with no additional mechanical fastening for up to about 20 inches of exposed foundation. Trend also makes a 2-inch-wide drip cap that's handy in many retrofit installations.

Insulation Covering Materials

Conproco®
Conproco Corporation
P.O. Box 368
Hookset, NH 03106
(800) 258-3500
(603) 668-8810

Insul-Guard™
Trend Products, Inc.
P.O. Box 327
Waupaca, WI 54981
(715) 258-8838

Insul/Crete®
Insul/Crete Company
4311 Triangle St.
McFarland, WI 53558
(608) 838-4861

Thermaseal®
Akona Corporation
1570 Halgren Rd.
Maple Plain, MN 55359
(612) 479-1907