Barrier Grief

Q: We want to insulate the ceiling of an unheated basement and have been thinking about a vapor barrier. I wonder if anyone has had automobile undercoating sprayed on their ceiling as a vapor barrier. How do you feel about that? Would sheet goods such as flooring be better?—*Bill Geary, Belfair, Wash.*

A: An insulated floor over an unheated basement or crawlspace requires an air/vapor barrier. It belongs on the warm side of the insulation except, perhaps, in a consistently hot humid climate. In a floor the air/vapor barrier, in addition to its usual job of keeping moisture out of the insulation, keeps moist basement air from entering the living space via the stack effect. As with other air/vapor barriers, the membrane's airtightness is far more important than its perm rating, since moisture moves through houses mostly by air leaks.

One option for a floor air/vapor barrier is a poly sheet placed over the floor joists and sealed to the wall vapor barrier. Some prefer to place the poly between the subfloor and underlayment to avoid working on loose and slippery poly hanging over the joists. A third option is to use the subfloor or underlayment itself as the barrier by sealing all the joints and the wall/floor junction.

As for auto undercoating, our reasoned opinion is "Yuch!". Health reasons aside, do you really want your basement to smell like the underside of a car? More seriously, tar and asphaltic coatings are likely to outgas unpleasant organic fumes for some time.

We see no reason why sheet vinyl couldn't make a perfectly good vapor barrier, as long as you carefully seal at penetrations and at the junction with the wall vapor barrier.

Polycarbonate

Q: I recently read an advertisement for a product that touts its covering as being made of "polycarbonate," which prevents ultraviolet radiation seepage. What is this stuff and where could I buy it?—*Gary Allen, Palo Alto, Calif.*

A: Polycarbonate is one of several thermoplastic glazing materials being used in solar applications. Greater resistance to impact is its main advantage over acrylic and glass, but it is more expensive than either of them. Like all plastics, it expands and contracts under thermal stresses, so glazing stops must accommodate a fair amount of movement. Also, it abrades and discolors in time, losing a certain amount of solar transmittance. And, like other plastics, polycarbonate is vulnerable to deterioration caused by ultraviolet radiation.

Three well-known polycarbonate sheet products, all of which should be available through glazing distributors in your area, are General Electric's Lexan, Lasco Industries' Lascolite, and Cy/Ro's Cyrolon SDP.

Collector Outgassing

Q: A three-panel collector array we installed four years ago recently developed a deposit on the underside of the textured AFG glazing. The collector has EPDM gaskets, silicone caulk, a selective surface, and 700 Series Owens-Corning high-temperature fiberglass insulation. We think the outgassing is from the insulation. The collector manufacturer has gone out of business. We want to make sure we have the right solution to clean it with. What do you recommend?—*Mike Fabian, Energy Engineering, Fargo, N.D.*

A: According to Frank Gilleland at Owens-Corning, 700 Series insulation wasn't made to go into solar collectors. It is duct insulation made with a binder that can outgas under collector temperatures. Normally you can scrape the resin off with a razor blade, but that won't work on textured glass. For liability reasons, Owens-Corning will not recommend any solutions. They also won't take responsibility for the problem, because they say it could have been caused by any of several materials. Gilleland says that with practice you can tell residues apart by color. A bluish hue means it's from EPDM or paint. A chalky color points to insulation binder.

AFG Industries' Dick Orton recommends cleaning with very hot water and a detergent such as Tide. If that doesn't work, add a half pint of white vinegar for each gallon of solution. If the film is still there, try an organic solvent such as toluene or xylene, available from chemical supply or hardware stores. He stresses that this method is a last resort. Use extreme caution and follow the manufacturer's instructions precisely. Never use an abrasive substance, on the glass.

If these don't work, talk to chemists. See what they recommend to break down and remove phenolic resin without leaving a new film. By this time, however, you might just want to replace the glass.

There's no guarantee that the outgassing will stop. If you suspect insulation is the source and the collectors haven't stagnated long enough to burn off all the binder, dismantle the collector and lay aluminum foil between the insulation and the absorber. Then seal the edges with a high-temperature caulk. Or replace the insulation with an oil-free, binderless insulation. As far as Gilleland knows, there is no such product on the market since Owens-Corning stopped manufacturing its SI-100 Series a few years ago. But someone may still have it in stock. Perhaps a reader can tell us of another product that fills the bill.