

QUESTIONS & ANSWERS

Heat Pump Strategy

Q: Can heat pumps be installed inside a building? I plan to duct intake air through a buffered interior space to warm it before use. Your July issue speaks of a new Swedish technology that does this.—*Wilbur Rhodes, Kittery, Me.*

A: In a northern climate, you should not install a heat pump in an interior space unless it is isolated from the heated living space and has solar gains—an isolated sunspace, for example. This is because in the heating mode the heat pump will be cooling the space where the compressor unit is installed.

A sunspace installation can make sense, but it is tricky. On cloudy days and cold nights, outside air needs to be allowed into the sunspace to supply the unit or it should be shut down. On sunny winter days the space could get too hot for the unit to operate safely. In the cooling mode, it will be difficult to dump heat unless the sunspace is sufficiently shaded and vented. In short, well-planned controls are in order. Also, you will have to live with a noisy compressor in your sunspace.

A more promising way to scavenge heat in a sunspace would be through the use of a heat pump water heater. These are designed to go in a conditioned space. Since they are smaller in capacity than conventional heat pumps, they will not overcool the room. The Swedish systems you mention are heat-pump water heaters with the exhaust side ducted to the outdoors. Currently available U.S. units are not designed to operate this way.

Basement Insulation

Q: I plan to insulate the outside of a concrete-block wall with extruded polystyrene, but anything over 1 inch thick will make for a difficult installation and be aesthetically questionable. What minimum thickness or R-value is necessary to make the project worthwhile? Do you recommend fiberglass-reinforced stucco paint or conventional stucco?—*George Ciechanowski, Pleasantville, N.J.*

A: According to computer simulations performed for a house in Columbus, Ohio, (*Solar Age*, 7/83, p. 47) with a heated basement, insulating the basement exterior to R-5 will result in a 57-percent reduction in heat loss through the basement walls. Insulating to R-10 will increase the savings to 70-percent. In many cases—with heated basements in particular—the added savings will justify the expense of going to two inches or more. However, as you can see, one inch is certainly worthwhile.

As for real stucco vs. reinforced stucco paint, the former is a tougher and more durable product. If you choose the stucco paints, get one that is specifically recom-

mended for application over foam and follow the instructions. Surface preparation is important, as is keeping water from getting behind the finish.

Other options include ¼-inch cement-asbestos board, pressure-treated plywood, or special fiberglass panels made for this application by Trend Products, Inc., P.O. Box 327, Waupauca, Wis. 54981.

Phase-Change Tiles

Q: A few years ago I read about floor tiles with phase-change salts inside their hollow cores. An upcoming project I'm involved in could benefit from a product such as this. Could you please supply me with information on suppliers or manufacturers?—*Gary Higgins, North Windham, Me.*

A: We mentioned Sol-Ar-Tile™, in February 1982 (p. 40) and May 1983 (p. 69). The manufacturer, Ar-Lite Panelcraft Inc. (formerly Architectural Research Corp.), 13030 Wayne Rd., Livonia, Mich. 48150, uses Colloidal Materials' pouches in polymer-resin concrete tiles for floors and ceilings. The address for Colloidal Materials is P.O. Box 696, Andover, Mass. 01810. Insolar, Inc., (212 Main St., Port Jervis, N.Y. 12771) and Pennwalt Corp. (King of Prussia, Pa. 19406) package phase-change materials that can be embedded in floors, ceilings, and walls.

Sungain Sources

Q: I've had little luck locating quad glazing with Sungain™ film (*Solar Age*, 2/83, 9/83) locally. Do you have any information on where I can buy quad-glazed glass units?—*Rick Essman, Carson City, Nev.*

A: High-transmission Sungain film is made by 3M Company. According to M.J. Johnston of 3M's Energy Control Products Project (Building 224-5S, St. Paul, Minn. 55144), quad-pane and tri-pane units and windows with Sungain film are currently available from several manufacturers, and 3M hopes to add more of them across North America in the next year.

For quad-glazed units (glass only), try Air Seal Insulating Glass Units Co., 522 Powell St., Gloucester City, N.J. 08030 (609) 456-3922, or Northland Glass, 5334 Barthel Dr., Albertville, Minn. 55301 (612) 497-3212.

For complete windows with quad-pane Sungain glazing contact All Weather, Inc., Silverdale Rd., P.O. Box 3770 CRS, Johnson City, Tenn. 37601 (615) 282-1121; Scherer Brothers Lumber, 9-9th Ave., NE, Minneapolis, Minn. 55414 (612) 379-9633; or Weather Shield Mfg., Inc., 531 North 8th St., Medford, Wis. 54451 (715) 748-2100. Check with the manufacturers for prices and availability.