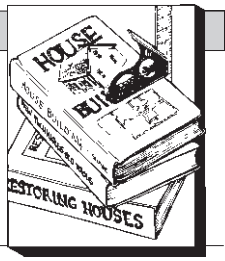

Details, Details

Superinsulated Design and Construction by Thomas Lenchek, Chris Mattock and John Raabe, (NY: Van Nostrand Reinhold; 1987; 166 pages; $34.95 (hardcover).

Architect Mies van der Rohe's famous dictum, "God is in the details" is offered by the authors of *Superinsulated Design And Construction* to describe one major focus of their efforts. The other is the ever elusive subject of *cost-effectiveness.* Details abound, while the authors often seem to dance around cost-effectiveness (which is perhaps the best that can be done with that tricky subject).

The first two sections (84 pages, or nearly half the book) provide an overview of residential energy use, moisture control, indoor air quality, and design issues from the shell to marketing. For the most part, these will be a review for anyone who has kept up on the field of energy conservation over the last few years. There are some interesting observations in this part of the book, though. For instance, the authors note that the houses they call "superinsulated" don't depend on specific climatic or site factors such as solar orientation or earth-berming for their energy efficiency. This, they point out, allows more design flexibility. And based on computer modeling of a 1500 square-foot example (with four levels of increasing efficiency), they conclude "no amount of south-facing glass comes close to reducing space heating needs as much as the addition of insulation"—a point well taken by New Englanders.

The authors also found that the *optimum* amount of south-facing glass in both Denver and Anchorage was approximately eight percent of floor (double that if a slab floor provides mass), while the actual impact on energy savings varied widely with the percentage of available sunshine. Interestingly, the optimum window area of other exposures (that is, North, East, West) was also eight percent.

More interesting points follow: The authors note that so-called "air-lock" entries usually can't be justified based strictly on energy payback. And they estimate that the effective R-value of a 2x6 studwall drops from R-18 to R-13.5 with "sloppy" installation of fiberglass batts—that is six percent voids and gaps. Some issues, however, are overlooked. For example, the question of whether insulated doors are cost effective is not only unanswered, it is never asked. And the authors—all of whom have substantial backgrounds in major Canadian and U.S. field studies on the subject—provide little, if any, documentation to support their viewpoints and conclusions. (I am generally inclined to believe them, though.) And their bafflingly short "bibliography" of five titles provides little recourse for further research.

To their credit, the authors tackle cost-effectiveness head-on in a broad way in a short chapter devoted to energy and economic analysis. Here the reader is introduced to P.I.T.E. (principal, interest, taxes, energy) versus cash-flow analysis and three different types of microcomputer programs for modeling energy usage.

The rest of the book is devoted to construction details—myriads of them. Wall details, floor details, ceiling details, rim-joist details, electrical-box details, you name it. Wall types include 2x6 at 24 inches on-center. Framing short cuts from optimal-value engineering (O.V.E.) are also covered. The pros and cons of each wall system are discussed, and while some drawbacks of foam sheathing are described (siding failures, no racking resistance) the question of an exterior vapor dam isn't addressed at all. Despite a few shortcomings such as this, the nitty-gritty of the book is in this final half, which provides about as good a look as you can get at state-of-the-art materials, techniques, and details.

The major drawback here is in presentation. The text is clear and informative. Likewise, drawings are clearly done, and are consistent and numerous. The authors have relied much too heavily on the descriptions in the text however, to explain the drawings. This situation is made worse by the fact that illustrations are often carried over from text on the preceding page, requiring the reader to flip back-and-forth to follow the argument. More extensive and detailed captions would have been better.

At the same time you will find as many as nine or ten details on two facing pages, which all look too similar and lack large, bold-face labels to help the reader distinguish them. I found this presentation difficult, despite the authors' considerable knowledge of the field, and I wish the editors had done a better job in this respect.

Nonetheless, this is a welcome addition to the literature on superinsulation, and in its own way ranks up there with Ned Nisson and Guatam Dutt's *Superinsulated Home Book.*

—Paul Hanke

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—NEB staff