

Building the Non-Toxic House

The Healthy House by John Bower. Lyle Stuart Books, 120 Enterprise Ave., Secaucus, NJ 07094; 1989, 384 pages; \$17.95, hardcover.



Earlier this year I was approached by a couple in the organic baby food business. Naturally (pardon the pun) they wanted to build a "nontoxic" house. The job didn't go beyond preliminary design, but it got my interest aroused. So when The Healthy House by John Bower arrived I was anxious to dig in.

Bower's wife is apparently "severely sensitive" to some household contaminants, which led to their building a superinsulated, steel-framed and -roofed, aluminum-sided home for themselves. Despite extensive research and precautions, they still were prevented from moving in for three months by interior paint fumes that outgassed to a degree that affected Ms. Bower.

Bower covers the gamut of indoor air quality, from general strategy (eliminate, separate, ventilate) and the pros and cons of wood products, to selecting air-filtration devices and cover plates for electrical switches. In general, the book did an adequate job of covering this emerging topic, but could have been much better. Here's why.

First, there's too much material, and much of it is redundant. Bower not only advises readers that concrete is "generally well-tolerated" by sensitive people (while some additives may cause adverse reactions), but he tells how (and why) concrete foundations are built, and what the alternatives are. While background info on general construction is useful to a novice building a house, it makes for a lot of reading to find specific items that are often repeated elsewhere. Stronger editing would have helped.

Moreover, I sometimes wished Bower wouldn't hedge so much on potential hazards, such as when he says that water-reducing agents in concrete "could possibly be bothersome to a sensitive person." Perhaps, but that doesn't give me much guidance on whether they should be avoided or not.

This is another problem I found with the book: by the time I finished reading I had little sense of what really constitutes health hazards in building. Bower often (in almost every chapter) gives a rundown of symptoms that may be caused by various products—from itchy eyes to death—but I never felt I could make an informed decision about the real risks involved, nor did I have a sense of whether these are issues that affect only a tiny minority of the populace or are of general concern.

I know from experience that I am allergic to certain types of newsprint, but does that mean I should avoid use of cellulose insulation in my house? Having read The Healthy House, I still don't know for sure (without testing my own sensitivity), but I do have an increased awareness and a heightened anxiety about "ecologically safe" house building—which may or may not be useful.

I also had difficulty with Bower's

writing in the early chapters, where he makes his general case concerning nontoxic construction. For instance, in Chapter One he says fiberglass insulation "outgasses too much formaldehyde to be used by NASA," but does not document the statement. And besides, isn't there a difference between a space capsule and my house, where ventilation occurs and the offending product is presumably located behind a vapor barrier?

Undocumented claims popped up many times throughout the text, while at the same time Bower provides 13 pages of fine-print footnotes supporting other points. Most of these citations were impressive, such as "Comparative Epidemiology of Men Exposed to Asbestos" from the *American Journal of Industrial Medicine*, an article on air cleaners in *Consumer Reports*. But I had no idea about the reliability of *The Human Ecologist* or *2,000 Down Home Skills & Secret Formulas for Practically Anything*.

Bower was also prone to sweeping generalizations, such as the statement that "Practically every material used in modern building construction can result in some type of illness," or "Today, with modern materials and construction methods there is hardly enough fresh air indoors to breathe."

One of the most useful aspects of the book, however, is the listing of organizations and suppliers in the text, supplemented by an appendix of names and addresses. Ditto for the appendix on testing materials. Other resources may be less useful though, such as the suggestion that USGS maps will be of more than marginal help in finding a pollution-free site. The book would have been enlivened by more anecdotes and case studies of real people and real houses to supplement the dry factual information.

Nonetheless, *The Healthy House* will open your eyes to potential hazards, resources, and methods of control, which we should probably all be aware of (in this litigious age). I'm curious enough to seek out other references, which I'll report on in a future issue.

Trim Techniques

Trim Carpentry Techniques by Craig Savage. Taunton Press, 63 South Main St., Newtown, CT 06470; 1989; 196 pages; \$17.95, paperback.

Trimwork, as author Craig Savage notes, is the last thing done and the first thing noticed. Trim carpenters should therefore know how to do quality work, although not every job will pay enough for you to do your very best. Savage says that when he began his research he found there wasn't a comprehensive reference available on installing doors, windows, and moldings. His book is intended to

fill the gap for both amateurs and pros who have "dabbled" but want to increase their skills.

At the outset Savage observes that building a house is a "study in calculated error." Concepts of accuracy vary from the surveyor (nearest inch) to the excavator (nearest 1/2 inch) to the framer (nearest 1/8 inch, slightly optimistic in my view). The finish carpenter's job is to "gracefully compensate for all these errors," to cover up imperfections, and to embellish the house.

To those ends Savage presents his own techniques plus those he's garnered from others in the trade. First he introduces the elements of trim, from ancestral Greco-Roman profiles to the high Victorian (where trim defines the house) to Craftsman style jobs and, today's progeny, moldings produced by the "lineal mile." Illustrations provide terminology for the components of classical pediments, friezes, and columns. The illustrations also show you why crown molding often angles away from the wall surface (to look better when viewed from below), and they introduce real-life examples of high style, high quality work inspired by the Classical Orders.

Logically the next subject is selecting, buying, or making your own molding. Typical off-the-shelf profiles are shown, wood species are compared, and three on-site manufacturing methods (router, table saw, planer) are described. The author also guides you through material take-off procedures for both *running* and *standing* trim.

Trim carpenters, says Savage, work to the same tolerance as cabinetmakers, but with fewer tools. To accomplish this the mechanic must comprehend the difference between "accuracy" and "fit," and know how to use the common and not-so-common tools and tricks of the trade. These include story poles, "preachers," and pinch rods in addition to power miter boxes, coping saws and pneumatic nail guns. Knowing that the lead of a carpenter's pencil is exactly 1/16 inch from the edge, or how to use carbon paper to eliminate high spots on the frog of a plane (like a dentist fine-tuning your fillings) won't hurt your abilities either. All these and more are elucidated in clear language and pictures.

Savage comments that piece-workers in the trade can earn 300 per 10-hour day for "covering cracks with molding." But you'll usually have to do some preliminary work to make up for defects left by others. These include crowns, crooks, cups, and twisted rough openings. Savage tells how to diagnose and correct such flaws, using techniques such as slant-kerfing a stud to pull a crown out with a drywall screw (possible even after the drywall is up, he says).

Two more chapters describe the different styles of casing windows and doors. You'll learn in detail how to measure, cut, and install casings, stools, aprons, and corner blocks, undo common glitches, and mortise hinges.

Generally the material is presented clearly and you shouldn't have too much trouble learning what Savage is trying to get across in the book. I must admit though that I was too dense to master the "handing" rules the author provides for describing door swings and hinging.

I also questioned Savage's statement that a "safe" rough opening height for doors is 84 inches (7 feet). This

dimension is safe all right, but substantially exceeds the more common 6' 10 1/2", which is about what you get by adding p all the author's dimensions and allowances. By using 84 inches as a guide you'll end up with about a 2-inch gap to fill.

Savage also advises readers to purchase windows and physically measure them to determine the required rough opening. Why not consult the manufacturer's specs or ask the dealer? Savage doesn't say. These and a few other points are minor blemishes on a better than average book.

Final chapters cover base and crown molding, chair rails, coping technique, installation sequence, wainscoting, paneling, and finishing wood trim with paint or stain. All is presented in fine style. Photos and drawings in the "galley" copy I received for prepublication review were understandably of poor quality. I'm confident that the final version will be up to the usual high standards that mark Fine Homebuilding and other Taunton Press books.

A companion video is available at \$29.95 (or \$39.95 for the set). Based on what I've seen of the book I'd say that it (and probably the video, too) plus some practical experience and a liberal dose of patience will make you into a tolerable finish carpenter. An excellent substitute for an apprenticeship or a knowledgeable "old-timer" to learn from.

—Paul Hanke

Free & Cheap

Tough Stuff is featured in the twelfth edition of the 76-page design manual, *Fire Resistance/Sound Control*. As the title implies, the focus of this manual, published by the Gypsum Association, is on performance characteristics of gypsum building components for sound control and fire resistance. Tables and drawings illustrate descriptions of specific tests, and ratings are given for various assembly descriptions. Send \$5 to the Gypsum Association, 810 1st St. N.E., Washington, DC 20002; 202/289-5440.

Score on Indoor Four: A resource guide on four major indoor pollutants is available from the U.S. Department of Housing and Urban Development. *Environmental Hazards in Residential Construction* is a 22-page resource guide that describes reports, articles, and other publications carrying information on asbestos, radon, lead-based paint, and formaldehyde. Annotations are provided from government publications, as well as from those of other public agencies and educational institutes. To order, send \$2.50 to HUD USER, Dept. 7AM, P.O. Box 6091, Rockville, MD 20850; 800/245-2691.

Risky Business: Available free from the Association of Engineering Firms Practicing in the Geosciences is *Risk Allocation and Risk Management*. This six-page brochure discusses ways to allocate the risks involved in construction, including limitation of liability and the use of indemnification clauses. Also offered are tips on contract formation and choosing firms to work with. Copies can be obtained by sending \$1 for shipping and handling to: ASFE, 8811 Colesville Road, Suite G106, Silver Spring, MD 20910; 301/565-2733.

Lighting Literature is available from the National Lighting Bureau. *National Lighting Bureau Publications* is a free, four-page directory listing various lighting guides and handbooks on lighting. To order, write to the National Lighting Bureau, 2101 L Street, N.W., Suite 300, Washington, DC 20037; 202/457-8437.

Shopping's Made Easy with *Bob Morgan's 1989 Woodworkers Catalog*. Sixty-three pages of supplies, hand tools, accessories, and patterns for the woodworker include photographs of products, prices, and an order form. To order a free copy, contact Bob Morgan Woodworking Supplies, 1123 Bardstown Road, Louisville, KY 40204; 502/456-2545.