

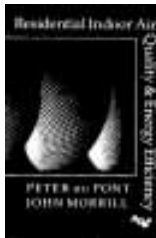
## Understanding Air Quality

Residential Indoor Air Quality & Energy Efficiency by Peter du Pont and John Morrill (American Council for an Energy-Efficient Economy, 1989; 510/549-9914). 256 pages. Softcover. 6 x 9. \$26.50 post paid.

by Paul Hanke



Many people believe that measures which improve thermal efficiency or air-tightness in buildings increase indoor pollution levels. Not so, say the authors of *Residential Indoor Air Quality & Energy Efficiency*, who argue that sources of pollutants, rather than ventilation rates, are the major cause of indoor pollution.



The authors present their case in three sections, first discussing the basics of air infiltration and natural vs. mechanical ventilation, next surveying the problems arising from a wide array of pollutants, and finally describing strategies for monitoring and controlling these pollutants.

Early chapters give a breakdown of infiltration sources, explaining why natural ventilation isn't sufficient to control pollution and how pollutant concentrations relate directly to the rate of supply (but inversely to the rate of removal). The authors compare several types of ventilation systems and controls and cite studies showing that even tightly built houses can be relatively free of pollution.

The authors go on to address specific pollutants and their remedies. For instance, formaldehyde is used in glues, binders, plywood, particle board, carpet, permanent-press fabrics, and (rarely) urea-formaldehyde foam insulation. In the short term, gases released from such products

can cause eye and respiratory irritation and make people sensitive to other chemicals. Studies of the long-term effects of off-gassing are inconclusive, however. One found "little evidence" of cancer risk at low exposures, while another discovered increased levels of a rare

nasopharyngeal cancer in mobile home residents. No federal exposure standards exist, but in the case of formaldehyde, you can reduce exposure by using softwood plywoods, which use phenol-formaldehydes that don't offgas as badly as the hardwood version, or by coating cabinets with Valspar.

The book also discusses several types of monitors, some of which are the affordable passive-type, that help determine concentration levels. It provides similar information on radon, asbestos, volatile organic chemicals (VOCs), pesticides, fiberglass, moisture, and biological contaminants, along with 18 pages of scientific references for the technically minded.

*Residential Indoor Air Quality & Energy Efficiency* is an excellent overview, but you'll have to look elsewhere for sources of monitoring and testing devices, although general types and even brands are comprehensively described. ■

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### Footnotes

If trying to understand the building code book isn't one of your favorite pastimes, consider purchasing the *Contractor's Guide to the Building Code* (Craftsman Book Co., \$28; 800/829-8123). As author Jack Hageman writes in the introduction, "What the code requires is usually what we builders, engineers, architects, and tradesman would do anyhow — if only we weren't in such a hurry to get the job done and make a buck." This 1992-93 edition is based on the

1991 Uniform Building Code and, while it's not a substitute for reading the code book, it's a lot more fun. Hageman's plain language and humorous anecdotes draw on his experience as both a builder and a building inspector to make the often tedious building code seem like just plain common sense. The information is organized in the order of construction and a very good index makes it easy to navigate its 526 pages. — *Sal Alfano*