

Means' Newest Manual

Means Graphic Construction Standards. R.S. Means Co., Inc., 100 Construction Plaza, Kingston, MA 02364. 1986. 515 pages. \$87.95 hardcover.

by Paul Hanke



Having worked with Ramsey and Sleeper's Architectural *Graphic Standards* (the architect's bible) for many years, I expected *Means Graphic Construction Standards* to be a similar sort of compendium of construction materials and details—at least based upon the title. It isn't. Instead, it is a 515-page compilation of material that will be familiar to readers of the R.S. Means Company's wide spectrum of estimating books.

Organized by CSI classifications, each section devotes one or two pages to clear drawings of a typical construction assembly (e.g., wood joists and plywood decks), a short written description of the components and materials, and a chart with the man-hours needed for each component. There is great emphasis on commercial work, including one- and two-way slabs, pre-engineered steel buildings, tilt-up

concrete panels, conveying systems, starters in hazardous areas, and so on—a wealth of esoteric information.

However, you won't find the technical info I expected, or any data on materials estimating such as in the other Means manuals. Appendices cover assembly weights (per square foot), snow-load and frost-depth tables, R- and U-values, abbreviations, metric conversions, OSHA excerpts, and more.

As usual, the R.S. Means Co. has done a fine editorial and graphic job. But for my money, and given the scope of my work, I'll stick with their more specific and less expensive titles. The advantage of this volume is that almost everything is contained in one book, but this is largely offset by the lack of material costs, which are found in most of the other Means books. ■

Commercial Framing Tips

Wood Frame Design for Commercial/Multifamily Construction. Western Wood Products Assn., 1500 Yeon Bldg., Portland, OR 97204. 31 pages. Single copies free; additional copies \$1 each.

This well-illustrated 30-page manual, meant to promote the use of wood products by architects and engineers, provides a great deal of generic information on the design and detailing of low-rise wood-frame buildings.

The topics covered include shrinkage and compression strength, connection details, design for seismic conditions, treated-wood foundations, fire-stopping, sound-control and fire-resistance ratings, and siding installation. An insert provides tables that reference the relevant sections of the major national codes.

As handy and well done as this manual is, it lacks any technical

design guidelines. Except for sound-control and fire-resistance ratings, which include tables, there is a notable absence of the formulas and charts needed to actually spec the materials in question.

There is, for instance, a three-step method for designing a shear wall that tells you what has to be done, but not how to do it. On the other hand, such analysis is beyond the scope of a brief booklet and can be found in other sources. And a short bibliography is included.

The manual is handy as a sort of abbreviated *Graphic Standards* with more background info, and you can't beat the price. ■

Architecture 101

How Buildings Work: The Natural Order of Architecture. by Edward Allen. Oxford University Press. New York. 1980. \$29.95 hardcover.

Here's an informative, easy-to-understand, and delightfully illustrated (cartoon-like drawings) introduction to how and why buildings work the way they do. In fact, *How Buildings Work* would be a great introduction for first-term design students or serious high-schoolers. Having said that, the downside of the book may lie in its nontechnical treatment of the subject—no technical data, charts, or formulas—although Edward Allen does provide at least one reference for further reading at the end of each chapter.

Allen opens with an exploration of the environmental forces that shape buildings, including such topics as the

earth's orbit, the seasons, and biological processes. The reader is then led through the human environment (including why we get goose pimples). Allen discusses the concept of shelter, providing for water, waste disposal, and thermal comfort, controlling radiation, air temperature and humidity, and keeping water out. (Did you know that thatched roofs keep you dry by *adhesion*?)

Further, Allen talks about natural and artificial lighting; acoustic design and material selection (a church where preaching is most important will be different from one whose emphasis is on ceremony); concentrated energy, such as

electricity; and fitting buildings to people.

Construction topics, such as ice dams and joint types, and material properties are often considered in the book, but their treatment is always generic. In some areas, like low-e glass and solar design, Allen is in tune with the times, but in others he is not quite up to speed. For example, his analysis of heat exchangers is skimpy, and he dismisses photovoltaics as impractical. Nonetheless, Allen consistently tries to enable the reader to understand why buildings and materials behave as they do—and he succeeds.

The high points for me were the chapters on structural support and fire safety. Through analogy, illustration, applied physics, and history, Allen leads you through such concepts as loads and stresses, why you need a higher factor of safety for wood than for steel, and how to support vertical loads. (Did you know that the guy wires on your TV antenna help keep it from *buckling*?)

Allen then turns to horizontal spanning members—everything from

a simple chain across a canyon to trusses and space frames via catenary arches, including the flat arches of the Romans, and medieval buttressing. Finally, simple beams and shear, foundations, pneumatic structures, and cantilevers all get a look.

Having recently gotten my feet wet on commercial work, I learned a lot from the book about the rationale behind the fire-safety provisions of building codes. The next time you find yourself grumbling about code restrictions, think about this: There are 12,000 deaths and 300,000 injuries annually in the U.S. due to fires—10 times the rate of the average European country, according to Allen.

Near the end, the author gives an idealized overview of how buildings get built, maintained, and repaired—reminding us that natural forces eventually level even stony mountains. True to his philosophy, Allen closes with a synopsis of how all factors are intertwined in this marvelous process of designing and building. It's a book for beginners, but exceptionally good on that level. ■

FREE or CHEAP

Plywood: The American Plywood Association has lots of publications. They range from *Pressure-Preserved Plywood* to *Permanent Wood Foundations to Oriented-Strand Board to Concrete Forming*. Single copies are generally free of charge. To obtain a list of what's available, call or write the American Plywood Assn., P.O. Box 11700, Tacoma, WA 98411, 206/565-6600.

Concrete: Are you really interested in concrete? If so, the American Concrete Institute's 1987 catalogue has listings of more than 300 publications on concrete construction, technology, and structural design, along with ACI standards, codes, and specs. And more! Write to the American Concrete Institute, P.O. Box 19150, Detroit, MI 48219-0150, for a free copy.

Thermostats: Honeywell has a 28-page catalogue that describes its full line of thermostats and air-quality equipment. Included are product photos, performance data, and specs. Write to Honeywell Residential Controls Div., New Construction Dept., MN10-2523, Golden Valley, MN 55422, for the brochure, titled *Build a Better Home*.

Vroom: Do your employees ever drive for your company? When are you liable for an accident? Have your employees been given road tests in the vehicles they operate for your firm? You may want to check out the recommendations in *Fleet Safety Guidelines*. Send \$4 for the pamphlet and handling to the National Roofing Contractors Assn., One O'Hare Center, 6250 River Road, Rosemont, IL 60018.

Tax Reform: The Mechanical Contractors Association of America has a set of seven bulletins on the 1986 tax-reform act. Among the topics covered is whether you should choose Subchapter S treatment. Everything is relative, and the cost of the bulletins (\$6 each, \$30 for all seven) may be cheap to you. Contact MCAA's national office at 5410 Grosvenor Lane, Suite 120, Bethesda, MD 20814, or call 301/897-0770.

Contaminated Sites: No one wants to be liable for cleaning up a contaminated site. The best way to avoid it is to get an environmental evaluation *before* you buy the land. *Common Practice and Common Sense* is a booklet that "outlines a systematic approach to evaluating environmental factors," and is available for the cost of postage, handling, and reproduction. Contact Environmental Risk Management, P.O. Box 424, Sudbury, MA 01776, 617/443-3691, for specifics.

—NEB staff