



## Estimators' Accessories

**Take-Offs** by McKenzie Iron and Steel, Box 3695, Eugene, OR 97403; \$26.95 includes shipping for set of 3 plastic overlays.  
**Basic Construction and Materials Takeoff** by Rudard Jones; Small Homes Council, Univ. of Ill., Champaign, Ill.; 1981; \$12.00.

Every builder has committed at least one memorable estimating snafu, but I'll bet you've never been responsible for a blunder like this one. Several years ago a local contractor went bankrupt after getting the bid for a bunch of condominiums. As the story was told to me, it seems that only after beginning work did someone realize that each condo was a duplex, while the bid had been based on single units. It's hard to cover an error of that magnitude out of pocket.

This story may seem unbelievable (it does to me), but at one time or another even experienced estimators could use a little help with takeoffs. Two such aids are *Take-Offs* and *Basic Construction and Materials Takeoff*.

*Take-Offs* is a set of three 11x16-inch clear plastic overlay sheets. One sheet is printed with grids showing stud/joist layout at 16- or 24-inch centers. The second grid sheet shows 4x8 sheets of plywood, including half-sheets. The last has two grids indicating square feet and square yards. All are printed at 1/4-inch scale on the back side of heavy 15 mil-vinyl to permit the user to make and erase notations on the top.

To use any sheet you simply lay it over the blueprints, align the corner of the grid with the corner of the building, and count pieces (or sheets of plywood) using the grid numbers. Actually it's not quite that easy (as I'll show in a minute), but almost so.

I tried *Take-Offs* on floorplans I prepared for a custom Cape last year, and compared my results to a piece-by-piece count from the framing drawings. For plywood I came out exactly the same—after correcting one mistake I made with *Take-Offs*. I had neglected to allow for a chimney opening. The manufacturer claimed that such adjustments were easy, but I think looking through the plastic contributed to my error. A try at stud takeoff proved easier, so practice plus diligence would probably produce accurate results.

Joist takeoff, however, did not result in equal counts. *Take-Offs* told me I needed 48-2x10x14s versus 38 from my own count. Other sizes also had discrepancies. My conclusion was that *Take-Offs* is probably better suited to straightforward layouts than to jobs with special conditions such as the oddball framing complexities of my Cape. Drawings for unusual houses should include framing plans though, making an individual piece count relatively easy. Framing elevations aren't normally included in working drawings, and *Take-Offs* seemed to perform well and quickly here. Some allowance for doubled joists and the like is still necessary though.

The main drawback I found with *Take-Offs* was that the grids start with zero (so that the first line to the right is number 1, etc.). This means that you'll always be one piece short if you follow the numbers on the grid—

unless you align the drawing with the number 1 grid line instead of with "0". I found it easier just to count.

A similar problem occurred with the "panel" sheet. The consecutive numbering system went beyond the limits of my plan, so I had to count again. Despite these minor inconveniences, *Take-Offs* at \$35 is certainly cheaper than a personal computer—and is a handy device that is likely to save you some time on uncomplicated estimating jobs. (The oversize sheets won't fit easily on your bookshelf, though.)

*Basic Construction and Materials Takeoff* will enable you to do far more than just count framing members and sheet goods—it takes you right down to joist hangers and nails for both stick-built and plank-and-beam construction. Drab but adequate drawings illustrate many typical construction details so you'll know what the text refers to. I sometimes found myself wishing for drawings that weren't included, however—such as King Post, Howe, Pratt, and "energy" trusses. I also found the text difficult to grasp on occasion. Instructions such as "To determine number of joists required, determine dimension of section perpendicular to joist direction" are not crystal clear. What does the author mean by "dimension of the section perpendicular to joist direction" anyway? Measure the length (or width), I presume.

In the *Roofs* section I had to take it somewhat on faith that "a hip and gable roof of equal dimensions have equal areas," but a thumbnail sketch would have aided my understanding. On the other hand, a useful rafter table told me that I need a 12-foot long stick for a 12-in-12 pitch with an 8-foot span. I was also reminded of helpful details such as ordering hip and valley rafters 2 inches deeper than common rafters, but I found myself wondering how the rafter takeoff procedure automatically "provides for jack rafters." Another minor leap of faith.

More pages of tables, and fill-in-the-blanks instructions, took me through ladder panels, multiplication factors for hip roofs, preparing a Bill of Materials for yard-built trusses, and even plywood clips and skip sheathing. Similar chapters cover concrete and block work, chimneys, light wood framing, insulation, interior and exterior finish, and a "suggested" procedure for millwork takeoff. You're not likely to miss much if you follow this book, but it sure could benefit from editing by a technical writer who uses plain English (I'm not volunteering) and from sharper graphics. A handy guide that will teach you the ropes and undoubtedly save you from many common estimating oversights.

—Paul Hanke

## Estimating Manuals

**Carpentry Estimating** by W.P. Jackson;

Craftsman Book Co., Carlsbad, Calif.; 1987; 314 pages; \$22.50, paperback.

**Small Residential Structures: Construction Practices and Material Take Off Estimates** by Frank Gallo & Regis Campbell; Wiley & Sons; 1984; 243 pages; \$39.95, hardcover.

**Handbook of Construction Contracting/Vol. 2: Estimating, Bidding, Scheduling** by Jack Jones; Carlsbad, Calif.; Craftsman Book Co.; 1986; 296 pages; \$24.75 paperback.

Three other books take the builder or estimator beyond the Small Homes Council manual reviewed above—by providing background information and expanded discussion on all levels. One adds some elementary business advice to round out the picture.

Jackson opens with the basics of reading blueprints, site inspection, and definitions of overhead, contingency, and profit, plus comments on checking estimates and controlling costs. Nine subsequent chapters go through takeoffs for everything from footings to stair trim—except for mechanical, electrical, or plumbing systems. Chapter 11 addresses the question of how to stay out of trouble with your subs. Chapter 12 provides labor tables for those lacking their own data, plus commentary on table accuracy and adjustments for factors such as adverse weather. The book ends with reproducible worksheets. Jackson's writing, charts, tables, and illustrations are clear and understandable. Rules-of-thumb are set off in italics. Alternative construction methods are given (for example, trusses and rafters). Formulas and worked examples are included as necessary.

Frank Gallo and Regis Campbell are two professional engineers. They cover the same basic ground as Jackson, and include chapters on mechanical systems and a section on "decorating." But they do it all in less space—so you won't get the amount of detail Jackson offers. For instance, Gallo and Campbell devote nine pages to roof/ceiling construction, while Jackson offers 40. Jackson also gets into small (but important) details such as nail take off. The engineers don't. Neither do they discuss labor estimating—focusing solely on material takeoff. Clear writing and illustrations, but for the money this one definitely doesn't offer as much as Jackson.

Jack Jones' book is a stable mate to Jackson's—covering much of the same material, and even using some of the same illustrations. Like Jackson, Jones doesn't discuss mechanical systems, but he does add a few business-oriented chapters on legal organization, general management, finding work, business planning, spec building, and using the SBA. Like Gallo and Regis, he covers takeoffs in less pages than Jackson, but you might find this is offset by the introduction to doing business, if you're just starting up. Again this book is clearly written and illustrated, and all of the above are better than the Small Homes Council in this respect. As takeoff guides Jackson gives you the most detail while Jack Jones expands

on business aspects. Gallo and Campbell come in a weak third, despite their inclusion of mechanical systems. Take your choice.

—Paul Hanke

## Efficient Drafting

**Overlay Drafting** by Frank Woods and John Powell; Van Nostrand Reinhold; 1987; 102 pages, \$14.95 paperback.

A couple of years ago I worked side-by-side with a CAD (computer-aided-drafting) operator at a small design-build firm. To my surprise, I found that I could stay ahead of my colleague as she entered my hand-drawn drawings into the system—making me, I suppose, the "John Henry" of drafting. A second experience with the slow CAD learning curve left me still unimpressed. CAD may indeed be the wave of the future, but given my own (admittedly limited) experience and independent streak, I remain unconverted.

I am, however, interested in techniques that will improve drafting efficiency. A brief mention of "pin-drafting" by Gordon Tully in his July '87 *NEB* column sparked my curiosity, and I sent for a copy of *Overlay Drafting* to find out more.

Originally published in London, this slim volume abounds with Anglicisms such as "programme," and examples from the experiences of European firms. Photos, drawings, and a lucid instructional text explain the techniques and advantages of overlay drafting, and show you how to get started.

Drawing is done in the normal way with pencil or ink on polyester sheets. A base drawing is made and overlays are prepared by architects, engineers, and other consultants—each adding their own specialized layer of information. Overlay sheets are held in place by precision located steel pins (hence the name). Materials are available from larger supply houses like Charrette.

Reproduction can be by photography or by (flat-table) *diazzo* methods. By selectively combining drawings the g.c. can get a composite master blueprint, while subs get only the specific information they need in uncluttered form.

Duplication of drawings by miscellaneous engineers and decorators is eliminated. Screening, tinting, and montages are possible for those who wish to add pizzazz and clarity to presentation drawings.

*Overlay Drafting* is redundant in places, and costs are given in pounds Sterling, but it is a good introduction anyway. It would be useful to the small design firm with larger commercial jobs that is seeking an economical, easy-to-learn way to increase efficiency. Also of interest to librarians and instructors at schools offering architecture, engineering, or allied technical programs.

—Paul Hanke

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# Free & Cheap

**Propane Safety:** *On-the-roof Safety with Propane Torches* demonstrates safe installation procedures for modified bitumen roofing materials. Available on either VHS video cassette or 35-mm slides, the presentation includes safety check lists, equipment selection and handling advice, and LP-gas properties, and can be borrowed for five days of free use or purchased. The video cassette sells for \$29 and the slides for \$99.95. Call 913/222-2873 or write to Flame Engineering Inc., P.O. Box 577, LaCrosse, KS 67548.

**Panel Roof Systems:** A 20-page brochure explains structural wood panel roof systems for non-residential construction. The booklet describes various panel roof systems, and also covers diaphragm designs, insulation, tire- and wind-rated systems, insurance and construction costs, and panel selection. For a free copy of *APA Design/Construction Guide Non-residential Roof Systems* (form A310G), write to American Plywood Association, P.O. Box 11700, Tacoma, WA 98411; 206/565-6600.

**Roofing Tile Manual:** The National Tile Roofing Mfrs. Association *Concrete Tile Roofing Manual* includes a basic discussion of tile types and installation procedures, including details on flashing around vents, chimneys, and skylights, and cold weather installation. The 20-page manual is available for \$3 from NTRMA, 3127 Los Feliz Blvd., Los Angeles, CA 90039, or call 213/660-4411.

**Skylight Product Guides:** Several skylight manufacturers supply detailed product information. Velux's 28-page *Guide to Roof Windows and Skylights* illustrates and describes design ideas and installation procedures. The brochure also includes advice on choosing the right model and getting the most out of your roof window or skylight. For a free copy, write to Velux-America Inc., P.O. Box 3268, Greenwood, SC 29648; 803/223-3149. Barra's six-page full-color brochure describes that company's collection of roof windows and skylights. Included is pricing, design, and installation information. For a free copy, call 800/526-2291 or write to Barra Corp. or America, 190 Fairfield Ave., West Caldwell, NJ 07006. Wasco discusses the health and attitude benefits of increased exposure to natural sunlight in *Everything the Homeowner Needs to Know About Skylighting*. It also describes the advantages of skylights over artificial lighting and side-wall windows. Skylight installation procedures for various roof types is included. For a free copy, write to Wasco Products, Inc., Dept. M., P.O. Box 351, Sanford, ME 04073; 207/324-8060. Finally, The Pate Company offers information on its products, including roof curbs, skylights, smoke vents, equipment supports, pipe seals, and vibration bases. The 8-page booklet describes roof products for conventional or metal buildings. For a free copy, write to The Pate Co., 2625 S. 21st Ave., Broadview, IL 60153; 312/681-1920.

**Single-Ply Roofing Guide:** A single-page guide discusses the advantages of placing a new roof system over the existing roof. The sheet describes correct precautions to take, good roofing practices, ways to stop existing problems and prevent potential ones. For a free copy of *Single Ply Roofing Systems: Guidelines for Retrofitting Existing Roof Systems*, write to the Single Ply Roofing Institute, 104 Wilnot Road, Suite 201, Deerfield, IL 60015-5195; 312/940-8800.