A Swiss Army Knife of a Book

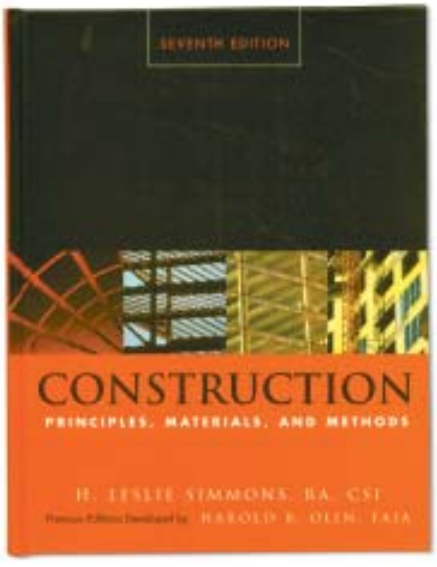
by Paul Fisette

Most of us own a Leatherman or Swiss Army knife. You won't screw down your next deck with either of these tools, but their usefulness is at times indispensable.

Comparing *Construction Principles, Materials and Methods* (7th ed.) by H. Leslie Simmons (John Wiley, 2001; 212/850-6000, www.wiley.com, $99) to a Swiss Army knife understates the value of this scholarly achievement, but the parallel is irresistible — this book simply covers so much ground that it can't possibly provide depth in all areas. The author's stated goal, "To cover every principle, material, and method used to design and construct both large and small buildings of most types," is unsustainable. The book's major accomplishment is that it's a mile wide and, at the same time, several feet deep. In other words, there's a lot there.

At 1,186 pages, the book is immense — simply lifting it is impressive — and stands on 40 years of research conducted by the foremost authorities in the building construction industry. Every professional organization I've heard of seems to have contributed to this reformulated and updated edition. The look is a clean, no-frills, black-and-white format, well illustrated with line drawings, photos, and tables on nearly every page. It's efficiently arranged into 16 chapters, reflecting the standard 16 CSI divisions used to organize project manuals. This is a smart scheme, as it recognizes the importance of sharing a common language among construction reference materials.

The sequence is consistent, logical, and clear. Chapters 1 and 2, "General Requirements" and "Site Construction," lead stepwise along the construction pathway to Chapters 15 and 16, "Mechanical" and "Electrical." Each chapter begins with a thoughtful introduction and a list of "MasterFormat" sections applicable to the chapter. Depending on the chapter topic, either historical or technical background information is provided prior to discussion of the subject. For example, in Chapter 2, "Site Construction," we learn about soil classification and the properties associated with gravel, sand, silts, and clay before reading about site preparation, earthwork, groundwater control, and landscaping. Coverage



is well planned and complete, without fluff. In Chapter 2, we also learn about relative density, cohesive qualities, and compressive strengths of various soils. Guidelines for recommended procedures and material specification of underpinning, excavation, grading, and compaction are generous and provided in an understandable and useful style. Various tables are used to good effect, although the maps are too general to be useful — it's nearly impossible to determine the maximum depth of frost on a particular site from a national map.

The systematic approach used in Chapter 2 is repeated effectively in every chapter. Divisions covering gypsum products, concrete, masonry, wood and plastics, and finishes are particularly strong. While the chapter on mechanical systems doesn't serve as the ultimate handbook for mechanical contractors, it presents a nice overview of how plumbing and hvac systems work. That chapter is a great source of information for builders and architects involved in project design and management. And the section on sound control is one of the best I've seen in any book. I'll bet there isn't a building professional out there who couldn't benefit by reading that section.

However, there are shortfalls in the coverage this book provides: The discussion of termite control, for example, doesn't include information about the most destructive species. Formosan termites have invaded 11 states and are fast becoming a devastating force, yet there is no mention of this termite in the text. Chapter 7, "Thermal and Moisture Protection," runs an impressive 140 pages and includes an interesting discussion of exterior insulation and finish systems (EIFS). EIFS is a popular wall treatment in many regions of our country, but, unfortunately, its performance has come under fire during the last decade. Class-action litigation has led to our understanding that drainage planes are required within the EIFS wall system. The book describes the difference between softcoat and hardcoat products but is silent on EIFS failures and doesn't describe or even mention EIFS drainage systems.

Chapter 8, "Doors and Windows," supplies us with oodles of valuable and fascinating information about

manufacturing, performance, specification, and installation of glazing, windows, and doors but falls short in its discussion of energy conservation. No mention is made of the landmark evaluation system instituted by the National Fenestration Rating Council (NFRC). There are many other, similar omissions. Rather than highlighting true inadequacies, perhaps these examples do more to illustrate the impossible expectations readers may develop as a result of the stated goal of the book.

On the upside, each and every chapter concludes with a valuable list of "Additional Reading" and "References." Those features save the day: For virtually every place I found shortcomings in the text, I was led by those lists to sources that could provide cutting-edge information about the concepts and applications mentioned. In addition, the book closes with two excellent appendices: A 20-page listing of all the organizations that contributed to this publication (addresses and websites included) and a 30-page glossary. Last but not least, this book has an outstanding index. I'm particularly fussy about the functionality of an index in reference books. This one is complete, accurate, predictable, and smart. Congratulations to the editors, who anticipated what readers need and delivered with a useful tool.

If I could have only one technical reference book, this would unquestionably be it. It's a great book, and one that every serious designer, builder, and building professional should keep within arm's length of his or her desk. Without a doubt, it needs company in your library. But, for my money, it stands alone as the most comprehensive reference tool available.

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