

## BOOK REVIEWS

### Mechanics of Wood and Wood Composites

*Reviewed by Neal Pinson, Director, Wood Engineering, Western Wood Products Association, Portland, OR. Second vice-chairman of ASTM Committee D-07 on Wood.*

**REFERENCE:** Bodig, J. and Jayne, B., *Mechanics of Wood and Wood Composites*, Van Nostrand Reinhold Co., New York, 1982, 712 pages, \$42.50 hardcover.

The scope of this book is clearly defined and its intended audience is consistently addressed. It provides adequate fundamental information for each subject under discussion and discusses the importance of the subject and the broader picture—equally valuable for the researcher and the practicing engineer or wood technologist. This book will be valuable for students, laboratory personnel, field workers, and general interest categories.

Some new research is presented but the book's main value lies in the assembling, organizing, and presentation of existing knowledge in a form useful to the various target audiences.

The viewpoint of the book appears to be balanced. It contains no advertising or promotional material in the text and I found no place where serious differences of opinion were acknowledged. It is well-organized and adequate references are provided for additional sources of information. The style is clear and concise and to the best of my knowledge all of the references are current. The index is comprehensive and easy to use and all tables are clear and informative. The illustrations are of good quality and portray adequately the information intended. The book is above average in regard to paper, typography, layout, binding, and printing.

I am sure the book will be valuable as a text and reference book.

### International Developments in Experimental Mechanics

*Reviewed by G. Larry Roderick, U.S. Army Structures Lab., Hampton, VA. Chairman of ASTM Subcommittee of E9.03 on Fatigue of Composites.*

**REFERENCE:** Rossi, B. E., Ed., *International Developments in Experimental Mechanics*, Prentice-Hall, Inc., Englewood Cliffs, NJ, 1982, 418 pages, \$52.00 hardcover.

The book *International Development in Experimental Mechanics* is a compilation of papers presented at the Fourth Society for Experimental Stress Analysis (SESA) International Congress on Experimental Mechanics on 25–30 May 1980. It contains 50 papers and 97 extended abstracts. These papers cover a range of topics that includes composite materials, fatigue and fracture behavior, optical test methods (holography, Moire, and photoelasticity), residual stresses, numerical methods, and structural analysis and testing. Because about half of the papers are from outside the United States, the book has a good international perspective.

The papers address detailed aspects of the various topic areas.

Each paper is independent and complete with introduction, body, and conclusions. They cover both experimental and theoretical developments, many of which have current applications. Mathematics in the book is limited to fundamentals of algebra, trigonometry, and basic matrix and calculus operations. The quality of the papers is epitomized by the paper "New Method for Testing Composites at Very High Strain Rates" by Daniel et al. This paper develops new and clever approaches to high strain rate testing. The factual information is presented clearly and precisely. Furthermore, the references are current and accurate.

Other papers in the book are of comparable quality. The papers focus on recent and pertinent problems in their respective areas. The papers are of practical value to laboratory personnel, students, and, to a limited extent, field workers. Moreover, the range of papers gives the reader an introduction to pertinent issues in the ever expanding field of experimental mechanics. However, the book does not attempt to cover all facets of the particular topics. Consequently, it has limited value for a general reference work.

Besides the papers themselves, the 97 extended abstracts cover an even wider range of topics which include topics covered in the papers, as well as biomechanics, dynamic measurements, finite elements, and structural integrity of nuclear power plants. The abstracts themselves give little detail, and hence are of little use as far as practical applications. However, they do introduce several innovative concepts and supply informative, general conclusions. Moreover, they give sources of information that may lead readers to relevant pertinent information.

Although the quality of the papers and extended abstracts varies from paper to paper as each author has a different style, the book overall contains clear and concise language. There are relatively few errors in printing and layout. The book is hardcover bound with high quality paper, illustrations, and figures.

### The Govmark Book on Flammability Standards and Flammability Test Methods of Textiles, Plastics and Other Materials Used in Home and Contract Furnishings

*Reviewed by H. J. Roux, coordinating manager, Product Fire Performance, Armstrong World Industries, Inc., Research and Development, Lancaster, PA. First vice-chairman of ASTM Committee E-5 on Fire Standards.*

**REFERENCE:** *The Govmark Book on Flammability Standards and Flammability Test Methods of Textiles, Plastics and Other Materials Used in Home and Contract Furnishings*, Govmark Organization, Inc., Bellmore, NY, \$75.00.

There are both editorial and substantive errors in this book that can be caught by the knowledgeable reader, such as the person who is involved directly with the activities of ASTM Committee E-5 on Fire Standards; but for other interested readers (for example, from the fire service, the design professions, and legal and insurance

---

## BOOK REVIEWS

---

practitioners), it serves its purpose very well. This book is a guide that explains federal, state, and local codes and standards for the fire performance of furnishings in buildings with different occupancies.

As a matter of content, this book is incorrectly titled for it also contains codes and standards for the fire performance of interior finishes (wall and ceiling) and floor finishes. Access to its content is well organized in an appropriate Table of Contents that lists chapters on: Flammability Requirements Cited by (Model) Building Codes and Federal Standards, Flammability Standards Cited by Local Jurisdictions, Flammability Standards Promulgated by Industry Associations for Voluntary Compliance, Abstracts and Sketches of Test Methods, Future Flammability Standards and Test Methods, and Flammability Standard and Test Methods Closely Associated with Home and Contract Furnishings.

The reader is properly cautioned by Govmark to seek the complete test method from its originating source (listed with addresses in this book) if one needs to use a test for legal purposes or actual testing. Otherwise, the diagrams and descriptions of the various test methods are suitable for this guide and easily understood.

There is also an admirable prescription by the author against the abuse of fire performance terms in the various test methods, codes, and standards mentioned in this book. This prescription is located in several places in the book, including with the description of various test methods where the reader absolutely needs this guidance. Incongruously, the author, two pages hence in presenting the history and limitations of the small-scale vertical flammability test, uses all of these words—fire resistant, fire retard, flame retardant, and flame resistant to talk about the same tent fabric!

Two instances of substantive error deserve comment. The first is in the chapter on Future Flammability Standards and Test Methods. Thereat, it needs to be understood that the National Bureau of Standards has denied the use of their “toxicity of the products of combustion” protocol for regulatory purposes because of limitations, for example, in the testing of composite products, contrary to the view suggested in this book. The NBS protocol also does not now contain an incapacitation measurement which is described as part of the protocol in this book. The other instance is also in the same chapter, wherein there is an implication that room fire tests are

only suitable for small-scale fire test method development. Really, room fire tests are being used with good repeatability and reproducibility to answer the need for a diversified test by an official to assess the fire risk of a product.

The book is nearly 150 pages long, in loose-leaf binder form. It is properly categorized as a reference work, a survey of existing knowledge.

### Energy Conservation and Thermal Insulation

*Reviewed by Eric Woychik, Retrofit and Energy Management Programs Office, Conservation Division, California Energy Commission, Sacramento, CA.*

**REFERENCE:** Derricott, R. and Chissick, S. S., Eds., *Energy Conservation and Thermal Insulation*, Wiley, New York, 1981, ISBN 0471-27930-7, 785 pages, \$89.50.

The focus of the first paper is on “Management” and is not explicit in its focus on conservation. The overview of international programs is good. Chapter 1 and most of the others do not address the intended audience. Only the forward explains who the book is addressed to and what it is supposed to do. The book is “to assist architects and others concerned with design of buildings.” However, as a reference book only about 6 of the 27 chapters are relevant to building energy conservation as policy pieces or as technical review papers.

Chapter 10 is a very good article, to the point and informative. The formulas, however, may be too complicated for the intended audience. The paper in Chapter 15 seems very appropriate and is an example of what the book’s subject is about. Chapters 16 through 21 are relevant and to the point. Chapter 21, however, is very technical and addresses a much higher level audience than the other papers in the book.

The index is probably very useful and seems very relevant to the subject. Overall, the book does not satisfy its objectives and seems very disorganized. It presents very little new research or knowledge about conservation and insulation in buildings.