

---

**Review of *The Civil Engineering Handbook* edited by W. F. Chen and J. Y. Richard Liew**

Second Edition, 2003, CRC Press LLC, Boca Raton, Fla., Price: \$179.95, ISBN 0-8493-0958-1.

---

Pierre Y. Julien

Engineering Research Center, Colorado State Univ., Fort Collins, CO 80523. E-mail: pierre@engr.colostate.edu

First published in 1995, *The Civil Engineering Handbook* became a complete and authoritative reference. This second edition provides a revised and updated reference work and resource book for civil engineers. More than one-third of the handbook is new or substantially revised. It has an increased focus on computing to reflect the rapid advances in computer technology that revolutionized many aspects of civil engineering. It has been written for practicing engineers, and the ideal reader targeted is at the level of a BS and MS degree. The handbook stresses professional applications with emphasis on ready-to-use material. It contains many formulas, tables, and about 1,200 illustrations that give immediate solutions to common civil engineering problems. It also contains the essential elements of each subject for the reader to understand the underlying background and fundamentals. Both well-established and innovative practices are covered.

The handbook is organized into eight sections covering the traditional areas of civil engineering: construction engineering, materials engineering, environmental engineering, structural engineering, geotechnical engineering, surveying engineering, hydraulic engineering, and transportation engineering. The chapters of the handbook have been written by many authors, mostly from Purdue University and the National University of Singapore.

This handbook is massive and impressive. It is the kind of work one may start reading as a student and finish understanding upon retirement. It is so comprehensive that it is essentially impossible to write anything but a cursory review. What this text does so well is to cover all the main fields of the undergraduate civil engineering curriculum. It is fairly thorough and complete. The illustrations are indeed very good and useful. The material has been written very concisely and to the point, with the practitioner in mind. In my opinion, the main value of this handbook to hydraulic engineers is to have the possibility to brush up on knowledge in all other fields of civil engineering besides individual specialty areas. To hydraulic engineers, it contains a real

summary review of construction engineering, environmental engineering, structures and materials, and geotechnical engineering, surveying, and transportation. This handbook is extremely well suited to civil engineering students at junior and senior levels, as well as engineers who desire to brush up on the basic concepts and fundamentals of the profession. At the same time, the handbook also offers some recent treatments and advances in the respective fields. This is more obvious in computer sciences but also in surveying, GIS, photogrammetry, and remote sensing.

All chapters of "Section IV—Hydraulic Engineering," with only one exception, were coauthored by at least one faculty member at Purdue University under the coeditorship of J. W. Delleur. The titles of the relevant chapters to hydraulic engineers are the following: Chapter 29—"Fundamentals of Hydraulics"; 30—"Open Channel Hydraulics"; 31—"Surface Water Hydrology"; 32—"Urban Drainage"; 33—"Quality of Urban Runoff"; 34—"Groundwater Engineering"; 35—"Sediment Transport in Open Channels"; 36—"Coastal Engineering"; 37—"Hydraulic Structures"; 38—"Simulation in Hydraulics and Hydrology"; and 39—"Water Resources Planning and Management." In all chapters, well-proven methods are explained quite clearly, and the text is well illustrated with relevant figures and flow charts. The presentation of these chapters has been particularly well coordinated. Having at least one author from Purdue in each chapter certainly facilitated the integration of all components while eliminating unnecessary overlap and duplication of material. The readers really benefit from this integration of components.

The main drawback of this text is the large volume required to cover all this material. It all fits in a single large volume, although the paper is so thin that the reader can see and possibly read at least two and even perhaps three pages at the same time. If it were not for its size and weight, this handbook would be a must for all civil engineering undergraduates. Perhaps the next editions could be subdivided into two volumes: one dealing with solids and the other with fluids and soils. At \$179.95, the price is commensurable to the volume and quality of this handbook. However, it remains expensive for the targeted audience, particularly undergraduate engineering students.

This handbook is highly recommended to civil engineering practitioners and undergraduate civil engineering students as a great reference book. Its size, weight, and price will probably limit the daily use by civil engineer undergraduates. On the long run, however, it is the kind of valuable encyclopedia that will be periodically browsed and remembered.