



## Book review

**Reinforced Concrete Slabs, 2nd edition** by Robert Park and William L. Gamble; John Wiley and Sons, Inc., 2000; 716 pp., photos, illustrations

The authors and the publisher should be highly commended for publishing this book, an updated and expanded version of the excellent first edition from 1980. This book is focused on the behavior and design of reinforced concrete slabs, a critical element in both structural concrete and structural steel buildings and systems. It combines theory, findings from advanced research, design codes, and extensive experience with the design and construction practices. The basic structure of the new edition remained almost unchanged from the previous one. The authors divided the book into the following 13 chapters: Introduction; Basis of Elastic Theory Analysis; Results of Elastic Theory Analysis; Background of 1971 and 1995 ACI Building Code Requirements for RC Slab Design; General Lower Bound Analysis and Design; Design by the Strip Method and Other Equilibrium Methods; Basis of Yield Line Theory; Design by Yield Line Theory; Serviceability of Slabs; Shear Strength of Slabs; Prestressed Concrete Slabs; Membrane Action in Slabs; and Fire Resistance of Reinforced Concrete Slabs. It should be noted that the last chapter is devoted to an important topic that was not addressed in the first edition.

Specifically, these 13 chapters form several logical units that are aimed at addressing various approaches used for treating RC slabs. They represent the evolution in the various aspects and approaches addressing this subject. Chapters 2 and 3 are used to review the application of the theory of elasticity to treat RC slabs. This was the earliest mechanics-based approach for the rational treatment of RC slabs. Chapter 4 is devoted to the ACI code's design approach. Since the changes in the ACI code, with respect to RC slabs, between 1995 and 1999 were minor, this chapter reflects the evolution in RC slab design during the last three decades. Chapters 5 through 8 are focused on approaches that are based on the theory of plasticity. These approaches represent the next significant development, following those that were based on the theory of elasticity,

that can be used to establish lower and upper bounds for RC slab behavior and design. Chapter 9 addresses serviceability issues, namely, deflection and crack control. The shear strength of RC slabs and the related issues of openings in slabs and slab column and slab-wall connection regions are treated in Chapter 10. Chapters 11 through 13 address miscellaneous topics that require separate treatment. A brief treatment of prestressed concrete slabs is provided in Chapter 11. Chapter 12 is an important and unique treatise of membrane action in RC slabs. Although current design codes do not include these beneficial behavioral aspects, this topic has very significant applications. Finally, Chapter 13 is devoted to the behavior of RC slabs subjected to fire effects.

This material coverage is very comprehensive, very well thought out, and it presents to the reader a rational progressive order of the various subjects. After the extensive introduction on RC slabs, and the underlying approaches for their analysis and design, the authors treat the various issues in further detail. They provide in each chapter overabundant and thorough information on each of the general topics, mentioned above. Additionally, each chapter contains an extensive list of references. Throughout this book, the authors have used a dual emphasis on both behavior and design. This approach, based on theoretical, numerical, experimental, and practical considerations, provides the reader with a broader and firmer understanding of each of the separate issues and the overall problem of RC slabs. Combining knowledge gained from advanced theoretical and experimental studies to highlight and explain both previous and current design recommendations enables the reader to grasp both the strengths and limitations of design approaches.

This excellent book can be used for both intermediate and advanced courses on RC slab behavior and design. It is an essential book for any technical library and/or private collection of reference material.

Theodor Krauthammer  
*Civil and Environmental Engineering Department*  
*The Pennsylvania State University*  
*212 Sackett Bldg.*  
*University Park, PA 16802, USA*  
*Email address: tedk@psu.edu*