REINFORCED CONCRETE STRUCTURES

VOLUME II

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(VOLUME II)

* 1992 *

[CONTAINING 27 CHAPTERS]

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(VOLUME II)

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Preface

A concrete structure, either plain or reinforced, is unique among the many systems of modern construction. It is the only type of structure that is manufactured from its component materials (*i.e.* cement, aggregate and water) on the site of the work. Proper reinforced concrete construction depends upon men—men who understand the action of structures, men who know the characteristics and the limitations of the material that they are handling, and men who are conscientious and determined to conduct their work with honour to themselves and with credit to their profession.

The present text book, in its two volumes, presents modern methods of design both for ordinary as well as prestressed concrete structures. Volume I has 19 Chapters and deals with more common and elementary structures. The present volume, in its 12 Chapters, deals with more advanced topics. Chapter 1 deals with beams curved in plan that are mostly used for water tanks disussed in Chapter 2. Elementary water tanks have already been dealt with in volume I. Chapter 3 deals with reinforced concrete pipes, mostly used for water supply. Chapter 4 covers the design of bunkers and silos while Chapter 5 deals with tall chimneys of reinforced concrete. Chapters 6 and 7 deal with portal frames and building frames respectively. Design of aqueducts and box culverts have been given in Chapter 8. More common types of concrete bridges–such as deck slab bridges, T-beam bridges and balanced cantilever bridges have been given in Chapter 9, Chapter 10 deals with the ultimate load design while Chapter 11 deals with the principles and design methods for prestressed concrete. Lastly, Chapter 12 deals with the stresses induced due to shrinkage and creep of concrete.

Each chapter begins with clear statements of pertinent definions, design principles and theories, and the design procedures. The basic principles are supplemented with numerous design examples and illustrations, along with detailed drawings.

Various designs are based on latest Indian Standards. The tables or curves giving permissible stresses and/or design coefficients, as well as the basic rules for design, taken from the various Indian Standards are gratefully acknowledged. In spite of every care taken to check the numerical work, some errors may remain, and I shall be obliged for any intimation of these readers may discover.

Jodhpur **B.C. PUNMIA**
26th Jan. 1980

Preface to the Second Edition

In the Second Edition, the subject matter has been thoroughly updated and the revised Indian Standard Codes IS : 456-1978 and IS : 1343-1980 have been introduced. Both these Codes differ from their earlier versions in two aspect : (1) Some design procedures have been basically changed and (2) the Codes use SI units. The Second Edition incorporates both these aspects. However, since the change over from the MKS to SI units has to be gradual, and since the revised Codes have yet not been included n the teaching curriculum of all the Institutions, the design procedures based on earlier versions of the Codes have been retained. The design procedures laid down in the Revised Codes have been given at the end of each chapter and the illustrative examples, using these new procedures have been solved in SI units. Limit State Design has been introduced in chapter 10 as well as in Chapter 11 on prestressed concrete. It is hoped the readers will find the book useful in interpreting the provisions of the new Codes. Further suggestions will be greatly appreciated.

Jodhpur **B.C. PUNMIA**
1st January 1983.

Preface to the Third Edition

In the Third Edition of the book, the subject matter has been thoroughly revised and rewritten in SI units. Revised Indian Standard Codes IS : 456-1978 and IS 1343-1980 have been extensively used. Majority of the diagrams have been redrawn. The chapter on Limit State Design has been separated from the chapter on Ultimate Load Design. A new chapter on the 'Yield Line Theory and Design of Slabs' has been introduced at the end. With these changes, it is hoped, the book will be more useful to the students as well as practicing Engineers.

Jodhpur **B.C. PUNMIA**
1st March 1987

Preface to the Fourth Edition

In the fourth edition of the book, the subject matter has been thoroughly revised and updated. Seven new chapter have been added on the Limit State Design. With the addition of the new chapters the reader will be better equipped with the latest design methods. It is hoped, the book will be equally useful to the practicing Engineers.

Jodhpur **B.C. PUNMIA**
25th April **ASHOK KUMAR JAIN**

Preface to the Fifth Edition

In the **Fifth Edition**, the book has been **thoroughly revised, enlarged and updated. The number of chapters have been increased from 20 to 27.** The book has been divided into **six parts.** *Part 1*, containing 5 chapters, is on *Water Tanks* . *Part 2* is on *Pipes, Silos and Chimneys* and contains *3 chapters. Part 3* on *Concrete Frames* has *2 chapters. Part 4* is devoted to *Concrete Bridges* and has 2 chapters. *Part 5* , containing *13 chapters*, is on *Limit State Design.* Lastly, *Part 6*, having *2 chapters* is on *Prestressed Concrete and Miscellaneous Topics. A large portion of the book is now devoted to the limit state design.* **Due to these additions and updation, the number of the pages in the book have been increased from 1005 to 1144.** It is hoped, with these changes, the **New Edition** will be more useful to both the students as well as Field Engineers.

Jodhpur **B.C. PUNMIA**
15th Aug. 1992 **ASHOK KUMAR JAIN**
ARUN KUMAR JAIN

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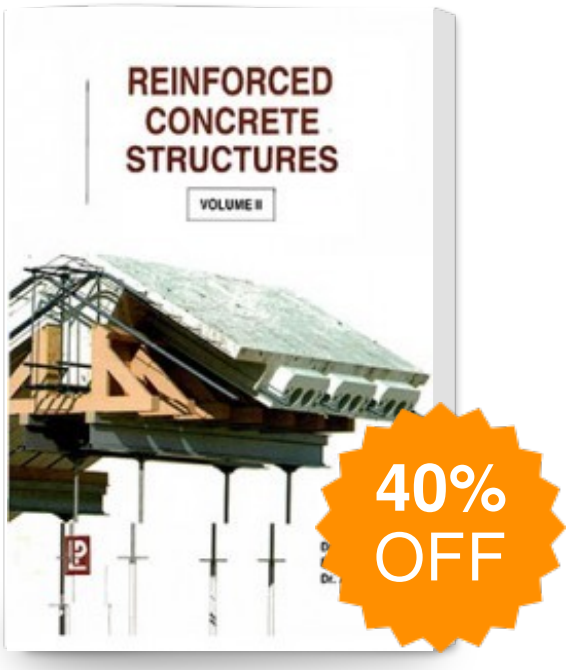

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