1. Record Nr. UNINA9910797054803321

Autore	Hassoun M. Nadim
Titolo	Structural concrete : theory and design / / M. Nadim Hassoun, Akthem Al-Manaseer
Pubbl/distr/stampa	Hoboken, New Jersey : , : Wiley, , 2015 ©2015
ISBN	1-118-76778-0 1-118-76813-2
Edizione	[Sixth edition.]
Descrizione fisica	1 online resource (1069 p.)
Classificazione	TEC009020
Disciplina	624.1/8341
Soggetti	Reinforced concrete construction Buildings, Reinforced concrete
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Cover; Title Page; Copyright; Contents; Preface; Notation; Conversion Factors; Chapter 1 Introduction; 1.1 Structural Concrete; 1.2 Historical Background; 1.3 Advantages and Disadvantages of Reinforced Concrete; 1.4 Codes of Practice; 1.5 Design Philosophy and Concepts; 1.6 Units of Measurement; 1.7 Loads; 1.8 Safety Provisions; 1.9 Structural Concrete Elements; 1.10 Structural Concrete Design; 1.11 Accuracy of Calculations; 1.12 Concrete High-Rise Buildings; References; Chapter 2 Properties of Reinforced Concrete; 2.1 Factors Affecting Strength of Concrete; 2.1.1 Water-Cement Ratio 2.1.2 Properties and Proportions of Concrete Constituents2.1.3 Method of Mixing and Curing; 2.1.4 Age of Concrete; 2.1.5 Loading Conditions; 2.1.6 Shape and Dimensions of Tested Specimen; 2.2 Compressive Strength; 2.3 Stress-Strain Curves of Concrete; 2.4 Tensile Strength of Concrete; 2.5 Flexural Strength (Modulus of Rupture) of Concrete; 2.6 Shear Strength; 2.7 Modulus of Elasticity of Concrete; 2.8 Poisson's Ratio; 2.9 Shear Modulus; 2.10 Modular Ratio; 2.11 Volume Changes of Concrete; 2.11.1 Shrinkage; 2.11.2 Expansion Due to Rise in Temperature; 2.12 Creep 2.13 Models for Predicting Shrinkage and Creep of Concrete2.13.1 ACI 209R-92 Model; 2.13.2 B3 Model; 2.13.4 CEB 90 Model; 2.13.5 CEB MC

90-99 Model; 2.13.6 fib MC 2010 Model; 2.13.7 The AASHTO Model; 2.14 Unit Weight of Concrete; 2.15 Fire Resistance; 2.16 High-Performance Concrete; 2.17 Lightweight Concrete; 2.18 Fibrous Concrete; 2.19 Steel Reinforcement; 2.19.1 Types of Steel Reinforcement; 2.19.2 Grades and Strength; 2.19.3 Stress-Strain Curves; Summary; References; Problems; Chapter 3 Flexural Analysis of Reinforced Concrete Beams; 3.1 Introduction; 3.2 Assumptions
3.3 Behavior of Simply Supported Reinforced Concrete Beam Loaded to Failure3.4 Types of Flexural Failure and Strain Limits; 3.4.1 Flexural Failure; 3.4.2 Strain Limits for Tension and Tension-Controlled Sections; 3.5 Load Factors; 3.6 Strength Reduction Factor ; 3.7 Significance of Analysis and Design Expressions; 3.8 Equivalent Compressive Stress Distribution; 3.9 Singly Reinforced Rectangular Section in Bending; 3.9.1 Balanced Section; 3.9.2 Upper Limit of Steel Percentage; 3.10 Lower Limit or Minimum Percentage of Steel; 3.11 Adequacy of Sections; 3.12 Bundled Bars
3.13 Sections in the Transition Region (< 0.9)3.14 Rectangular Sections with Compression Reinforcement; 3.14.1 When Compression Steel Yields; 3.14.2 When Compression Steel Does Not Yield; 3.15 Analysis of T- and I-Sections; 3.15.1 Description; 3.15.2 Effective Width; 3.15.3 T-Sections Behaving as Rectangular Sections; 3.16 Dimensions of Isolated T-Shaped Sections; 3.17 Inverted L-Shaped Sections; 3.18 Sections of Other Shapes; 3.19 Analysis of Sections Using Tables; 3.20 Additional Examples; 3.21 Examples Using SI Units; Summary; References; Problems
Chapter 4 Flexural Design of Reinforced Concrete Beams

Sommario/riassunto

"Text on concrete structural design and analysis. Newly updated to reflect the latest ACI 318-14 code, this edition emphasizes a conceptual understanding of the subject, and builds the student's body of knowledge by presenting design methods alongside relevant standards and code"--