

1. Record Nr.	UNINA9910143589803321
Autore	Li G. Q
Titolo	Advanced analysis and design of steel frames [[electronic resource] ] / Guo-Qiang Li, Jin-Jun Li
Pubbl/distr/stampa	Chichester, : John Wiley, c2007
ISBN	1-280-90084-9 9786610900848 0-470-31994-1 0-470-31993-3
Descrizione fisica	1 online resource (386 p.)
Altri autori (Persone)	LiJin-Jun <1973->
Disciplina	624.1773
Soggetti	Steel, Structural Structural analysis (Engineering) Structural frames Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Advanced Analysis and Design of Steel Frames; Contents; Preface; Symbols; Part One Advanced Analysis of Steel Frames; Chapter 1 Introduction; 1.1 Type of Steel Frames; 1.2 Type of Components for Steel Frames; 1.3 Type of Beam-Column Connections; 1.4 Deformation of Joint Panel; 1.5 Analysis Tasks and Method for Steel Frame Design; 1.6 Definition of Elements in Steel Frames; Chapter 2 Elastic Stiffness Equation of Prismatic Beam Element; 2.1 General Form of Equation; 2.1.1 Beam Element in Tension; 2.1.2 Beam Element in Compression; 2.1.3 Series Expansion of Stiffness Equations 2.1.4 Beam Element with Initial Geometric Imperfection 2.2 Special Forms of Elemental Equations; 2.2.1 Neglecting Effect of Shear Deformation; 2.2.2 Neglecting Effect of Axial Force; 2.2.3 Neglecting Effects of Shear Deformation and Axial Force; 2.3 Examples; 2.3.1 Bent Frame; 2.3.2 Simply Supported Beam; Chapter 3 Elastic Stiffness Equation of Tapered Beam Element; 3.1 Tapered Beam Element; 3.1.1 Differential Equilibrium Equation; 3.1.2 Stiffness Equation; 3.2 Numerical Verification; 3.2.1 Symmetry of Stiffness Matrix; 3.2.2 Static

Deflection; 3.2.3 Elastic Critical Load  
3.2.4 Frequency of Free Vibration  
3.2.5 Effect of Term Number Truncated in Polynomial Series; 3.2.6 Steel Portal Frame; 3.3 Appendix; 3.3.1 Chebyshev Polynomial Approach (Rice, 1992); 3.3.2 Expression of Elements in Equation (3.23); Chapter 4 Elastic Stiffness Equation of Composite Beam Element; 4.1 Characteristics and Classification of Composite Beam; 4.2 Effects of Composite Action on Elastic Stiffness of Composite Beam; 4.2.1 Beam without Composite Action; 4.2.2 Beam with Full Composite Action; 4.2.3 Beam with Partial Composite Action  
4.3 Elastic Stiffness Equation of Steel-Concrete Composite Beam Element  
4.3.1 Basic Assumptions; 4.3.2 Differential Equilibrium Equation of Partially Composite Beam; 4.3.3 Stiffness Equation of Composite Beam Element; 4.3.4 Equivalent Nodal Load Vector; 4.4 Example; 4.5 Problems in Present Work; Chapter 5 Sectional Yielding and Hysteretic Model of Steel Beam Columns; 5.1 Yielding of Beam Section Subjected to Uniaxial Bending; 5.2 Yielding of Column Section Subjected to Uniaxial Bending; 5.3 Yielding of Column Section Subjected to Biaxial Bending; 5.3.1 Equation of Initial Yielding Surface  
5.3.2 Equation of Ultimate Yielding Surface  
5.3.3 Approximate Expression of Ultimate Yielding Surface; 5.3.4 Effects of Torsion Moment; 5.4 Hysteretic Model; 5.4.1 Cyclic Loading and Hysteretic Behaviour; 5.4.2 Hysteretic Model of Beam Section; 5.4.3 Hysteretic Model of Column Section Subjected to Uniaxial Bending; 5.4.4 Hysteretic Model of Column Section Subjected to Biaxial Bending; 5.5 Determination of Loading and Deformation States of Beam-Column Sections; Chapter 6 Hysteretic Behaviour of Composite Beams; 6.1 Hysteretic Model of Steel and Concrete Material Under Cyclic Loading  
6.1.1 Hysteretic Model of Steel Stress-Strain Relationship

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Sommario/riassunto

Steel frames are used in many commercial high-rise buildings, as well as industrial structures, such as ore mines and oil rigs. Enabling construction of ever lighter and safer structures, steel frames have become an important topic for engineers. This book, split into two parts covering advanced analysis and advanced design of steel frames, guides the reader from a broad array of frame elements through to advanced design methods such as deterministic, reliability, and system reliability design approaches. This book connects reliability evaluation of structural systems to advanced analysis of

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