1. Record Nr. UNINA9910829991503321

Autore	Dubina Dan
Titolo	Design of cold-formed steel structures . Part 1-3 Design of cold-formed steel structures : Eurocode 3 : design of steel structures / / Dan Dubina, Viorel Ungureanu, Raffaele Landolfo
Pubbl/distr/stampa	Berlin, [Germany] : , : ECCS - European Convention for Constructional Steelwork, , 2012 ©2012
ISBN	3-433-60227-1 3-433-60225-5 3-433-60228-X
Edizione	[First edition.]
Descrizione fisica	1 online resource (676 p.)
Disciplina	720.944
Soggetti	Building, Iron and steel Steel, Structural - Design and construction Steel - Cold working
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.
Nota di contenuto	Cover; Title Page; Contents; Foreword; Preface; Chapter 1 Introduction To Cold-Formed Steel Design; 1.1 General; 1.2 Cold-formed steel sections; 1.2.1 Types of cold-formed steel sections; 1.2.2 Manufacturing; 1.2.3 Some peculiar characteristics of cold-formed steel sections; 1.3 Peculiar problems of cold-formed steel design; 1.3.1 Buckling strength of cold-formed steel members; 1.3.2 Torsional rigidity; 1.3.3 Web crippling; 1.3.4 Ductility and plastic design; 1.3.5 Connections; 1.3.6 Design assisted by testing; 1.3.7 Design standards; 1.3.7.1 North American Cold-formed Steel Specification, 1.3.7.2 Australian/New Zealand Standard - AS/NZS 4600, 2005 Edition (AS/NZS, 2005)1.3.7.3 Eurocode 3 - Design of Steel Structures, Part 1.3 - General Rules, Supplementary Rules for Cold-formed Thin Gauge Members and Sheeting; 1.3.8 Fire resistance; 1.3.9 Corrosion; 1.3.10 Sustainability of cold-formed steel construction; 1.4 Main applications of cold-formed steel; 1.4.1 Advantages of cold-formed steel in building construction; 1.4.1.1 Advantages during construction; 1.4.1.2

Advantages in service; 1.4.2 Applications; Chapter 2 Basis Of Design; 2.1 General; 2.2 Limit state design
2.3 Actions on structures. Combinations of actions 2.3.1 Verification at the Ultimate Limit State; 2.3.2 Verification at the Serviceability Limit State; 2.3.2.1 Deflections; 2.3.2.2 Dynamic effects; 2.4 Materials; 2.4.1 General; 2.4.2 Structural steel; 2.4.2.1 Material properties of base material; 2.4.2.2 Material properties of cold-formed sections and sheeting; 2.4.2.3 Thickness and thickness tolerances; 2.5 Methods of analysis and design; 2.5.1 Methods of analysis - Global frame analysis; 2.5.2 Finite Element Methods (FEM) for analysis and design; 2.5.3 Design assisted by testing
2.6 Imperfections 2.6.1 Imperfections for global analysis of frames; 2.6.2 Imperfections for analysis of bracing systems; 2.6.3 Role of imperfections in advanced numerical simulation; 2.6.3.1 Section imperfections; 2.6.3.2 Residual stresses; Chapter 3 Behaviour And Resistance Of Cross Section; 3.1 General; 3.2 Properties of gross cross section; 3.2.1 Nominal dimensions and idealisation of cross section; 3.2.2 Net geometric properties of perforated sections; 3.2.3 Dimensional limits of component walls of cold-formed steel sections; 3.2.4 Modelling of cross section component walls for analysis
3.3 Flange curling3.4 Shear lag; 3.5 Local buckling; 3.5.1 Sectional buckling modes in thin-walled sections; 3.5.2 Elastic buckling of thin plates; 3.6 Distortional buckling: analytical methods for predicting elastic distortional buckling stresses; 3.6.1 The method given in EN 1993-1-3:2006; 3.7 Design against local and distortional buckling according to EN 1993-1-3; 3.7.1 General; 3.7.2 Plane elements without stiffeners; 3.7.3 Plane elements with edge or intermediate stiffeners; 3.7.3.1 General; 3.7.3.2 Plane elements with edge stiffeners; 3.7.3.2.1 Conditions; 3.7.3.3.2 General procedure
3.7.3.3 Plane elements with intermediate stiffeners

Sommario/riassunto

The book is concerned with design of cold-formed steel structures in building based on the Eurocode 3 package, particularly on EN 1993-1-3.It contains the essentials of theoretical background and design rules for cold-formed steel sections and sheeting, members and connections for building applications. Elaborated examples and design applications - more than 200 pages - are included in the respective chapters in order to provide a better understanding to the reader.