# Design of Seismic-Resistant Steel Building Structures

1. Introduction and Basic Principles

Prepared by: Michael D. Engelhardt University of Texas at Austin

with the support of the American Institute of Steel Construction.



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# **Seismic Resistant Steel Structures**

Federico Mazzolani, Victor Gioncu

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review of the technical literature available and presenting the results of the authors own extensive research activities in this area Analytical and numerical methods are described and a wealth of practical information is provided Ductility of Seismic Resistant Steel Structures will be of great use to advanced students researchers designers and professionals in the field of civil structural and earthquake engineering <u>Ductile Design of Steel Structures</u> Michel Bruneau (Ph.D), Chia-Ming Uang, Andrew Stuart Whittaker, 1998 Ensure ductile behavior in any steel structure Engineer earthquake resistant structures using today s most advanced ductile steel design techniques This guide gives you the latest seismic resistant design criteria based on research into the recent Northridge and Kobe earthquakes You get fingertip access to the ductile properties of steel essential data on the plastic behavior of cross sections and systematic methods and applications of plastic analysis This time saving resource walks you through the seismic design of ductile braced frames and moment resisting frames provides the special detailing requirements needed to ensure satisfactory plastic behavior gives you an overview of special steel based Performance-based Plastic Design Subhash Chandra Goel, Shih-Ho energy dissipation systems and much more Chao, 2008-01-01 Theory and Design of Seismic Resistant Steel Frames Federico Mazzolani, Vincenzo Piluso, 2012-09-10 A state of the art summary of recent developments in the behaviour analysis and design of seismic resistant steel frames Much more than a simple background volume it gives the most recent results which can be used in the near future to improve the codified recommendations for steel structures in seismic zones It contains new material which cann Behaviour of Steel Structures in Seismic Areas Federico Mazzolani, Ricardo Herrera, 2012-01-31 Behaviour of Steel Structures in Seismic Areas is a comprehensive overview of recent developments in the field of seismic resistant steel structures It comprises a collection of papers presented at the seventh International Specialty Conference STESSA 2012 Santiago Chile 9 11 January 2012 and includes the state of the art in both theore STESSA 2000: Behaviour of Steel Structures in Seismic Areas Federico Mazzolani, Robert Tremblay, 2021-07-28 This is a review of developments in the behaviour and design of steel structures in seismic areas The proceedings look at the analytical and experimental research on the seismic response of steel structures and cover topics such as global behaviour and codification design and application **Earthquake Resistant Steel** Structures, 2010 This document aims to present in a straightforward manner the essentials of seismic design of steel structures which is a field of engineering and construction to which AcelorMittal contributes by continuous research efforts that bring better steel products and original design solutions to the market These include the widely used Reduced Beam Section concept RBS or dog bone for moment resisting frames Section 10 INERD dissipative connections for braced frames Section 12 and the use of composite columns to mitigate soft storey failures in reinforced concrete structures Section 18

**Design of Steel Structures for Buildings in Seismic Areas** ECCS - European Convention for Constructional Steelwork, Associação Portuguesa de Construção, 2018-01-03 This volume elucidates the design criteria and principles for steel structures under seismic loads according to Eurocode 8 1 Worked Examples illustrate the application of the design

rules Two case studies serve as best practice samples Behaviour of Steel Structures in Seismic Areas Federico Mazzolani, Victor Gioncu, 1995-10-12 This book forms the proceedings of the International Workshop organised by the European Convention for Constructional Steelwork held in Timisoara Romania in June 1994 It presents the latest progress in theoretical and experimental research on the behaviour of steel structures in seismic areas taking into account the basic problems of local and global ductility codification design and applications It relates strongly to the activities on international codification taking place in Europe Moment Resistant Connections of Steel Frames in Seismic Areas Federico Mazzolani, 2000-04-27 An unexpected brittle failure of connections and of members occurred during the last earthquakes of Northridge and Kobe For this reason a heightened awareness developed in the international scientific community particularly in the earthquake prone countries of the Mediterranean and Eastern Europe of the urgent need to investigate this topic This volume results from a European project dealing with the reliability of moment resistant connections of steel frames in seismic areas It is a must have for engineerse who want to be at the cutting edge of design in seismic areas Behaviour of Steel Structures in Seismic Areas Federico M. Mazzolani, James M. Ricles, Richard Sause, 2009 BEHAVIOUR OF STEEL STRUCTURES IN SEISMIC AREAS is a comprehensive overview of recent developments in the field of seismic resistant steel structures It comprises a collection of papers presented at the sixth International Specialty Conference STESSA 2009 held in Philadelphia Pennsylvania USA in August 2009 The latest progress in both theoretical and experimental research on the behaviour of steel structures in seismic areas is presented under the followings themes Performance Based Design of Structures Seismic Wind and Exceptional Load Material Behaviour Member Behaviour Connection Behaviour Global Behaviour Analytical and Experimental Methods Mixed and Composite Structures Passive and Active Control Strengthening and Repairing Codification Design Fabrication and Practice The intention of the book is to transfer the findings of scientists and experts involved in research codification and application to the common practice This book provides a complete framework of the most recent trends in the field of steel structures in seismic areas with particular reference to the utilisation of multi level performance based design concepts the analysis of factors influencing the steel structure behaviour during strong ground motions minimizing earthquake damage seismic retrofit the collapse behavior of steel structures recent developments in advanced large scale experimental techniques and the utilization of large scale seismic testing facilities The book is a valuable resource for engineers scientists and Ph D students in Civil Engineering Earthquake Engineering Structural Engineering Steel Construction Steel Development and Building Disaster Prevention **Ductile Design of Steel** Structures, 2nd Edition Michel Bruneau, Chia-Ming Uang, Rafael Sabelli, 2011-08-01 Comprehensive coverage of the background and design requirements for plastic and seismic design of steel structures Thoroughly revised throughout Ductile Design of Steel Structures Second Edition reflects the latest plastic and seismic design provisions and standards from the American Institute of Steel Construction AISC and the Canadian Standard Association CSA The book covers steel material

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