

1. Record Nr.	UNINA9910830440203321
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Titolo	Fatigue design of steel and composite structures // Alain Nussbaumer, Luis Borges, Laurence Davaine
Pubbl/distr/stampa	Berlin, Germany : , : Wilhelm Ernst & Sohn, Verlag fur Architektur und technische Wissenschaften, , [2011] ©2011
ISBN	3-433-60120-8 1-283-43210-2 9786613432100 1-62198-009-X 3-433-60118-6 3-433-60121-6
Edizione	[1st ed.]
Descrizione fisica	1 online resource (341 p.)
Collana	ECCS Eurocode design manuals
Disciplina	620.176
Soggetti	Steel, Structural - Fatigue Concrete - Fatigue
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	Title Page; Table of contents; Foreword; Preface; Acknowledgments; Symbology; Terminology; Chapter 1:Introduction; 1.1 Basis Of Fatigue Design In Steel Structures; 1.1.1 General; 1.1.2 Main parameters influencing fatigue life; 1.1.3 Expression of fatigue strength; 1.1.4 Variable amplitude and cycle counting; 1.1.5 Damage accumulation; 1.2 Damage Equivalent Factor Concept; 1.3 Codes Of Practice; 1.3.1 Introduction; 1.3.2 Eurocodes 3 and 4; 1.3.3 Eurocode 9; 1.3.4 Execution (EN 1090-2); 1.3.5 Other execution standards; 1.4 Description Of The Structures Used In The Worked Examples 1.4.1 Introduction1.4.2 Steel and concrete composite road bridge (worked example 1); 1.4.2.1 Longitudinal elevation and transverse cross section; 1.4.2.2 Materials and structural steel distribution; 1.4.2.3 The construction stages; 1.4.3 Chimney (worked example 2); 1.4.3.1 Introduction; 1.4.3.2 General characteristics of the chimney; 1.4.3.3 Dimensions of socket joint located at +11.490 m (see Figure 1.20);

1.4.3.4 Dimensions of ground plate joint with welded stiffeners located at the bottom, at +0.350 m.; 1.4.3.5 Dimensions of manhole located between +1.000 m and +2.200 m

1.4.4 Crane supporting structures (worked example 3)1.4.4.1 Introduction; 1.4.4.2 Actions to be considered; Chapter 2:Application Range And Limitations; 2.1 Introduction; 2.2 Materials; 2.3 Corrosion; 2.4 Temperature; 2.5 Loading Rate; 2.6 Limiting Stress Ranges; Chapter 3:Determination Of Stresses And Stress Ranges; 3.1 Fatigue Loads; 3.1.1 Introduction; 3.1.2 Road bridges; 3.1.2.1 Fatigue load model 1 (FLM1); 3.1.2.2 Fatigue load model 2 (FLM2); 3.1.2.3 Fatigue load model 3 (FLM3); 3.1.2.4 Fatigue load model 4 (FLM4); 3.1.2.5 Fatigue load model 5 (FLM5); 3.1.3 Railway bridges 3.1.4 Crane supporting structures3.1.5 Masts, towers, and chimneys; 3.1.6 Silos and tanks; 3.1.7 Tensile cable structures, tension components; 3.1.8 Other structures; 3.2 Damage Equivalent Factors; 3.2.1 Concept; 3.2.2 Critical influence line length; 3.2.3 Road bridges; 3.2.4 Railway bridges; 3.2.5 Crane supporting structures; 3.2.6 Towers, masts and chimneys; 3.3 Calculation Of Stresses; 3.3.1 Introduction; 3.3.2 Relevant nominal stresses; 3.3.3 Stresses in bolted joints; 3.3.4 Stresses in welds; 3.3.5 Nominal stresses in steel and concrete composite bridges 3.3.6 Nominal stresses in tubular structures (frames and trusses)3.4 Modified Nominal Stresses And Concentration Factors; 3.4.1 Generalities; 3.4.2 Misalignments; 3.5 Geometric Stresses (Structural Stress At The Hot Spot); 3.5.1 Introduction; 3.5.2 Determination using FEM modelling; 3.5.3 Determination using formulas; 3.6 Stresses In Orthotropic Decks; 3.7 Calculation Of Stress Ranges; 3.7.1 Introduction; 3.7.2 Stress range in non-welded details; 3.7.3 Stress ranges in bolted joints; 3.7.4 Stress range in welds; 3.7.5 Multiaxial stress range cases; 3.7.5.1 Introduction 3.7.5.2 Possible stress range cases

Sommario/riassunto

This volume addresses the specific subject of fatigue, a subject not familiar to many engineers, but still relevant for proper and good design of numerous steel structures. It explains all issues related to the subject: Basis of fatigue design, reliability and various verification formats, determination of stresses and stress ranges, fatigue strength, application range and limitations. It contains detailed examples of applications of the concepts, computation methods and verifications.
