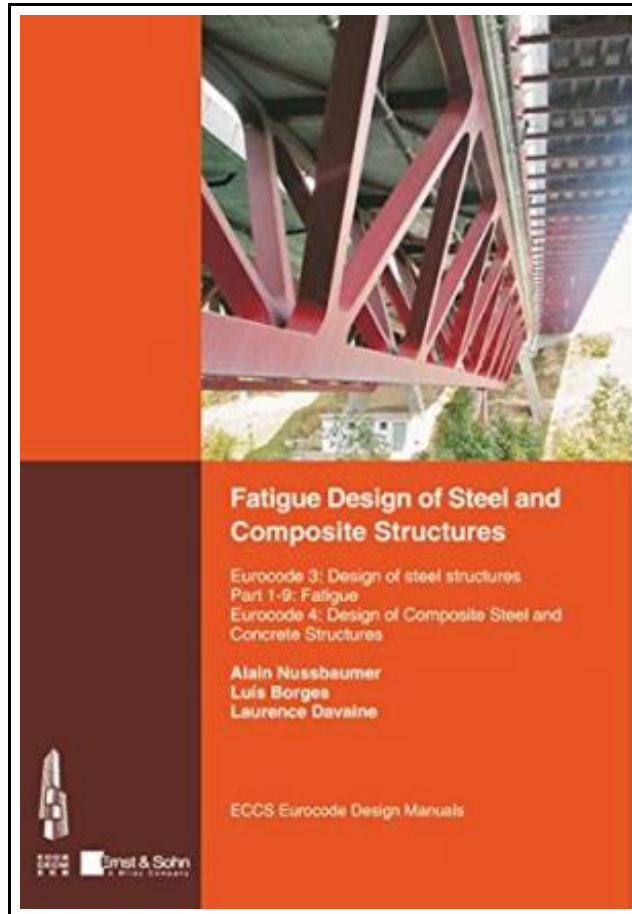


Fatigue Design of Steel and Composite Structures.



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(Ms. Ora Buckridge)

FATIGUE DESIGN OF STEEL AND COMPOSITE STRUCTURES.



Condition: New. Publisher/Verlag: Ernst & Sohn | Eurocode 3: Design of Steel Structures. Part 1-9 Fatigue. Eurocode 4: Design of Composite Steel and Concrete Structures | Das Buch befasst sich mit dem Thema Ermüdung - ein Thema, das vielen Ingenieuren nicht geläufig ist, das aber eine hohe Relevanz beim Entwurf von Stahlkonstruktionen besitzt. Folgende Fragen werden besprochen: Grundlagen der Ermüdungsberechnung, Dauerhaftigkeit und diverse Nachweismethoden, Spannungsermittlung, Ermüdungsfestigkeit, Anwendungsbereich und -grenzen. Anhand von detaillierten Beispielen werden Berechnungs- und Nachweisverfahren vertiefend erläutert. 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. | PREFACEACKNOWLEDGMENTSSYMBOLOLOGYTERMINOLOGY1 INTRODUCTION1.1 Basis of fatigue design in steel structures1.2 Damage equivalent factor concept1.3 Codes of Practice1.4 Description of the structures used in the worked examples2 APPLICATION RANGE AND LIMITATIONS2.1 Introduction2.2 Materials2.3 Corrosion2.4 Temperature2.5 Loading rate2.6 Limiting stress ranges3 DETERMINATION OF STRESSES AND STRESS RANGES3.1 Fatigue loads3.2 Damage equivalent factors3.3 Calculation of stresses3.4 Modified nominal stresses and concentration factors3.5 Geometric stresses (hot spot stresses)3.6 Stresses in orthotropic decks3.7 Calculation of stress ranges3.8 Modified Nominal stress ranges3.9 Geometric stress ranges4 FATIGUE STRENGTH4.1 Introduction4.2 Fatigue detail tables4.3 Determination of fatigue strength or life by testing5 RELIABILITY AND VERIFICATION5.1 Generalities5.2 Strategies5.3 Partial factors5.4 Verification6 BRITTLE FRACTURE6.1 Introduction6.2 Steel quality6.3 Relationship between different fracture toughness test results6.4 Fracture concept in EN 1993-1-106.5 Standardisation of choice of material: maximum allowable thicknessesREFERENCESANNEX A STANDARDS FOR STEEL CONSTRUCTIONANNEX B FATIGUE DETAIL TABLES WITH COMMENTARYANNEX C MAXIMUM PERMISSIBLE THICKNESSES TABLES PREFACEACKNOWLEDGMENTSSYMBOLOLOGYTERMINOLOGY1 INTRODUCTION1.1 Basis of fatigue design in steel structures1.2 Damage...



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