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A valuable source of information, insight, and fresh ideas about a crucial aspect of the growing sustainable design movement. Mounting resource shortages worldwide coupled with skyrocketing extraction costs for new materials have made the prospect of materials reuse and recycling an issue of paramount importance. A fundamental goal of the sustainable design movement is to derive utmost use from construction materials and components, including energy, water, materials, building components, whole structures, and even entire infrastructures. Written by an expert with many years of experience in both industry and academe, this book explores a wide range of sustainable design strategies which designers around the globe are using to create efficient and aesthetically pleasing buildings from waste streams and discarded items. Emphasizing performance issues, design considerations and process constraints, it describes numerous fully realized projects, and explores theoretical applications still on the drawing board. There is a growing awareness worldwide of the need for cyclical systems of materials reuse. Pioneering efforts at “closed-loop” design date as far back as 1960s, but only recently have architects and designers begun to focus on the opportunities which discarded materials can provide for creating high performance structures. A source of insight and fresh ideas for architects, engineers, and designers, *Resource Salvation: Reviews the theory and practice of building material and waste reuse and describes best practices in that area worldwide*. Describes projects that use closed-loop thinking to influence and inspire the design of components, interiors, whole buildings, or urban landscapes. Illustrates how using discarded materials and focusing on closed loops can lead to

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new concepts in architecture, building science, and urban design Demonstrates how designers have developed aesthetically compelling solutions to the demands of rigorous performance standards Resource Salvation is a source of information and inspiration for architects, civil engineers, green building professionals, building materials suppliers, landscape designers, urban designers, and government policymakers. It is certain to become required reading in university courses in sustainable architecture, as well as materials engineering and environmental engineering curricula with a sustainable design component.

This book is the translated English version of a text on industrial surveys, originally published in Slovak by SPEKTRUM STU Publishing. This updated version is not only a translation of the original, but also a reviewed, extended version, which reflects up-to-date international standards and regulations. The book covers topics in engineering surveying not available in other publications in this complex form, and addresses the design methodology, data processing and implementation of geodetic measurements under specific conditions to make industrial work environments safer and more efficient. The book begins by introducing readers to these conditions, and then discusses design of maps, geodetic networks and information systems of industrial plants, the usage of cartesian and polar coordinate measuring systems, terrestrial laser scanning technology, as well as measurement of cranes, rotary kilns and special objects of nuclear power plants. The book will be of use to teachers, students, practitioners (e.g. surveyors), quality production managers, equipment designers and mechanical engineers.

This book is the Proceedings of a State-of-the-Art Workshop on Connections and the Behaviour, Strength and Design of Steel Structures held at Laboratoire de Mécanique et

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Technologie, Ecole Normale, Cachan France from 25th to 27th May 1987. It contains the papers presented at the above proceedings and is split into eight main sections covering: Local Analysis of Joints, Mathematical Models, Classification, Frame Analysis, Frame Stability and Simplified Methods, Design Requirements, Data Base Organisation, Research and Development Needs. With papers from 50 international contributors this text will provide essential reading for all those involved with steel structures.

This book introduces the design concept of Eurocode 3 for steel structures in building construction, and their practical application. It especially comments on the regulations of the british National Annexes. Following a discussion of the basis of design, including the limit state approach, the material standards and their use are detailed. The fundamentals of structural analysis and modeling are presented, followed by the design criteria and approaches for various types of structural members. The following chapters expand on the principles and applications of elastic and plastic design, each exemplified by the step-by-step design calculation of a braced steel-framed building and an industrial building, respectively. Besides providing the necessary theoretical concepts for a good understanding, this manual intends to be a supporting tool for the use of practicing engineers. In order of this purpose, throughout the book, numerous worked examples are provided, concerning the analysis of steel structures and the design of elements under several types of actions. These examples will provide for a smooth transition from earlier national codes to the Eurocode.

This book details the basic concepts and the design rules included in Eurocode 3 "Design of steel structures" Part 1-8 "Design of joints". Joints in composite construction are also addressed through references to Eurocode 4 "Design of composite steel and concrete structures" Part 1-1 "General

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rules and rules for buildings". Moreover, the relevant UK National Annexes are also taken into account. Attention has to be duly paid to the joints when designing a steel or composite structure, in terms of the global safety of the construction, and also in terms of the overall cost, including fabrication, transportation and erection. Therefore, in this book, the design of the joints themselves is widely detailed, and aspects of selection of joint configuration and integration of the joints into the analysis and the design process of the whole construction are also fully covered. Connections using mechanical fasteners, welded connections, simple joints, moment-resisting joints and lattice girder joints are considered. Various joint configurations are treated, including beam-to-column, beam-to-beam, column bases, and beam and column splice configurations, under different loading situations (axial forces, shear forces, bending moments and their combinations). The book also briefly summarises the available knowledge relating to the application of the Eurocode rules to joints under fire, fatigue, earthquake, etc., and also to joints in a structure subjected to exceptional loadings, where the risk of progressive collapse has to be mitigated. Finally, there are some worked examples, plus references to already published examples and to design tools, which will provide practical help to practitioners.

Design of Steel Structures Eurocode 3: Design of Steel Structures, Part 1-1: General Rules and Rules for Buildings John Wiley & Sons

Hot-Dip Galvanizing of Steel Structures contains practical information that is useful for both researchers in hot-dip galvanizing and engineers, designers, and inspectors. The book draws from the empirical experience and research of the authors, complementing the current state of knowledge of morphological variations of the coating and causes of coating delamination. The book includes chapters devoted to

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qualitative tests of the coating, and to methods of making corrections. A section describing the principle of protecting steel against corrosion through zinc coating is also provided, along with an extensive chapter on the principles of good design for hot-dip galvanizing. The chapter related to the safety of hot-dip galvanized steel structures offers a new hypothesis about the mechanism of nucleation of LMAC cracks during hot-dip galvanizing, thus enriching the knowledge regarding this phenomenon. Provides practical information on hot-dip galvanizing from a scientific-disciplinary perspective, including coverage of design principles, reliability of galvanized structures, and legal aspects Features chapters devoted to qualitative assessments of the surface treatment and methods for correcting problems Includes discussion of hot-dip galvanizing with regard to environmental aspects and sustainable development

Modern Construction Envelopes deals with the facade and roof as an integral part of the building, allowing a holistic approach to the design of the building envelope and providing greater design freedom. The book is aimed at readers who want to extend their knowledge of wall and roof construction beyond the information given in the Modern Construction Handbook, using state-of-the-art construction principles of modern facade and roof systems. The third edition of this classic has been fully brought up to date; it contains new examples in all chapters and presents the projects in revised, new 3D drawings and in 27 AR applications that can be accessed free of charge via smartphone and tablet.

Selected, peer reviewed papers from the 13th International Aluminium Conference - INALCO 2016, September 21-23, 2016, Naples, Italy

This highly illustrated manual provides practical

guidance on structural steelwork detailing. It: · describes the common structural shapes in use and how they are joined to form members and complete structures · explains detailing practice and conventions · provides detailing data for standard sections, bolts and welds · emphasises the importance of tolerances in order to achieve proper site fit-up · discusses the important link between good detailing and construction costs Examples of structures include single and multi-storey buildings, towers and bridges. The detailing shown will be suitable in principle for fabrication and erection in many countries, and the sizes shown will act as a guide to preliminary design. The third edition has been revised to take account of the new Eurocodes on structural steel work, together with their National Annexes. The new edition also takes account of developments in 3-D modelling techniques and it includes more CAD standard library details.

Modern Trends in Research on Steel, Aluminium and Composite Structures includes papers presented at the 14th International Conference on Metal Structures 2021 (ICMS 2021, Poznań, Poland, 16-18 June 2021). The 14th ICMS summarised a few years' theoretical, numerical and experimental research on steel, aluminium and composite structures, and presented new concepts. This book contains six plenary lectures and all the individual papers presented during the Conference. Seven

plenary lectures were presented at the Conference, including "Research developments on glass structures under extreme loads", Parhp3D – The parallel MPI/openMPI implementation of the 3D hp-adaptive FE code", "Design of beam-to-column steel-concrete composite joints: from Eurocodes and beyond", "Stainless steel structures – research, codification and practice", "Testing, modelling and design of bolted joints – effect of size, structural properties, integrity and robustness", "Design of hybrid beam-to-column joints between RHS tubular columns and I-section beams" and "Selected aspects of designing the cold-formed steel structures". The individual contributions delivered by authors covered a wide variety of topics: – Advanced analysis and direct methods of design, – Cold-formed elements and structures, – Composite structures, – Engineering structures, – Joints and connections, – Structural stability and integrity, – Structural steel, metallurgy, durability and behaviour in fire. Modern Trends in Research on Steel, Aluminium and Composite Structures is a useful reference source for academic researchers, graduate students as well as designers and fabricators.

Sustainable Steel Buildings reviews steel and its potential as a sustainable building material and shows how steel can be used to deliver buildings and structures with a high level of sustainability. The

book's main focus is on the advantages and disadvantages of steel and how those characteristics can be used under a range of international certification systems (DGNB, LEED, BREEAM, openhouse etc).

Life-Cycle Civil Engineering: Innovation, Theory and Practice contains the lectures and papers presented at IALCCE2020, the Seventh International Symposium on Life-Cycle Civil Engineering, held in Shanghai, China, October 27-30, 2020. It consists of a book of extended abstracts and a multimedia device containing the full papers of 230 contributions, including the Fazlur R. Khan lecture, eight keynote lectures, and 221 technical papers from all over the world. All major aspects of life-cycle engineering are addressed, with special emphasis on life-cycle design, assessment, maintenance and management of structures and infrastructure systems under various deterioration mechanisms due to various environmental hazards. It is expected that the proceedings of IALCCE2020 will serve as a valuable reference to anyone interested in life-cycle of civil infrastructure systems, including students, researchers, engineers and practitioners from all areas of engineering and industry.

"This classic manual on structural steelwork design was first published in 1955, since when it has sold many tens of thousands of copies worldwide. For the seventh edition all chapters have been

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comprehensively reviewed, revised to ensure they reflect current approaches and best practice, and brought in to compliance with EN 1993: Design of Steel Structures. The Steel Designers' Manual continues to provide, in one volume, the essential knowledge for the design of conventional steelwork. Key Features: Fully revised to comply with the new EUROCODE standards Packed full of tables, analytical design information and worked examples Contributors number leading academics, consulting engineers and fabricators 'A must for anyone involved in steel design' - Journal of Constructional Steel Research"--

This book offers a comprehensive overview on the subject of welding. Written by a group of expert contributors, the book covers all welding methods, from traditional to high-energy plasmas and lasers. The reference presents joint welding, stainless steel welding, aluminum welding, welding in the nuclear industry, and all aspects of welding quality control. Structural Steel Design to Eurocode 3 and AISC Specifications deals with the theory and practical applications of structural steel design in Europe and the USA. The book covers appropriate theoretical and background information, followed by a more design-oriented coverage focusing on European and United States specifications and practices, allowing the reader to directly compare the approaches and results of both codes. Chapters follow a general

plan, covering: ? A general section covering the relevant topics for the chapter, based on classical theory and recent research developments ? A detailed section covering design and detailing to Eurocode 3 specification ? A detailed section covering design and detailing to AISC specifications Fully worked examples are using both codes are presented. With construction companies working in increasingly international environments, engineers are more and more likely to encounter both codes. Written for design engineers and students of civil and structural engineering, this book will help both groups to become conversant with both code systems.

This book details the basic concepts and the design rules included in Eurocode 3 Design of steel structures: Part 1-8 Design of joints Joints in composite construction are also addressed through references to Eurocode 4 Design of composite steel and concrete structures Part 1-1: General rules and rules for buildings. Attention has to be duly paid to the joints when designing a steel or composite structure, in terms of the global safety of the construction, and also in terms of the overall cost, including fabrication, transportation and erection. Therefore, in this book, the design of the joints themselves is widely detailed, and aspects of selection of joint configuration and integration of the joints into the analysis and the design process of the

whole construction are also fully covered.

Connections using mechanical fasteners, welded connections, simple joints, moment-resisting joints and lattice girder joints are considered. Various joint configurations are treated, including beam-to-column, beam-to-beam, column bases, and beam and column splice configurations, under different loading situations (axial forces, shear forces, bending moments and their combinations). The book also briefly summarises the available knowledge relating to the application of the Eurocode rules to joints under fire, fatigue, earthquake, etc., and also to joints in a structure subjected to exceptional loadings, where the risk of progressive collapse has to be mitigated. Finally, there are some worked examples, plus references to already published examples and to design tools, which will provide practical help to practitioners.

In an era of new, composite materials and high-strength concrete, and with an increasing demand for sustainable building technologies, the importance of the role of steel in construction is being challenged.. Nonetheless, steel can successfully be used to refurbish and retrofit historical buildings, as well as being a material of choice for new building structures. Steel can effectively be combined with a variety of other materials to obtain structures which are characterized by a high-performance response under different types of static and dynamic activity.

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The proceedings contains nine keynote lectures from international experts, and is further divided into five sections: calculation models and methods; studies and advances in design codes; steel and mixed building technology; steel under exceptional actions; and steel in remarkable constructions and refurbishment.

The book contains proceedings presented at the 9th International Conference on Arch Bridges held in Porto, Portugal on October 2 to 4, 2019. It is addressed to scientists, designers, technicians, stakeholders and contractors, seeking for an up-to-date view of the recent advances in the area of arch bridges.

This book gathers peer-reviewed contributions presented at the 3rd RILEM Spring Convention and Conference, held at Guimarães and hosted by the University of Minho, Portugal, on March 9-14, 2020. The theme of the Conference was "Ambitioning a Sustainable Future for Built Environment: comprehensive strategies for unprecedented challenges" which was aimed at discussing current challenges and impacts of the built environment on sustainability. The present volume is dedicated to the topic service life extension of existing structures which covers the most recent scientific and technological developments in the understanding of the evolution and degradation of construction materials and structural systems. Analytical and

numerical, as well as experimental approaches, aimed at characterizing, modelling and predicting the evolution of the physical, chemical and mechanical properties of construction materials and structural systems are regarded. Multiphysics models are also considered, as well as other strategies that contribute for an accurate characterization and prediction the service life and the evolution of existing and novel construction materials under normal or extreme environmental exposure or loading conditions. New strategies to promote the smart repairing or the recovery of material properties, as well as the service life extension, are also considered. The following subtopics are included: service life models and multiphysics approaches; smart structures, innovative monitoring and intervention strategies; management and optimized maintenance strategies; integrated rehabilitation and strengthening approaches. The book introduces all the aspects needed for the safe and economic design and analysis of connections using bolted joints in steel structures. This is not treated according to any specific standard but making comparison among the different norms and methodologies used in the engineering practice, e.g. Eurocode, AISC, DIN, BS. Several examples are solved and illustrated in detail, giving the reader all the tools necessary to tackle also complex connection design problems. The book is

introductory but also very helpful to advanced and specialist audiences because it covers a large variety of practice demands for connection design. Parts that are not taken to an advanced level are seismic design, welds, interaction with other materials (concrete, wood), and cold formed connections./p

Behavior and Design of High-Strength Constructional Steel presents readers with extensive information on the behavior of high-strength constructional steels, providing them with the confidence they need to use them in a safe and economic manner to design and construct steel structures. The book includes detailed discussions on the mechanical properties of HHS while explaining the latest progress in research and design guidelines, including material properties at ambient and elevated temperatures. In addition, the book explains the behavior of elementary members subject to different types of loads and load combinations, and those that are integral to the design of bolted and welded connections. The hysteretic behavior of HHS materials and members are also discussed. This is critical for application and designs under earthquakes and fire conditions. The buckling behaviors of HSS box-section and H-section columns are included in terms of experimental and numerical investigations, along with the geometric imperfection induced by welding.

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Provides a comprehensive review on the topic of high-strength constructional steel and the latest progress in research and design guidelines Explains the behavior of elementary members subjected to different types of loads and load combinations Recommends structural systems for using high-strength constructional steels in seismic zones This publication may be viewed or downloaded from the ADA website (www.ADA.gov).

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.

Healthcare decision makers in search of reliable information that compares health interventions increasingly turn to systematic reviews for the best summary of the evidence. Systematic reviews identify, select, assess, and synthesize the findings of similar but separate studies, and can help clarify what is known and not known about the potential benefits and harms of drugs, devices, and other healthcare services. Systematic reviews can be helpful for clinicians who want to integrate research findings into their daily practices, for patients to make well-informed choices about their own care, for professional medical societies and other

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organizations that develop clinical practice guidelines. Too often systematic reviews are of uncertain or poor quality. There are no universally accepted standards for developing systematic reviews leading to variability in how conflicts of interest and biases are handled, how evidence is appraised, and the overall scientific rigor of the process. In *Finding What Works in Health Care* the Institute of Medicine (IOM) recommends 21 standards for developing high-quality systematic reviews of comparative effectiveness research. The standards address the entire systematic review process from the initial steps of formulating the topic and building the review team to producing a detailed final report that synthesizes what the evidence shows and where knowledge gaps remain. *Finding What Works in Health Care* also proposes a framework for improving the quality of the science underpinning systematic reviews. This book will serve as a vital resource for both sponsors and producers of systematic reviews of comparative effectiveness research.

This Designer's Guide provides the user with guidance on the Interpretation and use of Part:1:f: General rules and rules for buildings of EN 1994, with flow charts and worked examples. It explains their relationship with the other Eurocode parts to which it refers and to the relevant British codes. The provision of background information and references also enables file users of Eurocode 4 to understand the origin and objectives of its provision.

Advances in Engineering Materials, Structures and Systems: Innovations, Mechanics and Applications comprises 411 papers that were presented at SEMC 2019, the Seventh International Conference on Structural Engineering, Mechanics and Computation, held in Cape Town, South Africa, from 2 to 4 September 2019. The subject matter reflects the broad scope of SEMC conferences, and covers a wide variety of engineering materials (both traditional and

innovative) and many types of structures. The many topics featured in these Proceedings can be classified into six broad categories that deal with: (i) the mechanics of materials and fluids (elasticity, plasticity, flow through porous media, fluid dynamics, fracture, fatigue, damage, delamination, corrosion, bond, creep, shrinkage, etc); (ii) the mechanics of structures and systems (structural dynamics, vibration, seismic response, soil-structure interaction, fluid-structure interaction, response to blast and impact, response to fire, structural stability, buckling, collapse behaviour); (iii) the numerical modelling and experimental testing of materials and structures (numerical methods, simulation techniques, multi-scale modelling, computational modelling, laboratory testing, field testing, experimental measurements); (iv) innovations and special structures (nanostructures, adaptive structures, smart structures, composite structures, bio-inspired structures, shell structures, membranes, space structures, lightweight structures, long-span structures, tall buildings, wind turbines, etc); (v) design in traditional engineering materials (steel, concrete, steel-concrete composite, aluminium, masonry, timber, glass); (vi) the process of structural engineering (conceptualisation, planning, analysis, design, optimization, construction, assembly, manufacture, testing, maintenance, monitoring, assessment, repair, strengthening, retrofitting, decommissioning). The SEMC 2019 Proceedings will be of interest to civil, structural, mechanical, marine and aerospace engineers. Researchers, developers, practitioners and academics in these disciplines will find them useful. Two versions of the papers are available. Short versions, intended to be concise but self-contained summaries of the full papers, are in this printed book. The full versions of the papers are in the e-book. This book is the definitive reference source for professionals involved in the conception, design and specification stages of

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a construction project. The theory and practical aspects of each material is covered, with an emphasis being placed on properties and appropriate use, enabling broader, deeper understanding of each material leading to greater confidence in their application. Containing fifty chapters written by subject specialists, Construction Materials Reference Book covers the wide range of materials that are encountered in the construction process, from traditional materials such as stone through masonry and steel to advanced plastics and composites. With increased significance being placed on broader environmental issues, issues of whole life cost and sustainability are covered, along with health and safety aspects of both use and installation.

Concrete-filled single skin (CFT) and double skin tubular (CFDST) members have advantages over concrete-filled steel tubular (CFST) columns. These include high strength and bending stiffness, fire performance, and ease of construction. CFT columns are made from a single-skin outer jacket surrounding a concrete infill, whereas a CFDST column consists of two concentric steel tubes with concrete in-fill. Despite the advantages CFT and CFDST hold over more conventional tubular columns, these structural elements remain relatively unused, there is a lack of understanding concerning their behaviour, and design provisions are lacking. Gives up-to-date advances on single-skin and double-skin construction Explains and illustrates foundational concepts, including confinement and buckling Considers important failure modes and gives detailed photographic references Presents an analysis of ultimate strength and covers governing failure modes Offers design examples following North American, European and Australian codes Research and Applications in Structural Engineering, Mechanics and Computation contains the Proceedings of the Fifth International Conference on Structural Engineering,

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Mechanics and Computation (SEMC 2013, Cape Town, South Africa, 2-4 September 2013). Over 420 papers are featured. Many topics are covered, but the contributions may be seen to fall

This textbook covers the design and analysis of steel structures for buildings according to EN 1990 (Eurocode 0), EN 1991 (Eurocode 1) and EN 1993 (Eurocode 3). Chapter 1 describes the theory and background of EN 1990 in terms of structural safety, reliability and the design values of resistances and actions. Chapter 2 deals with actions and deformations described in EN 1991. The permanent loads and variable actions and in particular the imposed loads and the snow loads and wind actions are discussed. This chapter also contains three worked examples to determine the actions on a floor in a residential house, the actions on a free-standing platform canopy at a station and the wind actions on the façades of an office building. Chapter 3 is about modelling, discussing the schematisation of the structural system, the joints and the material properties as well as the cross-section properties. Chapter 4 deals with the classification of frames and the various analysis methods for unbraced and braced frames. Chapter 5 then goes deeper into these analysis methods to determine the force distribution and deformations. Chapter 6 deals with the assessment by code-checking of (parts of) the steel structure with EN 1993-1-1 and EN 1993-1-8. At a basic level, the assessment of the resistance of cross-sections, the stability of members under axial forces and the resistance of bolted and welded connections are explained. Chapter 7 discusses in an extensive way the assessment by code-checking of the resistance of cross-sections, both for single and combined internal forces. The principles of the assessment of the resistance of cross-sections according to elastic and plastic theory are also discussed.

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This eighth edition of the most popular and trusted guide to the building regulations is the most comprehensive revision yet. It reflects all the latest amendments to Building Regulations, Planning Permission and the Approved Documents A, B, C, H, K, P, Regulation 7 incorporating all amendments up to December 2013 (including the changes to Leaflets L1A and L2A which come into effect April 2014). This new edition also contains details of the new national planning guidance system and initiatives to speed up the planning process such as the new on line planning appl.

These are the proceedings of the International Conference on Design, Fabrication and Economy of Metal Structures held on 24-26 April 2013 in Miskolc, Hungary which contain 99 papers covering: Structural optimization Thin-walled structures Stability Fatigue Frames Fire Fabrication Welding technology Applications Steel-concrete composite Special problems The authors are from 23 different countries, ensuring that the themes covered are of worldwide interest and importance.

The International Institute of Welding (IIW), the International Society of Structural and Multidisciplinary Optimization (ISSMO), the TÁMOP 4.2.1.B-10/2/KONV-2010-0001 project entitled "Increasing the quality of higher education through the development of research - development and innovation program at the University of Miskolc supported by the European Union, co-financed by the European Social Fund" and many other sponsors helped organizers to collect these valuable studies, the results of which will provoke discussion, and provide an important reference for civil and mechanical engineers, architects, researchers and structural designers and fabricators, as well as managers in a range of industries including building, transport, shipbuilding, aircraft, chemical and offshore engineering.

This book holds the proceedings of the Conference on Applications of Structural Fire Engineering (ASFE 2017), held

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on September 7-8, 2017, in Manchester, UK. The ASFE'17 conference will be the next in a series (2009, 2011, 2013, 2015) of successful conferences that aim to bring together experts and specialists in design against fire from all over the world to share ideas and to acquire knowledge in the field of structural fire engineering. Practice in structural engineering increasingly accepts the benefits of performancebased approaches to the design of structures for fire resistance. This conference will focus on the application of design methods, both manual and computational, for structures to resist fire. Particularly relevant themes will be fire modelling, simulation of the heat transfer between fire and structures, and modelling of structural behaviour at elevated temperatures using numerical methods or software implementations of design codes.

This book introduces the fundamental design concept of Eurocode 3 for current steel structures in building construction, and their practical application. Following a discussion of the basis of design, including the principles of reliability management and the limit state approach, the material standards and their use are detailed. The fundamentals of structural analysis and modeling are presented, followed by the design criteria and approaches for various types of structural members. The theoretical basis and checking procedures are closely tied to the Eurocode requirements. The following chapters expand on the principles and applications of elastic and plastic design, each exemplified by the step-by-step design calculation of a braced steel-framed building and an industrial building, respectively. Besides providing the necessary theoretical concepts for a good understanding, this manual intends to be a supporting tool for the use of practicing engineers. In order of this purpose, throughout the book, numerous worked examples are provided, concerning the analysis of steel structures and

the design of elements under several types of actions. These examples will facilitate the acceptance of the code and provide for a smooth transition from earlier national codes to the Eurocode.

Nachdem sich die Vorgängerauflage des Kommentars von 2012 zur unverzichtbaren Arbeitshilfe für alle mit dem Stahlbau befassten Fachleute entwickelt hat, wird nun eine überarbeitete und erweiterte Auflage vorgelegt, die die zwischenzeitlichen Änderungen an den kommentierten Normen berücksichtigt. Dieser Kommentar enthält Erläuterungen zu den technischen Regeln für die Ausführung von Stahlbauten in DIN EN 1090-2 "Ausführung von Stahltragwerken und Aluminiumtragwerken - Teil 2: Technische Regeln für die Ausführung von Stahltragwerken" und DIN EN 1090-4 "Ausführung von Stahltragwerken und Aluminiumtragwerken - Teil 4: Technische Anforderungen an kaltgeformte, tragende Bauelemente aus Stahl und kaltgeformte, tragende Bauteile für Dach-, Decken-, Boden- und Wandanwendungen". Er liefert wichtige Zusatz- und Hintergrundinformationen und stellt darüber hinaus Verknüpfungen zu angrenzenden Disziplinen dar. Auszüge aus zitierten Regelwerken werden wiedergegeben und die Umsetzung der Normregelungen anhand von Musterbeispielen illustriert. Eine der wesentlichen Überarbeitungen der DIN EN 1090-2 betraf die technischen Anforderungen an tragende dünnwandige kaltgeformte Bauelemente und Bauteile aus Stahl. Sie waren nicht umfassend genug behandelt. Dieses Teilgebiet des Stahlbaus wurde deshalb aus der bisherigen DIN EN 1090-2 herausgelöst und in die neue Teilnorm DIN EN 1090-4 überführt um mit der notwendigen Ausführlichkeit dargestellt zu werden. DIN EN 1090-4 wurde 2018 veröffentlicht und ist im vorliegenden Buch erstmalig kommentiert. Die aktuellen Fassungen beider Normteile im Volltext sind auf der dem

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Buch beigefügten CD-ROM enthalten. Die in der Voraufgabe von "Ausführung von Stahlbauten" ebenfalls kommentierte DIN EN 1090-1 ist in der Neuauflage nicht enthalten, da sie keine technischen Regeln für das Bauen, sondern ausschließlich Regeln für den formalen Konformitätsnachweis und die CE-Kennzeichnung des Bauproduktes "Tragende Stahlbauteile" enthält. Die Überarbeitung ist noch nicht abgeschlossen und der Abdruck der Fassung von 2012-02 ist nicht sinnvoll. Der vorliegende Kommentar ist eine Hilfestellung bei der täglichen Arbeit für alle Fachleute, die sich planend, bauend, prüfend oder überwachend mit der Ausführung von Stahlbauten in Deutschland oder im europäischen Ausland befassen: Ingenieure, Techniker, Meister, technische Kaufleute usw. Der Kommentar folgt streng der Gliederung der beiden kommentierten Normteile, ohne jedoch deren Texte zu wiederholen. Er gibt Zusatz- und Hintergrundinformationen, stellt Verknüpfungen zu angrenzenden Bereichen dar, gibt wichtige Auszüge aus zitierten Regelwerken wieder und illustriert anhand von Musterbeispielen die Umsetzung der Normregelungen. Die Autoren sind selbst an der Erarbeitung der Normen beteiligt, die Kommentierungen und Hintergrundinformationen stammen also aus "erster Hand".

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