

Bre Digest Engineering

A plant engineer is responsible for a wide range of industrial activities, and may work in any industry. The Plant Engineer's Reference Book 2nd Edition is a reference work designed to provide a primary source of information for the plant engineer. Subjects include the selection of a suitable site for a factory and provision of basic facilities, including boilers, electrical systems, water, HVAC systems, pumping systems and floors and finishes. Detailed chapters deal with basic issues such as lubrication, corrosion, energy conservation, maintenance and materials handling as well as environmental considerations, insurance matters and financial concerns. The editor, Dennis Snow, has experience of a wide range of operations in the UK, Europe, the USA, and elsewhere in the world. Produced with the backing of the Institution of Plant Engineers, the Plant Engineer's Reference Book, 2nd Edition provides complete coverage of the information needed by plant engineers in any industry worldwide. Wide range of information will prove to be use to engineers in any industry Covers all the topics necessary to design and develop an engineering plant Will help engineers in industry deal with practical problems in a variety of situations

Civil Engineer's Reference Book, Fourth Edition provides civil engineers with reports on design and construction practices in the UK and overseas. It gives a concise presentation of theory and practice in the many branches of a civil engineer's profession and it enables them to study a subject in greater depth. The book discusses some improvements in earlier practices, for example in surveying, geotechnics, water management, project management, underwater working, and the control and use of materials. Other changes covered are from the evolving needs of clients for almost all forms of construction, maintenance and repair. Another major change is the introduction of new national and Euro-codes based on limit state design, covering most aspects of structural engineering. The fourth edition incorporates these advances and, at the same time, gives greater prominence to the special problems relating to work overseas, with differing client requirements and climatic conditions. Chapters 1 to 10 provide engineers, at all levels of development, with 'lecture notes' on the basic theories of civil engineering. Chapters 11 to 44 cover the practice of design and construction in many of the fields of civil engineering. Civil engineers, architects, lawyers, mechanical engineers, insurers, clients, and students of civil engineering will find benefit in the use of this text.

The book highlights and analyses the distress to buildings caused by sulphate-induced heave, with particular reference to the recent problems in the Dublin area of Ireland. It describes the formation of pyrite, the processes involved in its oxidation and the various ways in which consequential expansion takes place. For the first time in the literature it discusses the way that buildings can be raised above their supporting foundation walls by the expansion of pyritiferous fill which has been used beneath ground-bearing floor slabs in Ireland. The significance of fractures through the iron sulphide microcrystals for the rate and extent of oxidation is discussed. Photographs and profiles of sulphate ingress into concrete/concrete blocks are presented. Case histories from the UK, North America and Ireland are discussed.

This is a very thorough revision of an established textbook first published in 1978 (second edition 1985). While retaining the successful style and basic organisations of the previous editions, the authors have brought this edition up to date with the latest equipment and methods for modern site surveying.

Geotechnical Engineering for Transportation Infrastructure

Implications of Pyrite Oxidation for Engineering Works

Fundamentals of Ground Improvement Engineering

Properties, Uses, Degradation, Remediation

BRE News

Summing up knowledge and understanding of engineering geology as it applies to the urban environment at the start of the 21st century, this volume demonstrates that: working standards are becoming internationalised: risk assessment is driving decision-making: geo-

environmental change is becoming better understood: greater use of underground space is being made; and IT advances are improving subsurface visualization. --

This Digest gives guidance for professional engineers on the structural appraisal of existing buildings for a change of use, in particular as required by The Building Regulations for England and Wales. Regulation 6 requires that, in case of material change of use, that is change of use to an hotel, public building or an institution, the building must comply with the requirements of Parts A1, A2, A3 and A4 of Schedule 1. The approach to structural appraisal of an existing building is fundamentally different from that taken in designing the structure of a proposed building. This Digest explains the differences and describes a practical sequence for carrying out such an appraisal. The reporting and implementation of the findings of an appraisal for change of use are outlined. The need for, and approach to, testing of materials and structures are discussed and sources of information are given to aid appraisal. The Digest deals with the structural appraisal of both traditional buildings - constructed using rules of thumb and experience for the layout and sizing of structural members - and those whose structure has been designed, calculated and specified according to engineering principles.

This Digest is part of a suite of related documents containing guidance for the construction industry on structural fire engineering design. The intention is to produce performance based guidance that brings together fire engineering and structural engineering providing a framework within which designers are free to develop site specific solutions based on real performance criteria. The Digests contain information complementary to the existing and emerging fire engineering codes and standards. Each digest may be used in isolation or as part of the full integrated suite. This Digest provides information on methods to calculate the time-temperature response for building fires based on the physical characteristics of the fire compartment. The purpose of this Digest is to discuss the most relevant calculation methods in the UK and European standards, to recommend the most appropriate method for design and to provide worked examples and comparisons with experimental data.

An essential resource on the design and performance of common structural materials when they are exposed to fire.

Soil Mechanics

Fire Development

Ground Engineering

Artificial Intelligence and Civil Engineering

A Professional Approach to Investigation

Designing structures to withstand the effects of fire is challenging, and requires a series of complex design decisions. This third edition of Fire Safety Engineering Design of Structures provides practising fire safety engineers with the tools to design structures to withstand fires. This text details standard industry design decisions, and offers Ground improvement has been one of the most dynamic and rapidly evolving areas of geotechnical engineering and construction over the past 40 years. The need to develop sites with marginal soils has made ground improvement an increasingly important core component of geotechnical engineering curricula. Fundamentals of Ground Improvement Engineering addresses the most effective and latest cutting-edge techniques for ground improvement. Key ground improvement methods are introduced that provide readers with a thorough understanding of the theory, design principles, and construction approaches that underpin each method. Major topics are compaction, permeation grouting, vibratory methods, soil mixing, stabilization and solidification, cutoff walls, dewatering, consolidation, geosynthetics, jet grouting, ground freezing, compaction grouting, and earth retention. The book is ideal for undergraduate and graduate-level university students, as well as practitioners seeking fundamental background in these techniques. The numerous problems, with worked examples, photographs, schematics, charts and graphs make it an excellent reference and teaching tool.

Plant engineers are responsible for a wide range of industrial activities, and may work in any industry. This means that breadth of knowledge required by such professionals is so wide that previous books addressing plant engineering have either been limited to only certain subjects or cursory in their treatment of topics. The Plant Engineering Handbook offers comprehensive coverage of an enormous range of subjects which are of vital interest to the plant engineer and anyone connected with industrial operations or maintenance. This handbook is packed with indispensable information, from defining just what a Plant Engineer actually does, through selection of a suitable site for a factory and provision of basic facilities (including boilers, electrical systems, water, HVAC systems, pumping systems and floors and finishes) to issues such as lubrication, corrosion, energy conservation, maintenance and materials handling as well as environmental considerations, insurance matters and financial concerns. One of the major features of this volume is its comprehensive treatment of the maintenance management function; in addition to chapters which outline the operation of the various plant equipment there is specialist advice on how to get the most out of that equipment and its operators. This will enable the reader to reap the rewards of more efficient operations, more effective employee contributions and in turn more profitable performance from the plant and the business to which it contributes. The Editor, Keith Mobley and the team of expert contributors, have practiced at the highest levels in leading corporations across the USA, Europe and the rest of the world. Produced in association with Plant Engineering magazine, this book will be a source of information for plant engineers in any industry worldwide. *

A Flagship reference work for the Plant Engineering series * Provides comprehensive coverage on an enormous range of subjects vital to plant and industrial engineer * Includes an international perspective including dual units and regulations

Exhaustive, authoritative and comprehensive, using 160 statistical tables, this book addresses the fundamental structure of materials and remediation, and looks at the properties of water and water-induced degradation and deterioration, with chapters on moisture effects in buildings and materials, corrosion theory and metal protection. The authors explain the behaviour of materials in fires, fundamental fire resistance principles and techniques, calculation of flame temperatures, and the removal of heat by nitrogen and other combustion products. It addresses properties performance, degradation of masonry, plastics, adhesives, sealants, timber, glass and fibre composites, metals and alloy elements. Phase diagrams show cooling curves and structure for metals and alloys. Concrete technology is developed in relation to degradation, electro-potential mapping and cathodic protection of reinforced concrete. The book is fully updated to current British and European standards. Addresses the fundamental structure of materials and remediation and looks at the properties of water and water-induced degradation and deterioration Explains the behaviour of materials in fires, fundamental fire resistance principles and techniques, calculation of flame temperatures and the removal of heat Fully updated to current British and European standards

Construction Technology 2: Industrial and Commercial Building

Developments and Applications : Proceedings of the International Conference on Slope Stability

Aspects of Life Safety

International Handbook of Structural Fire Engineering

Civil Engineer's Reference Book

The combined challenges of health, comfort, climate change and energy security cross the boundaries of traditional building disciplines. This authoritative collection, focusing mostly on energy and ventilation, provides the current and next generation of building engineering professionals with what they need to work closely with many disciplines to meet these challenges. A Handbook of Sustainable Building Engineering covers: how to design, engineer and monitor a building in a manner that minimises the emissions of greenhouse gases; how to adapt the environment, fabric and services of existing and new buildings to climate change; how to improve the environment in and around buildings to provide better health, comfort, security and productivity; and provides crucial expertise on monitoring the performance of buildings once they are occupied. The authors explain the principles behind built environment engineering, and offer practical guidance through international case studies.

This Digest is part of a suite of related documents containing guidance for the construction industry on structural fire engineering design. The intention is to produce performance based guidance that brings together fire engineering and structural engineering providing a framework within which designers are free to develop site specific solutions based on real performance criteria. The Digests contain information complementary to the existing and emerging fire engineering codes and standards. Each Digest may be used in isolation or as part of the full integrated suite. This Digest gives a general overview of methods for predicting the thermal response of structures to fire. These methods provide the essential link between the description of the heating conditions due to the fire itself (covered in BRE Digest 485) and the structural performance of building components (covered in Parts 1-4 of BRE Digest 487). The common structural materials are considered (ie steel, concrete, masonry and timber) including the effects of typical protection materials as appropriate. The main analysis concerns heat transfer within solid phase materials, but methods for describing the thermal exposure boundary conditions at the surface of the structural members are also addressed.

Mechanical Engineer's Reference Book, 12th Edition is a 19-chapter text that covers the basic principles of mechanical engineering. The first chapters discuss the principles of mechanical engineering, electrical and electronics, microprocessors, instrumentation, and control. The succeeding chapters deal with the applications of computers and computer-integrated engineering systems; the design standards; and materials' properties and selection. Considerable chapters are devoted to other basic knowledge in mechanical engineering, including solid mechanics, tribology, power units and transmission, fuels and combustion, and alternative energy sources. The remaining chapters explore other engineering fields related to mechanical engineering, including nuclear, offshore, and plant engineering. These chapters also cover the topics of manufacturing methods, engineering mathematics, health and safety, and units of measurements. This book will be of great value to mechanical engineers.

This edition of David Chadderton's text provides study materials in the fields of construction, architectural, surveying and energy engineering.

Engineering Materials Science

Tall Buildings

Materials Behaviour – Masonry

Principles and Practice

Fire Safety Engineering Design of Structures, Second Edition

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'Materials for Architects and Builders' covers the broad range of key materials used within the construction industry and is a descriptive introduction to the manufacture, key physical properties, specification and uses of the major building materials. This new edition has been completely revised and updated to include the latest developments in materials technology, in particular the need to adapt for the ecological impact of different materials. The book is illustrated in colour throughout with many photographs and diagrams showing materials and building components both individually and in use. Each chapter lists the up-to-date British and European Standards, revised Building Regulations together with related Building Research Establishment publications and suggested further reading.
–Essential reading for students of building, architecture and construction
–Extensive coverage all types of building materials
–Updated to include latest national and international standards and regulations

Engineering services within buildings can account for up to forty per cent of the original cost. The energy-using systems that service the building are a significant expense for the building owner in terms of the installed cost, the energy consumed during the forty years, or more, and in the maintenance, repair and upgrading of the systems and plant. This book provides study material in the construction, architectural, surveying and energy engineering subject areas ; it is also suitable for distance learning.

Engineering services present a significant cost in terms of the installation cost, the energy consumed and the maintenance, repair and upgrading of the systems. It is therefore important that construction professionals have a good understanding of the basics and applications of building services engineering. This thoroughly up-dated fourth edition of David Chadderton's text provides study materials in the fields of construction, architectural, surveying and energy engineering. In particular, the chapters on The Built Environment and Energy Economics benefit from the author's recent industrial work. Additional material, including further questions, interactive calculations, simple PowerPoint material and links to related websites, are available on the author's website. David is a Chartered Professional Engineer with the Institution of Engineers Australia, a Chartered Building Services Engineer with the Engineering Council in the UK, through the Chartered Institution of Building Services Engineers, and a Member of the Australian Institute of Refrigeration, Air Conditioning and Heating. Since November 2001, David he has been Director of his own company, Eteq Pty Ltd. specializing in the designing and implementation of energy saving projects in commercial, health care, university and manufacturing buildings.

Integrated Design and Cost Management for Civil Engineers

"An Integrated Approach to Energy, Health and Operational Performance"

Building Services Engineering

Structural Appraisal of Existing Buildings for Change of Use

Mechanical Engineer's Reference Book

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data and extrapolating from test results; complete modelling of the fire process using fundamental physical data.

Serving as a comprehensive resource that builds a bridge between engineering disciplines and the building sciences and trades, Forensic Engineering: Damage Assessments for Residential and Commercial Structures, Second Edition provides an extensive look into the world of forensic engineering. Focusing on investigations associated with methodologies for performing insurance-related investigations, including the causation and origin of damage to residential and commercial structures and/or unhealthy interior environments and adverse effects on the occupants of these structures. Edited by an industry expert with more than 40 years of experience and contributors with takes the technical aspects of engineering and scientific principles and applies them to real-world issues in a nontechnical manner. The book provides readers with the experiences, investigation methodologies, and investigation protocols used in and derived from thousands of forensic engineering investigations. FEATURES Covers 24 topics field investigations Provides a proven methodology based on engineering and scientific principles, experience, and common sense to determine the causes of forensic failures pertaining to residential and commercial properties Includes references to many codes, standards, technical literature, and industry best practices Illustrates detailed figures for industry best practices as well as to identify improper installations Combines information from a multitude of resources into one succinct, easy-to-use guide This book details proven methodologies based on over 10,000 field investigations in which the related strategies can be practically applied and appreciated by both professionals and students Construction Technology 2: Industrial and Commercial Building is a widely used and popular textbook designed specifically to support the study of industrial and commercial building technology at undergraduate degree and HNC/HND level. This second edition has been thoroughly revised to reflect new technology and construction methods. structure for ease of use • Unique pedagogical features including comparative studies, case studies and review tasks • New material on sustainability, including green and intelligent buildings • Updated for new building regulations • Enhanced page layout, with improved figures and new photos A companion website featuring extra photographs and illustrations is available at www.palgrave.com/science/engineering/riley2 This volume builds on the subject matter introduced in Construction Technology 1: House Construction, but is also valuable as a standalone text. Mike Riley is Director and Alison Cotgrave is Deputy Director of the School of the Built Environment, Liverpool John Moores University, UK. Both have extensive experience in the field of building technology at undergraduate and postgraduate level.

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Fire and Thermal Response

Forensic Engineering

Materials for Architects and Builders

Engineering Geology for Tomorrow's Cities

Introduction

This volume provides an authoritative and comprehensive state-of-the-art review of hot desert terrains in all parts of the world, their geomaterials and influence on civil engineering site investigation, design and construction. It primarily covers conditions and materials in modern hot deserts, but there is also coverage of unmodified ancient desert soils that exhibit engineering behaviour similar to modern desert materials. Thorough and up-to-date guidance on modern field evaluation and ground investigation techniques in hot arid areas is provided, including reference to a new approach to the desert model and detailed specialized assessments of the latest methods for materials characterization and testing. The volume is based on world-wide experience in hot desert terrain and draws upon the knowledge and expertise of the members of a Geological Society Engineering Group Working Party comprising practising geologists, geomorphologists and civil engineers with a wealth of varied, but complementary experience of working in hot deserts. This is an essential reference book for professionals, as well as a valuable textbook for students. It is written in a style that is accessible to the non-specialist. A comprehensive glossary is also included.

Find Practical Solutions to Civil Engineering Design and Cost Management Problems A guide to successfully designing, estimating, and scheduling a civil engineering project, Integrated Design and Cost Management for Civil Engineers shows how practicing professionals can design fit-for-use solutions within established time frames and reliable budgets. This text combines technical compliance with practical solutions in relation to cost planning, estimating, time, and cost control. It incorporates solutions that are technically sound as well as cost effective and time efficient. It focuses on the integration of design and construction based on solid engineering foundations contained within a code of ethics, and navigates engineers through the complete process of project design, pricing, and tendering. Well illustrated The book uses case studies to illustrate principles and processes. Although they center on Australasia and Southeast Asia, the principles are internationally relevant. The material details procedures that emphasize the correct quantification and planning of works, resulting in reliable cost and time predictions. It also works toward minimizing the risk of losing business through cost blowouts or losing profits through underestimation. This Text Details the Quest for Practical Solutions That: Are cost effective Can be completed within a reasonable timeline Conform to relevant quality controls Are framed within appropriate contract documents Satisfy ethical professional procedures, and Address the client's brief through a structured approach to integrated design and cost management Designed to help civil engineers develop and apply a multitude of skill bases, Integrated Design and Cost Management for Civil Engineers can aid them in maintaining relevancy in appropriate design justifications, guide work tasks, control costs, and structure project timelines. The book is an ideal link between a civil engineering course and practice.

Included in this volume are papers presented at the Second International Conference on the Application of Artificial Intelligence to Civil & Structural Engineering, 3-5 September, 1991, Oxford.

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Hot Deserts

Plant Engineer's Handbook

A Handbook of Sustainable Building Design and Engineering

Surveying for Engineers

From Engineering to Sustainability

This volume draws on the experience and extensive research of an international authorship to bring together details on slope stability, causes of landslides, landslide prevention, new techniques for assessing and predicting stability, new methods for stabilising slopes and the special considerations for coastal situations.

This Digest is part of a suite of related documents containing guidance for the construction industry on structural fire engineering design. The intention is to produce performance based guidance that brings together fire engineering and structural engineering providing a framework within which designers are free to develop site specific solutions based on real performance criteria. The Digests contain information complementary to the existing and emerging fire engineering codes and standards. Each Digest may be used in isolation or as part of the full integrated suite. Owing to its high thermal conductivity exposed steel will increase in temperature very quickly during a fire, losing strength and stiffness. The designer must ensure that any building will maintain its stability for a reasonable period should any accidental fire occur. This Digest presents the current available design tools to ensure stability of steel framed buildings during a fire. Results from tests on a full-size building at Cardington have been used to develop a new design method for composite floorplates. These tests also give a better understanding of connection behaviour during a fire.

This Handbook is focused on structural resilience in the event of fire. It serves as a single point of reference for practicing structural and fire protection engineers on the topic of structural fire safety. It is also stands as a key point of reference for university students engaged with structural fire engineering.

"The investigation of failures - ranging from serviceability to catastrophic - which may lead to legal activity, including both civil and criminal."-- Ed. pref.

Materials Behaviour - Steel

Damage Assessments for Residential and Commercial Structures

Engineering, Geology and Geomorphology : Engineering Group Working Party Report

Structural Fire Engineering Design

Building Maintenance

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Fire Safety Engineering Design of Structures

Plant Engineer's Reference Book

Slope Stability Engineering

BRE Digest

4th Edition