Concrete Repair And Maintenance Illustrated Problem Analysis

This book will be of interest to everyone involved in the repair, maintenance and refurbishment of traditional buildings. Its purpose is to promote the successful structural repair of masonry, timber and unfired earth. The book begins by explaining how traditional structures work and how they are affected by the behaviour of the soil that supports them. It goes on to explain how the structural design of buildings has to cope with uncertainty. Techniques for doing so are well established for new buildings, but the viewpoint changes when existing buildings need to be repaired or refurbished. The most common sources of structural damage are listed. The more serious and progressive ones are described in detail, as an aid to diagnosis and prognosis. An understanding of prognosis enables repairers to decide whether urgent intervention is necessary or whether the problem can be allowed to run its course. A straightforward method is proposed for arriving at the most suitable remedy. Several typical repairs are illustrated. The book covers many allied topics, including the principles of conservation, health and safety and preventative maintenance. A chapter is devoted to the special needs of insured perils.

New Materials in Civil Engineering provides engineers and scientists with the tools and methods needed to meet the challenge of designing and constructing more resilient and sustainable infrastructures. This book is a valuable guide to the properties, selection criteria, products, applications, lifecycle and recyclability of advanced materials. It presents an A-to-Z approach to all types of materials, highlighting their key performance properties, principal characteristics and applications. Traditional materials covered include concrete, soil, steel, timber, fly ash, geosynthetic, fiber-reinforced concrete, smart materials, carbon fiber and reinforced polymers. In addition, the book covers nanotechnology and biotechnology in the development of new materials. Covers a variety of materials, including fly ash, geosynthetic, fiber-reinforced concrete, smart materials, carbon fiber reinforced polymer and waste materials Provides a "one-stop resource of information for the latest materials and practical applications Includes a variety of different use case studies

The first European edition of Francis DK Ching's classic visual guide to the basics of building construction. For nearly four decades, the US publication Building Construction Illustrated has offered an outstanding introduction to the principles of building construction. This new European edition focuses on the construction methods most commonly used in Europe, referring largely to UK Building Regulations overlaid with British and European, while applying Francis DK Ching's clear graphic signature style. It provides a coherent and essential primer, presenting all of the basic concepts underlying building construction and equipping readers with useful guidelines for approaching any new materials or techniques they may encounter. European Building Construction Illustrated provides a comprehensive and lucid presentation of everything from foundations and floor systems to finish work. Laying out the material and structural choices available, it provides a full understanding of how these choices affect a building?s form and dimensions. Complete with more than 1000 illustrations, the book moves through each of the key stages of the design process, from site selection to building components, mechanical systems and finishes. Illustrated throughout with clear and accurate drawings that effectively communicate construction processes and materials Provides an overview of the mainstream construction methods used in Europe Based around the UK regulatory framework, the book refers to European level regulations where appropriate. References leading environmental assessment methods of BREEAM and LEED, while outlining the Passive House Standard Includes emerging construction methods driven by the sustainability agenda, such as structural insulated panels and insulating concrete formwork Features a chapter dedicated to construction in the Middle East, focusing on the Gulf States

Pressure grouting is an essential construction procedure that is practiced by contractors and engineers around the world. Used since the 19th century, grouting reduces the amount of leakage through rock for dam foundations and underground works. It also strengthens soils to provide a stable foundation to support the weight of surface structures, such as buildings, bridges, and storage tanks. In addition, it is frequently used to repair deteriorated concrete and to produce concrete underwater. This manual introduces various types of equipment employed in pressure grouting applications performed in geotechnical works and examines the operating principles and maintenance issues relative to each equipment type. The term pressure grouting encompasses a wide variety of applications and operations, including dam foundation grouting, soil stabilization and permeation, consolidation and compaction grouting (except low-mobility), water cutoff and structural stabilization in rock tunnels, deep foundations via drilled piers, underwater concrete, structural concrete repairs, raising of settled slabs and structures, rock and soil anchors, and machine foundations and bases. The applications for pressure grouting operations are almost limitless, as the equipment can be employed anywhere fluid grout can be used. Primarily intended for machine operators and maintenance mechanics, this manual will also prove useful to specification writers, engineers, contractors, purchasing managers, and others who have a responsibility to specify, acquire, operate, or maintain pressure grouting equipment. Topics covered include mixers, agitators, pumps, delivery systems and accessories, but not electronic monitoring and other ancillary equipment.

Concrete is an inherently complex material to produce and an even more complex material to repair. With growing pressure to maintain the built environment, and not simply to demolish and rebuild, the need to repair concrete buildings and other structures is increasing and is expected to become of greater importance in the future.This straightforwar

Traditional farmsteads and farm buildings make an important contribution to the remarkably varied character of England's landscape. They are fundamental to its sense of place and are as important to the character of the countryside as the pattern of fields and boundaries associated with them. Together they help to create local identity and local distinctiveness. They also provide tangible evidence of local history and forgotten skills. Retaining such buildings matters because their history tells us of past practices, technology, innovation and achievements. However, changing agricultural practices and economic pressures mean that many traditional farm buildings have lost their original purpose and become vulnerable to neglect and decay. Even those that remain in active agricultural use still need regular maintenance and periodic repairs to keep them in good order. This guidance provides practical advice to farmers, land managers and others involved with the maintenance and repair of traditional farm buildings. It also explains how work of this kind can be considered in a wider context of sustainable management to ensure these buildings have an economic value and a future. The guidance is primarily directed to buildings in active farming or related uses, but it is also relevant for those that have an uncertain future or need urgent works to prevent further deterioration of their structure and fabric. This replaces the previous edition published in September 2011.

This publication includes two pavement maintenance manuals intended for use by highway maintenance agencies and contracted maintenance firms in the field and in the office. Each is a compendium of good practices for Portland cement concrete joint resealing and partial-depth spall repair, respectively, and stem from two Strategic Highway Research Program studies. The first manual covers the need for joint resealing, the planning and design, construction, and evaluation of joint seal performance. The second manual gives a description of procedures and materials recommended for partial-depth spall repair in jointed Portland cement concrete pavements. The manual covers the details of planning and design, construction, and evaluation of performance.

The success of a repair or rehabilitation project depends on the specific plans designed for it. Concrete Structures: Protection, Repair and Rehabilitation provides guidance on evaluating the condition of the concrete in a structure, relating the condition of the concrete to the underlying cause or causes of that condition, selecting an appropriate repair material and method for any deficiency found, and using the selected materials and methods to repair or rehabilitate the structure. Guidance is also provided for engineers focused on maintaining concrete and preparing concrete investigation reports for repair and rehabilitation projects. Considerations for certain specialized types of rehabilitation projects are also given. In addition, the author translates cryptic codes, theories, specifications and details into easy to understand language. Tip boxes are used to highlight key elements of the text as well as code considerations based on the International Code Council or International Building Codes. The book contains various worked out examples and equations. Case Studies will be included along with diagrams and schematics to provide visuals to the book. Deals primarily with evaluation and repair of concrete structures Provides the reader with a Step by Step method for evaluation and repair of Structures Covers all types of Concrete structures ranging from bridges to sidewalks Handy tables outlining the properties of certain types of concrete and their uses

Corrosion of Steel in Concrete
Steel-Reinforced Concrete Structures
Design, Repair and Maintenance
Step-by-Step Projects and Repairs Using Concrete, Brick, Block and Stone
Engineering and Design
New Materials for Next-Generation Commercial Transports
Basic Masonry Illustrated
Problem Analysis; Repair Strategy; Techniques
Concrete
Concrete Repair
Evaluation and Repair of Concrete Structures (Engineer Manual 1110-2-2002)

The term Maintenance of a building refers to the work done for keeping an existing building in a condition where it can perform its intended functions. Usually, the buildings last only for 40 to 50 years in a good shape just because of regular inspection and maintenance that enable timely identification of deteriorated elements. Overlooked dilapidation, inadequate maintenance and lack of repair works may lead to limited life span of a building. This comprehensive book, striving to focus on the maintenance, repair & rehabilitation and minor works of a building, presents useful guidelines that acquaint the readers with the traditional as well as modern techniques for upkeeping and repairing of buildings already constructed. Dexterously organised into five parts, this book in Part I deals with the maintenance of buildings. Description of the construction chemicals, concrete repair chemicals, special materials used for repair, and repair of various parts of a building is given in Part II. Strengthening of reinforced concrete members by shoring, underpinning, plate bonding, RC jacketing and FRP methods are explored in Part III, which also highlights rebuilding of RC slabs and protection of earth slopes. Part IV of the book exposes the reader to the minor works done in a building such as construction of compound walls, gates, waters sumps, house garage, relaying of floors, joining two adjacent rooms and so on. Part V is based on some allied topics involving control on termites and fungus in buildings as well as introduction of Vaastu Shastra and its main recommendations for a single house in a plot. Using an engaging style, this book will prove to be a must-read for the undergraduate and postgraduate students of civil engineering as well as for the polytechnic and ITI diploma students. Besides, the book will also be of immense benefit to the technical professionals across the country. KEY FEATURES • The text displays several figures to make the concepts clear. • Chapter-end references make the text suitable for further study. • Appendices at the end of the text provide extra information on non-destructive field tests for survey of the condition of concrete buildings and rough estimation of the construction and maintenance costs of buildings.

Make any renovation job go smoother. Building renovation, conservation and reuse represents more than half of all construction work - and is projected to increase to 80% by 2004. Structural Renovation of Buildings, by Alexander Newman, puts a single, convenient source of information about all aspects of structural renovation and strengthening of buildings at your fingertips. While its focus is largely on low and midrise buildings, you can apply the principles it clarifies to buildings of any size - steel-framed, masonry, or wood. Whether you're repairing deteriorated concrete...rehabilitating slabs on grade...strengthening lateral-load resisting systems...renovating a building facade...handling seismic upgrades or fire damage, you'll find this time-and-trouble-saving guide loaded with practical tips, methods, and design examples. It's also heavily illustrated with autoCAD generated details, supplier illustrations of materials, procedural techniques, and much, much more.

Whether or not, you are on the job site or back in the office, this book will help you to avoid mistakes, code violations, and wasted time and money. The book's four part treatment begins with constituent materials followed by self contained parts on Concrete Properties, Processes, and Concrete Repair and Rehabilitation. Designed to be an "all in one" reference, the author includes a wealth information for the most popular types of testing. This includes: Analysis of Fresh Concrete; Testing Machines; Accelerated Testing Methods; Analysis of Hardened Concrete and Mortar; Core Sampling and Testing; Assessment of Concrete Construction ; Repair; Quality Concepts; Quality Control; Statistics; Standards, Specifications, and Codes of Practice. With this book in hand, construction engineers and even technicians find valuable information regarding Exposed Concrete Finishes, Repairing Concrete, Formwork, Precast Concrete, Concrete Roads, and Industrial Floors. Project managers and owners will find this reference a valuable guide to concrete both in terms of its applications in construction projects and the science and chemistry of concrete for its own sake. Fundamentals of Concrete Chemistry Handy at your figure tip calculations Tips for working with all types of concretes Covers Roads, floors, and finishes Principles of Precast, Reinforced and Prestressed Concrete

Innovative Bridge Design Handbook: Construction, Rehabilitation, and Maintenance, Second Edition, brings together the essentials of bridge engineering across design, assessment, research and construction. Written by an international group of experts, each chapter is divided into two parts: the first covers design issues, while the second presents current research into the innovative design approaches used across the world. This new edition includes new topics such as foot bridges, new materials in bridge engineering and soil-foundation structure interaction. All chapters have been updated to include the latest concepts in design, construction, and maintenance to reduce project cost, increase structural safety, and maximize durability. Code and standard references have been updated. Completely revised and updated with the latest in bridge engineering and design Provides detailed design procedures for specific bridges with solved examples Presents structural analysis including numerical methods (FEM), dynamics, risk and reliability, and innovative structural typologies

A Complete Guide to Building and Maintaining Green Roofs Written by an industry expert in green roof design and installation, this GreenSource book presents all of the information you need to skillfully design, construct, and maintain green roofs. You will find a wealth of practical details gathered through real-world implementations and independent research. Green Roof Construction and Maintenance explains how to design a green roof, plan for irrigation and drainage, select and place soil and plants, and maintain the entire setup. The book also discusses return on investment, LEED design specifications, and the myriad short- and long-term environmental benefits of green roofs. Filled with step-by-step illustrations and full-color photographs, this is a valuable, hands-on guide to a rapidly emerging trend in the sustainability movement. Green Roof Construction and Maintenance includes: Key questions to ask at each stage of the green building process Tested tips and techniques for successful structural design Construction methods for new and existing buildings Information on insulation, drainage, detailing, irrigation, and plant selection Details on optimal soil formulation Illustrations featuring various stages of construction Best practices for green roof maintenance A survey of environmental benefits, including evapo-transpiration, storm-water management, habitat restoration, and improvement of air quality Tips on the LEED design and certification process Considerations for assessing return on investment Color photographs of successfully installed green roofs Useful checklists, tables, and charts

The maintenance of existing building stock is receiving increasing attention in most developed and in many developing countries. Intended as a comprehensive textbook for students, as well as a valuable reference for the professional, this book is a study of building defects, their diagnosis and cure. It deals with the full range of materials, components and elements involved in a building and is fully illustrated and referenced throughout.

This new textbook provides a comprehensive introduction to everyaspect of the technology of low-rise construction. It includessub-structure (site work, setting out and foundations) andsuperstructure (flooring, roofs, finishes, fittings and fixtures).The material here covers the first year course requirement of allcourses on which construction technology is taught - no matter whatthe ultimate qualification. It offers tried and tested solutions to a range of constructionproblems and is organised following the sequence of construction.It will show what has been done in the past, demonstrating goodpractice - what works and what doesn't - and common faults. Thereare summaries of the more important BSI documents and reference tothe latest building regulations. Lengthy explanations are avoided by relying heavily on hundreds ofillustrations, pairing detail drawings with clear photographs toshow real life construction situations. The supporting spreadsheet referred to in the book can be found atthis linkhttp://www.blackwellpublishing.com/pdf/fleming/Fleming_spreadsheet.xls

-- Includes instructions for building popular masonry projects, such as barbecues, patios and retaining walls. -- Step-by-step instructions accompanied by color photos.

The Complete Photo Guide to Home Repair & Improvement
Concrete Pavement Repair Manuals of Practice
Reliability of Structures, Second Edition
Grouting Equipment Manual
Case Studies in Conservation Practice
Concrete Repair and Maintenance Illustrated
Structural Repair of Traditional Buildings
Prevention, Diagnosis, Repair
The Complete Guide to Home Masonry
Failure, Distress and Repair of Concrete Structures
REPAIR AND REHABILITATION OF CONCRETE STRUCTURES

"Clear, step-by-step instructions with full-color photography show how to accomplish the most common home repair, maintenance and improvement tasks. A complete homeowners manual for jobs that cover every part of the home, including electrical, plumbing, flooring, walls, windows and doors, kitchens, bathrooms, cabinetry, garages, basements, and exteriors"--

From parking garages to roads and bridges, to structural concrete, this comprehensive book describes the causes, effects and remedies for concrete wear and failure. Hundreds of clear illustrations show users how to analyze, repair, clean and maintain concrete structures for optimal performance and cost effectiveness. This book is an invaluable reference for planning jobs, selecting materials, and training employees. With information organized in all-inclusive units for easy reference, this book is ideal for concrete specialists, general contractors, facility managers, civil and structural engineers, and architects.

This manual provides guidance on evaluating the condition of the concrete in a structure, relating the condition of the concrete to the underlying cause or causes of that condition, selecting an appropriate repair material and method for any deficiency found, and using the selected materials and methods to repair or rehabilitate the structure. Guidance is also included on maintenance of concrete and on preparation of concrete investigation reports for repair and rehabilitation projects. Considerations for certain specialized types of rehabilitation projects are also given.

Structural engineers must focus on a structure's continued safety throughout its service life. Reinforced Concrete Structural Reliability covers the methods that enable engineers to keep structures reliable during all project phases, and presents a practical exploration of up-to-date techniques for predicting the lifetime of a structure. The book a

This book examines the corrosion of reinforced concrete from a practical point of view, highlights protective design and repair procedures, and presents ongoing maintenance protocols. Updated throughout, this new edition adds additional information on concrete repair using Carbon Fiber Reinforced Polymers (CFRP), and reviews new examples of the effects of corrosion on both prestressed and reinforced concrete structures. It also examines economic analysis procedures and the probability of structural failures to define structural risk assessment, and covers precautions and recommendations for protecting reinforced concrete structures from corrosion based on the latest codes and specifications.

Understanding and recognising failure mechanisms in concrete is a fundamental pre-requisite to determining the type of repair, or whether a repair is feasible. This title provides a review of concrete deterioration and damage, as well as looking at the problem of defects in concrete. It also discusses condition assessment and repair techniques. Part one discusses failure mechanisms in concrete and covers topics such as causes and mechanisms of deterioration in reinforced concrete, types of damage in concrete structures, types and causes of cracking and condition assessment of concrete structures. Part two reviews the repair of concrete structures with coverage of themes such as standards and guidelines for repairing concrete structures, methods of crack repair, repair materials, bonded concrete overlays, repairing and retrofitting concrete structures with fiber-reinforced polymers, patching deteriorated concrete structures and durability of repaired concrete. With its distinguished editor and international team of contributors, Failure and repair of concrete structures is a standard reference for civil engineers, architects and anyone working in the construction sector, as well as those concerned with ensuring the safety of concrete structures. Provides a review of concrete deterioration and damage Discusses condition assessment and repair techniques, standards and guidelines

The Glossary for Transport Statistics was published for the first time in 1994 with the purpose of assisting member countries during the collection of data on transport using the Common Questionnaire developed by the United Nations Economic ...

This manual was prepared for the Bureau of Reclamation of the United States Department of the Interior. It discusses the Bureau of Reclamation's methodology for concrete repair, addresses the more common causes of damage to concrete, and identifies the methods and materials most successful in repairing concrete damage. This guide contains the expertise of numerous individuals who have directly assisted the author on many concrete repair projects or freely shared their concrete repair knowledge whenever requested.

Reinforced Concrete Structural Reliability
Concrete Repair Manual, Fourth Edition
Illustrated Glossary for Transport Statistics 4th Edition
Innovative Bridge Design Handbook
Fundamentals of Residential Construction
Concrete Structures
Construction, Rehabilitation and Maintenance
Black & Decker The Book of Home How-To
An Illustrated Introduction
Assessment, Evaluation, and Repair of Concrete, Steel, and Offshore Structures
MAINTENANCE, REPAIR & REHABILITATION AND MINOR WORKS OF BUILDINGS

The field of Concrete Repair and Rehabilitation is gaining importance in view of its positive impacts in terms of socio-economic benefits and environmental sustainability. Due to growing importance of this field, many engineering colleges have included the subject of concrete repair and rehabilitation in the senior undergraduate and postgraduate course curriculums of civil engineering. This book is an earnest attempt to help students of civil engineering in enhancing their understanding and awareness about critical elements of repair and rehabilitation of concrete structure. The content is organised in such a way that it fulfils the academic needs of the students. This text attempts to dovetail all important aspects such as causes of distress, assessment and evaluation of deterioration, techniques for repair and rehabilitation along with selection of repair and rehabilitation materials and other important aspects related to preventive maintenance and rehabilitation/structural safety measures. The primary objective of this textbook is to guide students to: • Understand the underlying causes and types of deterioration in concrete structure • Learn about the field and laboratory testing methods available to evaluate the level of deterioration. • Get well acquainted with options of repair materials and techniques available to address different types of distress in concrete structure. • Grasp the knowledge of available techniques and their application for strengthening existing structural systems.

Steel-reinforced concrete is used ubiquitously as a building material due to its unique combination of the high compressive strength of concrete and the high tensile strength of steel. Therefore, reinforced concrete is an ideal composite material that is used for a wide range of applications in structural engineering such as buildings, bridges, tunnels, harbor quays, foundations, tanks and pipes. To ensure durability of these structures, however, measures must be taken to prevent, diagnose and, if necessary, repair damage to the material especially due to corrosion of the steel reinforcement. The book examines the different aspects of corrosion of steel in concrete, starting from basic and essential mechanisms of the phenomenon, moving up to practical consequences for designers, contractors and owners both for new and existing reinforced and prestressed concrete structures. It covers general aspects of corrosion and protection of reinforcement, forms of attack in the presence of carbonation and chlorides, problems of hydrogen embrittlement as well as techniques of diagnosis, monitoring and repair. This second edition updates the contents with recent findings on the different topics considered and bibliographic references, with particular attention to recent European standards. This book is a self-contained treatment for civil and construction engineers, material scientists, advanced students and architects concerned with the design and maintenance of reinforced concrete structures. Readers will benefit from the knowledge, tools, and methods needed to understand corrosion in reinforced concrete and how to prevent it or keep it within acceptable limits.

Build with brick, stone, adobe and more. Includes techniques and projects.

The first title in a new series aimed at sharing best practices in the conservation of modern heritage. This timely volume brings together fourteen case studies that address the challenges of conserving the twentieth century's most ubiquitous building material—concrete. Following a meeting of international heritage conservation professionals in 2013, the need for recent, thorough, and well-vetted case studies on conserving twentieth-century heritage became clear. Concrete: Case Studies in Conservation Practice answers that need and kicks off a new series, Conserving Modern Heritage, aimed at sharing best practices. The projects selected represent a range of building typologies, building uses, and project sizes, from the high-rise housing blocks of Le Corbusier's Unité d'Habitation and public buildings such as the London's National Theatre to small monuments such as the structures at Dudley Zoological Gardens and a sculpture by Donald Judd. The projects also represent a range of environmental and economic contexts. Some projects benefit from high levels of heritage protection and access to funding, while others have had to negotiate conservation with stringent cost limitations. All follow a rigorous conservation approach, beginning with a process of investigation and diagnosis to identify causes and target repairs and balancing these with conservation requirements to preserve significance. Written by architects, engineers, conservators, scholars, and other professionals in the field, these highly detailed and well-illustrated studies demonstrate sound practice, rigorous methodology, and technological innovation and represent the vibrancy of the field as it stands today. This book has something to offer anyone interested in the conservation of modern heritage.

The tool you need to successfully carry out concrete repair and maintenance projects. Designed for ease of use by all participants in the repair process-contractors, engineers, material suppliers, owners and facility managers-the books' unique -illustrated format provides an organized, quick and easy-to-fqlllow examination of each topic. -Over 220 major topics cdver • Concrete Behavior • Stabilization and Strengthening • ^Evaluating Concrete Problems Protection-"• Surface Repair "Exterisive,"detailed illustrations throughout the book guide users in the proper planning and execution of repairs. Succinct coverage topics in one- and . two-page "modules" provides excellent references for use in presentations.

The major objective of this book was to identify issues related to the introduction of new materials and the effects that advanced materials will have on the durability and technical risk of future civil aircraft throughout their service life. The committee investigated the new materials and structural concepts that are likely to be incorporated into next generation commercial aircraft and the factors influencing application decisions. Based on these predictions, the committee attempted to identify the design, characterization, monitoring, and maintenance issues that are critical for the introduction of advanced materials and structural concepts into future aircraft.

First published in 1984, Limit Analysis and Concrete Plasticity explains for advanced design engineers the principles of plasticity theory and its application to the design of reinforced and prestressed concrete structures, providing a thorough understanding of the subject, rather than simply applying current design formulas. Updated and revised th

The recent worldwide boom in industrial construction and the corresponding billions of dollars spent every year in industrial, oil, gas, and petrochemical and power generation project, has created fierce competition for these projects. Strong management and technical competence will bring your projects in on time and on budget. An in-depth explorat

Advanced Materials and Techniques for Reinforced Concrete Structures
Structural Renovation of Buildings: Methods, Details, & Design Examples
Guide to Concrete Repair
European Building Construction Illustrated
New Materials in Civil Engineering
A Guide to Good Practice
Problem Analysis, Repair Strategy, Techniques
Concrete Repair and Maintenance
Assessment and Repair of Corrosion, Second Edition
Selection, Operation, Maintenance, and Repair
Protection, Repair and Rehabilitation

From China to Kuala Lumpur to Dubai to downtown New York, amazing buildings and unusual structures create attention with the uniqueness of their design. While attractive to developers and investors, the safe and economic design and construction of reinforced concrete buildings can sometimes be problematic. Advanced Materials and Techniques for Rein

The leading guide to professional home construction—now updated and revised! Fundamentals of Residential Construction, Third Edition features the most up-to-date explanations of today's residential construction systems. From foundation to roof and exterior finishes to interior details, this new edition thoroughly addresses the latest developments in materials and methods of house construction, including energy efficiency, framing, and roofing. Abundantly illustrated with more than 1,250 drawings and photographs, including new photorealistic illustrations that bring the text to life, this Third Edition provides authoritative coverage on wood light-frame construction, industrialized systems of construction, insulating concrete forms, light-gauge steel frame, panelized construction, and a new chapter on multifamily construction. Topics covered include: Plumbing Building codes Heating and cooling Financing Wiring Roofing Thermal insulation Environmental concerns Foundations Finish sitework Rough sitework Wood and light-gauge steel framing Engineered materials Exterior and interior finishes Organized in a logical, easy-to-follow format, Fundamentals of Residential Construction, Third Edition is the one-stop source for building professionals to gain a working knowledge of codes, management procedures, material, and all home building concerns.

Reliability of Structures enables both students and practising engineers to appreciate how to value and handle reliability as an important dimension of structural design. It discusses the concepts of limit states and limit state functions, and presents methodologies for calculating reliability indices and calibrating partial safety factors. It also supplies information on the probability distributions and parameters used to characterize both applied loads and member resistances. This revised and extended second edition contains more discussions of US and international codes and the issues underlying their development. There is significant revision and expansion of the discussion on Monte Carlo simulation, along with more examples. The book serves as a textbook for a one-semester course for advanced undergraduates or graduate students, or as a reference and guide to consulting structural engineers. Its emphasis is on the practical applications of structural reliability theory rather than the theory itself. Consequently, probability theory is treated as a tool, and enough is given to show the novice reader how to calculate reliability. Some background in structural engineering and structural mechanics is assumed. A solutions manual is available upon qualifying course adoption.

Civil engineering failures currently amount to 5 to 10 % of the total investment in new buildings and structures. These failures not only represent important cost considerations, they also have an environmental burden associated with them. Structures often deteriorate because not enough attention is given during the design stage and most standards for structural design do not cover design for service life. Designing for durability is often left to the structural designer or architect who may not have the necessary skills, and the result is all too often failure, incurring high maintenance and repair costs. Knowledge of the long-term behaviour of materials, building components and structures is the basis for avoiding these failures. Durability of engineering structures uses on the design of buildings for service life, effective maintenance and repair techniques in order to reduce the likelihood of failure. It describes the in situ performance of all the major man-made materials used in civil engineering construction - metals (steel and aluminium), concrete and wood. In addition some relatively new high-performance materials are discussed - high-performance concrete, high-performance steel and fibre-reinforced polymers (FRP). Deterioration mechanisms and the measures to counteract these, as well as subsequent maintenance and repair techniques are also considered and the latest standards on durability and repair are explained. Strategies for durability, maintenance and repair, including life cycle costing and environmental life cycle assessment methods are discussed. Finally practical case studies show how repairs can be made and the best ways of ensuring long term durability. This book is aimed at students in civil engineering, engineers, architects, contractors, plant managers, maintenance managers and inspection engineers. Explains the reasons why structures often deteriorate before they should because of poor design Shows how to design structures effectively for service life Considers durability characteristics of standard and high performance construction materials

Civil engineers must assure that buildings have long and durable lives, and therefore structural assessment and repair are routinely required and must be performed with the utmost accuracy and professionalism. Assessment, Evaluation, and Repair of Concrete, Steel, and Offshore Structures presents the typical causes of structural failure and their mechanisms, discusses the most up-to-date methods for evaluation and structural assessment, and explains the best project management strategies from the feasibility stage through operations and maintenance. Numerous types of structures are examined and are further illustrated by relevant case studies. Features: Examines the probability of several types of structural failure and includes reliability analysis. Presents best practices for predicting the structural lifetime for both onshore and offshore structures and reviews the most advanced methods for repair. Includes numerous practical case studies of structural failure and offers mitigation strategies depending of type of structure.

Concrete Portable Handbook
The Maintenance and Repair of Traditional Farm Buildings
Durability of Engineering Structures
A Practical Guide
Green Roof Construction and Maintenance (GreenSource Books)
Construction Technology
Limit Analysis and Concrete Plasticity
Construction Management and Design of Industrial Concrete and Steel Structures

Building Maintenance Technology