

2013 Building And Structural Surveying Question Papers

Introduction to Built Asset Management Provides a multidisciplinary introduction to building maintenance management and execution, covering a wide range of current technical and management issues The maintenance and upgrading of existing buildings is no longer viewed as separate from the operational phase of the completed building. Maintenance and management are now regarded as fundamental parts of a building's life cycle, forming a significant percentage of the construction industry's total output. As higher education programmes in the UK and elsewhere continue to place greater emphasis on the longer-term view of construction projects, students and instructors require a thorough and up-to-date textbook that emphasises the comprehensive nature of building maintenance. Introduction to Built Asset Management is a systematic introduction to both the technology and management issues central to building maintenance and refurbishment. Covering the entire life cycle of built assets, the textbook reviews the role of framework agreements, describes key performance indicators, discusses recent advancements in the procurement of maintenance activities and more. Detailed yet accessible chapters include illustrative examples, seminar questions and self-assessment tasks that enable students to measure their progress as they work through the material. Designed to meet the needs of today's learners, this much-needed textbook: Addresses a variety of both environmental and commercial concerns Evaluates important concepts of sustainability, sustainable maintenance and carbon resilience Discusses the growing retrofit market in the wider context of asset management and maintenance Describes information management tools such as building information modelling (BIM) and geographic information systems (GIS) Introduction to Built Asset Management is ideally suited for courses in construction, construction management, building surveying and facilities management with modules in built asset management and maintenance.

Structural Analysis of Historical Constructions. Anamnesis, diagnosis, therapy, controls contains the papers presented at the 10th International Conference on Structural Analysis of Historical Constructions (SAHC2016, Leuven, Belgium, 13-15 September 2016). The main theme of the book is "Anamnesis, Diagnosis, Therapy, Controls", which emphasizes the importance of all steps of a restoration process in order to obtain a thorough understanding of the structural behaviour of built cultural heritage. The contributions cover every aspect of the structural analysis of historical constructions, such as material characterization, structural modelling, static and dynamic monitoring, non-destructive techniques for on-site investigation, seismic behaviour, rehabilitation, traditional and innovative repair techniques, and case studies. A special focus has been put on six specific themes: - Innovation and heritage - Preventive conservation - Computational strategies for heritage structures - Sustainable strengthening of masonry with composites - Values and sustainability, and - Subsoil interaction The knowledge, insights and ideas in Structural Analysis of Historical Constructions. Anamnesis, diagnosis, therapy, controls make this book of abstracts and the corresponding, digital full-colour conference proceedings containing the full papers must-have literature for researchers and practitioners involved in the structural analysis of historical constructions.

Throughout the 38 chapters, this must-have volume outlines essential information about the implementation of emerging technologies, from building information modeling and 3D printing, to life cycle assessment and information technology in construction and engineering projects. It covers practical case studies to demonstrate the implementation of emerging technologies in a compact style, ensuring that practitioners can adopt these methods to realize immediate benefits in productivity, safety and performance improvement.

Explores and brings together the existent body of knowledge on building performance analysis Building performance is an important yet surprisingly complex concept. This book presents a comprehensive and systematic overview of the subject. It provides a working definition of building performance, and an in-depth discussion of the role building performance plays throughout the building life cycle. The book also explores the perspectives of various stakeholders, the functions of buildings, performance requirements, performance quantification (both predicted and measured), criteria for success, and the challenges of using performance analysis in practice. Building Performance Analysis starts by introducing the subject of building performance: its key terms, definitions, history, and challenges. It then develops a theoretical foundation for the subject, explores the complexity of performance assessment, and the way that performance analysis impacts on actual buildings. In doing so, it attempts to answer the following questions: What is building performance? How can building performance be measured and analyzed? How does the analysis of building performance guide the improvement of buildings? And what can the building domain learn from the way performance is handled in other disciplines? Assembles the current body of knowledge on building performance analysis in one unique resource Offers deep insights into the complexity of using building performance analysis throughout the entire building life cycle, including design, operation and management Contributes an emergent theory of building performance and its analysis Building Performance Analysis will appeal to the building science community, both from industry and academia. It specifically targets advanced students in architectural engineering, building services design, building performance simulation and similar fields who hold an interest in ensuring that buildings meet the needs of their stakeholders.

Emerging Trends in Civil Engineering

Heritage Building Information Modelling

Proceedings of the 11th International Conference on Construction in the 21st Century, London 2019

Glass Cullet

Theoretical and Applied Sciences

Structural Damage Survey and Case for Tornado-resilient Building Codes

"This report presents observations, findings, and recommendations from an engineering reconnaissance trip following the May 22, 2011, tornado in Joplin, Missouri. A team of professional engineers, wood scientists, and construction professionals was tasked with investigating and documenting the performance of residences and critical buildings [International Building Code (IBC) Occupancy Category II, III, and IV] in Joplin. The Enhanced Fujita (EF) Scale 5 tornado created a 7-mile-long damage swath, destroying over 5,000 buildings in the process and killing over 150 people. The total economic loss from this single event was nearly 25% of the total loss caused by the 1,400 tornadoes that were reported during Spring 2011. The Joplin tornado occurred just one month after another tornado devastated Tuscaloosa, Alabama, and together these events caused over \$13 billion in economic losses, or approximately 3% of the combined annual Gross Domestic Product (GDP) of the two states"--Provided by publisher.

Clients have been identified as critical for building delivery but have been under-researched with only a few studies about them. This book seeks to address this gap. A deeper look into the nature of construction clients and their relation to building users exposes more fundamental questions related to the activity of building and the activity in the building. These fundamental questions include 'How do clients get what they want?', 'How do clients cope with the building process?', and 'How are clients being shaped by building(s)?'. This book on clients and users is structured around three main themes: Agency is concerned with the classical agency/structure dichotomy on actions, roles and responsibilities or, put differently, whether actors can act freely or are bound by structural constraints. Governance is related to the interplay between clients and the supply system: clients govern the supply system but are at the same time governed by the supply system through different processes and mechanisms. Innovation deals with construction innovation and what part clients and users play in this struggle between change and stability. The book includes theoretical and conceptual frameworks on what constitutes clients and users as well as case studies on R&D themes of relevance to practice.

Developing Property Sustainably introduces readers to the key issues surrounding sustainable property development in the global marketplace. Pulling together received wisdom and original research, the authors provide a clear and practical overview of the sustainable property development process as well as a critical appraisal of the problems faced by global built environment stakeholders. Throughout, the authors demonstrate how the property development industry could and should respond better to debate on sustainable practices in the built environment by adopting more rigorous measurement techniques and sustainable approaches. Starting by exploring key definitions and stakeholders, the book goes on to explore finance, planning, construction, procurement, occupation, retrofit and lifecycle sustainability in order to provide the reader with a detailed understanding of all the issues involved in the delivery of sustainable property development from inception to occupation and beyond. Throughout the book, international case studies are used to demonstrate how sustainable property development is applied in practice around the world. With a logical chapter structure and accessible writing style, Developing Property Sustainably would be perfect for use on undergraduate and postgraduate modules and courses in real estate development, property and urban development and other built environment programmes.

Without a rich learning source that presents state-of-the-art pedagogy covering the key areas of contemporary practice, the industrial field may fall out of line with the current times. By reforming itself to embrace new norms such as social responsibility, deploying modern construction methods including modular building, and modernizing construction contracts, the recent literary material will only positively influence the workforce of the world. Claiming Identity Through Redefined Teaching in Construction Programs provides scholarly insights into the learning and teaching mechanisms developed at different institutions to address the ever-changing attributes in the field of construction management. Featuring topics that include artificial intelligence, industrial law, and operations management, the book is ideal for educators, industrial managers, academics, researchers, and students.

Architectural Research Addressing Societal Challenges

Regional Conference on Science, Technology and Social Sciences (RCSTSS 2016)

Critical Success Factors for Buildings

Managing Building Deterioration

Implementation for Students and Educators

Delivering Value with BIM

This book presents state-of-the-art research and case studies on new approaches to the design, construction and planning of our cities. Emphasis is placed on the role of alternative and renewable energy in the development of urban infrastructures that enable sustainable futures. Reflecting the multi-faceted efforts required to successfully meet sustainability challenges, this book is a collaboration between practitioners and academics across a broad spectrum of specializations. Compelling research findings are explained in the context of practical implementation, enhanced by case studies from industry leaders in order to create a pragmatic reference across policy areas where environmentally aware decision making is required.

Note from the publisher: Now in its sixth edition, this bestselling reference focuses on the basic materials and methods used in building construction. Emphasizing common construction systems such as light wood frame, masonry bearing wall, steel frame, and reinforced concrete construction, the new edition includes new information on building materials properties; the latest on "pre-engineered" building components and sustainability issues; and reflects the latest building codes and standards. It also features an expanded series of case studies along with more axonometric detail drawings and revised photographs for a thoroughly illustrated approach.

Building Information Modelling (BIM) is being debated, tested and implemented wherever you look across the built environment sector. This book is about Heritage Building Information Modelling (HBIM), which necessarily differs from the commonplace applications of BIM to new construction. Where BIM is being used, the focus is still very much on design and construction. However, its use as an operational and management tool for existing buildings, particularly heritage buildings, is lagging behind. The first of its kind, this book aims to clearly define the scope for HBIM and present cutting-edge research findings alongside international case studies, before outlining challenges for the future of HBIM research and practice. After an extensive introduction to HBIM, the core themes of the book are arranged into four parts: Restoration philosophies in practice Data capture and visualisation for maintenance and repair Building performance Stakeholder engagement This book will be a key reference for built environment practitioners, researchers, academics and students engaged in BIM, HBIM, building energy modelling, building surveying, facilities management and heritage conservation more widely.

With the built environment contributing almost half of global greenhouse emissions, there is a pressing need for the property and real estate discipline to thoroughly investigate sustainability concerns. The Routledge Handbook of Sustainable Real Estate brings together the latest research of leading academics globally, demonstrating the nature and extent of the impact as well as suggesting means of mitigating humankind's impact and building resilience. Four sections examine the different aspects of sustainable real estate: governance and policy valuation, investment and finance management redevelopment and adaptation. Covering all land uses from residential to commercial, retail and industrial, the Routledge Handbook of Sustainable Real Estate is an exciting mixture of received wisdom and emerging ideas and approaches from both the developed and developing world. Academics, upper-level students and researchers will find this book an essential guide to the very best of sustainable real estate research.

Agency, Governance and Innovation

Engineering and Design: Structural Deformation Surveying (Engineer Manual Em 1110-2-1009)

Clients and Users in Construction

People, Process and Technology

ECPPM 2014

BIM Teaching and Learning Handbook

This book discusses resilience in terms of structures ' and infrastructures ' responses to extreme loading conditions. These include static and dynamic loads such as those generated by blasts, terrorist attacks, seismic events, impact loadings, progressive collapse, floods and wind. In the last decade, the concept of resilience and resilient-based structures has increasingly gained in interest among engineers and scientists. Resilience describes a given structure ' s ability to withstand sudden shocks. In other words, it can be measured by the magnitude of shock that a system can tolerate. This book offers a valuable resource for the development of new engineering practices, codes and regulations, public policy, and investigation reports on resilience, and provides broad and integrated coverage of the effects of dynamic loadings, and of the modeling techniques used to compute the structural response to these loadings.

The construction industry is amidst a digital transformation that is focused on addressing well-documented issues and calls for significant improvements and changes through increased productivity, whole-life value, client focus, reduction of waste, and being more sustainable. The key aspect to driving change and transformation is the education and upskilling of the required workforce towards developing the required capacities. Various approaches can be taken to embed digital construction within education and through collaborative efforts in order to drive change and facilitate improvements. The Handbook of Research on Driving Transformational Change in the Digital Built Environment focuses on current developments in practice and education towards facilitating transformation in the built environment. This book provides insight, from a practice perspective, in relation to the client ' s understanding, digitally enabled collaboration, interoperability and open standards, and maturity/capability. Covering topics that include digital transformation and construction, digitally enabled infrastructure, building information modelling, collaborative digital education, and the digital built environment, this book is an ideal reference source for engineers, professionals, and researchers in the field of digital transformation as well as doctoral scholars, doctoral researchers, professionals, and academicians.

This book is the essential guide to the pedagogical and industry-inspired considerations that must shape how BIM is taught and learned. It will help academics and professional educators to develop programmes that meet the competences required by professional bodies and prepare both graduates and existing practitioners to advance the industry towards higher efficiency and quality. To date, systematic efforts to integrate pedagogical considerations into the way BIM is learned and taught remain non-existent. This book lays the foundation for forming a benchmark around which such an effort is made. It offers principles, best practices, and expected outcomes necessary to BIM curriculum and teaching development for construction-related programs across universities and professional training programmes. The aim of the book is to: Highlight BIM skill requirements, threshold concepts, and dimensions for practice; Showcase and introduce tried-and-tested practices and lessons learned in developing BIM-related curricula from leading educators; Recognise and introduce the baseline requirements for BIM education from a pedagogical perspective; Explore the challenges, as well as remedial solutions, pertaining to BIM education at tertiary education; Form a comprehensive point of reference, covering the essential concepts of BIM, for students; Promote and integrate pedagogical consideration into BIM education. This book is essential reading for anyone involved in BIM education, digital construction, architecture, and engineering, and for professionals looking for guidance on what the industry expects when it comes to BIM competency.

The authoritative industry guide on good practice forplanning and scheduling in construction This handbook acts as a guide to good practice, a text to accompany learning and a reference document for those needing information on background, best practice, and methods for practical application. A Handbook for Construction Planning & Scheduling presents the key issues of planning and programming in scheduling in a clear, concise and practical way. The book divides into four main sections: Planning and Scheduling within the Construction Context; Planning and Scheduling Techniques and Practices; Planning and Scheduling Methods; Delay and Forensic Analysis. The authors include both basic concepts and updates on current topics demanding close attention from the construction industry, including planning for sustainability, waste, health and safety and Building Information Modelling (BIM). The book is especially useful for early career practitioners -engineers, quantity surveyors, construction managers, project managers - who may already have a basic grounding in civil engineering, building and general construction but lack extensive planning and scheduling experience. Students will find the website helpful with worked examples of the methods and calculations for typical construction projects plus other directed learning material. This authoritative industry guide on good practice for planning and scheduling in construction is written in a direct, informative style with a clear presentation enabling easy access of the relevant information with a companion website providing additional resources and learning support material. the authoritative industry guide on construction planning and scheduling in informative writing style and clear presentation enable easy access of the relevant information companion website provides additional learning material.

Building Information Modelling (BIM) in Design, Construction and Operations

Responding to Climate Change and the Relevance of the Built Environment

Proceedings of the 12th European Conference on Product and Process Modelling (ECPPM 2018), September 12-14, 2018, Copenhagen, Denmark

Fundamentals of Building Construction

Claiming Identity Through Redefined Teaching in Construction Programs

Sustainable Construction Materials

Technological revolutions have changed the field of architecture exponentially. The advent of new technologies and digital tools will continue to advance the work of architects globally,

aiding in architectural design, planning, implementation, and restoration. The Handbook of Research on Emerging Digital Tools for Architectural Surveying, Modeling, and Representation presents expansive coverage on the latest trends and digital solutions being applied to architectural heritage. Spanning two volumes of research-based content, this publication is an all-encompassing reference source for scholars, IT professionals, engineers, architects, and business managers interested in current methodologies, concepts, and instruments being used in the field of architecture.

eWork and eBusiness in Architecture, Engineering and Construction 2018 collects the papers presented at the 12th European Conference on Product and Process Modelling (ECPPM 2018, Copenhagen, 12-14 September 2018). The contributions cover complementary thematic areas that hold great promise towards the advancement of research and technological development in the modelling of complex engineering systems, encompassing a substantial number of high quality contributions on a large spectrum of topics pertaining to ICT deployment instances in AEC/FM, including: • Information and Knowledge Management • Construction Management • Description Logics and Ontology Application in AEC • Risk Management • 5D/nD Modelling, Simulation and Augmented Reality • Infrastructure Condition Assessment • Standardization of Data Structures • Regulatory and Legal Aspects • Multi-Model and distributed Data Management • System Identification • Industrialized Production, Smart Products and Services • Interoperability • Smart Cities • Sustainable Buildings and Urban Environments • Collaboration and Teamwork • BIM Implementation and Deployment • Building Performance Simulation • Intelligent Catalogues and Services eWork and eBusiness in Architecture, Engineering and Construction 2018 represents a rich and comprehensive resource for academics and researchers working in the interdisciplinary areas of information technology applications in architecture, engineering and construction. In the last two decades, the biennial ECPPM (European Conference on Product and Process Modelling) conference series, as the oldest BIM conference, has provided a unique platform for the presentation and discussion of the most recent advances with regard to the ICT (Information and Communication Technology) applications in the AEC/FM (Architecture, Engineering, Construction and Facilities Management) domains.

Heritage Building Information Modelling Taylor & Francis

This book is a printed edition of the Special Issue "Sustainability Assessments of Buildings" that was published in Sustainability

Innovative Production And Construction: Transforming Construction Through Emerging Technologies

Building Sustainable Futures

Select Proceedings of ICETCE 2018

Resilient Structures and Infrastructure

eWork and eBusiness in Architecture, Engineering and Construction

In the last two decades, the biannual ECPPM (European Conference on Product and Process Modelling) conference series has provided a unique platform for the presentation and discussion of the most recent advances with regard to the ICT (Information and Communication Technology) applications in the AEC/FM (Architecture, Engineering, Construction and Facilities Management) domains. ECPPM 2014, the 10th European Conference on Product and Process Modelling, was hosted by the Department of Building Physics and Building Ecology of the Vienna University of Technology, Austria (17-19 September 2014). This book entails a substantial number of high-quality contributions that cover a large spectrum of

topics pertaining to ICT deployment instances in AEC/FM, including: - BIM (Building Information Modelling) - ICT in Civil engineering & Infrastructure - Human requirements & factors - Computational decision support - Commissioning, monitoring & occupancy - Energy & management - Ontology, data models, and IFC (Industry Foundation Classes) - Energy modelling - Thermal performance simulation - Sustainable buildings - Micro climate modelling - Model calibration - Project & construction management - Data & information management As such, eWork and eBusiness in Architecture, Engineering and Construction 2014 represents a rich and comprehensive resource for academics and professionals working in the interdisciplinary areas of information technology applications in architecture, engineering, and construction.

This book gathers selected theoretical and applied science papers presented at the 2016 Regional Conference of Sciences, Technology and Social Sciences (RCSTSS 2016), organized biannually by the Universiti Teknologi MARA Pahang, Malaysia. Addressing a broad range of topics, including architecture, computer science, engineering, environmental and management, furniture, forestry, health and medicine, material science, mathematics, plantation and agrotechnology, sports science and statistics, the book serves as an essential platform for disseminating research findings, and inspires positive innovations in the region's development. The carefully reviewed papers in this volume present work by researchers of local, regional and global prominence. Taken together, they offer a valuable reference guide and point of departure for all academics and students who want to pursue further research in their respective fields.

The offsite and modular market is continuing to grow. This book builds on the success of a number of initiatives, including formative findings from literature, research and development and practice-based evidence (success stories). It presents new thinking and direction from leading experts in the fields of: design, process, construction, engineering, manufacturing, logistics, robotics, delivery platforms, business and transformational strategies, change management, legislation, organisational learning, software design, innovation and biomimetics. This book is particularly novel and timely, as it brings together a number of cogent subjects under one collective 'umbrella'. Each of these chapters contain original findings, all of which culminate in three 'Key Learning Points' which provide new insight into the cross-cutting themes, interrelationships and symbiotic forces that exist between each of these chapters. This approach also provides readers with new contextualised understanding of the wider issues affecting the offsite market, from the need to embrace societal challenges, through to the development of rich value-laden solutions required for creating sector resilience. Content includes a balance between case studies and practice-based work, through to technical topics, theoretical propositions, pioneering research and future offsite opportunities ready for exploitation. This work includes: stakeholder integration, skills acquisition, new business models and processes, circularity and sustainable business strategies, robotics and automation, innovation and change, lean production methodologies and new construction methods, Design for Manufacturing and Assembly, scaled portfolio platforms and customisability, new legal regulatory standards and conformance issues and offsite feasibility scenario development/integration.

Cities, and the built environment more broadly, are key in the global response to climate change. This groundbreaking book seeks to understand what governance tools are best suited for achieving cities that are less harmful to the natural environment,

The Carbon Footprint Handbook

Routledge Companion to Real Estate Development

Building Information Systems in the Construction Industry

Collaboration and Integration in Construction, Engineering, Management and Technology

Handbook of Research on Emerging Digital Tools for Architectural Surveying, Modeling, and Representation

Materials and Methods

This book is the fourth, in the series of five, on sustainable construction materials and like the previous three, it is also different to the norm. Its uniqueness lies in using the newly developed, Analytical Systemisation Method, in building the data-matrix sourced from 751 publications, contributed by 1402 authors from 513 institutions in 51 countries, from 1970 to 2017, on the subject of processed waste glass (glass cullet) as a construction material, and systematically analysing, evaluating and modelling this information for use of glass cullet as cement, aggregate or filler in concrete, ceramics, geotechnics and road pavement applications. Environmental issues, case studies and standards are also discussed. The work establishes what is already known and can be used to further progress the use of sustainable construction materials. It can also help to avoid repetitive research and save valuable resources. The book is structured in an incisive and easy to digest manner and is particularly suited for researchers, academics, design engineers, specifiers, contractors, and government bodies dealing with construction works. Provides an extensive source of valuable database information, supported by an exhaustive list of globally-based published literature over the last 40-50 years Offer an analysis, evaluation, repackaging and modeling of existing knowledge on sustainable construction practices Provides a wealth of knowledge for use in many sectors relating to the construction profession

Civil and environmental engineers work together to develop, build, and maintain the man-made and natural environments that make up the infrastructures and ecosystems in which we live and thrive. Civil and Environmental Engineering: Concepts, Methodologies, Tools, and Applications is a comprehensive multi-volume publication showcasing the best research on topics pertaining to road design, building maintenance and construction, transportation, earthquake engineering, waste and pollution management, and water resources management and engineering. Through its broad and extensive coverage on a variety of crucial concepts in the field of civil engineering, and its subfield of environmental engineering, this multi-volume work is an essential addition to the library collections of academic and government institutions and appropriately meets the research needs of engineers, environmental specialists, researchers, and graduate-level students.

Building Information Modelling (BIM) in Design, Construction, and Operations contains the proceedings of the first in a planned series of conferences dealing with design coordination, construction, maintenance, operation and decommissioning. The book gives details of how BIM tools and techniques have fundamentally altered the manner in which modern construction teams operate, the processes through which designs are evolved, and the relationships between conceptual, detail, construction and life cycle stages. The papers contributed by experts from industry, practice and academia, debate key topics, develop innovative solutions, and predict future trends. The interdisciplinary nature of the contents and the collaborative practices discussed, so important within the built environment, will appeal to those engaged in design, surveying, visualisation, infrastructure, real estate, construction law, insurance, and facilities management. Topics covered include: BIM in design coordination; BIM in construction operations, BIM in building operation and maintenance; BIM and sustainability; BIM and collaborative working and practices; BIM health and safety and BIM-facilities management integration, among others.

The escalating interdependency of nations drives global geopolitics to shift ever more quickly. Societies seem unable to control any change that affects their cities, whether positively or negatively. Challenges are global, but solutions need to be implemented locally. How can architectural research contribute to the future of our changing society? How has it contributed in the past? The theme of the 10th EAAE/ARCC International Conference, "Architectural Research Addressing Societal Challenges", was set to address these questions. This book, Architectural Research Addressing Societal Challenges, includes reviewed papers presented in June 2016, at the 10th EAAE/ARCC International Conference, which was held at the facilities of the Faculty of Architecture of the University of Lisbon. The papers have been further divided into the following five sub-themes: a Changing Society; In Transit - Global Migration; Renaturalization of the City; Emerging Fields of Architectural Practice; and Research on Architectural Education. The EAAE/ARCC International Conference, held under the aegis of the EAAE and of the ARCC, is a conference organized every other year, in collaboration with one of the member schools/ universities of those associations, alternatively in North America or in Europe.

Prediction Model for Public Schools in Developing Countries

Routledge Handbook of Sustainable Real Estate

Structural Analysis of Historical Constructions: Anamnesis, Diagnosis, Therapy, Controls

Real Estate, Construction and Economic Development in Emerging Market Economies

Handbook for Construction Planning and Scheduling

Architectural Research Addressing Societal Challenges Volume 1

The selected papers in this book deal with Building Information Modelling (BIM) in Design, Construction and Operations. Application of BIM throughout the construction industry is progressing at an accelerated rate, with the development of new software tools. BIM has the potential to alter the way in which different specialities interact before, during and after the construction project. BIM carries the data set for a particular asset through its full life cycle which has important consequences for operations and maintenance as well as for infrastructure planning. BIM emergence has been the result of advanced surveying techniques, powerful computer systems, better visualisation tools and new communication infrastructures. The papers included in this book demonstrate the interdisciplinary character of BIM, bringing together contributions from experts in industry, practice and academia.

The EAAE/ARCC International Conference, held under the aegis of the EAAE (European Association for Architectural Education) and of the ARCC (Architectural Research Centers Consortium), is a conference organized every other year, in collaboration with one of the member schools / universities of those associations, alternatively in North America or in Europe. The EAAE/ARCC Conferences began at the North Carolina State University College of Design, Raleigh with a conference on Research in Design Education (1998); followed by conferences in Paris (2000), Montreal (2002), Dublin (2004), Philadelphia (2006), Copenhagen (2008), Washington (2010), Milan (2012) and Honolulu (2014). The conference discussions focus on research experiences in the field of architecture and architectural education, providing a critical forum for the dissemination and engagement of current ideas from around the world.

In the modern age of the 4th Industrial Revolution, advancements in communication and connectivity are transforming the professional world as new technologies are being embedded into society. These innovations have triggered the development of a digitally driven world where adaptation is necessary. This is no different in the architectural field, where the changing paradigm has opened new methods and advancements that have yet to be researched. Impact of Industry 4.0 on Architecture and Cultural Heritage is a pivotal reference source that provides vital research on the application of new technological tools, such as digital modeling, within architectural design, and improves the understanding of the strategic role of Industry 4.0 as a tool to empower the role of architecture and cultural heritage in society. Moreover, the book provides insights and support concerned with advances in communication and connectivity among digital environments in different types of research and industry communities. While highlighting topics such as semantic processing, crowdsourcing, and interactive environments, this publication is ideally designed for architects, engineers, construction professionals, cultural researchers, academicians, and students.

This book comprises select papers from the International Conference on Emerging Trends in Civil Engineering (ICETCE 2018). Latest research findings in different branches of civil engineering such as structural engineering, construction materials, geotechnical engineering, water resources engineering, environmental engineering, and transportation infrastructure are covered in this book. The book also gives an overview of emerging topics like smart materials and structures, green building technologies, and intelligent transportation system. The contents of this book will be beneficial for students, academicians, industrialists and researchers working in the field of civil engineering.

Proceedings of the EAAE ARCC 10th International Conference (EAAE ARCC 2016), 15-18 June 2016, Lisbon, Portugal

Offsite Production and Manufacturing for Innovative Construction

A whole-of-life approach

Sustainability Assessments of Buildings

Proceedings of the 10th International Conference on Structural Analysis of Historical Constructions (SAHC, Leuven, Belgium, 13-15 September 2016)

Developing Property Sustainably

This manual provides technical guidance for performing precise structural deformation surveys of locks, dams, and other hydraulic flood control or navigation structures. Accuracy, procedural, and quality control standards are defined for monitoring displacements in hydraulic structures.

This book gathers papers presented at the 11th International Conference on Construction in the 21st Century, held in London in 2019. Bringing together a diverse group of government agencies, academics, professionals, and students, the book addresses issues related to construction safety, innovative technologies, lean and sustainable construction, international construction, improving quality and productivity, and innovative materials in the construction industry. In addition, it highlights international collaborations between various disciplines in the areas of construction, engineering, management, and technology. The book demonstrates that, as the industry moves forward in an ever-complex global economy, multi-national collaboration is crucial, and its future growth will undoubtedly depend on international teamwork and alliances.

Volume is indexed by Thomson Reuters PCI-S (WoS). Collection of selected, peer reviewed papers from the 2013 2nd International Conference on Building Materials and Structural Engineering (BMSE2013), May 24-25, 2013, Beijing, China. The 54 papers are grouped as follows: Chapter 1: Research on Building Engineering and Building Materials; Chapter 2: Structures Engineering; Chapter 3: Research on Applied Materials; Chapter 4: Related Topics.

Thorough and detailed, The Carbon Footprint Handbook encompasses all areas of carbon footprint, including the scientific elements, methodological and technological aspects, standards, industrial case studies, and communication of carbon footprint results. Written and edited by an international group of experts, the far-ranging topics on carbon footprinting are divided into three sections comprising chapters focused on methodology, modeling, and case studies. The concepts of carbon footprint and climate change are no longer new to the world. As a result, there is increasing interest in quantifying and reducing the carbon footprint around the world, from industrial to individual levels. This book describes modeling aspects and calculations of carbon footprint in organizations and production. It emphasizes the importance of locating non-polluting energy sources as well as sustainability. The book also provides case studies offering a wealth of information on practices and methods in detecting and addressing carbon footprint. The Carbon Footprint Handbook is an important reference that discusses, in depth, the essential details of carbon footprint assessment. It uses research and case studies on methods and practices from locations around the world including China, India, Spain, and Latin America. It demonstrates that the problems of carbon footprint are indeed worldwide while showing how they can be addressed in myriad areas of life, from industrial to personal action.

Building Performance Analysis

Design and the Built Environment

Building Materials and Structural Engineering II

Handbook of Research on Driving Transformational Change in the Digital Built Environment

Civil and Environmental Engineering: Concepts, Methodologies, Tools, and Applications

Project Quality Management

The book presents the development of the Construction Quality Assessment System (CONQUAS), Singapore's de facto quality performance measurement system, explains the application of the Quality Management System (QMS) to manage CONQUAS and identifies 33 critical success factors (CSFs) for achieving high CONQUAS scores. Through CONQUAS, the reader benefits from understanding how the Singapore government developed and implemented the first objective system for measuring what many building professionals have perceived to be elusive quality standards in the construction industry. The book presents both the theoretical concepts as well as the practical aspects to achieving strategic Project Quality Management that is anchored on the CSFs to building best practices. To realistically reflect the practical aspects and challenging issues faced by stakeholders in the construction industry, questionnaire surveys were conducted with building professionals to distinguish the importance level and extent of adoption of the 33 CSFs (identified from a comprehensive review of the extant literature) in influencing and affecting the achievement of high CONQUAS scores. These were further anchored by in-depth interviews with quality experts in the Singapore construction industry to provide a better understanding of issues relating to strategic Project Quality Management. Collectively, the empirical findings collated from the building professionals suggest that while the CSFs identified are known tenets of quality, these were still not being followed in their totality. A further case study was conducted through a formal set of in-depth interviews with the quality assurance team of a construction company who has direct involvement before, during and after their tremendous improvements in the CONQUAS scores attained. The strength of this book therefore represents a true account and reflections of real-life practices and experiences in the construction industry for contractors, quality managers and policy-makers to learn from. Although the context of this book relates to the Singapore experience, the lessons and recommendations are equally relevant and applicable to the global construction industry in both the developing and developed countries whose stakeholders (in both the public and private sectors) wish to understand how CONQUAS works, and how the CSFs identified can likewise be implemented for strategic Project Quality Management to building best practices. The book is therefore of interests to researchers, academia and practitioners in the construction industry as well as in other sectors of the economy (in Singapore and other countries) where learning points may be used for enhancing project quality management for buildings.

Building Information Modelling (BIM) is a global phenomenon which is gaining significant momentum across the world. Currently there is little information on how to realise and monitor benefits from implementing BIM across the life-cycle of a built environment asset. This book provides a practical and strategic framework to realise value from implementing BIM by adapting Benefit Realisation Management theory. It presents an approach for practitioners aiming to implement BIM across the life-cycle of built environment assets, including both buildings and infrastructure. Additionally, the book features: wide-ranging information about BIM, the challenges of monitoring progress towards benefit goals and the greater context of implementation; a set of dictionaries that illustrate: how benefits can be achieved, what the benefit flows are and the enabling tools and processes that contribute to achieving and maximising them; a suite of measures that can serve to monitor progress with examples of how they have been used to measure benefits from BIM; real-world examples from across the world and life-cycle phases that show how these benefits can be achieved; and information on international maturity and competency measures to complement the value realisation framework. Including a blend of academic and industry input, this book has been developed in close collaborative consultation with industry, government and international research organisations and could be used for industry courses on BIM benefits and implementation for asset management or by universities that teach BIM-related courses.

Real Estate, Construction and Economic Development in Emerging Market Economies examines the relationships between real estate and construction sectors and explores how each sector, and the relationships between them, affect economic development in emerging market economies (EMEs). Throughout the book, the international team of contributors discuss topics as diverse as real estate finance and investment, housing, property development, construction project management, valuation, sustainability and corporate real estate. In doing so the book demonstrates how the relationship between construction and real estate impacts on economic development in countries such as Argentina, Brazil, Colombia, China, Ghana, Nigeria, Turkey, Lithuania, Hungary and Slovenia. Topics include: the role of real estate brokerage in improving the living standards of citizens; the effect of a mineral boom on construction cycles, real estate values and the socio-economic conditions of people in boom towns and cities; corporate real estate management practices and how they affect economic growth; and the synergies between construction and real estate and how they, in turn, affect economic development. This book will be of interest to those studying and researching real estate, construction, development studies, urban economics and emerging market economies.

Real estate development shapes the way people live and work, playing a crucial role in determining our built environment. Around the world, real estate development reflects both universal human needs and region-specific requirements, and with the rise of globalization there is an increasing need to better understand the full complexity of global real estate development. This Companion provides comprehensive coverage of the major contemporary themes and issues in the field of real estate development research. Topics covered include: social and spatial impact markets and economics organization and management finance and investment environment and sustainability design land use policy and governance. A team of international experts across the fields of real estate, planning, geography, economics and architecture reflect the increasingly interdisciplinary nature of real estate studies, providing the book with a depth and breadth of original research. Following on from the success of the textbook International Approaches to Real Estate Development, the Routledge Companion to Real Estate Development provides the up-to-date research needed for a full and sophisticated understanding of the subject. It will be an invaluable resource to students, researchers and professionals wishing to study real estate development on an international scale.

Concepts, Methodologies, Tools, and Applications

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Introduction to Built Asset Management

Joplin, Missouri, Tornado of May 22, 2011

Governance for Urban Sustainability and Resilience