BIM for Design Coordination

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 taught and learned 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.

BIM and Urban Land Administration

An authoritative and practical road map for those implementing and managing BIM workflows. With the 2016 deadline for BIM level 2 fast approaching and the growing realisation of the huge benefits BIM brings these skills are becoming industry essentials. Concentrating on the how rather than the why this will help you to adapt by clearly, and without jargon, explaining standard BIM processes, Government standards and the effective coordination of design, construction and asset information. Spanning both organisational strategy and day-to-day practical tasks it explores bottom line business reasoning as well as potential risks and challenges. This is the go-to guide for BIM Coordinators and Managers, architectural principals, design team leaders and architectural technicians ensuring you are ‘BIM ready’ in 2016. It will also be invaluable for Part 3 students getting to grips with BIM strategy and implementation.

IS Management Handbook

A new approach to improving the production of goods and services, Constraints Management (CM), recognizes the powerful role of the constraint (the limiting resource) in determining the output of the entire production system. By learning about and mastering CM concepts, managers can improve their companies' present output and plan for future growth as well.

The Facility Management Handbook

The definitive guide to measurement and estimating using NRMM, written by the author of NRMM The 'RICS New rules of measurement: Order of cost estimating and cost planning of capital building works' (referred to as NRMM), is the cornerstone of good cost management of capital building works projects - enabling more effective and accurate cost advice to be given to clients and other project team members, while facilitating better cost control. The NRMM Cost Management Handbook is the essential guide to how to successfully interpret and apply these rules, including explanations of how to: quantify building works and prepare order of cost estimates and cost plans; use the rules as a toolkit for risk management and procurement; analyse actual costs for the purpose of collecting benchmark data and preparing cost analyses; capture historical cost data for future order of cost estimates and elemental cost plans; employ the rules to aid communication manage the complete 'cost management cycle' - use the elemental breakdown and cost structures, together with the coding system developed for NRMM, to effectively integrate cost management with Building Information Modelling (BIM). In the NRMM Cost Management Handbook, David Benge explains in clear terms how NRMM is meant to be used in familiar quantity surveying tasks, as well as a range of activities of crucial importance for professionals in years to come. Worked examples, flow charts,
diagrams, templates and check lists ensure readers of all levels will become confident and competent in the use of NRM1. This book is essential reading for anyone working with NRM1, and is the most authoritative guide to practice available for those preparing to join the industry.

**BIM and Construction Management**

A tactical guide to successful Virtual Design and Construction project coordination, featuring case studies from leading VDC firms. Virtual Design Coordination (VDC) employs information-rich Building Information Modeling (BIM) to enable specialty designers and contractors to create a single, coordinated set of designs that can prevent cost overruns, avoid schedule delays, and identify issues in the field. Although BIM-based design coordination is widely used in the commercial construction industry, there remains a need for a standardized practice. BIM for Design Coordination formalizes industry best practices and provides structured guidelines to the process. Helping readers gain the benefits of BIM-based design coordination, this practical guide covers areas such as setting up a project for success, model quality impacts on design coordination, carrying out a successful VDC session, and more. Specific guidelines for various project stakeholders are laid out in detail, while real-world examples of project design coordination workflows and templates for BIM Project Execution Plans (PxPs) are provided throughout the text. Written by a leading expert and educator in the field, this book: Provides a formal set of BIM-based design coordination guidelines that emphasize construction-stage coordination Features real-life case studies that illustrate how leading firms approach design coordination Covers BIM-based design coordination in other industries, such as infrastructure and industrial sectors Presents guidelines for all project stakeholders, including subcontractors, architects, engineers, fabricators, and owners Includes chapters on teaching BIM-based design coordination and the future of the field BIM for Design Coordination: A Virtual Design and Construction Guide for Designers, General Contractors, and MEP Subcontractors is a much-needed resource for general contractors and members of VDC teams, as well as academics, students, and professionals new to BIM-based design coordination.

**Lead Designer’s Handbook**

Construction projects involve a complex set of relationships, between parties with different professional backgrounds trying to achieve a very complex goal. Under these difficult circumstances, the quality of information on which projects are based should be of the highest possible standard. The line-based, two-dimensional drawings on which conventional construction is based render this all but impossible. This is the source of some major shortcomings in the construction industry, and this book focuses on the two most fundamental of these: the failure to deliver projects predictably: to the required quality, on time and within budget; and the failure of most firms in the industry to make a survivable level of profit. By transforming the quality of information used in building, BIM aims to transform construction completely. After describing and explaining these problems, the way in which BIM promises to provide solutions is examined in detail. A discussion of the theory and practice of BIM is also provided, followed by a review of various recent surveys of BIM usage in the US, UK and selected European economies. The way in which other industries, including retail and manufacturing, have been transformed by information are explored and compared with current developments in the deployment of BIM in construction. Five case studies from the UK show how BIM is being implemented, and the effects it is having on architects and contractors. This book is perfect for any construction professional interested in improving the efficiency of their business, as well as undergraduate and postgraduate students wishing to understand the importance of BIM.

**The Constraints Management Handbook**

A practical look at extending the value of Building Information Modeling (BIM) into facility management—from the world’s largest international association for professional facility managers Building owners and facility managers are discovering that Building Information Modeling (BIM) models of buildings are deep reservoirs of information that can provide valuable spatial and mechanical details on every aspect of a property. When used appropriately, this data can improve performance and save time, effort, and money in running and maintaining the building during its life cycle. It can also provide information for future modifications. For instance, a BIM could reveal everything from the manufacturer of a light fixture to its energy usage to maintenance instructions. BIM for Facility Managers explains how BIM can be linked to facility management (FM) systems to achieve very significant life-cycle advantages. It presents guidelines for using BIM in FM that have been developed by public and private owners such as the GSA. There is an extensive discussion of the legal and contractual issues involved in BIM/FM integration. It describes how COBie can be used to name, capture, and communicate FM-related data to downstream systems. There is also extensive discussion of commercial software tools that can be used to facilitate this integration. This book features six in-depth case studies that illustrate how BIM has been successfully integrated with facility management in real-life projects at: Texas A&M Health Science Center USC School of Cinematic Arts MathWork’s new campus Xavier University State of Wisconsin Facilities University of Chicago Library renovation BIM for Facility Managers is an indispensable resource for facility managers, building owners, and developers alike.

**BIM Teaching and Learning Handbook**

This is a design guide for architects, engineers, and contractors concerning the principles and specific applications of building information modeling (BIM). BIM has the potential to revolutionize the building industry, and yet not all architects and construction professionals fully understand what the benefits of BIM are or even the fundamental concepts behind it. As part of the PocketArchitecture Series it includes two parts: fundamentals and applications, which provide a comprehensive overview of all the necessary and
essential issues. It also includes case studies from a range of project sizes that illustrate the key concepts clearly and use a wide range of visual aids. Building Information Modeling addresses the key role that BIM is playing in shaping the software tools and office processes in the architecture, engineering, and construction professions. Primarily aimed at professionals, it is also useful for faculty who wish to incorporate this information into their courses on digital design, BIM, and professional practice. As a compact summary of key ideas it is ideal for anyone implementing BIM.

The BIM Manager's Handbook, Part 3

Discover BIM: A better way to build better buildings Building Information Modeling (BIM) offers a novel approach to design, construction, and facility management in which a digital representation of the building product and process is used to facilitate the exchange and interoperability of information in digital format. BIM is beginning to change the way buildings look, the way they function, and the ways in which they are designed and built. The BIM Handbook, Third Edition provides an in-depth understanding of BIM technologies, the business and organizational issues associated with its implementation, and the profound advantages that effective use of BIM can provide to all members of a project team. Updates to this edition include: Information on the ways in which professionals should use BIM to gain maximum value New topics such as collaborative working, national and major construction clients. BIM standards and guides. A discussion on how various professional roles have expanded through the widespread use and the new avenues of BIM practices and services. A wealth of new case studies that clearly illustrate exactly how BIM is applied in a wide variety of conditions. Painting a colorful and thorough picture of the state of the art in building information modeling, the BIM Handbook, Third Edition guides readers to successful implementation, helping them to avoid needless frustration and costs and take full advantage of this paradigm-shifting approach to construct better buildings that consume fewer materials and require less time, labor, and capital resources.

NRM1 Cost Management Handbook

A sleeker, more comprehensive approach to construction projects BIM and Construction Management, Second Edition is a complete integration guide, featuring practical advice, project testing methods and workflows, and tutorials for implementing Building Information Modeling and technology in construction. Updated to align with the latest software editions from Autodesk, Trimble and Bentley, this book provides a common sense approach to leveraging BIM to provide significant value throughout a project's life cycle. This book outlines a results-focused approach which shows you how to incorporate BIM and other technologies into all phases of construction management, such as: Project planning: Set up the BIM project to succeed right from the start by using the right contracts, the right processes and the right technology. Marketing: How to exceed customer expectations and market your brand of BIM to win. Pre-construction: Take a practical approach to engineer out risks in your project by using the model early to virtually build and analyze your project, prior to physical construction. Construction: Leverage the model throughout construction to build safer and with better quality. Field work: Learn how mobile technologies have disrupted the way we work in the field to optimize efficiencies and access information faster. Closeout: Deliver a better product to your customer that goes beyond the physical structure and better prepares them for future operations. Additionally, the book provides a look at technology trends in construction and a thoughtful perspective into potential use cases going forward. BIM and Construction Management, Second Edition builds on what has changed in the construction landscape and highlights a new way of delivering BIM-enabled projects. Aligning to industry trends such as Lean, integrated delivery methods, mobile platforms and cloud-based collaboration this book illustrates how using BIM and technology efficiently can create value.

Project Management, Planning and Control

Construction Manager's BIM Handbook

Locked with procedures, checklists, guidelines, samples, and templates, The Facilitator's Fieldbook covers all the key areas of successful team management, including establishing ground rules, planning meetings and agendas, brainstorming, resolving conflict, making decisions, and helping groups optimize their time. The completely revised third edition of this longtime go-to resource for novice and experienced facilitators provides new team-building exercises as well as updated information on virtual meetings, mediation, strategic planning, and much more. You'll also gain tips on maintaining the tone and flow of meetings, and will learn to determine when to delegate projects to individuals rather than assembling a group. Collaborative projects have become an increasingly prevalent feature of modern business strategies and workplace dynamics. But intentional, strategic facilitation is essential to making sure these groups and teams are effective. The Facilitator's Fieldbook provides readers the comprehensive tools and knowledge they need to help their teams--and, ultimately, their organizations--succeed.

Handbook of Research on Building Information Modeling and Construction Informatics: Concepts and Technologies

Despite co-ordination being the principal focus of the Lead Designer's role, there is very little written about how to undertake these duties. What tools can the Lead Designer use to address the many complexities of developing a design as part of an iterative process? How can the Lead Designer redefine what they do using a digital world to provide profoundly different and new services? This book analyses
at all of these questions, setting out how the Lead Designer can perform effectively and efficiently in the digital world, addressing clients’ new whole life project requirements and new ways of constructing and assembling buildings. Managing increasing numbers of specialists in the construction process requires experience to ensure that their contributions are properly managed and produced at the right time. This book considers this challenge. It will also consider how the Lead Designer can effectively lead and manage health and safety aspects and risks (the principal designer role in UK regulations).

The BIM Manager's Handbook

The BIM Manager's Handbook: Guidance for Professionals in Architecture, Engineering, and Construction Building Information Modelling (BIM) is a design and construction software that manages not just graphics, but also information—information that enables the automatic generation of drawings and reports, design analysis, schedule simulation, facilities management, and cost analysis—ultimately enabling any building team to make better-informed decisions. This allows a range of professionals—architects, engineers, construction managers, surveyors, cost estimators, project managers, and facility managers—to share this information throughout a building’s lifecycle. BIM is now recognized worldwide for the efficiencies it delivers in terms of working collaboratively, communication, processes, cost savings, and a property’s lifecycle management. With the widespread adoption of BIM, BIM Managers have become a much-needed new breed of professionals in architectural, engineering, and construction practice. Their role is often misunderstood and ill-defined, and such are the day-to-day deliverables that they are likely to face. The BIM Manager’s Handbook provides an in-depth account of the breadth of activities that any BIM Manager or staff member, who is actively engaged in the delivery of project, is required to undertake. Providing prerequisites of the final work, The BIM Manager’s Handbook ePart series isolates significant topics around BIM management. In the sixth and final ePart, BIM is taken to the next level by outlining what is required to truly excel as a BIM Manager. It highlights how BIM Managers acquire the necessary communication skills to maximize an efficient information flow between the BIM Manager and others. It illustrates how BIM Managers tie their activities to cutting-edge BIM research and development globally. Lastly, this ePart lays out how to promote BIM excellence both within an organization and beyond.

The BIM Management Handbook

This book is designed to help practitioners and students in a wide range of construction project management professions to understand what building information modelling (BIM) and big data could mean for them and how they should prepare to work successfully on BIM-compliant projects and maintain their competencies in this essential and expanding area. In this book, the state-of-the-art information technologies that support high-profile BIM implementation are introduced, and case studies show how BIM has integrated core quantity surveying and cost management responsibilities and how big data can enable informed decision-making for cost control and cost planning. The authors' combined professional and academic experience demonstrates, with practical examples, the importance of using BIM and particularly the fusion of BIM and big data, to sharpen competitiveness in global and domestic markets. This book is a highly valuable guide for people in a wide range of construction project management and quantity surveying roles. In addition, implications for project management, facilities management, contract administration, and dispute resolution are also explored through the case studies, making this book essential reading for built environment and engineering professionals.

Construction Manager's BIM Handbook

ePart 1 Best Practice BIM: Seeking to get BIM right? This ePart provides a touchstone for good practice by introducing a number of Key Performance Indicators (KPIs), which represent benchmarks for successful BIM implementation. It explains what good BIM looks like and the pitfalls to avoid with ‘bad BIM’ and ‘pseudo BIM’. It highlights the part that the BIM Manager can play in achieving excellence by outlining the various responsibilities the BIM Manager’s role encompasses, while also emphasising how these responsibilities have changed over time and how they are set to evolve. By drawing on interviews with the top BIM Managers worldwide, it delivers up-to-date expert insights from the field. Obook ISBN: 9781118987780; ePub ISBN: 9781118987858; ePDF ISBN: 9781118985618; published April 2015

The BIM-Manager

ePart 5: Day-to-Day BIM Management: How do you go about mastering hands-on support BIM for your team? ePart 5 introduces the operational tasks a BIM Manager is expected to accomplish. Depending on an organisation’s size BIM Managers either supervise the rollout of BIM on various projects, or they actively get involved in mentoring those authoring or coordinating information in BIM. By providing a strong project focus, this ePart, firstly, addresses requirements for in-house BIM project support; secondly, it explains how to support the integration and coordination of BIM data across a multi-disciplinary project team. Leading BIM experts from the US, UK and Australia divulge their recipes for successful operational management. Obook ISBN: 9781118987902; ePub ISBN:9781118987919; ePDF ISBN: 9781118987926; published November 2015

BIM for Facility Managers

Design management as a recognised role in the built environment industry is relatively new, initially arising from the need for better co-ordination and delivery of design information from design teams to main contractors – particularly important as procurement routes involving contractor led design have become much more commonplace. The advent of design packages driven by specialist sub-contractors has also
increased the need for co-ordination and management of the design process. With the growing complexity of construction projects, effective design management is increasingly central to project success. BIM, as it gains acceptance across the industry will undoubtedly have a huge impact on project delivery, process and the role of the design manager. The CIOB Design Manager’s Handbook covers subjects such as design process and management tools, the role of the Design Manager, value management and innovation, procurement routes and implications, people dynamics, and factors that will affect the development of the Design Manager’s role in the future, including BIM. It will ensure Design Managers understand the processes, tools and skills that are required to be successful in the role, and will assist them in delivering real value to complex construction projects. Written for both the Design Manager practitioner and students on construction related degree courses, anyone interested in construction based design management will also find the book useful.

Handbook of Green Building Design and Construction

"The BIM Handbook is an extensively researched and meticulously written book, showing evidence of years of work rather than something that has been quickly put together in the course of a few months. It brings together most of the current information about BIM, its history, as well as its potential future in one convenient place, and can serve as a handy reference book on BIM for anyone who is involved in the design, construction, and operation of buildings and needs to know about the technologies that support it. The need for such a book is indisputable, and it is terrific that Chuck Eastman and his team were able to step up to the plate and make it happen. Thanks to their efforts, anyone in the AEC industry looking for a deeper understanding of BIM now knows exactly where to look for it." — AECbytes book review, August 28, 2008 (www.aecbytes.com/2008/BIMHandbook.html) DISCOVER BIM: A BETTER WAY TO BUILD BETTER BUILDINGS Building Information Modeling (BIM) offers a novel approach to design, construction, and facility management in which a digital representation of the building process is used to facilitate the exchange and interoperability of information in digital format. BIM is beginning to change the way buildings look, the way they function, and the ways in which they are designed and built. The BIM Handbook, Second Edition provides an in-depth understanding of BIM technologies, the business and organizational issues associated with its implementation, and the profound advantages that effective use of BIM can provide to all members of a project team. Updates to this edition include: Completely updated material covering the current practice and technology in this fast-moving field Expanded coverage of lean construction and its use of BIM, with special focus on Integrated Project Delivery throughout the book New insight on the ways BIM facilitates sustainable building New information on interoperability schemas and collaboration tools Six new case studies Painting a colorful and thorough picture of the state of the art in building information modeling, the BIM Handbook, Second Edition guides readers to successful implementations, helping them to avoid needless frustration and costs and take full advantage of this paradigm-shifting approach to construct better buildings that consume fewer materials and require less time, labor, and capital resources.

BIM and Construction Management

In recent years, building information modeling has become a very active research area of construction informatics with investigation of ICT use within construction industry processes and organizations. The Handbook of Research on Building Information Modeling and Construction Informatics: Concepts and Technologies addresses the problems related to information integration and interoperability throughout the lifecycle of a building, from feasibility and conceptual design through to demolition and recycling stages. Containing research from leading international experts, this Handbook of Research provides comprehensive coverage and definitions of the most important issues, concepts, trends, and technologies within the field.

BIM and Big Data for Construction Cost Management

Discover how to implement Revit best practices along with Dynamo and Power BI to visualize and analyze BIM information Key Features Boost productivity in Revit and apply multiple workflows to work efficiently on BIM projects Optimize your daily work in Revit to perform more tasks in less time Take a hands-on approach to improving your efficiency with useful explanations, which will step-change your productivity Book Description Revit software helps architects, BIM coordinators, and BIM managers to create BIM models and analyze data to improve design and construction. Building Information Modeling (BIM) has promoted a transformation in the engineering and construction industries where information is at the core of a methodology that improves productivity, providing several benefits in comparison to the traditional 2D CAD process. This book takes a hands-on approach to implementing this new methodology effectively.

Complete with step-by-step explanations of essential concepts and practical examples, this Revit book begins by explaining the principles of productivity in Revit and data management for BIM projects. You’ll get to grips with the primary BIM documentation to start a BIM project, including the contract, Exchange Information Requirements (EIR), and BIM Execution Plan (BEP/BXP). Later, you’ll create a Revit template, start a Revit project, and explore the core functionalities of Revit to increase productivity. Once you’ve built the foundation, you’ll learn about Revit plugins and use Dynamo for visual programming and Power BI for analysing BIM information. By the end of this book, you’ll have a solid understanding of Revit as construction and design software, how to increase productivity in Revit, and how to apply multiple workflows in your project to manage BIM. What you will learn Explore the primary BIM documentation to start a BIM project Set up a Revit project and apply the correct coordinate system to ensure long-term productivity Improve the efficiency of Revit core functionalities that apply to daily activities Use visual programming with Dynamo to boost productivity and manage data in BIM projects Import data from Revit to Power BI and create project dashboards to analyze data Discover the different
Building Information Modelling

ePart 2 Change Management: A BIM Manager might be hired for their technical skills, but their success relies heavily on their ability to be an agent of change within their organisation, facilitating transition to BIM processes and mentoring staff through the cultural and procedural shifts. This ePart outlines strategies to manage an organisation’s transition to BIM successfully and to master supporting its continuous evolution. Based on accounts from top practitioners, it highlights how the BIM manager might approach interfacing with their organisation’s leadership by successfully lobbying and leading on BIM from the inside, while overcoming change-resistance and managing teams’ expectations. It concludes with a ‘Tips and Tricks’ section that provides in-depth advice for running BIM audits and for setting up in-house BIM workshops, which are instrumental for any BIM Manager seeking a better understanding of their organisational context and to raise the level of awareness of the BIM knowledge of key decision-makers.

The BIM Manager’s Handbook, Part 5

ePart 3: Focus on Technology: How do you ensure your organisation gets the most out of the BIM technology available? Dedicated to the main technology-related aspects of a BIM Manager’s role, this ePart explains how to establish and manage an organisation’s BIM-related tool-ecology and how to use BIM in order to link from design to fabrication. What do BIM Managers need to do in order ensure their teams use the right tools for the various tasks in design, construction and beyond? How do they connect them and how do they keep up with updates in this rapidly changing environment. This ePart highlights the challenges BIM Managers need to overcome in software, hardware and network selection. It also brings into focus the opportunities BIM Managers face in the changing context of BIM in the Cloud. Extending beyond technical know-how, it also offers advice on how to create a successful interface between the BIM Manager and the IT specialist(s).

The BIM Manager’s Handbook

Building Information Modelling (BIM) harnesses digital technologies to unlock more efficient methods of designing, creating and maintaining built environment assets, so the Construction Manager’s BIM Handbook ensures the reader understands what BIM is, what the UK strategy is and what it means for key roles in the construction team. ensure that all readers understand what BIM and are fully aware of the implications of BIM for them and their organisations provides concise summaries of key aspects of BIM ensure that all readers can begin to adopt this approach in future projects includes industry case studies illustrating the use of BIM on large and small projects

Discover BIM: A better way to build better buildings Building Information Modeling (BIM) offers a novel approach to design, construction, and facility management in which a digital representation of the building product and process is used to facilitate the exchange and interoperability of information in digital format. BIM is beginning to change the way buildings look, the way they function, and the ways in which they are designed and built. The BIM Handbook, Third Edition provides an in-depth understanding of BIM technologies, the business and organizational issues associated with its implementation, and the profound advantages that effective use of BIM can provide to all members of a project team. Updates to this edition include: Information on the ways in which professionals should use BIM to gain maximum value New topics such as collaborative working, national and major construction clients, BIM standards and guides A discussion on how various professional roles have expanded through the widespread use and the new avenues of BIM practices and services A wealth of new case studies that clearly illustrate exactly how BIM is applied in a wide variety of conditions Painting a colorful and thorough picture of the state of the art in building information modeling, the BIM Handbook, Third Edition guides readers to successful implementations, helping them to avoid needless frustration and costs and take full advantage of this paradigm-shifting approach to construct better buildings that consume fewer materials and require less time, labor, and capital resources.

The Impact of Building Information Modelling

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BIM Handbook

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Building Information Modeling

Rapid urbanization has created an unprecedented pressure on the use of land in cities around the world, resulting in physical and legal complexities. This book explains the theoretical basis and practicality of connecting urban land administration practices with the 3D digital data environment of Building Information Modeling (BIM). The main focus is to adopt a BIM-based paradigm for enhancing communication and management of complex ownership rights in multi-story buildings, which are prevalent in urban built environments. This book first elaborates on a range of data elements required for managing legal information in current land administration practices pertaining to subdivision of legal interests within multi-story building developments. It then explains how an open data model in the BIM domain – Industry Foundation Classes (IFC) – can be extended with legal data elements to lay the foundation for adopting BIM in urban land administration. The book also highlights benefits and barriers of implementing BIM-enabled urban land administration. Features: Explains the theoretical basis and practicality of connecting urban land administration practices with the 3D digital data environment of BIM. Highlights the existing challenges associated with current practice of urban land administration for multi-story buildings. Introduces the potential of 3D digital environment of BIM for the purpose of mapping and registering legal interests. Describes how BIM-based data models can be extended for recording, managing, and representing legal ownership of properties over a building’s lifecycle. Includes models of multi-story buildings as case studies to demonstrate the feasibility of extended BIM-based data models.

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

Mounting emphasis on construction supply chain management (CSCM) is due to both global sourcing of materials and a shortage of labor. These factors force increasing amounts of value-added work to be conducted off-site deep in the supply chain. Construction Supply Chain Management Handbook compiles in one comprehensive source an overview of the diverse research and examples of construction supply chain practice around the world. Reflecting the emergence of CSCM as an important area of multi-national research and practice, this volume takes an interdisciplinary perspective with contributions from leading international authors in three major areas: production and operations analysis, organizational perspectives, and information technology. The book begins with a survey of the current literature on modeling construction supply chain production and describes a set of approaches and methods for designing and operating project supply chains with references to design and materials production. It provides the basic framework for understanding the challenges and approaches to representing and improving supply chain performance. The next section recognizes the importance of considering arrangements between the different firms involved in designing, procuring, and assembling construction, and reviews various perspectives to understanding and improving organizational issues in the supply chain. The final section provides an overview of a range of information technologies that can contribute to supply chain performance, as well as examples of effective use. The organization and sourcing of materials is increasingly complex across the global construction industry. Construction clients are demanding faster, more responsive construction processes and higher quality facilities. This volume provides an invaluable resource to understanding the implications of supply chain management, which is sure to result in more effective construction project execution.

BIM Handbook

The optimal approach to design, build, operate, and maintain buildings. With this strategic guide to building information modeling (BIM), you’ll learn how to implement this new technology as part of a comprehensive systems approach to the design, construction, management, operation, maintenance, and use of buildings. The authors, among the leading experts and pioneers in BIM, show you how BIM supports more...
streamlined, integrated, and efficient business processes throughout the lifecycle of buildings, from their initial conception through their eventual retirement or reuse. The result is better quality buildings, lower construction and operating costs, shorter project turnaround times, and a higher quality of building information to support better business decisions. Moreover, they set forth a plan for incorporating BIM into every organization’s existing workflows, enabling you to take full advantage of all the benefits that BIM offers. Everything you need to implement a BIM approach is set forth in detail including: The business case for BIM, demonstrating how it can improve collaboration, facilitate better design and construction, optimize workflow, and help reduce risk. Guidance for meeting the challenges of BIM such as entrenched business culture, the proliferation of BIM tools, and the uneven rates of BIM adoption. The “big picture” view showing how your organization can work with business partners and fit into the building life cycle in a BIM-enabled industry. Throughout the book, sample documents and figures help you better understand the principles of BIM and how it works in practice. In addition, first-hand accounts show you exactly how adopters of BIM have gained a competitive edge. Architects, engineers, constructors, building owners, and facility managers can turn to this book to realize the full potential of BIM and radically improve the way buildings are designed, built, operated, and maintained.

BIM Handbook

In systems analysis, programming, development, or operations, improving productivity and service — doing more with less — is the major challenge. Regardless of your management level, the Handbook gives you the advice and support you need to survive and prosper in the competitive environment. It is the only comprehensive and timely source of technical and managerial guidance, providing expert information on the latest IT management techniques from top IS experts. This edition explains state-of-the-art technologies, innovative management strategies, and practical step-by-step solutions for surviving and thriving in today’s demanding business environment. The IS Management Handbook outlines how to effectively manage, adapt and integrate new technology wisely, providing guidance from 70 leading IS management experts in every important area. This reference enables its readers to ensure quality, contain costs, improve end-user support, speed up systems development time, and solve rapidly changing business problems with today’s IS technology.

Building Information Modeling

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.

The Design Manager’s Handbook

A comprehensive book on project management, covering all principles and methods with fully worked examples, this book includes both hard and soft skills for the engineering, manufacturing, and construction industries. Ideal for engineering project managers considering obtaining a Project Management Professional (PMP) qualification, this book covers in theory and practice, the complete body of knowledge for both the Project Management Institute (PMI) and the Association of Project Management (APM). Fully aligned with the latest 2005 updates to the exam syllabi, complete with online sample Q&A, and updated to include the latest revision of BS 6079 (British Standards Institute Guide to Project Management in the Construction Industry), this book is a complete and valuable reference for anyone serious about project management. It covers the complete body of knowledge for project management professionals in the engineering, manufacturing and construction sectors. It covers all hard and soft topics in both theory and practice for the newly revised PMP and APM qualification exams, along with the latest revision of BS 6079 standard on project management in the construction industry. Written by a qualified PMP exam accreditor and accompanied by online Q&A resources for self-testing.

Understanding BIM

Building Information Modeling (BIM) refers to the consistent and continuous use of digital information throughout the entire lifecycle of a built facility, including its design, construction and operation. In order to exploit BIM methods to their full potential, a fundamental grasp of their key principles and applications is essential. Accordingly, this book combines discussions of theoretical foundations with reports from the industry on currently applied best practices. The book's content is divided into six parts: Part I discusses the technological basics of BIM and addresses computational methods for the geometric and semantic modeling of buildings, as well as methods for process modeling. Next, Part II covers the important aspect of the interoperability of BIM software products and describes in detail the standardized data format Industry Foundation Classes. It presents the different classification systems,
discusses the data format CityGML for describing 3D city models and COBie for handing over data to clients, and also provides an overview of BIM programming tools and interfaces. Part III is dedicated to the philosophy, organization and technical implementation of BIM-based collaboration, and discusses the impact on legal issues including construction contracts. In turn, Part IV covers a wide range of BIM use cases in the different lifecycle phases of a built facility, including the use of BIM for design coordination, structural analysis, energy analysis, code compliance checking, quantity take-off, prefabrication, progress monitoring and operation. In Part V, a number of design and construction companies report on the current state of BIM adoption in connection with actual BIM projects, and discuss the approach pursued for the shift toward BIM, including the hurdles taken. Lastly, Part VI summarizes the book's content and provides an outlook on future developments. The book was written both for professionals using or programming such tools, and for students in Architecture and Construction Engineering programs.

**BIM Handbook**

The book is developed to provide significant information and guidelines to construction and project management professionals (owners, designers, consultants, construction managers, project managers, supervisors, contractors, builders, developers, and many others from the construction-related industry) involved in construction projects (mainly civil construction projects, commercial-A/E projects) and construction-related industries. It covers the importance of construction management principles, procedures, concepts, methods, and tools, and their applications to various activities/components/subsystems of different phases of the life cycle of a construction project. These are applied to improve the process in order to conveniently manage the project and make the project most qualitative, competitive, and economical. It also discusses the interaction and/or combination among some of the activities/elements of management functions, management processes, and their effective implementation and applications that are essential throughout the life cycle of project to conveniently manage the project. This handbook will: Focus on the construction management system to manage construction projects Include a number of figures and tables which will enhance reader comprehension Provide all related topics/areas of construction management Be of interest to all those involved in construction management and project management Provide information about Building Information Modelling (BIM), ISO Certification in Construction Industry Offer a chapter on Lean construction The construction project life cycle phases and its activities/elements/subsystems are comprehensively developed and take into consideration Henri Fayol’s Management Function concept which was subsequently modified by Koontz and O’Donnel and Management Processes Knowledge Areas described in PMBOK® published by Project Management Institute (PMI). The information available in the book will also prove valuable for academicians/instructors to provide construction management/project management students with in-depth knowledge and guidelines followed in the construction projects and familiarize them with construction management practices.

**Handbook of Construction Management**

Understanding BIM presents the story of Building Information Modelling, an ever-evolving and disruptive technology that has transformed the methodologies of the global construction industry. Written by the 2016 Prince Philip Gold Medal winner, Jonathan Ingram, it provides an in-depth understanding of BIM technologies, the business and organizational issues associated with its implementation, and the profound advantages its effective use can provide to a project team. Ingram, who pioneered the system heralding the BIM revolution, provides unrivalled access to case material and relevance to the current generation of BIM masters. With hundreds of colour images and illustrations showing the breadth and power of BIM, the book covers: The history of BIM What BIM is in technical and practical terms How it changes the day to day working environment Why we need BIM and what problems it can solve Where BIM is headed, particularly with regards to AI, AR, VR and voice recognition International case studies from a range of disciplines including: architecture, construction management, and retail Professionals and students in any field where the inter-disciplinary aspects of BIM are in operation will benefit from Ingram’s insights. This book is an authoritative account of and reference on BIM for anyone wanting to understand its history, theory, application and potential future developments.

**Increasing Autodesk Revit Productivity for BIM Projects**

Handbook of Green Building Design and Construction: LEED, BREEAM, and Green Globes, Second Edition directly addresses the needs of building professionals interested in the evolving principles, strategies, and concepts of green/sustainable design. Written in an easy to understand style, the book is updated to reflect new standards to LEED. In addition, readers will find sections that cover the new standards to BREEAM that involve new construction Infrastructure, data centers, warehouses, and existing buildings. Provides vital information and penetrating insights into three of the top Green Building Codes and Standards applied Internationally Includes the latest updates for complying with LEED v4 Practices and BREEAM Presents case studies that draws on over 35 years of personal experience from across the world
engineers, construction managers, surveyors, cost estimators, project managers, and facility managers—to
share this information throughout a building’s lifecycle. BIM is now recognized worldwide for the
efficiencies it delivers in terms of working collaboratively, communication, processes, cost savings, and
a property’s lifecycle management. With the widespread adoption of BIM, BIM Managers have become a much-
needed new breed of professionals in architectural, engineering, and construction practice. Their role is
often misunderstood and ill-defined, and such are the day-to-day deliverables that they are likely to
face. The BIM Manager’s Handbook provides an in-depth account of the breadth of activities that any BIM
Manager or staff member, who is actively engaged in the delivery of project, is required to undertake.
Providing prereleases of the final work, The BIM Manager’s Handbook ePart series isolates significant
topics around BIM management. In the sixth and final ePart, BIM is taken to the next level by outlining
what is required to truly excel as a BIM Manager. It highlights how BIM Managers acquire the necessary
communication skills to maximize an efficient information flow between the BIM Manager and others. It
illustrates how BIM Managers tie their activities to cutting-edge BIM research and development globally.
Lastly, this ePart lays out how to promote BIM excellence both within an organization and beyond.

The BIM Manager’s Handbook, Part 2

The authoritative industry guide on good practice for planning 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 direct informative writing style and
clear presentation enables easy access of the relevant information companion website provides additional
learning material.

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