

Building Information Modeling For Dummies

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Heritage Building Information Modelling - Yusuf Arayici
2017-02-10

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.

The BIM Manager's Handbook - Dominik Holzer 2016-03-29
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 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.

Building Information Modeling - Dana K. Smith 2009-04-13
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 life cycle 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 an 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 - Rafael Sacks 2018-08-14

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.

Building Information Modeling For Dummies - Stefan Mordue 2015-10-02

Everything you need to make the most of building information modeling If you're looking to get involved in the world of BIM, but don't quite know where to

start, Building Information Modeling For Dummies is your one-stop guide to collaborative building using one coherent system of computer models rather than as separate sets of drawings. Inside, you'll find an easy-to-follow introduction to BIM and hands-on guidance for understanding drivers for change, the benefits of BIM, requirements you need to get started, and where BIM is headed. The future of BIM is bright—it provides the industry with an increased understanding of predictability, improved efficiency, integration and coordination, less waste, and better value and quality. Additionally, the use of BIM goes beyond the planning and design phase of the project, extending throughout the building life cycle and supporting processes, including cost management, construction management, project management, and facility operation. Now heavily adopted in the U.S., Hong Kong, India, Singapore, France, Canada, and countless other countries, BIM is set to become a mandatory practice in building work in the UK, and this friendly guide gives you everything you need to make sense of it—fast. Demonstrates how BIM saves time and waste on site Shows you how the information generated from BIM leads to fewer errors on site Explains how BIM is based on data sets that describe objects virtually, mimicking the way they'll be handled physically in the real world Helps you grasp how the integration of BIM allows every stage of the life cycle to work together without data or process conflict Written by a team of well-known experts, this friendly, hands-on guide gets you up and running with BIM fast.

Integrated Practice in Architecture - George Elvin 2007-03-09

Endorsed by The American Institute of Architects, this work is about integrated practice in architecture, which

is the collaborative design, construction, and life-cycle management of buildings.

Building Information Modeling - Raymond Issa 2015-06

Green BIM - Eddy Krygiel 2008-04-28

Meet the challenge of integrating Building Information Modeling and sustainability with this in-depth guide, which pairs these two revolutionary movements to create environmentally friendly design through a streamlined process. Written by an award-winning team that has gone beyond theory to lead the implementation of Green BIM projects, this comprehensive reference features practical strategies, techniques, and real-world expertise so that you can create sustainable BIM projects, no matter what their scale.

Building Information Modeling For Dummies - Stefan Mordue 2015-12-21

Everything you need to make the most of building information modeling If you're looking to get involved in the world of BIM, but don't quite know where to start, *Building Information Modeling For Dummies* is your one-stop guide to collaborative building using one coherent system of computer models rather than as separate sets of drawings. Inside, you'll find an easy-to-follow introduction to BIM and hands-on guidance for understanding drivers for change, the benefits of BIM, requirements you need to get started, and where BIM is headed. The future of BIM is bright—it provides the industry with an increased understanding of predictability, improved efficiency, integration and coordination, less waste, and better value and quality. Additionally, the use of BIM goes beyond the planning and design phase of the project, extending throughout the building life cycle and supporting processes,

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Building Information Modeling - Karen M. Kensek 2014-04-16

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.

Building Information Modeling - Karen Kensek 2014-05-02
The bright future and exciting possibilities of BIM Many architects and engineers regard BIM as a disruptive force, changing the way building professionals design, build, and ultimately manage a built structure. With its emphasis on continuing advances in BIM research, teaching, and practice, Building Information Modeling: BIM in Current and Future Practice encourages readers to transform disruption to opportunity and challenges them to reconsider their preconceptions about BIM. Thought leaders from universities and professional practice composed essays exploring BIM's potential to improve the products and processes of architectural design including the structure and content of the tools themselves. These authors provide insights for assessing the current practice and research directions of BIM and speculate about its future. The twenty-six chapters are thematically grouped in six sections that present complementary and sometimes incompatible positions: Design Thinking and BIM BIM Analytics Comprehensive BIM Reasoning with BIM Professional BIM BIM Speculations Together, these authors provide stimulating ideas regarding new directions in building information modeling.

BIM for Facility Managers - IFMA 2013-04-03
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.

From Building Information Modelling to Mixed Reality - Cecilia Bolognesi 2020-07-14

This book reports on the latest advances in using BIM

modelling to achieve the semantic enrichment of objects, allowing them to be used both as multidimensional databases – as comprehensive sources of information for finalizing various types of documentation in the building industry – and as modelling tools for the construction of virtual environments. Having advanced to a new stage of development, BIM modelling is now being applied in a range of increasingly complex contexts, and for various new purposes. This book examines the role that virtual reality and related technologies such as AI and IoT can play in preserving and disseminating our cultural heritage and built environment.

Airport Building Information Modelling - Ozan Koseoglu
2019-08-28

This book details how Building Information Modelling is being successfully deployed in the planning, design, construction and future operation of the Istanbul New Airport, a mega-scale construction project incorporating a varying mix of infrastructures including terminals, runways, passenger gates, car parks, railways and roads. The book demonstrates how Airport Building Information Modelling (ABIM) is being used to:

- facilitate collaboration, cooperation and integrated project delivery
- manage subcontractors and eliminate cost over-runs
- reduce waste on site and enhance overall quality
- connect people in a virtual environment to encourage collaborative working
- provide clients with an effective interface for lifecycle management

including: design development, construction documentation, construction phases and BIM and Big Data Integration for future facilities management The book presents a best practice BIM project, demonstrating concurrent engineering, lean processes, collaborative design and construction, and effective construction

management. Moreover, the book provides a visionary exemplar for the further use of BIM technologies in civil engineering projects including highways, railways and others on the way towards the Smart City vision. It is essential reading for all Built Environment and Engineering stakeholders.

Designing Relationships: The Art of Collaboration in Architecture - Andrew Pressman 2014-01-03

In today's dynamic practice environment, collaboration and teamwork skills are increasingly critical to the successful completion of building projects. Indeed, it is the careful nurturing of comradeship among complementary but distinctive egos that drives creativity underlying the hi-tech algorithms that help shape complex projects. *Designing Relationships: The Art of Collaboration in Architecture* focuses on the skill set necessary to facilitate effective teamwork and collaboration among all stakeholders no matter what project delivery mode or technology is deployed. This book provides valuable guidance on how to design and construct buildings in a team context from inception to completion. It is the less tangible elements of collaboration and teamwork that provide the magic that transforms the most challenging projects into great works of architecture, and it is these more nuanced and subtle skills which the book brings to the fore. Showing examples of best and worst practice to illustrate the principles with real-life situations, this book presents the reader with an approach that is flexible and applicable to their everyday working life.

BIM Handbook - Rafael Sacks 2018-07-03

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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:

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BIM and Integrated Design - Randy Deutsch 2011-08-15

"Ready or not, it's high time to make BIM a part of your practice, or at least your vocabulary, and this book has as much to offer beginners as it does seasoned users of building information modeling software." –Chicago Architect
The first book devoted to the subject of how BIM affects individuals and organizations working within

the ever-changing construction industry, BIM and Integrated Design discusses the implementation of building information modeling software as a cultural process with a focus on the technology's impact and transformative effect—both potentially disruptive and liberating—on the social, psychological, and practical aspects of the workplace. BIM and Integrated Design answers the questions that BIM poses to the firm that adopts it. Through thorough research and a series of case study interviews with industry leaders—and leaders in the making out from behind the monitor—BIM and Integrated Design helps you learn: Effective learning strategies for fully understanding BIM software and its use
Key points about integrated design to help you promote the process to owners and your team
How BIM changes not only the technology, process, and delivery but also the leadership playing field
How to become a more effective leader no matter where you find yourself in the organization or on the project team
How the introduction of BIM into the workforce has significant education, recruitment, and training implications
Covering all of the human issues brought about or exacerbated by the advent of BIM into the architecture workplace, profession, and industry, BIM and Integrated Design shows how to overcome real and perceived barriers to its use.

Big BIM, Little Bim - Finith E. Jernigan 2007

This book provides the tools architects need to synthesize and reuse complex data, solve problems early in the design-build process, save costs, and increase profits and productivity. Using virtual information models and the latest technology, Jernigan is able to streamline decision making, improve project visualization, and achieve superior results during

design and construction phases. The book shows you how to effectively use BIM to overcome design challenges and apply an integrated practice approach for successful architectural projects.

Building Information Modeling for a Smart and Sustainable Urban Space - Rafika Hajji 2022-01-26

Urban spaces are being called upon to develop a capacity for resilience and sustainability in order to meet the major challenges they face. To achieve such a goal, a practical development framework must be implemented in order to take advantage of the technological innovations that characterize the field of construction and urban engineering. Today, multi-scale BIM is bringing about significant changes that are redefining the paradigms of urban management. It facilitates simulations of the sustainability of urban spaces with respect to several criteria; most notably relating to energy, the economy and the environment. *Building Information Modeling for a Smart and Sustainable Urban Space* proposes a theoretical and practical framework for implementing BIM models for the creation of sustainable and intelligent urban spaces. It addresses the issues of acquisition, modeling, interoperability, and BIM and GIS integration for the production of BIM models. Case studies are presented, providing a practical dimension that demonstrates the production process of the urban model and its contribution to multiscale simulations, particularly in real estate evaluation and urban renewal.

Building Information Modelling (BIM) in Design, Construction and Operations III - P. De Wilde 2019-12-10
Originating from the 2019 International Conference on Building Information Modelling this book presents latest findings in the field. This volume presents research

from a panel of experts from industry, practice and academia touching on key topics, the development of innovative solutions, and the identification future trends.

BIM for Heritage - Sofia Antonopoulou 2017

This guidance on Building Information Modelling for heritage (Historic BIM) offers guidance for owners, end-users and professionals in the fields of heritage and construction. By raising awareness of the potential advantages of a BIM approach, this guidance will help users successfully implement BIM in heritage projects. Historic BIM is, by definition, a multi-disciplinary process that requires the input and collaboration of professionals with very different skillsets. It is also a fast-developing field in terms of research, official guidance, standards and professional practice. This publication addresses the issues surrounding the production and use of BIM for history buildings, and provides information about guidance and standards available elsewhere for managing a building's entire life cycle effectively.

Advances in Building Information Modeling - Salih Ofluoglu 2020-03-11

This book constitutes the refereed proceedings of the First Eurasian BIM Forum, EBF 2019, held in Istanbul, Turkey, in May 2019. The 16 full papers were carefully reviewed and selected from 44 submissions. The papers cover such topics as BIM adoption and implementation; BIM for project management; BIM for sustainability and performative design; BIM and facility management and infrastructural issues.

BIM Handbook - Rafael Sacks 2011-03-25

"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/review/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.

Mathematics for Machine Learning - Marc Peter Deisenroth
2020-04-23

The fundamental mathematical tools needed to understand machine learning include linear algebra, analytic geometry, matrix decompositions, vector calculus, optimization, probability and statistics. These topics are traditionally taught in disparate courses, making it hard for data science or computer science students, or professionals, to efficiently learn the mathematics. This self-contained textbook bridges the gap between mathematical and machine learning texts, introducing the mathematical concepts with a minimum of prerequisites. It uses these concepts to derive four central machine learning methods: linear regression, principal component analysis, Gaussian mixture models and support vector machines. For students and others with a mathematical background, these derivations provide a starting point to machine learning texts. For those learning the mathematics for the first time, the methods help build intuition and practical experience with applying mathematical concepts. Every chapter includes worked examples and exercises to test understanding. Programming tutorials are offered on the book's web site.

BIM Demystified - Steve Race 2019-07-26

BIM Demystified is a short, practical introduction to Building Information Modelling (BIM). Addressing BIM from the point of view of mainstream practice as opposed to a cutting-edge technological perspective, it offers a user-friendly yet thorough explanation of a subject which is often swamped by jargon and deluged with spin. Taking a wide view of BIM – encompassing business opportunity, Code of Conduct, cultural issues and the necessity for better legal arrangements too – the book's chapters range from the BIM ingredients (including objects, parametrics, and standards), to the business case for BIM and how to implement it. BIM requires a shift in attitudes if its benefits are to be obtained – and this book will allow individuals at all levels in any practice to build a firmer understanding of the merits and wider application of the subject. It brings together both managers and technologists within businesses throughout the AEC chain to form better and more valuable propositions for built environment interventions.

Building Information Modeling - Nawari O. Nawari
2018-02-12

"Many researchers and software developers have put a lot of effort into finding solutions for automated code checking. This book is a good summary of these efforts and provides readers with a comprehensive understanding of the status of such technologies in the industry. It also guides readers on implementation of such techniques using the platforms and tools currently available in the industry." – Issa Ramaji, University of North Florida, USA
Building Information Modeling: Automated Code Checking and Compliance Processes covers current and emerging trends in automating the processes of examining

building design against codes and standards of practice. The role of Building Information Modeling (BIM) technologies in these processes is thoroughly analyzed and explains how this new technology is significantly transforming modern architecture, engineering, and construction (AEC) domains. The book also introduces the theoretical background of computerizing compliance verification, including domain knowledge representations, building model representations, and automated code checking systems. An underlying goal for the material covered is to present the use of BIM technology as an integral part of the automated auditing process that can lead to a more comprehensive, intelligent, and integrated building design— a design where an optimized solution can be achieved in harmony with the current codes and standards of practice. This new proposed BIM-based framework for automating code conformance checking is one of the most powerful methods presently available to reflect actual building code requirements, and the methods described in the book offer significant benefits to the AEC industry such as: □
Providing consistency in interpretation of regulatory provisions
Reducing code compliance validation errors, and the cost and time associated with compliance checking
Allows for the ability to self-check required aspects before bidding
Reduces the amount of time and resources required during design review
Allows for optimal design, along with faster turnaround on feedback, and potentially faster approvals for construction permits by building and infrastructure authorities

Building Information Modelling (BIM) in Design, Construction and Operations IV - J. Casares 2021-12-29
Containing papers presented at the 4th International

Conference on Building Information Modelling (BIM) in Design, Construction and Operations, this volume brings together the research of experts from industry, practice and academia. It describes innovative solutions and predictions for future trends across key BIM-related topics. The modern construction industry and built environment disciplines have been transformed through the development of new and innovative BIM tools and techniques. These have fundamentally altered the manner in which construction teams operate; the processes through which designs are evolved; and the relationships between conceptual, detail, construction and life cycle stages. BIM is essentially value-creating collaboration throughout the entire life-cycle of an asset, underpinned by the data attached to them. BIM has far and reaching consequences on both building procurement and infrastructure. This recent emergence constitutes one of the most exciting developments in the field of the Built Environment. These advances have offered project teams multi-sensory collaborative tools and opportunities for new communication structures. The included papers cover such topics as: BIM in design coordination; BIM in construction operations; BIM in building operation and maintenance; BIM and sustainability; BIM and collaborative working and practices; BIM-Facilities management integration; BIM-GIS integration; BIM and automation in construction; BIM and health and safety; BIM standards; BIM and interoperability; BIM and life cycle project management; BIM and cultural heritage; BIM and robotics; BIM in risk analysis and management; BIM in building cost control; BIM and building representation; Virtual design and construction (VDC); BIM in the execution phase; BIM for infrastructure development; Digital twins.

Building Information Modelling, Building Performance, Design and Smart Construction - Mohammad Dastbaz
2017-03-31

This book charts the path toward high performance sustainable buildings and the smart dwellings of the future. The volume clearly explains the principles and practices of high performance design, the uses of building information modelling (BIM), and the materials and methods of smart construction. Power Systems, Architecture, Material Science, Civil Engineering and Information Systems are all given consideration, as interdisciplinary endeavours are at the heart of this green building revolution.

Domain-driven Design - Eric Evans 2004

"Domain-Driven Design" incorporates numerous examples in Java-case studies taken from actual projects that illustrate the application of domain-driven design to real-world software development.

Autodesk Revit 2017 for Architecture - Eric Wing
2016-08-10

The only Revit tutorial guide based on a real project workflow Autodesk Revit Architecture No Experience Required is the ultimate real-world guide for mastering this increasingly prevalent BIM software package. Using a continuous, step-by-step tutorial, this book walks you through all project phases as you learn the basics of Revit by designing, documenting, and presenting a four-story office building. You'll begin by learning your way around the interface and conventions, then jump right into design by placing walls, doors, and windows. Next you'll work with grids, beams, foundations, dimensions, and text as you build floors layer by layer, join walls, create ceilings and roofs, and place stairs, ramps, and railings. The instruction covers construction

documentation, advanced detailing, and families, as well as site considerations including grading and top surface features to provide a well-rounded, real-world Revit skill set. The companion website features downloadable 'before and after' tutorial files that allow you to jump in at any point and compare your work to the pros. The shift from 2D drafting to 3D building information modeling has made Revit a must-have skill for an increasing number of design, engineering, and construction professionals. This book is designed to teach you the basics quickly, using a real-world workflow, process, and pacing. Get acquainted with the Revit interface, then immediately start building Learn to place structural components, text, dimensions, and more Understand views, grids, editing, importing, exporting, and work sharing Generate construction documentation including schedules and material takeoffs This simple yet engaging tutorial brings together all of the major skills a Revit user needs to know to complete real workplace projects. Whether read from beginning to end as a comprehensive lesson, or used as 'dip-in' reference for unfamiliar tasks, Autodesk Revit Architecture No Experience Required provides invaluable practical BIM instruction for every phase of a project. *Product Lifecycle Management for a Global Market* - Shuichi Fukuda 2014-12-17 This book constitutes the refereed post-proceedings of the 11th IFIP WG 5.1 International Conference on Product Lifecycle Management, PLM 2014, held in Yokohama, Japan, in July 2014. The 51 full papers presented were carefully reviewed and selected from 77 submissions. They are organized in the following topical sections: BIM operations, maintenance, and renovation; BIM concepts and lifecycle management; design and education;

naval engineering and shipbuilding; aeronautical and automotive engineering; industry and consumer products; interoperability, integration, configuration, systems engineering; change management and maturity; knowledge engineering; knowledge management; service and manufacturing; and new PLM.

Building Information Modelling (BIM) in Design, Construction and Operations II - A. Galiano-Garrigos 2017-08-09

The papers presented at Building Information Modelling 2017 (BIM) are from a range of forums, including plenary papers, workshops, seminars, and panel sessions. The conference was attended by experts from industry, practice and academia, sharing their work on key topics, the development of innovative solutions, and the identification future trends. The volume 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. BIM is essentially value-creating collaboration throughout the entire life-cycle of an asset, underpinned by the statistics attached to them and has far and reaching consequences on both building procurement and infrastructure. BIM 2017 papers cover topics such as: BIM in design coordination, Construction operations; Building operation and maintenance; BIM and sustainability; Collaborative working and practices; Facilities management integration and GIS integration; Automation in construction; Health and safety; BIM and interoperability; Life cycle project management; Cultural heritage; BIM and Robotics; Risk analysis and management and Emergency analysis, planning and

management

BIM for Design Coordination - Fernanda L. Leite

2019-11-26

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.

BIM Design - Richard Garber 2014-08-11

Building information modelling (BIM) is revolutionising building design and construction. For architects, BIM has the potential to optimise their creativity while reducing risk in the design and construction process, thus giving them a more significant role in the building process. This book demonstrates how innovative firms are using BIM technologies to move design away from the utilitarian problems of construction, engaging them in a stunning new future in the built environment. Whereas recent books about BIM have tended to favour case-study analyses or instruction on the use of specific software, BIM Design highlights how day-to-day design operations are shaped by the increasingly generative and collaborative aspects of these new tools. BIM strategies are described as operations that can enhance design rather than simply make it more efficient. Thus this book focuses on the specific creative uses of information modelling at the operational level, including the creative development of parametric geometries and generative design, the evaluation of environmental performance and the simulation and scheduling of construction/fabrication operations. This book also engages BIM's pragmatic efficiencies such as the conflict checking of building systems and the creation of bills of quantities for costing; and in so doing it demonstrates how BIM can make such activities

collaborative. Throughout, projects are used to illustrate the creative application of BIM at a variety of scales. These buildings showcase work by firms executing projects all over the world: SHoP Architects and Construction (New York), Morphosis (Los Angeles), Populous (London), GRO Architects (New York), Reiser + Umemoto (New York), Gensler (Shanghai) and UNStudio (Amsterdam).

Beyond BIM - Danelle Briscoe 2015-10-14

Beyond BIM explores the vast and under-explored design potential undertaken by information modeling. Through a series of investigations grounded in the analysis of built work, interviews with leading practitioners, and speculative projects, the author catalogs the practical advantages and theoretical implications of exploiting BIM as a primary tool for design innovation. Organized by information type, such as geographic data, local code, or materials, each chapter suggests a realm of knowledge that can be harvested and imported into BIM to give meaningful specificity to architectural form and space. While highly sustainable, the work documented and envisioned in this book moves well beyond

'normalization,' to reveal inventive takes on contemporary practice. Beyond BIM serves as a primary resource for professional architects from practice, researchers and designers engaged in information related spatial design processes, as well as students and faculties of architecture schools in search of BIM design inspiration. Likewise, those highly attuned to computation and unconventional ways of creating form and space, particularly built outcomes that utilize BIM, will find this book meaningful and essential.

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

- Underwood, Jason 2009-12-31

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.

Building Information Modeling - André Borrmann
2018-09-19

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.

Building Information Modeling - Nawari O. Nawari
2015-04-21

BIM for Structural Engineering and Architecture Building Information Modeling: Framework for Structural Design outlines one of the most promising new developments in architecture, engineering, and construction (AEC).

Building information modeling (BIM) is an information management and analysis technology that is changing the role of computation in the architectural and engineering industries. The innovative process constructs a database assembling all of the objects needed to build a specific structure. Instead of using a computer to produce a

series of drawings that together describe the building, BIM creates a single illustration representing the building as a whole. This book highlights the BIM technology and explains how it is redefining the structural analysis and design of building structures. BIM as a Framework Enabler This book introduces a new framework—the structure and architecture synergy framework (SAS framework)—that helps develop and enhance the understanding of the fundamental principles of architectural analysis using BIM tools. Based upon three main components: the structural melody, structural poetry, and structural analysis, along with the BIM tools as the frame enabler, this new framework allows users to explore structural design as an art while also factoring in the principles of engineering. The framework stresses the influence structure can play in form generation and in defining spatial order and composition. By highlighting the interplay between architecture and structure, the book emphasizes the conceptual behaviors of structural systems and their aesthetic implications and enables readers to thoroughly understand the art and science of whole structural system concepts. Presents the use of BIM technology as part of a design process or framework that can lead to a more comprehensive, intelligent, and integrated building design Places special emphasis on the application of BIM technology for exploring the intimate relationship between structural engineering and architectural design Includes a discussion of current and emerging trends in structural engineering practice and the role of the structural engineer in building design using new BIM technologies Building Information Modeling: Framework for Structural Design provides a thorough understanding of architectural structures and introduces a new

framework that revolutionizes the way building structures are designed and constructed.

BIM in Small-Scale Sustainable Design - Francois Levy
2011-11-16

"Any architect doing small or medium scaled projects who is also vested in sustainable design but is not yet doing BIM will enjoy this book's overall focus." - Architosh.com
This work is the leading guide to architectural design within a building information modeling (BIM) workflow, giving the practitioner a clear procedure when designing climate-load dominated buildings. The book incorporates new information related to BIM, integrated practice, and sustainable design, as well as information on how designers can incorporate the latest technological tools. Each chapter addresses specific topics, such as natural ventilation for cooling, passive solar heating, rainwater harvesting and building hydrology, optimizing material use and reducing construction waste, and collaborating with consultants or other building professionals such as engineers and energy modelers.

The Impact of Building Information Modelling - Ray Crotty
2013-03-01

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.