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Construction Of A Hydraulic
Ram Pump From Leonardo

Design And

**Construction Of A
Hydraulic Ram Pump
From Leonardo**

**Introducing Architectural
Tectonics is an exploration
of the poetics of
construction. Tectonic
theory is an integrative
philosophy examining the
relationships formed
between design,
construction, and space
while creating or
experiencing a work of
architecture. In this text,
author Chad Schwartz
presents an introductory**

investigation into tectonic theory, subdividing it into distinct concepts in order to make it accessible to beginning and advanced students alike. The book centers on the tectonic analysis of twenty contemporary works of architecture located in eleven countries including Germany, Italy, United States, Chile, Japan, Bangladesh, Spain, and Australia and designed by such notable architects as Tadao Ando, Herzog & de Meuron, Kengo Kuma, Olson Kundig, and Peter Zumthor. Although

similarities do exist between the projects, their distinctly different characteristics - location and climate, context, size, program, construction methods - and range of interpretations of tectonic expression provide the most significant lessons of the book, helping you to understand tectonic theory. Written in clear, accessible language, these investigations examine the poetic creation of architecture, showing you lessons and concepts that you can integrate into your own work, whether

**studying in a university
classroom or practicing in a
professional office.**

**This book provides in-depth
results and case studies in
innovation from actual
work undertaken in
collaboration with industry
partners in Architecture,
Engineering, and
Construction (AEC).**

**Scientific advances and
innovative technologies in
the sector are key to
shaping the changes
emerging as a result of
Industry 4.0. Mainstream
Building Information
Management (BIM) is seen
as a vehicle for addressing**

issues such as industry fragmentation, value-driven solutions, decision-making, client engagement, and design/process flow; however, advanced simulation, computer vision, Internet of Things (IoT), blockchain, machine learning, deep learning, and linked data all provide immense opportunities for dealing with these challenges and can provide evidenced-based innovative solutions not seen before. These technologies are perceived as the “true” enablers of future practice, but only recently has the

AEC sector recognised terms such as “golden key” and “golden thread” as part of BIM processes and workflows. This book builds on the success of a number of initiatives and projects by the authors, which include seminal findings from the literature, research and development, and practice-based solutions produced for industry. It presents these findings through real projects and case studies developed by the authors and reports on how these technologies made a real-world impact. The chapters

and cases in the book are developed around these overarching themes:

- **BIM and AEC Design and Optimisation: Application of Artificial Intelligence in Design**
- **BIM and XR as Advanced Visualisation and Simulation Tools**
- **Design Informatics and Advancements in BIM Authoring**
- **Green Building Assessment: Emerging Design Support Tools**
- **Computer Vision and Image Processing for Expediting Project Management and Operations**
- **Blockchain, Big Data, and IoT for Facilitated Project**

**Management • BIM
Strategies and Leveraged
Solutions** This book is a
timely and relevant
synthesis of a number of
cogent subjects
underpinning the paradigm
shift needed for the AEC
industry and is essential
reading for all involved in
the sector. It is particularly
suited for use in Masters-
level programs in
Architecture, Engineering,
and Construction.
**Successfully Measure the
Benefits of Green Design
and Construction
Sustainability in
Engineering Design and**

Construction outlines the sustainable practices used in engineering design and construction operations for all types of engineering and construction projects. Aimed at ushering the engineering and construction industry into embracing sustainable practices and green construction techniques, this book addresses sustainability in engineering design and construction operations from a historical and global perspective, and delves into specific sustainability concepts and processes.

The book explains the concepts of sustainable development, corporate social responsibility (CSR), the Dow Jones Global Sustainability Index (DJGSI), key performance indicators (KPIs), corporate sustainability, and the triple bottom line (economic, environmental, and social values in design and construction). Relevant to sustainability in every facet of engineering and construction, it also covers life-cycle environmental cost analysis, discusses sustainable engineering and site selection, the

economic considerations evaluated when making sustainability decisions, and explains how to measure and quantify sustainable performance and apply these practices in the real world. It also covers project and corporate level sustainability practices, sustainable construction materials and processes, sustainable heavy construction equipment, traditional and alternative energy sources, provides implementation resources for starting and evaluating sustainability programs,

and includes a checklist for measuring the sustainability of construction operations. The text contains detailed information on sustainable construction materials and processes, heavy construction equipment, and traditional and alternative energy sources. It presents information on sustainable designs, selecting sustainable sites, designing for passive survivability, designing for disassembly, and the ISO 14,000 standards. It provides implementation resources for starting and

**evaluating sustainability
programs and a checklist
for measuring the
sustainability of
construction operations In
addition, it provides
definitions of sustainability
terms and expressions, as
well as case studies,
examples, discussion
questions, and a list of
supplemental references at
the end of each chapter.
This book provides
information on: Definitions
for sustainability terms
Sources for locating global
sustainability requirements
Current sustainability
issues Environmental laws**

**related to sustainability
and their implications
Sustainable design Life-
cycle cost assessment
models Sustainable
practices currently being
used in the engineering and
construction (E&C) industry
Corporate-level
sustainability practices
Project-level sustainability
practices Global
sustainability trends and
implications Sustainable
materials Sustainable
heavy construction
equipment Traditional and
alternative energy sources
LEED Green Building Rating
System Sustainability**

**organizations and
certification programs
Sustainability
implementation resources
A summary of sustainable
engineering design and
construction
The design, construction
and use of buildings in
tropical climates pose
specific challenges to built
environment professionals.
This text seeks to capture
some of the key issues of
technology and practice in
the areas of building
design, refurbishment,
construction and facilities
management in tropical
regions. Using a consistent**

**chapter structure
throughout, and
incorporating the latest
research findings, this book
outlines: the functional
requirements of buildings
in tropical climates; the
challenges associated with
the sustainability of the
built environment, building
form and whole life
performance in the context
of a tropical setting; the
impact of potentially
hostile tropical conditions
upon building pathology
and the durability of
components, structure and
fabric; the tasks which face
those responsible for**

**appraising the design,
condition, maintenance and
conservation of built
heritage in tropical regions;
the facilities management
issues faced in tropical
climates; and the
refurbishment, upgrade
and renewal of the tropical
built environment. The
book is ideal as a course
text for students of
Architecture, Construction,
Surveying and FM as well
as providing a sound
reference for practitioners
working in these regions.
Embroidered Books
Added Value in Design and
Construction**

LEED, BREEAM, and Green Globes

**Reports of the Committees
on Design, Construction,
Fundamental Equipment
(Classic Reprint)**

**Building Design and
Construction Handbook
House Design Construction
and Equipment**

**Furniture Design and Construction for
the Interior Designer satisfies the need
in the interior design field for a source
that teaches the aesthetic as well as the
construction of residential furniture.**

**Beginning chapters cover the design
process as it relates to furniture design,
basic materials, hardware, joinery, and
finishes. Because interior designers
organize and create livable spaces, later
chapters are organized room by room,**

showing how pieces are constructed for a particular space. Understanding the basic construction of furniture greatly increases the success of the design.

Interior designers should be confident in their design work as well as have an understanding of what is involved with the construction of their pieces, and that is what Natale and this book guide them toward.

House Design, Construction and Equipment: Reports on the Committees on Design is written and published by the President's Conference on Home Building and Home Ownership. This book was published in the hope of combating faulty design, uneconomic planning, defective construction, and imperfect equipment. By increasing awareness of design and proper building policies and procedures, this book intends to ensure that future

construction and developments don't fall into the trap of poor and defective design, thereby saving the reader untold time and resources. The book contends that any standard dwelling should serve its occupants for at least three generations of inhabitants and each building should maintain this standard of sustainability; not only is this standard attainable, it should be industry standard. The text also discusses at length the major issue of workers and designers who are satisfied with imperfect practices and second-rate structures. The publication challenges individuals who are in construction and design to raise their personal standards of work and to fill neighborhoods and communities with the best structures they can possibly build. Overall, the text effectively establishes a relevant dialogue on

building and construction standards with a realistic understanding of the pressures of oversight and the limitations on supplies and economic constrictions. House Design, Construction and Equipment: Reports on the Committees on Design is an interesting read for anyone intrigued by design and construction or with the business constraints on builders and construction crews. The text is primarily intended for architects, contractors and producers of building materials and equipment, but can be enjoyed by students of architecture and individuals interested in construction. This book is also engaging for readers with a mind for business and who are keenly intrigued by construction. About the Publisher Forgotten Books publishes hundreds of thousands of rare and classic books. Find more at

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www.forgottenbooks.com This book is a reproduction of an important historical work. Forgotten Books uses state-of-the-art technology to digitally reconstruct the work, preserving the original format whilst repairing imperfections present in the aged copy. In rare cases, an imperfection in the original, such as a blemish or missing page, may be replicated in our edition. We do, however, repair the vast majority of imperfections successfully; any imperfections that remain are intentionally left to preserve the state of such historical works.

This is a guide to both the basics and the details of tall building design, delving into the rudimentary aspects of design that an architect of a tall office building must consider, as well as looking at the rationale for why and how a building must be built the way it is. Liberally

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illustrated with clear, simple black and white illustrations showing how the building structure and details can be built, this book greatly assists the reader in their understanding of the building process for a modern office tower. It breaks down the building into three main components: the structure, the core and the facade, writing about them and illustrating them in a simple-to-understand manner. By focusing on the nuts and bolts of real-life design and construction, it provides a practical guide and desk-reference to any architect or architecture student embarking on a tall building project. Added Value in Design and Construction takes a holistic, student-centred approach to offering public and private sector clients the ultimate reward; doing more for less. The Latham Report was a call to action and

this book provides students of construction with the theoretical and practical knowledge to deliver the recommendations of the report. It describes the principles and techniques crucial to adding value and reducing costs in design and construction in the twenty first century. This book examines in detail a wide range of strategies that can be applied during the design and construction process to add value and bring the best interests of the client sharply into focus.

Exploring the Intersection of Design and Construction

The New Net Zero

Building Design, Construction and Performance in Tropical Climates

Practical Design, Construction and Operation of Food Facilities

Digital Transformation of the Design, Construction and Management

**Processes of the Built Environment
Building Envelopes, Renewable
Energies and Integrated Practice
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

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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 This open access book focuses on the development of methods, interoperable and integrated ICT tools, and survey techniques for optimal management of the building process. The construction sector is facing an increasing demand for major innovations in terms of digital dematerialization and technologies such as the Internet of Things, big data, advanced manufacturing, robotics, 3D printing, blockchain technologies and artificial intelligence. The demand for simplification and transparency in information management and for

the rationalization and optimization of very fragmented and splintered processes is a key driver for digitization. The book describes the contribution of the ABC Department of the Polytechnic University of Milan (Politecnico di Milano) to R&D activities regarding methods and ICT tools for the interoperable management of the different phases of the building process, including design, construction, and management. Informative case studies complement the theoretical discussion. The book will be of interest to all stakeholders in the building process - owners, designers, constructors, and facility managers - as well as the research sector.

**Prepared by the Task Committee
of the Urban Water Resources**

Research Council of ASCE.

**Copublished by ASCE and the
Water Environment Federation.**

**Design and Construction of Urban
Stormwater Management Systems
presents a comprehensive
examination of the issues involved
in engineering urban stormwater
systems. This Manual?which
updates relevant portions of Design
and Construction of Sanitary and
Storm Sewers, MOP 37?reflects the
many changes taking place in the
field, such as the use of
microcomputers and the need to
control the quality of runoff as well
as the quantity. Chapters are
prepared by authors with
experience and expertise in the
particular subject area. The Manual
aids the practicing engineer by
presenting a brief summary of**

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currently accepted procedures relating to the following areas: financial services; regulations;Ø surveys and investigations;Ø design concepts and master planning;Ø hydrology and water quality;Ø storm drainage hydraulics; andØ computer modeling.

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

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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.

Design, Construction and Embellishment

Design and Construction of Urban Stormwater Management Systems

Mixed Reality In Architecture, Design, And Construction

A System Dynamics Approach

Data-Driven Design and Construction

"Educate design and legal professionals on the legal issues impacting the design industry"--

Offers state-of-the-art principles and strategies gleaned from high-profile projects to help readers manage design This guide to

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managing design process within the commercial design and construction industry addresses a growing pain point in an industry where collaborative approaches to project delivery are outpacing the way professionals work. It synthesizes issues by investigating the “why,” “how,” and “who” of the discipline of managing design, and gives the “what” and “when” to apply the solutions given various project delivery and contracting methods. The book features candid interviews with over 40 industry leaders—architects, engineers, contractors, owners, educators, technology evangelists, and authors—which present a broad look at current issues and offer paths to future collaboration and change. Managing Design: Conversations, Project Controls and Best Practices for Commercial Design and Construction Projects is a self-help book for design and construction that provides an insider’s look at the mysteries of

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managing design for yourself, team, firm and future. It tackles client empathy; firm culture; owner leadership; design and budgets; dealing with engineers, consultants, and contractors; contracts; team assembly; and much more. Features eye-opening interviews with 40 industry luminaries Exposes issues and poses solutions to longstanding industry ills Offers a project design controls framework and toolset for immediate application and action Includes best practice tips, process diagrams, and comparative analytical tables to support the text Written in a relatable style, Managing Design: Conversations, Project Controls and Best Practices for Commercial Design and Construction Projects is a welcome resource for owners, contractors, and designers in search of better ways to work together. "Managing Design blends practical advice from the author's five decades in architecture and construction with wisdom

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from more than three dozen luminaries in the design, delivery, ownership and operation of the built environment. The result is an extraordinary guide to integrating practice across disciplines.”

—Bob Fisher, Editor-In-Chief, Design Intelligence “Managing Design peers into the soul of a contentious industry as it grapples with change—a deep dive into the design and construction process in the words of those doing the work. I enjoyed the engineers and contractors’ pleas to be made parties to design process early on. The questions—as interesting as the answers—are both here in this book.”

—Richard Korman, Deputy Editor, Engineering News Record “Managing Design hits many of the design and construction industry’s ills head-on with insightful interviews by new and established leaders and real-world tactics on creating better teams, better communications between

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players, and—most vitally—better project results.” —Rebecca W. E. Edmunds, AIA, Editor, Author and President, r4 llc

Laboratory facilities are complex, technically sophisticated, and mechanically intensive structures that are expensive to build and to maintain. Hundreds of decisions must be made before and during new construction or renovation that will determine how successfully the facility will function when completed and how successfully it can be maintained once put into service. This book provides guidance on effective approaches for building laboratory facilities in the chemical and biochemical sciences. It contains both basic and laboratory-specific information addressed to the user community—the scientists and administrators who contract with design and construction experts. The book will also be important to the design and construction communities—the architects,

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*laboratory designers, and engineers who will design the facility and the construction personnel who will build it-to help them communicate with the scientific community for whom they build laboratory facilities. The concept of value in projects is a key issue for everyone involved in the construction industry. Building in Value brings together many experts in the field to outline the wide range of tools, techniques and procedures that can and should be used to make the building procurement phase as efficient as possible. The authors go on to discuss how to ensure that future problems in the design and construction of the buildings are anticipated at the start and to minimise the likelihood of future hiccups. Integrating strategic, financial and construction management techniques, this book provides an essential guide for construction professionals. *Offers a practical approach to cost-*

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*effectiveness. *Provides an introduction to a set of widely applicable decision making tools. *Discusses startegic, financial and construction management techniques.*

Pre-Design Issues

Conversations, Project Controls, and Best Practices for Commercial Design and Construction Projects

Pile Design and Construction Rules of Thumb

The Design and Construction of Large Optical Telescopes

Illustrated Dictionary of Building Design and Construction

Current and future practices

Implementing Virtual Design and Construction using BIM outlines the team structure, software and production ecosystem needed for an effective Virtual Design and Construction (VDC) process

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through current real world case studies of projects both in development and under construction. It provides the reader with a better understanding of the successful implementation of VDC and Building Information Modeling (BIM), and the benefits to the project team throughout the design and construction process. For readers already familiar with VDC, the book will provide invaluable examples of best practices and real world solutions. Richly illustrated in color with actual VDC documentation, visualizations, and statistics, the reader is shown the real processes undertaken and outputs generated when working on high profile building

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information models. Online animations, interviews with practitioners, and downloadable templates, forms and files make this an interactive and highly engaging way to learn a crucial set of skills. While keeping up with current industry practice is a minimum requirement, this book goes further by helping you prepare for the next level of virtual design and construction. This is essential reading for project managers, construction managers, architects, design managers, and anybody with a role in BIM or virtual construction.

Teaching the basics of book construction as well as embellishment, this title

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demonstrates how you can create stunning embroidered books using all the latest fabrics and methods.

Automation, a mixture of algorithms, robots, software, and avatars, is transforming all types of jobs and industries. This book responds to one critical question for the design and construction industry: “ how are architects, engineers, and contractors using information technology to further automate their practices? ”

Addressing the use of new digital technologies, particularly parametric automation for design and construction in the building industry, this book looks at how technologically advanced architectural and engineering

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practices are semi-automating their design processes by using sophisticated algorithms to transform their workflows. The book also documents a set of firms that are further advancing automation by using pre-fabrication, modularization, and custom designs via robotics. Concrete Floors still form one of the most common structural elements in construction today. However, floors are responsible for more user complaints than any other building element. A floor must be designed around a user's needs, whether industrial or domestic but it also must comply with the correct standards such as floor flatness and structural

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strength. This book points the way to good practice by providing an introductory guide to the design and construction of concrete floors. Aimed at designers, civil and structural engineers, contractors and engineering and architectural consultants, this new edition brings the reader up to date with the latest developments and principles of floor design. * Demonstrates how to successfully design and build concrete floors by drawing from a wide range of global experience *Based on US, British and European construction standards *Updated to include the latest developments in floor design and construction
Laboratory Design, Construction,

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Building in Value

The Design and Construction of the Nautilus

Participants, Process, and Product

Sustainability in Engineering

Design and Construction

25 Strategies for Capturing,

Analyzing and Applying Building

Data

This book addresses some of the countless challenges faced by developing countries when adopting sustainable design and construction and offers suggestions for the way forward for African development projects. The authors argue that the pervasive non-consideration

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of the interrelationship between the elements of sustainable design and construction is the reason for the current failures in sustainable design and construction in developed countries. By treating sustainability as a complex system, the authors provide the missing link between the design and construction of projects in a sustainable way with a view to improving industry and project performance. In doing so the book posits the need for improved sustainability practice in developing countries, lessons for developing countries from the successes and failures

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of sustainability adoption by developed nations, factors influencing adoption of sustainability and effects of sustainable designs and construction on productivity, human health and the environment at large. This book will be of interest to construction researchers, practitioners, professional bodies, housing policy makers and government institutions as well as training and funding providers in these areas. The purpose of this book is to introduce the phosphorus (P) removal structure as a new BMP for reducing dissolved P loading to surface waters from non-

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point source pollution, provide guidance on designing site-specific P removal structures, and provide instruction on use of the design software, "Phrog" (Phosphorus Removal Online Guidance). The book initially provides a review of the nature and sources of non-point source P pollution, examines short and long term solutions to the problem, and provides detailed theory on design and operation of the P removal structure. As with many areas of study, one of the best methods of communicating concepts is through illustrations and examples. This book is no

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exception; several years of experience in studying P sorption and constructing P removal structures at multiple scales and settings is utilized for providing real examples and applications. With an understanding of the P removal structure established, the reader is instructed on how to obtain all of the necessary inputs for properly designing a site-specific P removal structure for meeting a desired lifetime and performance, or predict the performance and lifetime of a previously constructed P removal structure. For the readers who already possess

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the Phrog design software or are interested in obtaining it, one chapter is dedicated to detailed use of the software as demonstrated with various examples of structure design and also prediction.

There is no dearth of books on telescope optics and, indeed, optics is clearly a key element in the design and construction of telescopes. But it is by no means the only important element. As telescopes become larger and more costly, other aspects such as structures, pointing, wavefront control, enclosures, and project management become just as critical. Although most of

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the technical knowledge required for all these fields is available in various specialized books, journal articles, and technical reports, they are not necessarily written with application to telescopes in mind. This book is a first attempt at assembling in a single text the basic astronomical and engineering principles used in the design and construction of large telescopes. It aims to broadly cover all major aspects of the field, from the fundamentals of astronomical observation to optics, control systems, structural, mechanical, and thermal engineering, as well as specialized topics such as site selection

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and program management. This subject is so vast that an in-depth treatment is obviously impractical. Our intent is therefore only to provide a comprehensive introduction to the essential aspects of telescope design and construction. This book will not replace specialized scientific and technical texts. But we hope that it will be useful for astronomers, managers, and systems engineers who seek a basic understanding of the underlying principles of telescope making, and for specialists who wish to acquaint themselves with the fundamental requirements and

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approaches of their
colleagues in other
disciplines.

"Prefab Architecture . . .
is beyond theory, and beyond
most of what we think we
know about pods, containers,
mods, and joints. This book
is more than 'Prefabrication
101.' It is the Joy of
Cooking writ large for the
architecture and
construction industries."

—From the Foreword by James
Timberlake, FAIA THE
DEFINITIVE REFERENCE ON
PREFAB ARCHITECTURE FOR
ARCHITECTS AND CONSTRUCTION
PROFESSIONALS Written for
architects and related
design and construction
professionals, Prefab

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Architecture is a guide to off-site construction, presenting the opportunities and challenges associated with designing and building with components, panels, and modules. It presents the drawbacks of building in situ (on-site) and demonstrates why prefabrication is the smarter choice for better integration of products and processes, more efficient delivery, and realizing more value in project life cycles. In addition, Prefab Architecture provides: A selected history of prefabrication from the Industrial Revolution to current computer numerical

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control, and a theory of production from integrated processes to lean manufacturing Coverage on the tradeoffs of off-site fabrication including scope, schedule, and cost with the associated principles of labor, risk, and quality Up-to-date products featuring examples of prefabricated structure, enclosure, service, and interior building systems Documentation on the constraints and execution of manufacturing, factory production, transportation, and assembly Dozens of recent examples of prefab projects by contemporary architects and fabricators

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*including KieranTimberlake,
SHoP Architects, Office dA,
Michelle Kaufmann, and many
others In Prefab*

*Architecture, the fresh
approaches toward creating
buildings that accurately
convey ature and expanded
green building methodologies
make this book an important
voice for adopting change in
a construction industry
entrenched in traditions of
the past.*

*A Virtual Design and
Construction Guide for
Designers, General
Contractors, and MEP
Subcontractors*

*Tall: the design and
construction of high-rise
architecture*

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*Design and Construction of
Phosphorus Removal*

*Structures for Improving
Water Quality*

*Furniture Design and
Construction for the
Interior Designer*

*Advanced Customization in
Architectural Design and
Construction*

*Foundation Design and
Construction*

Provides updated,
comprehensive, and practical
information and guidelines on
aspects of building design and
construction, including materials,
methods, structural types,
components, and costs, and
management techniques.

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Analysis, Design and Construction of Foundations outlines methods for analysis and design of the construction of shallow and deep foundations with particular reference to case studies in Hong Kong and China, as well as a discussion of the methods used in other countries. It introduces the main approaches used by geotechnical and structural engineers, and the precautions required for planning, design and construction of foundation structures. Some computational methods and computer programmes are reviewed to provide tools for performing a

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more realistic analysis of foundation systems. The authors examine in depth the methods used for constructing shallow foundations, deep foundations, excavation and lateral support systems, slope stability analysis and construction, and ground monitoring for proper site management. Some new and innovative foundation construction methods are also introduced. It is illustrated with case studies of failures and defects from actual construction projects. Some advanced and modern theories are also covered in this book. This book is more targeted towards the

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understanding of the basic behavior and the actual construction of many geotechnical works, and this book is not dedicated to any design code or specification, though Euro codes and Hong Kong code are also used in this book for illustration. It is ideal for consulting geotechnical engineers, undergraduate and postgraduate students.

The design and construction of buildings is a lengthy and expensive process, and those who commission buildings are continually looking for ways to improve the efficiency of the process. In this book, the second

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in the Building in Value series, a broad range of topics related to the processes of design and construction are explored by an international group of experts. The overall aim of the book is to look at ways that clients can improve the value for money outcomes of their decisions to construct buildings. The book is aimed at students studying in many areas related to the construction industry including architecture, construction management, civil engineering and quantity surveying, and should also be of interest to many in the industry including project managers, property

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developers, building contractors and cost engineers.

Construction is the foundation of fashion design; it takes passion and great skill to turn a two-dimensional drawing into a successful garment.

Construction for Fashion Design guides readers through the process, teaching the theory, practical skills and techniques that they need to succeed. It leads readers through the essential stages of creating a garment, from pattern cutting and draping on the mannequin to sewing techniques and haberdashery. This fully revised and expanded second edition

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features insightful case studies with leading creative practitioners at the cutting edge of the fashion industry today, complete with detailed, step-by-step exercises that enable readers to contextualise their knowledge and put it into practise for the creation of their own successful projects.

Design Professional's Guide to Construction Law

Design and Construction of Wood Framed Buildings

A Paradigm of New Opportunities

Post-Parametric Automation in Design and Construction

A Guide to Modular Design and

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Prefab Architecture

This book presents the state of the art in advanced customization within the sector of architectural design and construction, explaining important new technologies that are boosting design, product and process innovation and identifying the challenges to be confronted as we move toward a mass customization construction industry. Advanced machinery and software integration are discussed, as well as an overview of the manufacturing techniques offered through digital methods that are acquiring particular significance within the field of digital architecture. CNC

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machining, Robotic Fabrication, and Additive Manufacturing processes are all clearly explained, highlighting their ability to produce personalized architectural forms and unique construction components. Cutting-edge case studies in digitally fabricated architectural realizations are described and, looking towards the future, a new model of 100% customized architecture for design and construction is presented. The book is an excellent guide to the profound revolution taking place within the fields of architectural design and construction, characterized by computational tools, advanced fabrication means and custom-made

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high-performance architecture.

Design and Construction Routledge

Both professionals and students are increasingly committed to achieving high-performance metrics in the design, construction and operation of residential buildings. This book responds to this demand by offering a comprehensive guide which features: architectural innovations in building skin technologies which make lighter more transparent buildings high performing energy-free architectural design principles and advances in building-integrated photovoltaics essential engineering principles, controls and approaches to simulation for achieving net zero the advantages of integrated design

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in residential construction and the challenges and opportunities it engenders detailed case studies of innovative homes which have incorporated low-energy design solutions, new materials, alternative building assemblies, digital fabrication, integrated engineering systems and operational controls. Divided into four parts, the book discusses the requisite AEC (Architecture, Engineering and Construction) knowledge needed when building a high-performance home. It also communicates this information across four case studies, which provide the reader with a thorough overview of all aspects to be considered in the design and

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construction of sustainable homes.

With contributions from experts in the field, the book provides a well-rounded and multi-faceted approach. This book is essential reading for students and professionals in design, architecture, engineering (civil, mechanical and electrical), construction and energy management.

The new threshold for green building is not just low energy, it's net-zero energy. In *The New Net Zero*, sustainable architect Bill Maclay charts the path for designers and builders interested in exploring green design's new-frontier net-zero-energy structures that produce as much energy as they consume and

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are carbon neutral. In a nation where traditional buildings use roughly 40 percent of the total fossil energy, the interest in net-zero building is growing enormously--among both designers interested in addressing climate change and consumers interested in energy efficiency and long-term savings. Maclay, an award-winning net-zero designer whose buildings have achieved high-performance goals at affordable costs, makes the case for a net-zero future; explains net-zero building metrics, integrated design practices, and renewable energy options; and shares his lessons learned on net-zero teambuilding. Designers and builders will find a wealth of state-

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of-the-art information on such considerations as air, water, and vapor barriers; embodied energy; residential and commercial net-zero standards; monitoring and commissioning; insulation options; costs; and more. The comprehensive overview is accompanied by several case studies, which include institutional buildings, commercial projects, and residences. Both new-building and renovation projects are covered in detail. The New Net Zero is geared toward professionals exploring net-zero design, but also suitable for nonprofessionals seeking ideas and strategies on net-zero options that are beautiful and renewably powered.

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Design and Construction of High-performance Homes

Construction for Fashion Design

Durability of Concrete

Sustainable Design and

Construction in Africa

Analysis, Design and Construction of Foundations

Design and Construction of

Concrete Floors, Second Edition

"In this comprehensive book, Professor Randy Deutsch has

unlocked and laid bare the

twenty-first century codice

nascosto of architecture. It is

data. Big data. Data as driver. .

. This book offers us the chance

to become informed and

knowledgeable pursuers of data

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and the opportunities it offers to making architecture a wonderful, useful, and smart art form.”

—From the Foreword by James Timberlake, FAIA Written for architects, engineers, contractors, owners, and educators, and based on today’s technology and practices, Data-Driven Design and Construction: 25 Strategies for Capturing, Applying and Analyzing Building Data addresses how innovative individuals and firms are using data to remain competitive while advancing their practices. seeks to address and rectify a gap in our learning, by explaining to architects, engineers, contractors

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and owners—and students of these fields—how to acquire and use data to make more informed decisions. documents how data-driven design is the new frontier of the convergence between BIM and architectural computational analyses and associated tools. is a book of adaptable strategies you and your organization can apply today to make the most of the data you have at your fingertips. Data-Driven Design and Construction was written to help design practitioners and their project teams make better use of BIM, and leverage data throughout the building lifecycle. This practical guide provides a

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graphic medium of communication between architects, engineers, contractors, and students engaged in the design and construction of wood framed buildings. An important tool for translating design calculations into practical field applications which meet building codes. Illustrations and index included. Anyone involved in the building industry - from architects and engineers to subcontractors and interior designers - will turn to this treasure trove of images and information The only illustrated dictionary to include construction, design, and related

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business terminology, it includes more photos and detailed drawings than any other book on the shelf. Shows pre- and post-construction aspects of building components.

Expanded 4th Edition with 60+ pages of new material. Is there anyone, of any age, who has read Twenty Thousand Leagues Under the Sea and not sketched their vision of the Nautilus in their imagination or down on paper? For 150 years, the submarine created by Jules Verne has captivated readers and inspired countless interpretations. Jules Verne was meticulous about incorporating cutting-edge

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technology of his time and making reasonable extrapolations. The Design and Construction of the Nautilus takes Jules Verne's in-text descriptions, paired with extensive research on the technology of the time in which Verne's iconic book was written, and presents detailed construction plans, design notes, and operational theories based on modern submarine technologies. The Nautilus is more than just a 19th-century mechanical marvel. She has always represented the ultimate technological triumph over nature, a symbol of mankind's

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mastery of our domain, and the human desire to explore the unknown.

*BIM for Design Coordination
Introducing Architectural
Tectonics*

*Implementing Virtual Design and
Construction using BIM
Design and Construction
Managing Design*

*Handbook of Green Building
Design and Construction*

Mixed Reality is moving out of the research-labs into our daily lives. It plays an increasing role in architecture, design and construction. The combination of digital content with reality creates an exciting synergy that

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sets out to enhance engagement within architectural design and construction. State-of-the-art research projects on theories and applications within Mixed Reality are presented by leading researchers covering topics in architecture, design collaboration, construction and education. They discuss current projects and offer insight into the next wave of Mixed Reality possibilities.

This book provides an up-to-date survey of durability issues, with a particular focus on specification and design, and how to achieve durability in actual concrete construction. It is aimed at the practising

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engineer, but is also a valuable resource for graduate-level programs in universities. Along with background to current philosophies it gathers together in one useful reference a summary of current knowledge on concrete durability, includes information on modern concrete materials, and shows how these materials can be combined to produce durable concrete. The approach is consistent with the increasing focus on sustainability that is being addressed by the concrete industry, with the current emphasis on ' design for durability ' .

Pile Design and Construction

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Rules of Thumb presents Geotechnical and Civil Engineers a comprehensive coverage of Pile Foundation related theory and practice. Based on the author ' s experience as a PE, the book brings concise theory and extensive calculations, examples and case studies that can be easily applied by professional in their day-to-day challenges. In its first part, the book covers the fundamentals of Pile Selection: Soil investigation, condition, pile types and how to choose them. In the second part it addresses the Design of Pile Foundations, including different types of

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soils, pile groups, pile settlement and pile design in rock. Next, the most extensive part covers Design Strategies and contains chapters on loading analysis, load distribution, negative skin friction, design for expansive soils, wave equation analysis, batter piles, seismic analysis and the use of softwares for design aid. The fourth part covers Construction Methods including hammers, Inspection, cost estimation, load tests, offshore piling, beams and caps. In this new and updated edition the author has incorporated new pile designs such as helical, composite, wind turbine monopiles, and spiral

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coil energy piles. All calculations have been updated to most current materials characteristics and designs available in the market. Also, new chapters on negative skin friction, pile driving, and pile load testing have been added. Practicing Geotechnical, and Civil Engineers will find in this book an excellent handbook for frequent consult, benefiting from the clear and direct calculations, examples, and cases. Civil Engineering preparing for PE exams may benefit from the extensive coverage of the subject. Convenient for day-to-day consults; Numerous design

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examples for sandy soils, clay soils, and seismic loadings; Now including helical, composite, wind turbine monopiles, and spiral coil energy piles; Methodologies and case studies for different pile types; Serves as PE exam preparation material.

Around the world concerns about cost, efficiency, and safety - employee, product, process and consumer -- have led to changes in the way food plants are planned, constructed and evaluated. From initiation of major capital requests to legal design requirements to project management and plant operations, food engineers and

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scientists must understand the myriad of requirements and responsibilities of successful food facilities. J. Peter Clark provides that guidance in this complete volume. Included are: A summary of lessons on understanding how management evaluates potential investments and how they can contribute to ultimate shareholder value, and checklists to help accurately estimate capital and operating costs Important, and in some cases unique, features of a food plant including focus on food safety. Addresses not only consumer products, but ingredients for consumer products and the concerns of

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distribution and flexibility that must be considered. Also considered are the support facilities that are equally essential to the safe production of food An effective approach to understanding production lines and optimizing operations during expansion by briefly introducing Goldratt's Theory of Constraints. The book explores the challenges of construction while maintaining safe and sanitary operations An approach and methodology that can be extended beyond the case studies presented in order to effectively plan development processes and make correct equipment selections Project

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management and plant operations guidance to assist engineers who find themselves in the role of managing a design or construction process project, or of supervising a portion of a plant. Includes suggestions for effectively troubleshooting an unsatisfactory operation Provides real-world insights including guides for proper project estimation, understanding the role and importance of support facilities, maintaining standards while under construction and other vital considerations Includes checklists and proven approaches to guide the reader through the wide range of

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necessary planning and implementation steps Considers factors for both new plant construction and expansion of existing plants

Industry 4.0 Solutions for Building Design and Construction

Leading-Edge Design and Construction of Homes and Buildings for a Renewable Energy Future