

Masonry Construction Manual Birkhauser

Designing and constructing load-bearing building elements Columns, walls and floors make up the skeleton of nearly every building. This third volume in the series SCALE, Support| Materialise, takes an in-depth look at these load-bearing structures, covering the development and realization of appropriate constructions from idea and design intention all the way to constructional implementation. Following the traditional building methods of massive, cross-wall, and skeleton construction, it points the way toward a material-appropriate constructional approach to these defining structural elements – columns, walls,and floors. Special attention is given to how constructional and technical considerations can be harmonized with spatial and formal commitments. The load-bearing elements are organized, described, and explored in detail from a material as well as a formal and constructional perspective. Their practical implementation is illustrated by a series of international examples.

A construction material that once was innovative and modern and then fell somewhat into disrepute through some of the quite radical post-war architecture, concrete is today very popular with planners and builders due to its multifaceted nature. The material offers enormous potential through its extensive load-bearing capacities but also due to the diversity of its properties and surface characteristics. In addition to the technical possibilities customarily attributed to concrete construction, the construction material is on the ascendant not least due to the current debate regarding energy efficiency and sustainability, since it seems tailor-made for the realization of the relevant requirements. It is not just the design and construction of concrete load-bearing structures that are the focus of this publication, but also the materiality and thus the haptic and sensuous side of the material in particular. That's because visible concrete in "smooth gray flawless" quality is not everything that concrete has to offer. Even designers and interior decorators develop furniture and space innovations of unimagined sensuality. The Modern Concrete Construction Manual provides the planner with well-founded expert information regarding the construction material of concrete, ranging from manufacturing to materiality to the design of concrete load-bearing structures, including current options for digital design and production processes. As a standard reference volume, the publication offers comprehensive and detailed insights regarding topics including cost-effectiveness, energy and sustainability, renovation, design and interior decoration. An extensive index of works with successful real-life examples provides inspiration and invites the reader to make modern use of a classical construction material.

Today exposed concrete is enjoying a renaissance as an important material in architecture. In addition to opening up new possibilities in construction it has led us to discover many different forms of surface structure. The quality of the exposed surface depends on numerous factors and is difficult to achieve in practice merely by following a set of rules for creating exposed concrete surfaces. For a discerning design it is not always a matter of simply providing a blemish-free surface. However, in every case, a high degree of precise skill and craftsmanship is demanded from those involved. Leaving a concrete surface visible from the inside or outside meets the need to lay the structure and quality of a building open to the view of the observer or user, thus creating a directly comprehensible logicality of structure, form and surface. Numerous examples of buildings by internationally active architects explain the complex design approaches and principles for the use of exposed concrete. The technical part of the book goes into the materials, methods and working processes, gives an insight into the innovative technologies employed and advice on maintenance and the avoidance of defects. In a comprehensive way the book describes the possibilities and requirements of surface texture with exposed concrete and moreover demonstrates the relationship between conceptual design and "thinking in concrete".

Introduction to building façades as revised edition
Façades determine the appearance of a building. Hence, they constitute a major element in architecture. At the same time, the building's envelope has important functions to fulfill, such as lighting, weatherproofing, thermal insulation, load transfer and sound insulation. Over the past 15 years, façades have become increasingly complex - 'intelligent' facades, for instance, adapt to changing climate and lighting conditions. Newly developed materials and technologies have broadened the scope of façade functions. It systematically describes the most common types, such as post-and-beam façade, curtain wall, corridor façade or double façade, and provides guidelines for appropriate detailing. Numerous drawings made especially for the book explain the principles of different types of façades, which are then illustrated with built examples. For this second edition, all chapters were revised and all four examples in the case studies chapter were replaced by new material. The new chapter "Future Façades" offers insights into what's next.

Support 1 Materialise

Function - Constructibility - Aesthetics

The architecture reference & specification book

Technology and Design

Using the Engineering Literature, Second Edition

Materials, Structures, and Standards

Failed Stone

Often described as the "fifth façade", the flat roof is extremely popular with architects. Its essential task is to shelter the space beneath it from the elements. Beyond this, the use of flat roofs may be optimized by integrating them as green roofs, roof terraces, circulation areas, and even productive solar roofs. In practice, however, their correct and professional realization is a highly exacting task: in addition to providing the planner with basic rules of construction and design, the Flat Roof Manual also supplies an overview of the use and construction types as well as the standard assemblies and details.

Today, together with the most important standards and bodies of regulations, construction drawings of the principal connection points round out the volume. To continue to develop existing building types and do so in an intelligent way is one of the crucial tasks in the field of residential building. For the success of the individual design as well as for ensuring that tried and tested structures can be utilized, repeated, and varied in a wide range of situations, a deeper understanding of the underlying types is indispensable. For this typology of residential buildings, the authors have developed systematic new presentations of the most innovative types. Each individual volume lays out the possibilities for using and transforming a particular form of residential structure. The third volume deals with the types of the townhouse. It will address the following topics among others: single- versus multistory construction, density, privacy versus publicity, and the connection of living and working. Within each type, variants are distinguished according to how they organize space, their number of floors, etc. The range of possible solutions is presented in uniform ground plans newly drawn to scale.

This book constitutes the refereed proceedings of the Fourth International Neural Network Symposia series on Computational Intelligence in Information Systems, INNS-CIIS 2014, held in Bandar Seri Begawan, Brunei in November 2014. INNS-CIIS aims to provide a platform for researchers to exchange the latest ideas and present the most current research advances in general areas related to computational intelligence and its applications in various domains. The 34 revised full papers presented in this book have been carefully reviewed and selected from 72 submissions. They cover a wide range of topics and application areas in computational intelligence and informatics.

Design-Tech is an indispensable, holistic approach to architectural technology that shows you in hundreds of drawings and tables the why as well as the how of building science, providing you with a comprehensive overview. In this expanded edition, measurements and examples are listed in both metric and imperial units to reflect the global reality of architectural practice. The authors also address digital fabrication, construction documentation, ultra-high-rise structures, and zoning codes. And there's more in-depth coverage of structural design and greater emphasis on environmental performance case studies. Numerous drawings demonstrate real-world design implications for each topic, so that you can integrate technical material with design sensibilities. Short chapters explain each topic from first principles in easy-to-reference formats, focusing on what you need to know both at the drawing board and in future discussions with engineers, contractors, and consultants. This new edition incorporates material from continuing curricular experimentation in the SCI-TECH program at Iowa State University, which has been recognized with awards and funding from the American Institute of Architects, the U.S. Green Building Council, and the National Council of Architectural Registration Boards.

A Housing Typology

Building Science for Architects

Design Manual for Revitalizing Existing Buildings

Maintenance, Conversions, Extensions

Exposed Concrete

Construction

Columns, Walls, Floors

Whether it be as translucent sheets, broadly stretched membranes, and inflated foil cushions or in graceful, organic curves, architecture today is utilizing plastics in the most disparate forms and for a wide variety of purposes. Innovative technical developments are constantly improving its material properties; at the same time, there is a growing new awareness of its potential as a construction material. While plastics used to be employed primarily as an inexpensive variant on traditional building materials, they are increasingly regarded in the construction world today as a serious and viable alternative, be it as supporting structures, roofs, facades, or elements of interior design and decoration. Thanks in large part to this inherent self-sufficiency, plastics are currently enjoying an unprecedented surge in popularity, even among the international architectural avant-garde – as multiwall sheets or corrugated, fiber-reinforced panels, or as filling between glass panes. And the new generation of ecological bioplastics also pays tribute to the debate on sustainability, riding plastics of their lingering reputation as environmental offenders. From the history of plastics and membranes in architecture to their material properties and requirements in construction and design, the Plastics and Membranes Construction Manual cuts to the chase, providing the kind of solid and comprehensive overview of the subject that readers have come to expect from the Im DETAIL series. Selected project examples round off the reference work and make it indispensable for the day-to-day life of the professional planner and for every architecture library.

Das Nachschlagewerk zur Konstruktion mit Holz und Holzwerkstoffen mit einem ausführlichen Kapitel zum Thema Ökologie, bauphysikalischen Grundlagen mit den Schwerpunkten Wärme-, Schall- und Brandschutz. Im Bereich der Tragwerksplanung spielen die neuen Verbindungsmittel eine wichtige Rolle.

When looking for appropriate building solutions in tropical and subtropical regions, the chief aim is saving energy and reducing pollutant emissions as much as possible. Natural ventilation, passive and active use of solar energy, use of rainwater and also the energy potential of the soil are the key issues here. Traditional urban and building structures, described in an exemplary fashion by local architects for a wide variety of locations provide a stimulus for thinking about positive elements developed by master builders of the past as well, alongside all the technical possibilities that exist today.

Most of the buildings that will be needed in Europe in the coming decades have long since been built. The building tasks of the future lie in the skillful reuse and transformation of existing building stock, whether it be the redevelopment of historic city centers, the building of extensions onto residential structures, the expansion of public buildings, or the redevelopment of entire factory areas. Building in the existing fabric calls for highly specific approaches in planning, construction, and implementation. It spans a broad range of building tasks, from working within the guidelines of historic preservation and renovating carefully and cautiously all the way to the complete transformation of what exists. In addition to aesthetic transformation, technical aspects such as improving energy efficiency and working with contaminated building materials also play an important role. This book provides a comprehensive overview of architectonic strategies of "continuing to build." It presents intelligent ideas and approaches for working with existing building stock and divides them into three categories according to the method selected: addition, transformation, and reuse. Presented in this volume are everyday projects such as the revitalizing of structures from the 1950s to the 1970s – for example, the renovation of Siedlung Heuried in Zurich by Adrian Streich Architekten – but also more specialized examples such as the open-air library made of elements recycled from the façade of a department store in Magdeburg-Salbke by Karo Architekten. Interviews with experts provide helpful background information on selected topics.*

Computational Intelligence in Information Systems

Design-Tech

Integrated Planning, Finishings and Fitting-Out, Technical Services

Basics Masonry Construction

Materials, Semi-finished Products, Form Finding, Design

Straw Bale Construction Manual

Proceedings of the Fourth INNS Symposia Series on Computational Intelligence in Information Systems (INNS-CIIS 2014)

Far beyond its long-standing decorative and protective use, architectural ceramics has matured into a material system of great potential. Triggered by material research, design computation and digital fabrication methods, the innovations in ceramic technology are enabling expanded applications for ceramics as a multi-functional, performative material system. Ceramic material systems comprise the full ecosystem from material extraction and processing to the assembly of construction elements and their eventual reuse and recycling. This book establishes the state of the art of this quickly emerging field, with a particular interest in presenting the knowledge needed for developing project-specific solutions that often involve custom ceramic elements. The authors provide a rigorous background of the materials and associated technologies as well as inspiration from the very best contemporary buildings using ceramic systems, along with an overview of emerging ceramic technologies and research. The main section of the book is supplemented with a descriptive and critically commented listing of the most interesting and innovative ceramic products on the market today, ranging from interior tile products to complex active façade systems and roof products.

Most architectural standards references contain thousands of pages of details, overwhelmingly more than architects need to know to know on any given day. The updated and revised edition of Architecture Reference & Specification contains vital information that's essential to planning and executing architectural projects of all shapes and sizes, all in a format that is small enough to carry anywhere. It distills the data provided in standard architectural volumes and is an easy-to-use reference for the most indispensable—and most requested—types of architectural information.

The construction manuals from Edition Detail have set new standards in the field of specialist literature, becoming an indispensable part of any architect's library. The latest volume in this series examines brickwork and the wide range of possibilities it offers. A completely new and revised edition, it documents in detail the technical principles involved in using brickwork for building, it examines the various materials used, their properties, the sizes and forms of bricks, the bonds, and the behaviour of brickwork under stress. The methods of building with brick are also dealt with in detail. In addition, full information is provided on the requirements with respect to heat, damp, sound-proofing and fire protection, and the most recent standards and norms are listed. Finally, a large number of built examples are presented, complete with plans and details, all of which illustrate the many applications of brickwork in contemporary construction. All plans have been specially produced by the editorial department Detail for this book and, for ease of comparison, they have been drawn to the same scale.

*Masonry Construction Manual*Birkhauser

Energy Design Strategies for Retrofitting

Interiors Construction Manual

Refurbishment Manual

Construction Materials Manual

Ceramic Material Systems

Handbook of Construction Tolerances

Courtyard Houses

Modern Construction Envelopes deals with the facade and roof as an integral part of the building, allowing a holistic approach to the design of the building envelope and providing greater design freedom. The book is aimed at readers who want to extend their knowledge of wall and roof construction beyond the information given in the Modern Construction Handbook, using state-of-the-art construction principles of modern facade and roof systems. The third edition of this classic has been fully brought up to date; it contains new examples in all chapters and presents the projects in revised, new 3D drawings and in 27 AR applications that can be accessed free of charge via smartphone and tablet.

To continue developing existing building types in an intelligent way is a crucial task in the field of residential building. For the success of the individual design, as well as for ensuring that tried and tested structures can be utilized, repeated, and varied, a deeper grasp of the underlying types is indispensable. For this typology of residential buildings, the authors have developed systematic new presentations of the most innovative types. Each individual volume lays out the possibilities for using and transforming a particular form of residential structure. The fourth volume deals with the types of freestanding houses, whose all-around orientation allows for the optimal arrangement of all dwellings. A presentation of the freestanding house as an isolated element and as a building block for larger structures is followed by discussions of topics such as self-sufficiency versus neighborhoods, "Raumplan" versus "plan libre," and individuality versus density. Within each type, variants are distinguished according to type of access, number of floors, etc. The range of possible solutions is presented in uniform ground plans and sections newly drawn to scale.

People involved in architecture need to be familiar with construction methods in order to be in control of their designs. New technical requirements impact on our buildings and call for up-to-date specialist knowledge, which leads to new forms of architecture. This handbook uses clearly comprehensible 3D isometric diagrams to introduce the world of contemporary construction, from concept through to the detail; photographs are used to illustrate the content. The three main chapters deal with the structure, the building envelope, and the fit-out, starting with a clear introduction to the construction principles of modern building methods. Using drawings of selected built examples at scales of 1:10 and 1:20, a deeper examination of details is possible.

Glass offers a wide variety of possible applications for the realization of even the most ambitious designs in architecture, and in the past two decades it has experienced an unparalleled burst of innovation. For planners, this means working constantly with this high-performance material. In compact and appealing form, the completely revised Glass Construction Manual presents the current state of the art on planning and building with glass, from the history through the technical foundations all the way to the most innovative applications. Astonishing perspectives on thermal insulation and solar protection and the addition of thoughtfully selected new practical examples round off this comprehensive reference work.

Modern Construction Envelopes

Materiality and Interior Construction

Structural Design, Material Properties, Sustainability

Freestanding Houses

Exploring the Intersection of Design and Construction

Architectural Publications Index

Introducing Architectural Tectonics

*The comprehensive guide to construction tolerances, newly revised and updated How much may a steel frame be out of plumb? What are the expected variations of a precast concrete panel? What is required to successfully detail finish materials on masonry? Updating and expanding on its popular first edition, the Handbook of Construction Tolerances, Second Edition remains the only comprehensive reference to the thousands of industry standard tolerances for the manufacture, fabrication, and installation of construction materials and components—including all-important accumulated dimensional variations. Covering new materials and techniques developed since the book was first published, the Second Edition of this easy-to-use reference features:
• More than 100 drawings illustrating the tolerance concepts
• New sections on measuring compliance with tolerance standards; right-of-way construction; autoclaved aerated concrete; lift-up concrete panels; interior stone wall cladding; structural insulated panels; decorative architectural glass; laminated architectural flat glass and bent glass
• New guidelines on how to incorporate tolerance requirements in drawings and specifications
• New information on how to apply tolerance information during contract administration With the Handbook, architects, engineers, contractors, interior designers, lawyers, and others involved in the construction industry will be armed with the information they need to design and detail more accurately, write better specifications, establish normal practice and standards of care, supervise construction, settle worksite disputes, and save time and money at every stage of building.*

Most architectural standards references contain thousands of pages of details-overwhelmingly more than architects need to know to know on any given day. Now there is a place where architects can find vital information essential to planning and executing architectural projects of all shapes and sizes-in a format that is small enough to carry anywhere. Materials, Structures, and Standards distills the data provided in standard architectural volumes and offers and easy-to-use reference for the most indispensable-and most requested-types of architectural information. Part 1, "Building an Architectural Project," addresses basic geometry, architectural drawing types, AutoCAD guidelines, building codes, accessibility issues, structural and mechanical systems, conventional building components, and sustainable design. Part 2, "Materials," provides a detailed catalog of wood, masonry and brick, metals, concrete, and interior finishes. Also included are an illustrated glossary of architectural terms and a cross-referenced guide to the most helpful books, organizations, and websites.

This volume deals with the various types of the courtyard house, which utilizes the courtyard as an intimate outdoor living space. A presentation of the courtyard as a building block of the city is followed by coverage of the complete spectrum of types—cluster, network, carpet, terraces, etc. Masonry construction is usually the first building exercise the student encounters in his or her training. This volume elaborates the fundamental principles of scale, construction, and assembly of building components using simple masonry structures as examples. Topics: materials and measurements building physics and load-bearing structures typical bonds building components execution of masonry structures The present volume aims to introduce students systematically to the subject of masonry. Bricks and mortar, the elemental basic components, are used to devise rules for building a wall. The emphasis is on the overall systems and material-dependent properties. The interplay of bricks, the forms of masonry bonds, and the aesthetic of masonry with wall apertures, projections and recesses are explained soundly and methodically so that students can understand the essence of masonry and apply their insights directly to their designs and projects.

Façades

Glass Construction Manual

Manual

Materials, Design, Applications

Design and Technology of a Sustainable Architecture

Construction Manual for Polymers + Membranes

Roof Construction Manual

Building with straw bales is a technique pioneered a century ago in the state of Nebraska. In recent years there has been a renaissance in the use of straw as a building material largely in the American Southwest, but also in Canada, Australia, France, Holland, Germany, Austria and China. Straw is a renewable resource with excellent insulating properties. It is a cheap and easy-to-use option for self-builders, and even large-scale structures can be erected using timber framework filled with straw. This book is a practical, hands-on guide to building with straw. Fire safety, protection against moisture, damp, pests and parasites are treated in detail. Numerous on-site photos document the process of assembly and construction step by step. 30 exemplary international projects illustrate the wide spectrum of design possibilities with straw.

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.

Every building is composed of parts, or components, that may be organized in various ways. For example, there are different ways to configure walls so that they perform their primary functions - bearing, dividing, and sheltering - in an optimal manner. This book presents the most common load-bearing systems, such as plate, massive, and skeleton construction, and describes their impact on the structure as a whole. It explains how spaces can be vertically or horizontally connected and assembled into larger wholes. The individual elements, such as floor slabs, roofs, openings, and foundations, are described together with their functions and the various possibilities for connecting them. The book goes beyond the wealth of possible detail to demonstrate the basic principles of detailing. Numerous specially prepared drawings set forth the principles of components and then illustrate them with reference to realized projects.

Providing a coherent and realistic vision of the implications of the energy issue in the future development of our cities; places emphasis on the links between very specific and technical topics and the most challenging issues concerning energy savings and the transition to a low carbon society. A great part of the built environment in most European cities consists of buildings dating from 60s to early 90s, for residential purposes: this stock clearly presents several problems related to its functional layout, as well as its energy/thermal behaviour. Applying sustainable and energy savings principles to retrofitting interventions on the stock above is one of the most urgent challenges to be met in the very near future. Giving some examples and case studies, this book investigates retrofitting interventions in terms of energy balance: from design strategies to choice of materials and components; from market trends analysis to economical assessment, from the targeted energy performance to the energy investments needed for achieving it. The reader will benefit from the real life experiences and related results described in this book and acquire all the tools for a constructive evaluation of the different options available to him/her, when faced with retrofitting interventions, thanks to a global view of all the issues involved.

Facade Construction Manual

Materials, Processes, Structures

Masonry Construction Manual

Constructing Architecture

Sustainable Building Design in Tropical and Subtropical Regions

Architectural Detailing

Timber Construction Manual

«Facade Construction Manuals» provides a systematic survey of contemporary expertise in the application of new materials and energy-efficient technologies in facade design. It surveys the facade design requirements made by various types of buildings, as well as the most important materials, from natural stone through to synthetics, and documents a diversity of construction forms for a wide range of building types.

With the encroachment of the Internet into nearly all aspects of work and life, it seems as though information is everywhere. However, there is information and then there is correct, appropriate, and timely information. While we might love being able to turn to Wikipedia® for encyclopedia-like information or search Google® for the thousands of links on a topic, engineers need the best information, information that is evaluated, up-to-date, and complete. Accurate, vetted information is necessary when building new skyscrapers or developing new prosthetics for returning military veterans While the award-winning first edition of Using the Engineering Literature used a roadmap analogy, we now need a three-dimensional analysis reflecting the complex and dynamic nature of research in the information age. Using the Engineering Literature, Second Edition provides a guide to the wide range of resources available in all fields of engineering. This second edition has been thoroughly revised and features new sections on nanotechnology as well as green engineering. The information age has greatly impacted the way engineers find information. Engineers have an effect, directly and indirectly, on almost all aspects of our lives, and it is vital that they find the right information at the right time to create better products and processes. Comprehensive

Planning tasks involving existing structures are currently among the most common types of contract, and almost every structure makes different demands and raises individual problems. Reflecting this state of affairs, there are a dizzying number of publications on the market, most of which are quite specialized. The Refurbishment Manual cuts through this jungle of publications. It defines terms and concepts, combines the narrowly focused perspectives of the specialists, and offers concrete approaches to this wide-ranging topic. The Refurbishment Manual closes the gap between basic constructional literature and one-sided, highly specialized technical literature. It constitutes a practical planning aid on the subject of refurbishment, providing a basic introduction to the current events of building physics, fire protection, sustainability and energy, hazardous materials, construction materials for interior and façade, historic preservation, and technical building equipment, as well as cost benchmarks, methods of building analysis, and cost benchmarks, as well as clear constructional solutions with built projects as examples. A unique feature of the volume is the specially developed timeline, which allows the planner to quickly grasp, categorize, and initiate a concrete building task and thus obtain an efficient planning overview. The book also contains a list of the most important standards and norms and a list of the most relevant literature. Analog dazu gibt es auf dem Markt eine fast unüberschaubare Anzahl Publikationen in meist sehr spezialisierter Form. Der Sanierungsatlas möchte Licht in diesen Publikationsdschungel bringen. Er definiert Begrifflichkeiten, vereint die fokussierenden Betrachtungsweisen der Fachleute und vermittelt konkrete Herangehensweisen an diese weit gefächerte Thematik. Der Sanierungsatlas schließt die Lücke zwischen grundlegender Baukonstruktions- und sehr einseitig spezialisierter Fachliteratur. Das Buch stellt eine praktische Planungshilfe zum Thema Sanierung dar – und zwar in Form von relevanter Grundlagensvermittlung sowie Bauphysik, Brandschutz, Nachhaltigkeits- und energetischen Aspekten, Schadstoffem, Baustoffen im Innenraum und an der Fassade, zu Aspekten der Denkmalpflege ebenso wie zur technischen Gebäudeausrüstung. Er liefert konkrete Hinweise zu Planungsschritten, Methoden der Bauanalyse und Kostenkennwerten sowie anschauliche Konstruktionslösungen an Beispielgebäudeprojekte. Einzigartig ist die speziell entwickelte Zeitschiene, mit deren Hilfe eine konkrete Bauaufgabe schnell erfasst, kategorisiert und bewertet werden kann – und die dem Planer somit einen effizienten Planungsbüchlein verschafft.

A comprehensive reference of materials for interior designers and architects Choosing the right material for the right purpose is a critical—and often overlooked—aspect in the larger context of designing buildings and interior spaces. When specified and executed properly, materials support and enhance a project's overall theme, and infuse interior space with a solid foundation that balances visual poetry and functionality. Materiality and Interior Construction imparts essential knowledge on how materials contribute to the construction and fabrication of floors, partitions, ceilings, and millwork, with thorough coverage of the important characteristics and properties of building materials and finishes. Individual coverage of the key characteristics of each material explores the advantages and disadvantages of using specific materials and construction assemblies, while helping readers discover how to make every building element count. In addition, Materiality and Interior Construction: Is highly illustrated throughout to show material properties and building assemblies Supplies rankings and information on the "green" attributes of each material so that designers can make informed decisions for specifications Is organized by application for easy and quick access to information Includes a companion website, featuring an extensive online image bank of materials and assemblies Rather than a typical catalog of materials, Materiality and Interior Construction is efficiently organized so that the reader is guided directly to the options for the location or assembly they are considering. Reliable and easy to use, Materiality and Interior Construction is a one-stop, comprehensive reference for hundreds of commonly used materials and their integration as building components—and an invaluable resource that every interior designer or architect should add to their set of tools.

Problems and Solutions with Concrete and Masonry

Everything Architects Need to Know Every Day

Flat Roof Construction Manual

Pitched Roofs

Old & New

Plusminus 20°/40° Latitude

Concrete and stone seem made to last forever. But the fact is they develop problems. It is not always as dramatic as the collapse of a section of the roof of the Paris Charles de Gaulle airport in 2004. Gradual changes also occur that may compromise the appearance and structural soundness of buildings constructed with these materials. These changes can be created by efflorescence, thermal stress, weathering, leakage and corrosion. This book explains how to avoid typical kinds of failure. With this in mind, it systematically analyzes cases of damage in contemporary interior architecture. It also offers strategies for minimizing the risk of damage. Examples include such high-visibility structures as Finlandia Hall in Helsinki, Parco della Musica in Rome and Vontz Center for Molecular Studies in Cincinnati. In eight chapters, typical kinds of damage are explained and illustrated with examples. Beton und Stein scheinen für die Ewigkeit gemacht. Dennoch kommt es hier zu Bauschäden. Nicht immer sind sie so dramatisch wie der Deckeneinsturz im Terminal des Flughafens Paris-Roissy 2004. Es gibt auch schlechende Veränderungen, die Erscheinungsbild und Statik von Beton- oder Steingebäuden beeinträchtigen können. Dazu gehören Ausblühungen, thermische Auswirkungen, Materialunverträglichkeiten, Korrosion oder massive Kräfteinwirkung. Dieses Buch zeigt, wie sich typische Schäden vermeiden lassen. Zu diesem Zweck analysiert es systematisch Schadensfälle in der zeitgenössischen internationalen Archtektur. Ebenso werden Strategien vorgestellt, mit denen sich das Schadensrisiko minimieren lässt. Zu den Beispielen gehören so bekannte Bauten wie die Finlandia Hall

in Helsinki, Renzo Pianos Parco della Musica in Rom oder Vontz Center for Molecular Studies in Cincinnati. In insgesamt acht Kapiteln werden typische Schäden erklärt und dann mit Beispielen illustriert.

This edition of the industry standard on architectural detailing includes new sections covering analysis and modification of existing details and design of new details, both basic and advanced. Revised to address sustainability and to reflect the International Building Code®, Architectural Detailing continues to deliver reliable, insightful information on how to design details that will be water- and airtight, control the flows of heat and water vapor, adjust to all kinds of movement, age gracefully, be easy to construct, and still look good. Conveniently organized by the three major concerns of the detailer—function, constructibility, and aesthetics—this edition features: Richly illustrated examples of detail design, case studies, and practical exercises. New and revised patterns showing form, constructibility, and aesthetics. Everything you need, whether a student or professional, to design details that work. Order your copy today.

Now in its second edition: the trailblazing introduction and textbook on construction includes a new section on translucent materials and an article on the use of glass.

Soccer stadiums, airports, theaters, museums – it falls to very few architects to tackle spectacular building tasks like these. The everyday work of most architects is more often focused on “manageable” projects like the renovation, remodeling, or rebuilding of single- and multi-family houses, schools, and offices. Whatever the nature of the building task, interior construction is always a significant design and qualitative challenge that calls for highly detailed technical expertise. After all, it affects the realm that will be brought to life and utilized by the user when the task is finished, and whose aesthetic and functional serviceability will be put to the test each and every day. The Interior Construction Manual supports planners in their daily work as a practical planning aid and reference work with the relevant standards, guidelines, reference details, and constructional solutions, all illustrated by built example projects. It brings together the crucial facts on all aspects of interior construction and presents the key fundamentals of building physics, fire protection, interior construction systems, and openings. In addition, it offers concrete tips on

integrated planning approaches, energy and sustainability issues, materials used in interior construction, hazardous substances, and dealing with building services and light planning.

All the Details Architects Need to Know But Can Never Find

Principles of Construction

Methodology, Technologies and Applications

Components and Connections

in Architecture and Interior Design

Modern Concrete Construction Manual

Town Houses

Until now, the few existing systematic texts on construction materials have primarily been directed at building engineers. An overview for architects, which also considers the importance of construction materials in the sensory perception of architecture—including tactile qualities, smell, color, and surface structure—has not been available. With the publication of the Construction Materials Manual, all that has changed. As a basic work aimed equally at the questions and perspectives of architects and building engineers, it will bring together all of the above-mentioned viewpoints. It addresses fundamental questions of sustainability, including life-span, environmental impact, and material cycles, while also presenting material innovations. All of the principal conventional and innovative construction materials are comprehensively documented, with attention to their production, manufacture, fabrication, treatment, surfaces, connections, and characteristics. International examples help to illustrate their use in architecture, where a building’s appearance is often defined by a single material. Thus, the Construction Materials Manual will support the daily work of architects and engineers in the choice of construction materials in a comprehensive and at the same time vivid and stimulating manner.

This volume presents new methodologies for the design of dimension stone based on the concepts of structural design while preserving the excellence of stonemasonry practice in façade engineering. Straightforward formulae are provided for computing action on cladding, with special emphasis on the effect of seismic forces, including an extensive general methodology applied to non-structural elements. Based on the Load and Resistance Factor Design Format (LRDF), minimum slab thickness formulae are presented that take into consideration stress concentrations analysis based on the Finite Element Method (FEM) for the most commonly used modern anchorage systems. Calculation examples allow designers to solve several anchorage engineering problems in a detailed and objective manner, underlining the key parameters. The design of the anchorage metal parts, either in stainless steel or aluminum, is also presented.

the Roof Construction Manual is a comprehensive reference work on the construction of pitched roofs, containing over 1800 plans and 220 photographs. Thirteen fundamental roof types and the relevant materials including thatch, wood, slate, tile, concrete, fibrous cement, bitumen, glass, metal, membranes, and synthetic materials are documented in detail. Essential topics such as ventilation, vapour and wind seals, insulation and drainage, renovation and energy conservation are examined. As with all the Construction Manuals, some 38 built examples illustrate the theoretical details, paying particular attention to important features such as the ridge, hip, eaves, roof valley, verge, and penetration. A compact presentation of the load-bearing physics and structures as well as current norms and standards make this volume an indispensable standard work for all architects and engineers.

Systems for architectural design and prototyping

The Architecture Reference & Specification Book updated & revised

Stone Cladding Engineering

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