

## Theatre Buildings A Design Guide

Interest in green and sustainable design is growing throughout the world. Both national and local governments are active in promoting reuse and recycling in order to reduce the amount of waste going to landfill. This guide identifies how building designers and constructors can minimize the generation of waste at the design stage of a building project by using reclaimed components and materials. Authoritative, accessible and much-needed, this book highlights the opportunities for using reclaimed components and materials and recycled-content building products for each element of a building, from structure and foundations to building services and external works. Current experience is illustrated with international case studies and practical advice. It discusses different approaches to designing with recycling in mind, and identifies the key issues to address when specifying reclaimed components and recycled materials in construction work. This book will be invaluable for building professionals including architects, specifiers, structural and service engineers, quantity surveyors, contractors and facilities managers as well as students of architecture and civil engineering. Published with NEF

Theatre Buildings A Design Guide Routledge

Comprehensive and up-to-date, this book guides the reader through the complex stages of laboratory design and construction with practical advice and examples.

Buildings can breathe naturally, without the use of mechanical systems, if you design the spaces properly. This accessible and thorough guide shows you how in more than 260 color diagrams and photographs illustrating case studies and CFD simulations. You can achieve truly natural ventilation, by considering the building's structure, envelope, energy use, and form, as well as giving the occupants thermal comfort and healthy indoor air. By using scientific and architectural visualization tools included here, you can develop ventilation strategies without an engineering background. Handy sections that summarize the science, explain rules of thumb, and detail the latest research in thermal and fluid dynamics will keep your designs sustainable, energy efficient, and up-to-date.

Drawing on detailed design, construction and financial histories of six prominent Performing Arts buildings with budgets ranging from £3.4 million to over £100 million, *Geometry and Atmosphere* presents unique and valuable insights into the complex process of building for the arts. Each theatre project, from tailor-made spaces for avant-garde companies to iconic and innovative receiving houses, yields surprising and counter-intuitive findings. For each of the six projects, the authors have interviewed all those involved. Combining these interviews with exhaustive archival research, the authors then provide cross-case analysis which is distilled into guidance for all stakeholders as they transform their initial vision into built reality. In particular, the book challenges the technical focus of existing design guides for the Performing Arts by suggesting that current practice in briefing and design does not serve the Arts community especially well. It shows that there is a need for an approach in which the focus is firmly rooted in the delivery of the driving artistic vision. As well as being of interest to architects, urban designers and those involved in theatre studies, this book will be useful to other sectors where public money is spent on major building projects.

Written by a leading proponent of biophilic design, this is the only practical guide to biophilic design principles for interior designers. Describing the key benefits, principles and processes of biophilic design, *Nature Inside* illustrates the implementation of biophilic design in interior design practice, across a range of international case studies – at different scales, and different typologies. Starting with the principles of biophilic design, and the principles and processes in practice, the book then showcases a variety of interior spaces – residential, retail, workplace, hospitality, education, healthcare and manufacturing. The final chapter looks 'outside the walls', giving a case study at the campus and city scale. With practical guidance and real-

world solutions that can be directly-applied in day-to-day practice, this is a must-have for designers interested in applying biophilic principles.

This book introduces the concepts of theater planning, and provides a detailed guide to the process and the technical requirements particular to theater buildings. Part I is a guide to the concepts and practices of architecture and construction, as applied to performing arts buildings. Part II is a guide to the design of performing arts buildings, with detailed descriptions of the unique requirements of these buildings. Each concept is illustrated with line drawings and examples from the author's extensive professional practice. This book is written for students in Theatre Planning courses, along with working practitioners.

The Competition Grid: Experimenting With and Within Architecture Competitions is a comprehensive review of architectural competitions. Each section features international research overviews as well as lively discussions with experts that draw on first-hand experience of the competition process.

How do buildings act with people and among people in the performances of life? This collection of essays reveals a deep alliance between architecture and the performing arts, uncovering its roots in ancient stories, and tracing a continuous tradition of thought that emerges in contemporary practice. With fresh insight, the authors ask how buildings perform with people as partners, rather than how they look as formal compositions. They focus on actions: the door that offers the possibility of making a dramatic entrance, the window that frames a scene, and the city street that is transformed in carnival. The essays also consider the design process as a performance improvised among many players and offer examples of recent practice that integrates theater and dance. This collection advances architectural theory, history, and criticism by proposing the lens of performance as a way to engage the multiple roles that buildings can play, without reducing them to functional categories. By casting architecture as spatial action rather than as static form, these essays open a promising avenue for future investigation. For architects, the essays propose integrating performance into design through playful explorations that can reveal intense relationships between people and place, and among people in place. Such practices develop an architectural imagination that intuitively asks, 'How might people play out their stories in this place?' and 'How might this place spark new stories?' Questions such as these reside in the heart of all of the essays presented here. Together, they open a position in the intersection between everyday life and staged performance to rethink the role of architectural design.

Tall Buildings: A Strategic Design Guide is an authoritative guide to the key issues and considerations associated with planning, creating and living with tall buildings. Thoroughly reworked to reflect industry developments and experiences gained over the last ten years, this second edition imparts the advice and knowledge of more than 20 highly respected industry specialists. Key topics include: urban design and place-making; design, engineering and construction; the role of BIM; construction economics; and the all-important matter of legacy including the challenges of adaptation and demolition. A greater focus on international examples is also introduced, reflecting the fact that regions such as Asia and the Middle East are now dominating the tall-buildings scene."

A unique and revolutionary text which explains the principles behind the LT Method (2.1), a manual design tool developed in Cambridge by the BRE. The LT Method is a unique way of estimating the combined energy usage of lighting, heating, cooling and ventilation systems, to enable the designer to make comparisons between options at an early, strategic stage. In addition, Energy and Environment in Architecture the book deals with other environmental issues such as noise, thermal comfort and natural ventilation design. A variety of case studies provide a critique of real buildings and highlight good practice. These topics include thermal comfort, noise and natural ventilation.

Universal Design is Selwyn Goldsmith's new authoritative design manual, the successor to his

internationally acclaimed *Designing for the Disabled*. A clear and concise design guide for practising and student architects, it describes and illustrates the differences there are between universal design and 'for the disabled' design. *Universal Design* presents detailed design guidance for architects in an easily referenced form. Covering both public buildings and private housing, it includes informative anthropometric data, along with illustrative examples of the planning of circulation spaces, sanitary facilities, car parking spaces and seating spaces for wheelchair users in cinemas and theatres. It is a valuable manual in enhancing understanding of the basic principles of 'universal design'. The aim - to encourage architects to extend the parameters of normal provision, by looking to go beyond the prescribed minimum design standards of the Part M building regulation, *Access and facilities for disabled people*.

Ian Appleton's book is an essential guide for those who are involved in the initiation, planning, design and building of facilities for the various performing arts, from local to metropolitan locations. It includes the stages in the development, decisions to be taken, information requirements, feasibility and advice necessary in the design and development of a new or adapted building. Part one of this guide provides the background information about the organisation of the performing arts, the prevailing issues, the client and various building types. In the second part, the author deals with the components of design and development, identifying the roles of the client, advisors and consultants, the stages to be achieved, including client's proposal feasibility, the process of briefing, design and building and eventually hand-over and opening night, with a consideration of the building in use. Case studies are included which cover the assessment of demand, site requirements, initial brief, building design and financial viability. Information requirements, as design standards, for the auditorium and platform/stage, and the support facilities, are included. The content covers a wide range of performing arts (classical music, pop/rock, jazz, musicals, dance, drama) and provides information on each as an art form and the necessities to house performances correctly.

*The Affect of Difference* is a collection of essays offering a new perspective on the history of race and racial ideologies in modern East Asia. Contributors approach this subject through the exploration of everyday culture from a range of academic disciplines, each working to show how race was made visible and present as a potential means of identification. By analyzing artifacts from diverse media including travelogues, records of speech, photographs, radio broadcasts, surgical techniques, tattoos, anthropometric postcards, fiction, the popular press, film and soundtracks—an archive that chronicles the quotidian experiences of the colonized—their essays shed light on the politics of inclusion and exclusion that underpinned Japanese empire. One way this volume sets itself apart is in its use of affect as a key analytical category. Colonial politics depended heavily on the sentiments and moods aroused by media representations of race, and authorities promoted strategies that included the colonized as imperial subjects while simultaneously excluding them on the basis of "natural" differences. Chapters demonstrate how this dynamic operated by showing the close attention of empire to intimate matters including language, dress, sexuality, family, and hygiene. The focus on affect elucidates the representational logic of both imperialist and racist discourses by providing a way to talk about inequalities that are not clear cut, to show gradations of power or shifts in definitions of normality that are otherwise difficult to discern, and to present a finely grained perspective on everyday life under racist empire. It also alerts us to the subtle, often unseen ways in which imperial or racist affects may operate beyond the reach of our methodologies. Taken together, the essays in this volume bring the case of Japanese empire into comparative proximity with other imperial situations and contribute to a deeper, more sophisticated understanding of the role that race has played in East Asian empire.

*Guidelines for Design of Low-Rise Buildings Subjected to Lateral Forces* is a concise guide that identifies performance issues, concerns, and research needs associated with low-rise buildings. The book begins with an introduction that discusses special problems with low-rise

buildings subjected to wind and earthquakes. Chapter 2 examines probabilistic methods and their use in evaluating risks from natural hazards. It also addresses the characteristics of wind and seismic forces and levels of risk implied by building codes. Wind forces are covered in more detail in Chapter 3, with discussions of wind force concepts and wind-structure interactions. Chapter 4 is devoted to earthquake forces and traces the development of building codes for earthquake resistant design. Chapter 5 describes the main framing systems used to resist lateral forces and discusses the code requirements for drift control. The designs and requirements for connections between building elements are addressed in Chapter 6. It includes examples along with several illustrations of suitable connections. The performance of non-structural elements during wind and earthquake forces is also examined in detail. This book serves as an important reference for civil engineers, construction engineers, architects, and anyone concerned with structural codes and standards. It is an excellent guide that can be used to supplement design recommendations and provide a design basis where there are no current requirements.

The time-saving resource every architect needs The Architect's Studio Companion is a robust, user-friendly resource that keeps important information at your fingertips throughout the design process. It includes guidelines for the design of structure, environmental systems, parking, accessibility, and more. This new sixth edition has been fully updated with the latest model building codes for the U.S. and Canada, extensive new information on heating and cooling systems for buildings, and new structural systems, all in a form that facilitates rapid preliminary design. More than just a reference, this book is a true companion that no practicing architect or student should be without. This book provides quick access to guidelines for systems that affect the form and spatial organization of buildings and allows this information to be incorporated into the earliest stages of building design. With it you can: Select, configure, and size structural systems Plan for building heating and cooling Incorporate passive systems and daylighting into your design Design for parking and meet code-related life-safety and accessibility requirements Relying on straightforward diagrams and clear written explanations, the designer can lay out the fundamental systems of a building in a matter of minutes—without getting hung up on complicated technical concepts. By introducing building systems into the early stages of design, the need for later revisions or redesign is reduced, and projects stay on time and on budget. The Architect's Studio Companion is the time-saving tool that helps you bring it all together from the beginning.

The world has changed. How will society emerge post-pandemic? Will we take the opportunity to reset the status quo? And, if so, what possibilities are there for architects to take the initiative in designing this new world? This innovative design guide draws together expert guidance on designing in the immediate aftermath of the pandemic for key architectural sectors: housing, workplace, civic and cultural, hospitality, education, infrastructure and civic placemaking. It provides design inspiration to architects on how they can respond to the challenges and opportunities of a post-pandemic environment and how architects ensure they are at the forefront of the best design in this new world. Looking at each sector in turn, it covers the challenges specific to each, and how delivering these designs might differ from the pre-pandemic world. As well as post-pandemic design, the vital issue of climate change will be threaded through each sector, with many cross-overs between designing for the climate emergency and designing for a world after a pandemic. Both seek to make the world a safer, happier and more resilient place. Written by set of contributing design experts,

this book is for all architects, whether sole practitioners or working in a larger practice. As well as inspirational design guidance, it also provides client perspectives – crucial for understanding how clients are planning for the future too.

Significantly updated in reference to the latest construction standards and new building types Sustainable design integrated into chapters throughout Over half of the entire book has now been updated since 2015 Over 100,000 copies sold to successive generations of architects and designers This book belongs in every design office. The Metric Handbook is the major handbook of planning and design data for architects and architecture students. Covering basic design data for all the major building types it is the ideal starting point for any project. For each building type, the book gives the basic design requirements and all the principal dimensional data, and succinct guidance on how to use the information and what regulations the designer needs to be aware of. As well as buildings, the Metric Handbook deals with broader aspects of design such as materials, acoustics and lighting, and general design data on human dimensions and space requirements. The Metric Handbook is the unique reference for solving everyday planning problems.

The Architects' Handbook provides a comprehensive range of visual and technical information covering the great majority of building types likely to be encountered by architects, designers, building surveyors and others involved in the construction industry. It is organised by building type and concentrates very much on practical examples. Including over 300 case studies, the Handbook is organised by building type and concentrates very much on practical examples. It includes:

- a brief introduction to the key design considerations for each building type
- numerous plans, sections and elevations for the building examples
- references to key technical standards and design guidance
- a comprehensive bibliography for most building types

The book also includes sections on designing for accessibility, drawing practice, and metric and imperial conversion tables. To browse sample pages please see

<http://www.blackwellpublishing.com/architectsdata>

The Association of British Theatre Technicians produced its first guide to the design and planning of theatres in 1972. Revised in 1986, it became the standard reference work for anyone involved in building, refurbishing, or creating a performance space. Theatre Buildings – a design guide is its successor. Written and illustrated by a highly experienced team of international theatre designers and practitioners, it retains the practical approach of the original while extending the scope to take account of the development of new technologies, new forms of presentation, changing expectations, and the economic and social pressures which require every part of the theatre to be as productive as possible. The book takes the reader through the whole process of planning and designing a theatre. It looks in detail at each area of the building: front of house, auditorium, backstage, and administrative offices. It gives specific guidance on sightlines,

acoustics, stage engineering, lighting, sound and video, auditorium and stage formats. Aspects such as catering, conference and education use are also covered. The information is supplemented by twenty-eight case studies, selected to provide examples which range in size, style and format and to cover new buildings, renovations, conversions, temporary and found space. The studies include Den Norsk, Oslo; The Guthrie Theatre, Minneapolis; The Liceu, Barcelona; Les Bouffes du Nord, Paris; The RSC's Courtyard Theatre in Stratford on Avon; and the MTC Theatre in Melbourne. All have plans and sections drawn to 1:500 scale. The book contains around 100 high quality full colour images as well as over 60 specially drawn charts and diagrams explaining formats, relationships and technical details.

Modern Theatres 1950–2020 is an investigation of theatres, concert halls and opera houses in Asia, Europe, the Middle East and North and South America. The book explores in detail 30 of the most significant theatres, concert halls, opera houses and dance spaces that opened between 1950 and 2010. Each theatre is reviewed and assessed by experts in theatre buildings, such as architects, acousticians, consultants and theatre practitioners, and illustrated with full-colour photographs and comparative plans and sections. A further 20 theatres that opened from 2009 to 2020 are concisely reviewed and illustrated. An excellent resource for students of theatre planning, theatre architecture and architectural design, Modern Theatres 1950–2020 discusses the role of performing arts buildings in cities, explores their public and performances spaces and examines the acoustics and technologies needed in a great building.

Theatres: Planning Guidance for Design and Adaptation focuses on the design, type and size, safety, acoustics, and lighting systems of theaters. The publication first takes a look at the type and size of theaters, design of auditorium, sightlines, acoustics, and safety. Discussions focus on hazards and safeguards, fire-fighting appliances, sprinkler systems and smoke detectors, reverberation, methods of adjusting acoustics, curved and concave surfaces, staggered seating, acoustic limits, and concert and recital halls. The book then examines exits and means of escape, seating layout and safety regulations, legislation, and stage scenery. The manuscript ponders on stage lighting, communications, film projection, performance organization, and public areas. Topics include access for the disabled, lavatories, restaurant, repair workshops, property store, scene dock, projection suites, amplifier racks, direct projection, stage management performance control system, and access to lighting positions over the stage. The book also reviews the restoration of old theaters, conference facilities, art centers and studio theaters, electrical and mechanical services, and administration. The publication is a valuable reference for design engineers and researchers interested in the design and adaptation of theaters.

Understanding the theatre space on both the practical and theoretical level is becoming increasingly important to people working in drama, in whatever capacity. Theatre architecture is one of the most vital ingredients of the theatrical

experience and one of the least discussed or understood. In *Architecture, Actor and Audience* Mackintosh explores the contribution the design of a theatre can make to the theatrical experience, and examines the failings of many modern theatres which despite vigorous defence from the architectural establishment remain unpopular with both audiences and theatre people. A fascinating and provocative book.

The integration of photovoltaics (PV) into buildings goes beyond energy saving by providing a clean and elegant way of actually generating electricity. There are already numerous successful examples and rapid technological improvements promise expansion of PV's present niche market to that of a major energy provider of the 21st century. This handbook is the outcome of a five year programme which took place under the auspices of the International Energy Agency. Architects and solar experts from 13 countries addressed the wide range of engineering and architectural issues involved in the successful integration of PV into buildings. It demonstrates how to maximise the overall solar contribution to the building; integrate PV effectively with the building structure; clarify the relationship of PV with other elements of the building's energy system; optimise the system economics. It forms a thorough design guide that covers all aspects of the subject and will enable all building designers, engineers and property owners to make the integration of PV into buildings an architecturally appealing and energetically effective option.

This Design and Development Guide is an essential book for those who are involved in the initiation, planning, design and building of facilities for the various performing arts, from local to metropolitan locations. It includes the stages in the development, decisions to be taken, information requirements, feasibility and advice necessary in the design and development of a new or adapted building. Part one of this guide provides the background information about the organisation of the performing arts, the prevailing issues, the client and various building types. In the second part, the author deals with the components of design and development, identifying the roles of the client, advisors and consultants, the stages to be achieved, including client's proposal feasibility, the process of briefing, design and building and eventually hand-over and opening night, with a consideration of the building use. Studies include the assessment of demand, site requirements, initial brief, building design and financial viability. Information requirements, as design standards, for the auditorium and platform/stage, and the support facilities, are included. Separate studies focus on the adaptation of existing buildings and provision for children and young persons. THE CONTENT COVERS A WIDE RANGE OF PERFORMING ARTS (CLASSICAL MUSIC, POP/ROCK, JAZZ, MUSICALS, DANCE, DRAMA) AND PROVIDES INFORMATION ON EACH AS AN ART FORM AND NECESSITIES TO HOUSE PERFORMANCES.

Emotions in the workplace have until recently been seen simply as a distraction. We often think of work as rational, logical and non-emotional. But organisations

are waking up to the key role of emotions and affect at work. Emotions influence how we make decisions, how we relate with one another and how we make sense of our surroundings. Whilst organisations are slowly embracing the pivotal role of emotions, designers and managers of workplaces have been struggling to keep up. New insights from hard sciences such as neuropsychology are presenting a radically different interpretation of emotions. Yet workplace designers and facilities managers still rely on measuring non-specific states such as satisfaction and stress. In this book we attempt to capture modern-day interpretations of emotion, looking at emotion in terms of transactions and processes rather than simple cause and effect. We entertain the idea of an 'emotionally intelligent building' as an alternative to the much-hyped intelligent building. The assertion is that we should create environments that are emotionally intelligent. Rather than focusing on the aptitudes or shortcomings of individuals at work, we should place closer attention on the office environment. It's not that we are emotionally disabled – it's the environment that disables us! The ability of you and me to interpret, control and express emotions may not simply be a result of our own make-up. A radically different outlook considers how our workspace and workplace debilitates or enables our emotional understanding. In the modern workplace there are many innovations that can undermine our emotional intelligence, such poorly implemented hot-desking or lean environments. Contrariwise there are key innovations such as Activity Based Working (ABW) that have the potential to enhance our emotional state. Through a series of unique case studies from around the world, we investigate key concepts that can be used by designers and facilities managers alike. No longer should designers be asked to incorporate emotional elements as intangible un-costed 'add-ons'. This book provides a shot in the arm for workplace design professionals, pointing to a new way of thinking based on the emotional intelligence of the workplace.

This guideline defines ventilation and then natural ventilation. It explores the design requirements for natural ventilation in the context of infection control, describing the basic principles of design, construction, operation and maintenance for an effective natural ventilation system to control infection in health-care settings.

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It looks in detail at each area of the building: front of house, auditorium, backstage, and administrative offices. It gives specific guidance on sightlines, acoustics, stage engineering, lighting, sound and video, auditorium and stage formats. Aspects such as catering, conference and education use are also covered. The information is supplemented by twenty-eight case studies, selected to provide examples which range in size, style and format and to cover new buildings, renovations, conversions, temporary and found space. The studies include Den Norsk, Oslo; The Guthrie Theatre, Minneapolis; The Liceu, Barcelona; Les Bouffes du Nord, Paris; The RSC's Courtyard Theatre in Stratford on Avon; and the MTC Theatre in Melbourne. All have plans and sections drawn to 1:500 scale. The book contains around 100 high quality full colour images as well as over 60 specially drawn charts and diagrams explaining formats, relationships and technical details.

Hugh Hardy covers the essentials of designing performing arts facilities, including need-to-know information about design renovation, & technical aspects such as lighting, acoustics & materials.

The built environment has the potential to have a major impact on biodiversity, not least with the increasingly demanding requirements to design more energy efficient and airtight buildings, leaving less space for species to inhabit. The construction industry has an important role to play in ensuring that buildings are designed and refurbished in a way in which biodiversity can be enhanced.

Through written guidance and architectural drawings, this book advises on how to incorporate provision for biodiversity within developments. With sections on different building-reliant species, general principles for design, ready-made products that be incorporated into designs, and legislation, policy and regulations, this book is an invaluable resource for all architects, ecologists and anyone involved in designing or briefing for biodiversity in buildings.

The design of a building is a complex process in which the architect develops spaces which are defined by a number of different parameters. The most important of these are space requirements, distances, furniture and fittings, and movement zones. From the dimensions of the human body it is possible to derive guide values for these reference sizes that make spaces comfortable to be in and to use. Spaces in Architecture is a useful reference work for students and designers for quickly looking up detailed information on space scenarios that occur in many different types of buildings. For example, the book lists all important dimensions for entrance areas, doors, staircases, ramps, and elevators. On the basis of this fundamental information it is possible to design buildings in terms of function and type.

Established in 1982, People of Today annually recognises over 20,000 individuals who are positively influencing Britain and inspiring others through their achievements and leadership. Entry is by invitation only. The objective criteria for inclusion and removal are strictly maintained, ensuring it is the only publication of its type whose membership accurately reflects people of influence today. Expert

nomination panels guarantee People of Today is uniquely current and trusted and encompasses over 40 sectors, from academia, law and business to charity, sport and the arts.

Redefining Theatre Communities explores the interplay between contemporary theatre and communities. It considers the aesthetic, social, and cultural aspects of community-conscious theatre-making. While doing so, the volume reflects on recent transformations in structural, textual, and theatrical conventions and traditions, and explores the changing modes of production and spectatorship in relation to theatre communities. The essays edited by Marco Galea and Szabolcs Musca present an array of emerging perspectives on the politics, ethics, and practices of community representation on the contemporary international theatre landscape. An international, interdisciplinary collection featuring work by theatre scholars, theatre-makers, and artistic directors from across Europe and beyond, Redefining Theatre Communities will appeal to those interested in the diverse forms of socially engaged theatre and performance.

During the twentieth century, an increasingly diverse range of buildings and spaces was used for theatre. Theatre architecture was re-formed by new approaches to staging and performance, while theatre was often thought to have a reforming role in society. Innovation was accompanied by the revival and reinterpretation of older ideas. The contributors to this volume explore these ideas in a variety of contexts, from detailed discussions of key architects' work (including Denys Lasdun, Peter Moro, Cedric Price and Heinrich Tessenow) to broader surveys of theatre in West Germany and Japan. Other contributions examine the Malmö Stadsteater, 'ideal' theatres in post-war North America, 'found space' in 1960s New York, and Postmodernity in 1980s East Germany. Together these essays shed new light on this complex building type and also contribute to the wider architectural history of the twentieth century.

Recent years have seen major changes in the approach to Computer Aided Design (CAD) in the architectural, engineering and construction (AEC) sector. CAD is increasingly becoming a standard design tool, facilitating lower development costs and a reduced design cycle. Not only does it allow a designer to model designs in two and three dimensions but also to model other dimensions, such as time and cost into designs. Computer Aided Design Guide for Architecture, Engineering and Construction provides an in-depth explanation of all the common CAD terms and tools used in the AEC sector. It describes each approach to CAD with detailed analysis and practical examples. Analysis is provided of the strength and weaknesses of each application for all members of the project team, followed by review questions and further tasks.

Coverage includes: 2D CAD 3D CAD 4D CAD nD modelling Building Information Modelling parametric design, virtual reality and other areas of future expansion. With practical examples and step-by-step guides, this book is essential reading for students of design and construction, from undergraduate level onwards.

The Sound System Design Primer is an introduction to the many topics, technologies, and sub-disciplines that make up contemporary sound systems design. Written in clear, conversational language for those who do not have an engineering background, or who think more in language than in numbers, The Sound System Design Primer provides a solid foundation in this expanding discipline for students, early/mid-career system designers, creative and content designers seeking a better grasp on the technical side

