

# Tall And Super Tall Buildings Planning And Design

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**Reinforced Concrete Design of Tall Buildings** - Bungale S. Taranath  
2009-12-14

An exploration of the world of concrete as it applies to the construction of buildings, Reinforced Concrete Design of Tall Buildings

provides a practical perspective on all aspects of reinforced concrete used in the design of structures, with particular focus on tall and ultra-tall buildings. Written by Dr. Bungale S. Taranath, this work explains the fundamental principles and state-of-the-art technologies required to build vertical structures as sound as they are eloquent. Dozens of cases studies of tall buildings throughout the world, many designed by Dr. Taranath, provide in-depth insight on why and how specific structural system choices are made. The book bridges the gap between two approaches: one based on intuitive skills and experience and the other based on computer skills and analytical techniques. Examining the results when experiential intuition marries unfathomable precision, this book discusses: The latest building codes, including ASCE/SEI 7-05, IBC-06/09, ACI 318-05/08, and ASCE/SEI 41-06 Recent developments in studies of

seismic vulnerability and retrofit design Earthquake hazard mitigation technology, including seismic base isolation, passive energy dissipation, and damping systems Lateral bracing concepts and gravity-resisting systems Performance based design trends Dynamic response spectrum and equivalent lateral load procedures Using realistic examples throughout, Dr. Taranath shows how to create sound, cost-efficient high rise structures. His lucid and thorough explanations provide the tools required to derive systems that gracefully resist the battering forces of nature while addressing the specific needs of building owners, developers, and architects. The book is packed with broad-ranging material from fundamental principles to the state-of-the-art technologies and includes techniques thoroughly developed to be highly adaptable. Offering complete guidance, instructive examples, and color illustrations,

the author develops several approaches for designing tall buildings. He demonstrates the benefits of blending imaginative problem solving and rational analysis for creating better structural systems.

**Commerce Today** - 1972

**Tall Buildings and Urban Habitat** - Lynn Beadle 2001-11-22

This book, the result of the Council on Tall Buildings and Urban Habitat 6th World Congress: Cities in the Third Millennium, examines the issues which must be addressed if we are to have a common understanding of the forces of change. Experts in architecture, engineering and planning contribute a commentary on the existing condition of urban design, *Tall and Super Tall Buildings* - Akbar R. Tamboli 2014-05-22

In-depth coverage of the latest tall and super tall building designs and examples

from around the world Featuring contributions from 30 global experts involved in the planning and design of the structures covered in this book, *Tall and Supertall Buildings* describes the technical developments and special design features used for these landmark buildings: Sears Tower \* Taipei 101 \* Burj Khalifa \* Petronas Towers \* Shanghai Tower \* Kingdom Tower This authoritative resource addresses HVAC systems, sustainability, geotechnical and foundation engineering, wind engineering, and more. Construction photographs and detailed diagrams are included throughout. This is the definitive guide for engineers, architects, project managers, building inspectors, and anyone involved in the planning and design of tall and supertall buildings.

[Supertall | Megatall](#) - Adrian Smith + Gordon Gill Architecture Adrian Smith + Gordon Gill Architecture 2022-04-12

Drawing from the unique design experience at Adrian Smith + Gordon Gill Architecture (AS+GG) as architects of the next world's tallest tower and several others under construction, "Supertall | Megatall: How High Can We Go?" highlights the design, sustainability, innovative technology, programming, and contextualism that defines supertall and megatall towers. The book is a mixture of under construction and design-only projects divided into several chapters that are organized according to their special characteristics: Innovative Systems, Harnessing Energies, Designing an Icon, Extending Ecologies, and Achieving Megatall. Each project, completed between 2007-2020 at AS+GG, is discovered through context, program, form, research and development, and performance, highlighting the stories, challenges, and lessons learned.

**Roadmap on the Future Research Needs of Tall Buildings** - Philip Oldfield

2014-01-01

Proceedings [of The] International Conference on Planning and Design of Tall Buildings, Lehigh University, Bethlehem, Pennsylvania, August 21-26, 1972 - 1972

*101 of the World's Tallest Buildings* - Georges Binder 2006

"Council on Tall Buildings and Urban Habitat."

*Tall Buildings of Europe, Middle East & Africa* - Georges Binder 2006

Complete reference book, beautifully illustrated, of the world's tall buildings.

**Tall** - Guy Marriage 2020

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 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.

#### Tall Buildings - 2015-12-10

This Historic England Advice Note updates previous guidance by English Heritage and CABE, produced in 2007. It seeks to guide people involved in planning for and designing tall buildings so that they may be delivered in a sustainable and successful

way through the development plan and development management process. The advice is for all relevant developers, designers, local authorities and other interested parties.

#### **Tall Building Foundation Design** - Harry G. Poulos 2017-07-20

This book provides a comprehensive guide to the design of foundations for tall buildings. After a general review of the characteristics of tall buildings, various foundation options are discussed followed by the general principles of foundation design as applied to tall buildings. Considerable attention is paid to the methods of assessment of the geotechnical design parameters, as this is a critical component of the design process. A detailed treatment is then given to foundation design for various conditions, including ultimate stability, serviceability, ground movements, dynamic loadings and seismic loadings.

Basement wall design is also addressed. The last part of the book deals with pile load testing and foundation performance measurement, and finally, the description of a number of case histories. A feature of the book is the emphasis it places on the various stages of foundation design: preliminary, detailed and final, and the presentation of a number of relevant methods of design associated with each stage.

*Tall Building Structures* - Bryan Stafford Smith 1991-07-17

Examines structural aspects of high rise buildings, particularly fundamental approaches to the analysis of the behavior of different forms of building structures including frame, shear wall, tubular, core and outrigger-braced systems. Introductory chapters discuss the forces to which the structure is subjected, design criteria which are of the greatest relevance to tall

buildings, and various structural forms which have developed over the years since the first skyscrapers were built at the turn of the century. A major chapter is devoted to the modeling of real structures for both preliminary and final analyses. Considerable attention is devoted to the assessment of the stability of the structure, and the significance of creep and shrinkage is discussed. A final chapter is devoted to the dynamic response of structures subjected to wind and earthquake forces. Includes both accurate computer-based and approximate methods of analysis.

**Structural Analysis and Design of Tall Buildings** - Bungale S. Taranath  
2016-04-19

As software skills rise to the forefront of design concerns, the art of structural conceptualization is often minimized. Structural engineering, however, requires the marriage of artistic and intuitive designs

with mathematical accuracy and detail. Computer analysis works to solidify and extend the creative idea or concept that might have started o

**The Vertical City** - K. Al-Kodmany  
2018-06-25

Each century has its own unique approach toward addressing the problem of high density and the 21st century is no exception. As cities try to cope with rapid population growth - adding 2.5 billion dwellers by 2050 - and grapple with destructive sprawl, politicians, planners and architects have become increasingly interested in the vertical city paradigm. Unfortunately, cities all over the world are grossly unprepared for integrating tall buildings, as these buildings may aggravate multidimensional sustainability challenges resulting in a “vertical sprawl” that could have worse consequences than “horizontal” sprawl. By using extensive data and

numerous illustrations this book provides a comprehensive guide to the successful and sustainable integration of tall buildings into cities. A new crop of skyscrapers that employ passive design strategies, green technologies, energy-saving systems and innovative renewable energy offers significant architectural improvements. At the urban scale, the book argues that planners must integrate tall buildings with efficient mass transit, walkable neighbourhoods, cycling networks, vibrant mixed-use activities, iconic transit stations, attractive plazas, well-landscaped streets, spacious parks and engaging public art. Particularly, it proposes the Tall Building and Transit Oriented Development (TB-TOD) model as one of the sustainable options for large cities going forward. Building on the work of leaders in the fields of ecological and sustainable design, this book will open readers’ eyes to a wider range of

possibilities for utilizing green, resilient, smart, and sustainable features in architecture and urban planning projects. The 20 chapters offer comprehensive reading for all those interested in the planning, design, and construction of sustainable cities.

*ASHRAE Design Guide for Tall, Supertall, and Megatall Building Systems* - Peter Simmonds 2015

"The ASHRAE Design Guide for Tall, Supertall, and Megatall Building Systems is concerned with HVAC, design, maintenance, and other factors for buildings 300 feet (91 m) or higher. The guide details the problems and possible solutions for tall, supertall, and megatall buildings"--

**The Tallest Buildings** - Susan Mitchell  
2007-07-07

Introduces some of the tallest buildings in the world, including the Sears Tower, the Empire State Buildings, the Petronas

Towers, and the Taipei 101.

Tall Buildings of China - Georges Binder  
2015-07-31

This breathtaking new book, compiled by tall buildings specialist, Georges Binder, showcases more than 100 of the tallest buildings in China across more than 25 cities, including those towering over the megacities of Beijing, Shanghai and emerging supercities, such as Chengdu, Guangzhou and Tianjin. Georges Binder summarises the history of the Chinese tall building landscape from the 1930s to the present day, and features the best in contemporary design, including emerging architectural trends, showcasing each project with beautiful imagery and detailed plans. The book also delves into the hard architectural statistics and buildings' features with gritty detail. These skyscrapers are a fitting symbol of China's new-found prosperity, ambition and



architectural flair.

*The Future of the City* - Kheir Al-Kodmany  
2013

Drawing on the experience of several cities from different parts of the world, this text provides a global perspective on the urbanization phenomenon and tall building development, and examines their underlying logic, design drivers, contextual relationships and pitfalls.

*The Tall Buildings Reference Book* - David Parker  
2013-04-12

As the ever-changing skylines of cities all over the world show, tall buildings are an increasingly important solution to accommodating growth more sustainably in today's urban areas. Whether it is residential, a workplace or mixed use, the tower is both a statement of intent and the defining image for the new global city. The Tall Buildings Reference Book addresses all the issues of building tall, from the

procurement stage through the design and construction process to new technologies and the building's contribution to the urban habitat. A case study section highlights the latest, the most innovative, the greenest and the most inspirational tall buildings being constructed today. A team of over fifty experts in all aspects of building tall have contributed to the making of the Tall Buildings Reference Book, creating an unparalleled source of information and inspiration for architects, engineers and developers.

**Design Economics for the Built Environment** - Herbert Robinson

2015-03-26

The drive towards environmentally friendly buildings and infrastructure has led to a growing interest in providing design solutions underpinned by the core principles of sustainability to balance economic, social and environmental factors. Design

Economics for the Built Environment: Impact of sustainability on project evaluation presents new directions, reflecting the need to recognise the impact of climate change and the importance of sustainability in project evaluation. The aim is to provide a new approach to understanding design economics in the context of the changing policy environment, legislative and regulatory framework, and increasing economic, environmental and social pressure as result of the sustainability agenda. The book follows a structured approach from theories and principles in the earlier chapters, to the practical applications and emerging techniques focusing on value and social, economic and environmental considerations in making design decisions. It starts with the policy context, building on various theories and principles such as, capital cost, value of design and resource-based theories, the new rules of

measurement (NRM) to explore cost planning, the relationship between height and costs, key socio-economic and environmental variables for design appraisal, eco-cost/value ratio (EVR), whole life theory and the treatment of carbon emission as external costs, productivity and efficiency, fiscal drivers and legal framework for carbon reduction, procurement and allocation of risks in contracts. Case studies, practical examples and frameworks throughout reinforce theories and principles and relate them to current practice. The book is essential reading for postgraduate students in architecture, building and quantity surveying and is also a valuable resource for academics, consultants and policy-makers in the built environment.

*Tall Building Design* - Bungale S. Taranath  
2016-10-04

Addresses the Question Frequently  
Proposed to the Designer by Architects:

"Can We Do This? Offering guidance on how to use code-based procedures while at the same time providing an understanding of why provisions are necessary, Tall Building Design: Steel, Concrete, and Composite Systems methodically explores the structural behavior of steel, concrete, and composite members and systems. This text establishes the notion that design is a creative process, and not just an execution of framing proposals. It cultivates imaginative approaches by presenting examples specifically related to essential building codes and standards. Tying together precision and accuracy—it also bridges the gap between two design approaches—one based on initiative skill and the other based on computer skill. The book explains loads and load combinations typically used in building design, explores methods for determining design wind loads using the provisions of ASCE 7-10, and

examines wind tunnel procedures. It defines conceptual seismic design, as the avoidance or minimization of problems created by the effects of seismic excitation. It introduces the concept of performance-based design (PBD). It also addresses serviceability considerations, prediction of tall building motions, damping devices, seismic isolation, blast-resistant design, and progressive collapse. The final chapters explain gravity and lateral systems for steel, concrete, and composite buildings. The Book Also Considers: Preliminary analysis and design techniques The structural rehabilitation of seismically vulnerable steel and concrete buildings Design differences between code-sponsored approaches The concept of ductility trade-off for strength Tall Building Design: Steel, Concrete, and Composite Systems is a structural design guide and reference for practicing engineers and educators, as well as recent graduates

entering the structural engineering profession. This text examines all major concrete, steel, and composite building systems, and uses the most up-to-date building codes.

### **Designing High-density Cities for Social and Environmental Sustainability -**

Edward Ng 2009-12-16

Compact living is sustainable living. High-density cities can support closer amenities, encourage reduced trip lengths and the use of public transport and therefore reduce transport energy costs and carbon emissions. High-density planning also helps to control the spread of urban suburbs into open lands, improves efficiency in urban infrastructure and services, and results in environmental improvements that support higher quality of life in cities. Encouraging, even requiring, higher density urban development is a major policy and a central principle of growth management

programmes used by planners around the world. However, such density creates design challenges and problems. A collection of experts in each of the related architectural and planning areas examines these environmental and social issues, and argues that high-density cities are a sustainable solution. It will be essential reading for anyone with an interest in sustainable urban development.

### **100 of the World's Tallest Buildings -**

Antony Wood 2015-08-28

Upon the release of the 100 of the World's Tallest Buildings, the first 100 of the world's tallest buildings will be more than 985 feet (300 meters) for the first time. This book will showcase many of the new tall builds across Asia and the Middle East, in particular. Compiled by the CTBUH (Council on Tall Buildings and Urban Habitat), with insightful introductory essays on key trends in the skyscraper typology (a preview of the

future) and by renowned tall buildings expert, Georges Binder, on the history of the world's tallest buildings by decade, this ambitious and comprehensive text provides in-depth descriptions of the buildings' design and significance, accompanied by stunning images, detailed drawings, and plans. Towering structures are oftentimes the subject of admiration only for their sheer height or skyline silhouette, and oftentimes criticized for their poor environmental performance (and not without justification). This book aims to change that impression by showing innovations that are particular to this group of tall buildings, in addition to generally good architectural design and engineering prowess. The CTBUH's Awards series draws from the multi-disciplinary expertise of the practitioners directly involved in bringing these buildings to life. This guide is intended for anyone working on the design and operation of tall buildings

at both the building and urban scales.  
*The Sustainable Tall Building* - Philip Oldfield  
2019-03-27

The Sustainable Tall Building: A Design Primer is an accessible and highly illustrated guide, which primes those involved in the design and research of tall buildings to dramatically improve their performance. Using a mixture of original research and analysis, best-practice design thinking and a detailed look at exemplar case studies, author Philip Oldfield takes the reader through the architectural ideas, engineering strategies and cutting-edge technologies that are available to the tall building design team. The book takes a global perspective, examining high-rise design in different climates, cultures and contexts. It considers common functions such as high-rise housing and offices, to more radical designs such as vertical farming and vertical cemeteries. Innovation is provided by examining not

only the environmental performance of tall buildings but also their social sustainability, guiding the reader through strategies to create successful communities at height. The book starts by critically appraising the sustainability of tall building architecture past and present, before demonstrating innovative ways for future tall buildings to be designed. These include themes such as climatically responsive architecture, siting a tall building in the city, zero-carbon towers, skygardens and community spaces at height, sustainable structural systems and novel façades. In doing so, the book provides essential reading for architects, engineers, consultants, developers, researchers and students engaged with sustainable design and high-rise architecture.

**Second Century of the Skyscraper** -  
Council on Tall Buildings & Urban  
2012-12-06

tenant is looming in importance. The owner is having more influence on the building. As Gerald D. Hines has said, there are indications that the desire for more discretionary time will lead to more residential high-rises close to or in the midst of downtown office buildings. Downtown living could become the desired alternative. Tall buildings will be approached increasingly from the standpoint of an urban ecology - that what happens to a part can influence the whole. Providing for public as well as private needs in a tall building project is just one example (facilities for schools, shops, religious, and other needs). More attention will be paid to maintaining streets as lively and interesting places. Will a new "world's tallest" be built? Will we go a mile high? The answer is probably "yes" to the first, "no" to the second. With the recent spate of super-tall buildings on the drawing boards, going to greater heights was in the

back of many people's minds at the Chicago conference. But in the U nited States, at least, buildings of 70 to 80 stories would appear to provide needed space consistent with economy. The future, then, is described in depth by papers that go into specific areas.

**Guide to Natural Ventilation in High Rise Office Buildings** - Antony Wood 2013

This guide sets out recommendations for every phase of the planning, construction and operation of natural ventilation systems in these buildings, including local climatic factors that need to be taken into account, how to plan for seasonal variations in weather, and the risks in adopting different implementation strategies. All of the recommendations are based on analysis of the research findings from richly-illustrated international case studies. This is the first technical guide from the Council on Tall Buildings and Urban Habitat's Tall Buildings

& Sustainability Working Group looking in depth at a key element in the creation of tall buildings with a much-reduced environmental impact, while taking the industry closer to an appreciation of what constitutes a sustainable tall building, and what factors affect the sustainability threshold for tall.

**Supertall: How the World's Tallest Buildings Are Reshaping Our Cities and Our Lives** - Stefan Al 2022-04-12

The global boom in skyscrapers—why it’s happening now, how they’re made, and what they do to cities and people. We are living in a new urban age, and its most tangible expression is the “supertall”: megastructures that are dramatically bigger, higher, and more ambitious than any in history. Cities around the world are racing to build the first mile-high building, stretching the limits of engineering and design as never before. In this fascinating

work of urban history and design, TED resident Stefan Al—himself an experienced architect—explores the factors that have led to this worldwide boom. He reveals the marvelous and underappreciated feats of engineering that make today's supertalls a reality, from double-decker elevators that silently move up to 50 miles per hour to the sophisticated blend of polymers and steel fibers that enables concrete to withstand 8,000 tons of pressure per square meter. Taking readers behind the scenes of the building and design of remarkable megastructures, both from the past (the Empire State Building, St. Paul's Cathedral, the Eiffel Tower) and the present (Dubai's Burj Khalifa, London's Shard, Shanghai Tower), Al demonstrates the impact of these innovations. Yet while the supertall is undoubtedly a testament to great technological victories, it can come at an environmental and social cost. Focusing on

four global cities—London, New York, Hong Kong, and Singapore—Al examines the risks of wealth inequality, carbon emissions, and contagion that stem from supertalls. And he uncovers the latest innovations in sustainable building, from skyscrapers made of wood to tree-covered buildings, that promise to yield a better urban future. Featuring more than thirty architectural drawings, *Supertall* is both a fascinating exploration of our greatest accomplishments and a powerful argument for a more equitable way forward.

[Design Mom](#) - Gabrielle Stanley Blair  
2015-04-07

New York Times best seller Ever since Gabrielle Stanley Blair became a parent, she's believed that a thoughtfully designed home is one of the greatest gifts we can give our families, and that the objects and decor we choose to surround ourselves with tell our family's story. In this, her first book,



Blair offers a room-by-room guide to keeping things sane, organized, creative, and stylish. She provides advice on getting the most out of even the smallest spaces; simple fixes that make it easy for little ones to help out around the house; ingenious storage solutions for the never-ending stream of kid stuff; rainy-day DIY projects; and much, much more.

Tall Buildings - Mehmet Halis Günel  
2014-06-27

The structural challenges of building 800 metres into the sky are substantial, and include several factors which do not affect low-rise construction. This book focusses on these areas specifically to provide the architectural and structural knowledge which must be taken into account in order to design tall buildings successfully. In presenting examples of steel, reinforced concrete, and composite structural systems for such buildings, it is shown that wind load

has a very important effect on the architectural and structural design. The aerodynamic approach to tall buildings is considered in this context, as is earthquake induced lateral loading. Case studies of some of the world's most iconic buildings, illustrated with full colour photographs, structural plans and axonometrics, will bring to life the design challenges which they presented to architects and structural engineers. The Empire State Building, the Burj Khalifa, Taipei 101 and the HSB Turning Torso are just a few examples of the buildings whose real-life specifications are used to explain and illustrate core design principles, and their subsequent effect on the finished structure.

*Understanding Tall Buildings* - Kheir Al-Kodmany 2017-02-17

In recent years, the rapid pace of tall building construction has fostered a certain kind of placelessness, with many new tall

buildings being built out of scale, context and place. By analyzing hundreds of tall buildings and by providing hundreds of visuals that inspire, stimulate and engage, *Understanding Tall Buildings* contends that well-designed tall buildings can rejuvenate cities, ignite economic activity, support social life and boost city pride. Although this book does not claim to possess all the solutions, it does propose specific tall building design guidelines that may help to promote placemaking. Through this work, it is the author's hope that ill-conceived developments will become less common in the future and that good placemaking will become the norm, not the exception. This book is a must-read for students and practitioners working to create better tall buildings and better urban environments. [New Suburbanism: Sustainable Tall Building Development](#) - Kheir Al-Kodmany  
2016-04-14

Much of the anticipated future growth in the United States will take place in suburbia. The critical challenge is how to accommodate this growth in a sustainable and resilient manner. This book explores the role of suburban tall as a viable, sustainable alternative to continued suburban sprawl. It identifies 10 spatial patterns in which tall buildings have been integrated into the American suburbs. The study concludes that the Tall Building and Transit-Oriented-Development (TB-TOD) model is the most appropriate to promote sustainable suburbanism. The findings are based on analyzing over 300 projects in 24 suburban communities within three major metropolitan areas including: Washington, DC, Miami, Florida, and Chicago, Illinois. The book furnishes planning strategies that address the social, economic, and environmental aspects of sustainable tall building development. It also discusses

sustainable architectural design and site planning strategies and provides case studies of sustainable tall buildings that were successfully integrated into suburban settings.

*Designing Tall Buildings* - Mark Sarkisian  
2016-01-08

This second edition of *Designing Tall Buildings*, an accessible reference to guide you through the fundamental principles of designing high-rises, features two new chapters, additional sections, 400 images, project examples, and updated US and international codes. Each chapter focuses on a theme central to tall-building design, giving a comprehensive overview of the related architecture and structural engineering concepts. Author Mark Sarkisian, PE, SE, LEED® AP BD+C, provides clear definitions of technical terms and introduces important equations, gradually developing your knowledge. Projects drawn

from SOM's vast portfolio of built high-rises, many of which Sarkisian engineered, demonstrate these concepts. This book advises you to consider the influence of a particular site's geology, wind conditions, and seismicity. Using this contextual knowledge and analysis, you can determine what types of structural solutions are best suited for a tower on that site. You can then conceptualize and devise efficient structural systems that are not only safe, but also constructible and economical. Sarkisian also addresses the influence of nature in design, urging you to integrate structure and architecture for buildings of superior performance, sustainability, and aesthetic excellence.

*Fire Safety for Very Tall Buildings* -  
International Code Council 2021-10-30

This Guide provides information on special topics that affect the fire safety performance of very tall buildings, their

occupants and first responders during a fire. This Guide addresses these topics as part of the overall building design process using performance-based fire protection engineering concepts as described in the SFPE Engineering Guide to Performance Based Fire Protection. This Guide is not intended to be a recommended practice or a document that is suitable for adoption as a code. The Guide pertains to “super tall,” “very tall” and “tall” buildings. Throughout this Guide, all such buildings are called “very tall buildings.” These buildings are characterized by heights that impose fire protection challenges; they require special attention beyond the protection features typically provided by traditional fire protection methods. This Guide does not establish a definition of buildings that fall within the scope of this document.

### **Outrigger Design for High-Rise Buildings** - Hi Sun Choi 2017-09-19

Outrigger systems are rigid horizontal structures designed to improve a building’s stability and strength by connecting the building core or spine to distant columns, much in the way an outrigger can prevent a canoe from overturning. Outriggers have been used in tall, narrow buildings for nearly 500 years, but the basic design principle dates back centuries. In the 1980s, as buildings grew taller and more ambitious, outrigger systems eclipsed tubular frames as the most popular structural approach for supertall buildings. Designers embraced properly proportioned core-and-outrigger schemes as a method to offer far more perimeter flexibility and openness for tall buildings than the perimeter moment or braced frames and bundled tubes that preceded them. However, the outrigger system is not listed as a seismic lateral load-resisting system in any code, and design parameters are not available, despite the

increasingly frequent use of the concept. The Council on Tall Buildings and Urban Habitat's Outrigger Working Group has addressed the pressing need for design guidelines for outrigger systems with this guide, a comprehensive overview of the use of outriggers in skyscrapers. This guide offers detailed recommendations for analysis of outriggers within the lateral load-resisting systems of tall buildings, for recognizing and addressing effects on building behavior and for practical design solutions. It also highlights concerns specific to the outrigger structural system such as differential column shortening and construction sequence impacts. Several project examples are explored in depth, illustrating the role of outrigger systems in tall building designs and providing ideas for future projects. The guide details the impact of outrigger systems on tall building designs, and demonstrates ways in which

the technology is continuously advancing to improve the efficiency and stability of tall buildings around the world.

**Building the Skyline** - Jason M. Barr  
2016-05-12

The Manhattan skyline is one of the great wonders of the modern world. But how and why did it form? Much has been written about the city's architecture and its general history, but little work has explored the economic forces that created the skyline. In *Building the Skyline*, Jason Barr chronicles the economic history of the Manhattan skyline. In the process, he debunks some widely held misconceptions about the city's history. Starting with Manhattan's natural and geological history, Barr moves on to how these formations influenced early land use and the development of neighborhoods, including the dense tenement neighborhoods of Five Points and the Lower East Side, and how these early decisions

eventually impacted the location of skyscrapers built during the Skyscraper Revolution at the end of the 19th century. Barr then explores the economic history of skyscrapers and the skyline, investigating the reasons for their heights, frequencies, locations, and shapes. He discusses why skyscrapers emerged downtown and why they appeared three miles to the north in midtown-but not in between the two areas. Contrary to popular belief, this was not due to the depths of Manhattan's bedrock, nor the presence of Grand Central Station. Rather, midtown's emergence was a response to the economic and demographic forces that were taking place north of 14th Street after the Civil War. Building the Skyline also presents the first rigorous investigation of the causes of the building boom during the Roaring Twenties. Contrary to conventional wisdom, the boom was largely a rational response to the economic

growth of the nation and city. The last chapter investigates the value of Manhattan Island and the relationship between skyscrapers and land prices. Finally, an Epilogue offers policy recommendations for a resilient and robust future skyline.

**Skyscrapers** - George H. Douglas  
2004-08-05

This history of skyscrapers examines how these tall buildings affected the cityscape and the people who worked in, lived in, and visited them. Much of the focus is rightly on the architects who had the vision to design and build America's skyscrapers, but attention is also given to the steelworkers who built them, the financiers who put up the money, and the daredevils who attempt to "conquer" them in some inexplicable pursuit of fame. The impact of the skyscraper on popular culture, particularly film and literature, is also explored. *Wind-induced Motion of Tall Buildings* -

Kenny C. S. Kwok 2015

This state-of-the-art report describes various facets of the human response to wind-induced motion in tall buildings and identifies design strategies to mitigate the effects of such motion on building occupants.

High-Rise Living in Asian Cities - Belinda Yuen 2011-02-02

This book is intended to fill a knowledge gap in the study of contemporary high-rise living. While there has been much documentation on the engineering and technological aspects of tall buildings, relatively little has been written about the social and livability of high-rise. Much less is written about Asian cities even though Asia is the current hotbed of high-rise development. Even though traditional discourse of high-rise housing is not always positive, new forces are redefining its place in 21st century urbanity. Many cities around

the world are reembracing high-rise in urban agenda under current narrative of sustainable development. High-rise is fast becoming a priority area in international research agenda. The quest is for livable and sustainable high-rise development. Against the background of current trends-- globalization, urbanization, mixed-use development, and new-built taller buildings in inner city areas in both developed and developing countries, this book examines the software: design, economics, estate management, legal and property rights, physical environment, planning, community development, and social dimensions of high-rise living. Analysis is with the widely acclaimed successful high-rise public housing in Hong Kong and Singapore to understand the advantages and worries of high-rise living, and to distill the key points and lessons in the making of a 'good' highrise living environment. Hong Kong and

Singapore have been constructing high-rise for more than four decades each. The majority of their population has moved to live in high-rise, selecting to live high-rise, and registering consistently high residential satisfaction. The height of apartment buildings in both cities continues to rise. The tallest is anticipated to be 70-storey. It is the contention of this book that contrary to earlier common negative discourses on public high-rise living, the high-rise environment may yet offer urban residents a satisfying dwelling experience. Leading housing academics, researchers and practitioners in the two cities have contributed to this book. This book presents a timely contribution to our understanding of a widening urban phenomenon that will affect a growing number of the world's population.

**Design and Analysis of Tall and Complex Structures** - Feng Fu 2018-02-01

The design of tall buildings and complex structures involves challenging activities, including: scheme design, modelling, structural analysis and detailed design. This book provides structural designers with a systematic approach to anticipate and solve issues for tall buildings and complex structures. This book begins with a clear and rigorous exposition of theories behind designing tall buildings. After this is an explanation of basic issues encountered in the design process. This is followed by chapters concerning the design and analysis of tall building with different lateral stability systems, such as MRF, shear wall, core, outrigger, bracing, tube system, diagrid system and mega frame. The final three chapters explain the design principles and analysis methods for complex and special structures. With this book, researchers and designers will find a valuable reference on topics such as tall building systems,



structure with complex geometry, Tensegrity structures, membrane structures and offshore structures. Numerous worked-through examples of existing prestigious projects around the world (such as Jeddah Tower, Shanghai Tower, and Petronas Tower etc.) are provided to assist the reader's understanding of the topics. • Provides the latest modelling methods in design such as

BIM and Parametric Modelling technique. • Detailed explanations of widely used programs in current design practice, such as SAP2000, ETABS, ANSYS, and Rhino. • Modelling case studies for all types of tall buildings and complex structures, such as: Buttressed Core system, diagrid system, Tube system, Tensile structures and offshore structures etc.