第二届中美高层建筑研讨会
（The 2nd Sino-US Symposium on Tall Buildings）

主办：中国建筑学会建筑师分会高层建筑国际交流委员会
Organized by: China International Exchange Committee of Tall Buildings (CITAB)
协办单位：同济大学、SOM 建筑事务所，华东建筑设计研究总院，同济大学建筑设计研究院（集团）有限公司
Co-organizers: Tongji University, SOM (Skidmore Owings & Merrill LLP), ECADI (East China Architectural Design & Research Institute), TJAD (Tongji Architectural Design Group)
时间：2015 年 11 月 4 日，周三，8:30 ~ 17:30
Date & Time: 8:30-17:30, Wednesday, November 4th, 2015
地点：上海，同济大学土木大楼 A804 报告厅
Venue: Auditorium A804, College of Civil Engineering, Tongji University, Shanghai
会议主持人：梁金桐（奥雅纳）、郑重（SOM）
Session Chairs: Andrew Luong (ARUP), John Zheng (SOM)
讨论环节翻译：郑重（SOM）、杨悦（同济院）
Interpreters at Panel Discussion: John Zheng (SOM), Yue Yang (TJAD)

日程安排：
8:30-9:00 茶歇
9:00-9:15 开幕致辞 张俊杰（CITAB 主任委员，华东总院院长）
第 I 部分：9:15~11:45，主持人：梁金桐（奥雅纳，董事）
9:15~9:45 Keith Boswell (SOM，建筑技术合伙人) –高层建筑整体性设计
9:45~10:15 徐维平(华东总院，执行总建筑师)- 高度与视角—关于可持续型与多功能型的超高层建筑之经济性探讨
10:15~10:45 Ahmad Abdelrazaq (三星建设，资深行政副总裁) - 哈利法塔结构性能和反应的验证：足尺结构健康监测系统的开发
10:45~11:15 龚剑(上海建工集团，总工程师)- 上海中心大厦关键建造技术
11:15-11:45 讨论
11:45 合影留念

午宴：12:00-14:00（同济君禧大酒店 2F，彰武路 50 号）

第 II 部分：14:00~17:30，主持人：郑重（SOM，项目管理理事）
14:00~14:30：丁洁民(同济设计集团，总裁)- 黏滞阻尼技术在超高层结构设计中的应用
14:30~15:00： 符国勇(Thornton Tomasetti，合伙人)-从职业工程师的角度重新思考高层结构设计的基本问题
15:00~15:30：李盛勇（容柏生事务所，总经理）高层结构的合理构成与高品质的结构设计
15:30~16:00：茶歇
16:00~16:30：Mark Sarkisian (SOM，建筑结构和抗震工程合伙人) -优化未来的高层建筑与城市
16:30~17:00：马泷 (北京院，副总建筑师)- 北京的建筑究竟可以建多高？
17:00~17:30：讨论

Agenda：

8:30-9:00	Coffee / Network
9:00-9:15	Opening Address by Junjie Zhang (CITAB Chairman, President of ECADI)
Session I：	9:15-11:45，Chair: Andrew Luong (Director, ARUP)
9:15-9:45	Keith Boswell (Technical Partner, SOM) – Holistic Design for Tall Buildings
9:45-10:15	Weiping Xu (Executive Chief Architect, ECADI) - Height and Persective --Economy discussion of sustainable and multifunctional super high-rise buildings
10:15-10:45	Ahmad Abdelrazaq (Executive VP , Samsung C&T) - Validating the Structural Behavior and Response of Burj Khalifa: The Development of Full Scale Structural Health Monitoring Programs
10:45-11:15	Jian Gong (Chief Engineer, SCG) - The Key Construction Technology of Shanghai Tower
11:15-11:45	Panel Discussion
11:45	Group photo
Formal Lunch：	12:00-14:00（2F,Kingswell Hotel Tongji, No.50 Zhangwu Road）
Session II：	14:00-17:30，Chair: John Zheng (Project Management Associate, SOM)
14:00-14:30	Jiemin Ding (President ,TJAD)- Application of Viscous Dampers in Structural Design of Super Tall Buildings
14:30-15:00	Paul Fu (Principal ,Thornton Tomasetti) - Rethink the Fundamentals of Tall Building Structural Design from a Professional Engineer's Perspective
15:00-15:30	Shengyong Li (General Manager, RBS) - Reasonable Composition of High-rise Building and High Quality Structural Design
15:30-16:00	Coffee break
16:00-16:30	Mark Sarkisian (Structural Partner ,SOM) -Optimizing Tall Buildings and Cities for the Future
16:30-17:00	Long Ma (Deputy Chief Architect, BIAD) - How High Could Beijing Reach?
17:00-17:30	Panel Discussion

本次会议不收取会务费，欢迎感兴趣的人士参加！

This Symposium is free of charge. All Interested are welcome！

【报告人的简介、报告题目和摘要】

1）Keith Boswell，
SOM 美国西岸事务合伙人
Partner of SOM’s West Coast Practice

简介
Brief Bio

作为 SOM 美国西岸事务的合伙人，Keith Boswell 积极参与 SOM 西岸所有项目从概念设计直到竣工的工作，策划并监督详细设计和施工文件。他的工作经验包括高层办公楼、政府项目、博物馆、大学建筑、商业空间、以及国际/国内机场的旅客航站楼。Keith 精于设计和运用复杂的建筑技术系统。他应用高度环保的创新技术，为定制建筑外墙、电梯系统、建筑系统、及特殊施工，针对具体设计方案结合材料与科技。他积极参与研究和应用 SOM 设计中所选用的材料和系统。Keith 于 2013 年 6 月发表了《建筑外墙：创新幕墙的设计过程与组成》一书。
As Partner of SOM’s West Coast Practice, Keith Boswell is actively engaged in projects from concept design through completion and orchestrates and oversees detailed design and construction documentation for all SOM West Coast projects. His experience includes highrise office buildings, government projects, museums, university buildings, retail spaces, and international and domestic airport passenger terminals.
Keith is a specialist in designing and executing technically complex building systems. He creates highly sustainable, innovative techniques that integrate materials and technology in case-specific design solutions for custom building envelopes, elevator systems, building systems and special construction. He is actively engaged in research and the application of materials and systems for use in SOM designs. Keith’s book, Exterior Building Enclosures: Design Process and Composition for Innovative Facades was published June 2013.

高层建筑整体性设计
Holistic Design for Tall Buildings

摘要
Abstract

高层建筑提供独特的机会以一种突出的方式展示整体性设计。整体性设计是视觉构成与性能原则结合在创新性与建造性中。设计阶段应仔细考量城市文脉、公共领域宜居环境的构建、可持续室内环境问题以及诸多其他问题，应仔细研究、记录，并在施工过程及施工结束后持续监测。Keith将使用已完成和正在进行的项目，提供案例研究阐述高层塔楼整体设计过程的设计方法和经验。
High rise buildings offer a unique opportunity to display in a prominent manner – holistic design. Holistic design is the combination of visual composition and performance principles applied in an innovative and constructible manner. Issues of urban context, creating habitable and engaging environments in the public realm, addressing sustainable interior environments and many others must be carefully considered in the design phases, carefully researched and documented and then continually monitored during and after construction.
Using completed and current work in progress, Keith will present case studies illustrating approaches and experiences aimed at holistic design process for high rise towers.

2）徐维平，Weiping Xu
ECADI 执行总建筑师
Executive chief architect, ECADI

简介
Brief Bio

徐维平，国家一级注册建筑师，教授级高级工程师。1984 年毕业于同济大学建筑系，后一直就职于华东建筑设计研究院从事建筑设计工作，2003 年曾参加由法国政府资助的“100 位中国建筑师在法国”关于历史建筑遗产与保护的职业培训，现任的工作岗位为院总建筑师。工作期间，主持设计了一些较有社会影响力的建筑作品，其主要代表作品为：国家电力调度中心；中国华能集团总部大厦；北京华茂中心办公楼，华茂 jw 万豪酒店与丽思卡尔顿酒店；深圳紫荆山庄等项目，最近主持并完成了有 438 米高度的原创项目--武汉中心的设计工作。
Weiping Xu, Class 1 registered architect, professor-level senior engineer, has been engaged in architectural design in East China Architectural Design & Research Institute after his graduation from Tongji University in 1984, has participated in “100 Chinese Architects in France” program which was funded by French government for professional training on historical architecture heritage and preservation in 2003, and now serves as a chief architect of the institute. He plays his role as the lead designer in many major architectural works in China, such as State Power Dispatch Center, China Huaneng Group Headquarters, China Central Place in Beijing (office), Huamao JW Marriot Hotel Beijing and Ritz-Carlton Beijing, Shenzhen Bauhinia Villa, etc. He has recently lead to complete the original design works of 438m Wuhan Center.

高度与视角—关于可持续型与多功能型的超高层建筑之经济性探讨。
Height and Persective --Economy discussion of sustainable and multifunctional super high-rise buildings

摘要
Abstract

超高层建筑的可持续性与经济性一直是被讨论的话题。针对当今中国城市的多功能综合型超高层建筑，从对比东西方的文化差异入手，寻求适合中国国情的可持续发展理念。并通过一些相关的工程案例就其策略进行了探讨。提出在中国语境下的超高层建筑发展，更应该提倡一种“均衡”的可持续观。即在超高层建筑的功能、效率、形象、安全、经济、品质等要素之间应保持一种恰当的平衡。
Sustainability and cost-effectiveness of super highrise buildings has always been a subject of discussion. This article targets at seeking for a sustainable development concept that fits the context of China through comparison of eastern and western cultures for super highrise mix-used buildings in China. The article also discusses the sustainable strategies through related case studies, and proposes that a “balanced” sustainable view should be promoted in the context of China. That is, super highrise

buildings should maintain a proper balance in terms of function, efficiency, image, safety, cost-effective, quality as well as other factors.

3）Ahmad Abdelrazaq，
Samsung C&T 高级执行副总裁
Samsung C&T Executive VP

简介
Brief Bio

Ahmad Abdelrazaq 任职于三星 C&T 公司高层建筑部的高级执行副总裁。Abdelrazaq 先生拥有丰富的建筑施工规划和结构设计经验，涉及低层综合体建筑、超高层建筑以及大跨结构，例如迪拜哈利法塔、三星首尔总部等。他还从职业工程师的角度在首尔大学任职讲师。
Ahmad Abdelrazaq is the Sr. Executive Vice President of Samsung C&T's High-Rise Division. Mr. Abdelrazaq has extensive experience in the construction planning and structural design of buildings ranging from complex low-rise buildings to ultra high-rise, and long span structures, such as the Burj Khalifa and Samsung Seocho Headquarters. He also serves as a lecturer at Seoul National University, from the perspective of a practicing engineer.

哈利法塔结构性能和反应的验证：足尺结构健康监测系统的开发
Validating the Structural Behavior and Response of Burj Khalifa: The Development of Full Scale Structural Health Monitoring Programs

摘要
Abstract

新一代的复杂高层建筑反映了社会在材料、设计、可持续性、施工和 IT 技术等领域的最新发 展。虽然这些复杂的设计可以通过日益进步的结构分析工具和软件来完成，但是最终还要满足规范的最低要求，而规范对于相关规定的正确性还有待在足尺结构中验证。 笔者从方案启动直到完工全程参与了哈利法塔的设计和施工，这促使笔者对哈利法塔进行了深入的监测研究，并开发了实时结构健康监测系统来验证在设计和施 工期间做出的计算假设。由 162 层上部结构和 3 层地下室组成的哈利法塔高度达 828m，为目前世界上最高的人造建筑。本文主要对上部结构体系和基础体系进行简要介绍，并讨论实时结构健康监测方案的进展情况以及结构参数的预测值和实测值对比，为保密起见，一些实测数据在文中并未详述。结构健康监测方案包括：1）监控塔的基础体系；2）监测地基沉降；3）测量施工过程中和施工完成后巨柱和剪力墙的应变和压缩变形；4）实时测量塔的侧向位移和在施工期间的动力响应特 性；5）测量施工期间建筑物在风荷载、地震激励等作用下的侧向位移；6）测量建筑物位移、加速度、动力特性和使用期间的结构性能；7）监测顶部小塔楼的动 力特性和疲劳特性。在哈利法塔建设过程中采用的结构健康监测方案是未来的发展模式，随着结构健康监测领

域的不断发展，将会出现融合最新设备及 IT 先进技术 的结构健康监测系统。
A new generation of tall and complex buildings reflects the latest developments in materials, design, sustainability, construction, and IT technologies. While design complexity can be managed through advances in structural analysis tools and software, ultimately the design of these buildings still relies on minimum code requirements that are yet to be validated in full scale. The involvement of the author in the design and construction of BurjKhalifa from inception until completion prompted the author to develop an extensive survey and real-time structural health monitoring program to validate the assumptions made during the development of the design and construction planning of the tower. At 828m, BurjKhalifa is the world's tallest man-made structure, composed of 162 floors above grade and 3 basement levels. The focus of this article is to provide a brief description of the structural and foundation system of the tower and to discuss the development of the survey and real-time Structural Health Monitoring Programs (SHMP). Correlation between the predicted and actual measured structural behavior will also be discussed, however, because of confidentiality the actual measured data cannot be disclosed at this time. The SHMP included 1) monitoring the tower's foundation system, 2) monitoring the foundation settlement, 3) measuring the column/wall strains and shortening during and after construction, 5) real time measuring of the tower lateral displacement and dynamic characteristics during construction, 6) measuring the building lateral movement under lateral loads (wind, seismic) during construction, 7) measuring the building displacements, accelerations, dynamic characteristics, and structural behavior during service life and 8) monitoring the Pinnacle dynamic behavior and fatigue characteristics. While the SHMP developed for Burj Khalifa was a futuristic model at the time of its development, this field is constantly evolving and a new generation of SHM systems will emerge that uses the latest technological advances in devices and IT technologies.

4）龚剑，Jian Gong
上海建工集团总工程师
Chief Engineer, SCG

简介
Brief Bio

龚剑，男，教授级高工，博士，同济大学兼职教授，博士生导师，享受国务院特殊贡献津贴。现任上海建工集团股份有限公司总工程师，兼任中国建筑学会建筑施工分会副理事长、中国土木工程学会总工程师工作委员会副会长等职务；英国 CIOB、ICE 资深会员。长期从事高大结构建造技术研究，在模块化智能整体模架装备、高强高性能混凝土基础应用、深大基坑环境保护微变形控制技术、绿色建造虚拟技术等方面取得了大量成果。亲历参加了我国不同时期最高建筑物或构筑物建设，如上海东方明珠、金茂大厦、上海环球金融中心、广州塔、上海中心大厦等。科研成果获国家科技进步一等奖 1 项、二等奖 2 项、技术发明二等奖 1 项；省部级科学技术一等奖 8 项；获授权发明专利 14 项；发表论文 50 余篇；主编或参编国家级标准 6 部。

Gong Jian, Professor level Senior Engineer with a doctorate degree, part-time professor of Tongji University, and Doctorial Tutor, honored with special contribution stipend by the State Council, now acts as the Chief Engineer of Shanghai Construction Group, and plays the lead role in some organizations and institutes, like vice president of the Building Construction Branch of the Architectural Society of China, vice president of the Consultation Committee of China Civil Engineering Society (Chief Engineers), fellowship of the Chartered Institute of Building and the Institution of Civil Engineers, etc.. He has engaged in research of large-scale structure construction technology, and obtained lots of achievements in integral formwork equipment with modularization and intelligence, fundamental application of high-strength and high-performance concrete, micro-deformation control technology of deep and large foundation pit in environment protection, and virtual technology of green construction, etc.. He has devoted himself to the engineering construction of Shanghai Oriental Pearl TV Tower, Jin Mao Tower, Shanghai World Financial Center, Guangzhou Tower, Shanghai Tower and so on, all of which are the highest buildings or structures in different periods of China. He obtained a first national prize and 2 second national prizes for Progress in Science and Technology, a second prize for technological invention, and 8 first prizes for Provincial or Ministerial Science and Technology; He also holds 14 patents for invention, and has published 54 articles; He was an editor-in-chief of National Standard and also took part in the editing of 6 National Standards.

上海中心大厦关键建造技术
The Key Construction Technology of Shanghai Tower

摘要
Abstract

上海中心大厦为中国第一、世界第二高楼，其结构体形复杂，施工难度巨大，许多建造技术需要采用创新的方法来解决。本报告将结合工程建造阶段的基坑围护、地下结构到上部结构等建造过程中的关键技术和工程建造难点，系统的阐述超大超深基坑支护技术、大体积混凝土施工技术、超高泵送混凝土施工技术、复杂钢结构安装技术以及结构裂缝控制技术等方面取得的创新性技术成果，以期为同类工程提供借鉴。

Shanghai Tower is the highest building in China, and the second highest in the world. As its complicated structure shape, many construction techniques should be solved by employing the innovative methods. Combing with key technologies and engineering difficulties of construction process like foundation pit support, underground structure to superstructure during the engineering construction stage, etc., the report sets out the innovative technology achievements that we have made in terms of the support technology of super-large deep foundation pit, the construction technology of mass concrete, the construction technology of concrete pumped for super-high building, the installation technology of complicated steel structure and structural crack control technology, etc., which can be regarded as a reference to the similar projects.

5）丁洁民，Jiemin Ding
同济设计集团总裁、结构总工程师
President and Chief Structural Engineer ,TJAD

简介
Brief Bio

丁洁民，同济大学建筑设计研究院（集团）有限公司总裁、结构总工程师，英国结构工程师协会资深注册会员，英国结构工程师协会理事，英国结构工程师协会中国区主席。同时他还担任中国土木工程学会常务理事、中国建筑学会常务理事，以及在中国很有影响力的《建筑结构学报》的编委会主任等职务。
丁教授的研究方向是钢结构，超高层和大跨度复杂结构，已在国内外期刊、会议发表论文 100 余篇。他近期参与设计的超高层项目主要包括：上海中心大厦（632M）、郑州绿地中央广场（284M）、上海静安大厦（249M）、上海前滩中心（280M）、深圳腾讯滨海大厦（246M）、兰州鸿运金茂大厦（285M）等。

Ding Jiemin, the President and Chief Structural Engineer of Tongji Architectural Design (Group) Co., Ltd. He is a Senior Chartered Engineer and a Council Member of the IStructE (U.K.), and also the chairman of the IStructE China Group. Professor Ding is also the Executive Director of the China Civil Engineering Society and China Architecture Society, and Head of Editorial Board of the highly influential 'Journal of Building Structures' in China.
Professor Ding specializes in steel structures, super high-rise buildings and long-span complex structures. He has published over 100 papers in Chinese and international journals. His recent project experience in super high-rise buildings involves the design for Shanghai Tower (632m), Greenland Central Plaza in Zhengzhou (284m), Shanghai Jing An Tower (249m), Shanghai Qiantan Centre (280m), Shenzhen Tencent Coastal Building (246m), Lanzhou Jinmao Building (285m) and etc.

黏滞阻尼技术在超高层结构设计中的应用
Application of Viscous Dampers in Structural Design of Super High-rise Buildings

摘要
Abstract

随着我国社会经济的发展和城市化进程的加快，超高层建筑变得越来越普遍。能量耗散技术对提高超高层建筑的安全性、降低建筑造价起到积极的作用。本文介绍了两个黏滞类阻尼器在超高层结构设计中的应用实例，分别为在加强层中竖向布置、杆式黏滞阻尼器和黏滞阻尼墙混合应用，黏滞类阻尼器体现出较好地经济和实用价值。

With the development of economy and the speeding up of urbanization in China, super high-rise buildings are becoming more and more popular. Energy dissipation technique plays a positive role in improving security and reducing construction expenditure of super high-rise buildings by viscous dampers. This paper introduces two actual projects adopting viscous damping technique. They are arranged vertically in strengthened layer and adopting viscous damper together with viscous damping wall respectively. It can be seen that viscous dampers show a better economic and practical value.

6）符国勇，Paul Guoyong Fu
TT 主要合伙人
Principal at Thornton Tomasetti

简介
Brief Bio

符国勇先生，作为宋腾添玛沙帝公司（Thornton Tomasetti Inc.）主要合伙人，在超高层建筑和大跨度结构的分析,设计和审阅方面拥有超过 20 年的经验。他参与设计了亚洲和美国等地的许多著名建筑，包括上海中心大厦、平安国际金融中心、武汉绿地中心和拉斯维加斯城市中心 A 地块等。符先生是纽约州的注册职业工程师。

Mr. Paul Fu , Principal at Thornton Tomasetti, has more than 20 years of experience in structural analysis, design and review of super-tall buildings and long-span structures. He has been involved in major projects in Asia and the US, including Zhongnan Center, Shanghai Tower, Ping An International Finance Center, Wuhan Greenland Center, and MGM CityCenter Block A in Las Vegas. Mr. Fu is a licensed professional engineer in New York.

从职业工程师的角度重新思考高层结构设计的基本问题
Rethink the fundamentals of tall building structural design from a professional engineer's perspective

摘要
Abstract

高层建筑的发展方兴未艾。高层结构设计日益复杂，新的设计方法和技术层出不穷。处于设计领域的职业工程师需要重温和重新发现高层结构设计的基本问题，才不至于在快速变化的设计概念和设计工具面前迷失方向。本报告将从实用的角度梳理高层结构设计的基本问题，涉及设计方法，结构体系，性能化设计，风工程，地震工程和可持续发展等多个方面。

The development of tall building is still thriving. The structural design of tall buildings becomes complex and new design approaches and new technologies are emerging in an endless stream. The professional engineers in the design field need to refresh and rediscover the fundamentals of tall building structural

design without being overwhelmed by the rapidly growing design concepts and tools. This presentation will go through some basics of tall building structural design from a practical way, covering the design approaches, structural system, Performance-based design, wind engineering and sustainability.

7）李盛勇，Shengyong Li
RBS 总经理
General Manager, RBS

简介
Brief Bio

李盛勇，RBS 总经理、执行合伙人、副总工程师，教授级高级工程师、一级注册结构工程师，中国建筑学会高层建筑抗震专业委员会委员，《高层建筑混凝土结构技术规程》JGJ3-2010 编委，主持过国内多项超高层及大型商业综合体结构设计，拥有三项国家发明专利。
Li Shengyong is the general manager, executive partner and vice-chief engineer of RBS. He is a professor-level senior engineer, first class registered structure engineer, member of high-rise building anti-seismic professional committee of Chinese building society, and editorial board member of “technical specification for concrete structures of high-rise building ”of JGJ3-2010. He was responsible for structural design of several domestic high-rise buildings and large commercial complex, and had three national invention patents.

高层结构的合理构成与高品质的结构设计
Reasonable Composition of High-rise Building and High Quality Structural Design

摘要
Abstract

结合广州容柏生建筑结构设计事务所（RBS）实践的多个工程案例，重点介绍高层建筑结构的合理构成及如何实现高性能结构设计。首先，通过大量工程实例深入剖析基于充分发挥材料性能的结构设计、如何完美融合建筑创意与确保结构的合理构成。在此基础上，进一步介绍如何实现高性能结构设计及基于终端客户高品质的建筑产品设计。最后，阐述如何以发展和创新的眼光看待结构概念设计。相关工程实例及设计理念可为设计人员在进行复杂和超高层建筑结构设计时提供一定参考。
This report primarily introduces the reasonable composition of high-rise buildings and the realization of high performance based structural design based on several projects completed by RBS. First, the structural design based on material capacity and the perfect combination of architectural idea and reasonable composition of structure are explored through lots of projects. Further, how to realize high performance based structural design and the building

design cater to clients are introduced. Finally, how to develop innovative structural concept design is discussed. Projects and design concept mentioned in this report can provide reference for structural engineers in their design practice of complex and high-rise buildings.

8）Mark Sarkisian
SOM 合伙人
Partner of SOM

简介
Brief Bio

Mark Sarkisian, PE, SE, LEED，是 SOM 加利福尼亚州旧金山事务所的结构与抗震工程合伙人，曾获得康涅狄格大学土木工程理学学士学位，且是康涅狄格州杰出工程师协会会员，利哈依大学结构工程学硕士学位以及克拉克森大学荣誉博士学位。他的职业生涯专注于为世界各地 100 多个项目制定创新性结构工程解决方案，其中包括一些世界之最的项目。Mark 拥有美国及国际上 14 项高性能抗震结构机制与对环境负责结构体系的专利，近期与 Routledge -Taylor & Francis 合作出版一本书籍《高层建筑设计——以结构为建筑》，并任职于斯坦福大学、加州大学伯克莱分校、加州理工州立大学、加州艺术学院以及美国东北大学教授工作室设计课程。
Mark Sarkisian, PE, SE, LEED, is a Partner of Structural and Seismic Engineering at Skidmore, Owings & Merrill LLP in San Francisco, California. He received his BS Degree in Civil Engineering from University of Connecticut where he is a Fellow of the Academy of Distinguished Engineers and his MS Degree in Structural Engineering from Lehigh University. He also received an honorary Sc.D degree from Clarkson University. His career has focused on developing innovative structural engineering solutions for over 100 major building projects around the world, including some of the worlds tallest. Mark holds 14 U.S. and international patents for high-performance seismic structural mechanisms and environmentally responsible structural systems. He has recently published a book with Routledge -Taylor & Francis entitled “Design Tall Buildings – Structure as Architecture,” and teaches studio design courses at Stanford University, UC Berkeley, Cal Poly, California College of the Arts, and Northeastern University.

优化未来的高层建筑与城市
Optimizing Tall Buildings and Cities for the Future

摘要
Abstract

在追求可持续发展和自然资源有效利用的环境下，性能、能效以及延长使用寿命是塔楼设计与施工需要考虑的重要问题。我们的地球正以惊人的速度遭受污染，大多数人认为碳排放对环境的破坏性影响无法弥补。全球变暖已经开始对气候模式和海平面上升产生重大影响。工程和建筑界已经开始通过提高城市密度、创新性设计方法及可持续地区/城市开发等新思维减轻对环境的负面影响。

塔楼通过人流、交通、电力、水、废弃物、数据以及许多其他形式的信息融入更广泛的城市背景下，生生不息地与城市展开交流。这种互联的关系启迪了建筑系统的新理念，在更广泛的生态环境中思考影响结构单一性能和整体性能的形态学、自我反思以及流变学理论。优化理论为高层建筑设计提供前瞻性的设计方法，可以实现材料的最佳运用，形成独特的建筑解决方案。

Performance, efficiency, and maximized life are all important considerations for the design and construction of towers in an environment that demands sustainability and the careful use of its natural resources. Our planet is being polluted at an alarming rate and most would argue that the damaging effects of carbon emissions on the environment are irreparable. Global warming has already started to have a significant impact on weather patterns and sea level rise. The engineering and architectural community has begun to develop new ideas that will help to mitigate the negative impacts on the environment through increased urban density, creative approaches to design, and sustainable district / city-wide developments.

The tower, in a continuous exchange with the city, is integrally connected to the larger urban context through the flows of people, transportation, electricity, water, waste, data, and many other forms of information. This interconnection has inspired new concepts of building systems considering theories of morphology, self-reflection, and rheology that affect the individual and collective performance of structures within a broader ecological context. Optimization theory has informed futuristic approaches to the design of tall buildings. These approaches can aid in optimal use and placement of materials and result in unique architectural solutions.

9）马泷，Long Ma

BIAD 集团副总建筑师

Deputy Chief Architect of BIAD

简介

Brief Bio

马泷，北京市建筑设计研究院(集团)有限公司集团副总建筑师、第四建筑设计院院长、教授级高级建筑师、国家一级注册建筑师、清华大学建筑学硕士、北京大学 EMBA、从事建筑设计 23 年。曾获亚洲建筑协会提名奖、中国建筑学会青年建筑师奖、中国建筑学会建筑创作奖、中国 BIM 建筑设计一等奖，多个作品获国际竞赛一等奖。

Long Ma，Deputy Chief Architect of Beijing Institute of Architectural Design (Group) Company, Ltd（BIAD），Director of Division 4，Professorate Senior Engineer，Registered Architect, First Class，Master of Architecture, Tsinghua University, China，EMBA of Peking University，In practice for over 23 years. He has won Honorable Mention, Architects Regional Council Asia, Award for Young Architect, China Society of Architect, Award for Creative Design, China Society of Architect and lots of his designs have been rewarded with First Prize in International Competitions.

北京的建筑究竟可以建多高
How high could Beijing reach?

摘要
Abstract

我们还能拯救我们的城市吗？北京的楼究竟能盖多高?北京有那么多的古建筑，它们能与摩天大楼和睦相处吗？本文将从“中国建筑传统”“城市规划理念”“地质抗震等级” “国际高层案例”“北京发展需求”五个方面来分享我们的研究成果。

Can we still preserve our city? To how high can buildings in Beijing arise? Beijing has so many ancient buildings; can they coexist harmoniously with skyscrapers? This speech will present the results of BIAD’s research through the following five aspects: Chinese architectural tradition, ideal of city planning, seismic design standard, international cases of high-rise buildings, and development needs of Beijing.