

2021-2022  

中日高层次科学家研讨交流活动
(低碳人居)

日中ハイレベル研究者交流会
(低炭素人間居住環境)

China-Japan High-level Expert Symposium
on Low-carbon Human Habitat

Hosts: Department of Foreign Expert Services,
Ministry of Science and Technology of the People's Republic of China
Sakura Science Program Headquarters,
Japan Science and Technology Agency

Organizers: Foreign Talent Research Center,
Ministry of Science and Technology of the People's Republic of China
Southeast University



March 25
2022



Contents

Introduction	2
Agenda	6
Chairs	9
Moderators	10
Speakers	13
Roundtable Attendees	25

2021-2022 中日高层次科学家研讨交流活动（低碳人居）

日中ハイレベル研究者交流会（低炭素人間居住環境）

China-Japan High-level Expert Symposium on Low-carbon Human Habitat

Introduction

The first China-Japan High-level Expert Symposium in the Field of Carbon-neutral Development will focus on urbanization and building construction, with the topic of *East Asian Wisdom and Development Option of Low-carbon Human Habitat*. Top scientists and leading experts from China and Japan are invited for presentations and dialogues on cutting-edge research and practice of low-carbon human habitat based on sharing East Asian traditions and cultures and for exploration of the Asian approach of carbon-neutral urbanism and low-carbon architecture. A joint initiative will be proposed, based on the expected consensus of the participants, to provide a consultation and reference for the policymaking and industrial development in China, Japan, and other countries as well.

Chairs

Wang Jianguo

Academician, Chinese Academy of Engineering

Professor, School of Architecture, Southeast University

Director, Urban Design Research Center, Southeast University

Ogura Daisuke

Professor, Department of Architecture and Architectural Engineering, Graduate School of Engineering, Kyoto University

Hosts

Department of Foreign Expert Services, Ministry of Science and Technology of the People's Republic of China

Sakura Science Program Headquarters, Japan Science and Technology Agency

Organizers

Foreign Talent Research Center, Ministry of Science and Technology of the People's Republic of China

Southeast University

Contacts

Li Yonghui, School of Architecture, Southeast University

Tel: 0086- 025-83790530 0086-18120130700

Email: lyhui2000@qq.com

Lou Yujiao, Foreign Talent Research Center, Ministry of Science and Technology of the People's Republic of China

Tel: 0086-10-58882404 0086-18032417113

Email: louyujiao@ftcmost.cn

Shan Gu, Department of Planning and Management, Sakura Science Program Headquarters, Japan Science and Technology Agency

Tel: 0081-90-15490556 0081-3-52148288

Email: shan@jst.go.jp

Foreign Talent Research Center, MOST

The Foreign Talent Research Center, Ministry of Science and Technology of the People's Republic of China, a public institution directly affiliated to China's Ministry of Science and Technology, is mainly responsible for: carrying out research on the development of foreign talent and the theories, strategies, policies, and development status of scientific and technological innovation; developing foreign talent think-tanks and promoting networks of theoretical achievements during overseas expertise introduction; undertaking the construction, operation, maintenance and development of foreign talent resource pools; providing resources, platforms and other services for the overseas expertise introduction; editing and publishing professional media articles for the overseas expertise introduction, and undertaking the publicity work entrusted by the Ministry; organizing professional meetings and major events for overseas expertise introduction as well as scientific and technological exchanges; providing services including evaluation, consultation, introduction, information, and training for foreign talent; managing the China Society for Research on International Exchange and Personnel Development; and undertaking other tasks assigned by the CPC Leading Group, MOST and leaders of the Ministry and tasks entrusted by relevant departments and bureaus.

Sakura Science Program Headquarters, JST

Japan Science and Technology Agency (JST) plays a central role in Japan's Science and Technology Basic Plan. Based on science and technology targets issued by the government, we fund strategic basic research, academia-industry collaboration and technology transfer. In recent years, we promote international joint research and the fostering of next generation human resources. JST also provides information services to support R & D activities. Our comprehensive contribution stimulates substantive progress in science and technology and helps tackle a variety of social issues. JST continues to strengthen our close relationship with universities, research institutes and industry in and outside Japan, create collaborative science and technology innovation and ensure sustainable development of our society.

Sakura Science Program invites talented young people from other countries and regions to Japan in a form of industry-academia-government collaboration, to introduce and offer experience in science and technology. Beginning in 2014, over 33,000 young people have visited Japan through this program.

By exchanging ideas in the field of science and technology among the participants of Sakura Science Program, we:

- Support the development of talented people overseas who have the potential to contribute to the innovation in science and technology; and support continuous interaction between Japan and other countries and regions.
- Promote globalization of Japanese educational and research institutes.
- Strengthen good relationship between Japan and other countries and regions and ultimately pursue the development of science and technology in Japan and worldwide.

Southeast University

Southeast University (SEU), located in Nanjing, the ancient capital city of six dynasties, is a prestigious institution of higher learning renowned both at home and abroad. As one of the national key universities directly subordinate to the Ministry of Education of the People's Republic of China (MOE) and jointly established with Jiangsu Province, it is also listed as one of the universities involved in National "Project 985" "Project 211". In 2017, SEU was ranked on the list of constructing "Class A first-rate world universities".

SEU is a comprehensive research-oriented university featuring engineering discipline while covering many other disciplines including philosophy, economics, law, education, literature, science, engineering, medicine, management, art, etc. Currently, SEU has set up 34 departments with 83 bachelor's degree programs, 34 first-level disciplines authorized to confer Ph.D. Degree and 48 first-level disciplines authorized to confer master's degree.

SEU features high reputation for its education. Considering the talent cultivation as its fundamental assignment, the school has cultivated 330,000 talents of all sorts for the country and the society. SEU, as one of the most active universities in China for international exchanges and cooperation, has maintained close cooperation and exchanges with multiple world-class universities and high-level research institutions such as MIT, UC Berkeley, UMBC, UBC, CU, IC, Leeds, ETHZ, KTH, etc.

School of Architecture, Southeast University

Started from 1927, architectural education in Southeast University has the longest history among all the Chinese universities. The school is also one of the most essential scientific research bases and pioneers in architectural education. Through more than nine decades of exploration and development, the School of Architecture has trained many senior architectural talents for the country, including 12 academicians of Chinese Academy of Engineering and 14 national engineering survey and design masters.

School of Architecture consists of Department of Architecture, Department of Urban Planning, Department of Landscape Architecture, Institute of Architectural History and Theory, Institute of Building Technology and Science, Institute of Art and Design, and Institute of Architectural Algorithms and Applications. In addition, it also offers specialized education on heritage protection and master's degree education on fine arts. It owns 3 ministerial research platforms. In 2017, School of Architecture, SEU won A+ in the discipline of architecture, A- in landscape architecture and urban planning from the 4th round of China Discipline Ranking results.

It now has more than 130 full-time teachers, including 5 academicians of Chinese Academy of Engineering, 2 Changjiang Scholars, 1 China Engineering Design Master, and 1 distinguished foreign expert. It has held cooperative relationships on teaching and academic research with more than 30 world-leading architecture schools in Europe, North America and Asia.

Agenda**UTC+8**

March 25, 2022	
Opening Ceremony	
Moderator: Sun Litao	
08:30-09:10	Opening Address <ul style="list-style-type: none"> ● Li Meng, Vice Minister, Ministry of Science and Technology of the People's Republic of China Administrator, State Administration of Foreign Experts Affairs of the People's Republic of China ● Okimura Kazuki, Honorary President, Japan Science and Technology Agency ● Huang Ru, Academician, Chinese Academy of Sciences President, Southeast University ● Kishi Teruo, Director-general, Sakura Science Program Headquarters, Japan Science and Technology Agency ● Wang Jianguo, Academician, Chinese Academy of Engineering Professor, School of Architecture, Southeast University ● Ogura Daisuke, Professor, Department of Architecture and Architectural Engineering, Graduate School of Engineering, Kyoto University
09:10-09:15	Group Photo
Session I	
Innovation in Asian Living Environment Design in the Process of Carbon Neutrality	
Moderator: Zhang Tong	
09:20-09:40	Keynote Speech 1: Preliminary Thinking on Green Building Development Under the Background of Dual Carbon Target <ul style="list-style-type: none"> ● Wang Jianguo
09:40-10:00	Keynote Speech 2: Architecture for Sustainable Future <ul style="list-style-type: none"> ● Senda Mitsuru
10:00-10:20	Keynote Speech 3: Innovation of Green Living Environment Design in the Process of Carbon Neutrality <ul style="list-style-type: none"> ● Cui Kai
10:20-10:40	Keynote Speech 4: Carbon Strategies for Residential Environment Improvement in a Super-aging Society <ul style="list-style-type: none"> ● Miura Ken
10:40-11:10	Roundtable Discussion 1 <ul style="list-style-type: none"> ● Zhou Jingyu ● Song Yehao ● Komiyama Yosuke

Virtual Research	
Moderator: Tian Wei	
11:15-11:25	Chinese Pioneer Architecture Case Research
11:25-11:35	Japanese Pioneer Architecture Case Research
11:35-12:00	Roundtable Discussion 2 <ul style="list-style-type: none"> ● Li Yonghui ● Guo Yimin ● Tanaka Hiroaki
12:00-13:30	Lunch
Session II Science and Technology Exploration and Application of Green Intelligent Buildings	
Moderator: Hokoi Shuichi	
13:30-13:50	Keynote Speech 5: Local Elements of Green Building Performance for IEQ and EUI in Asia ● Ichinose Masayuki
13:50-14:10	Keynote Speech 6: General Thermal Design Principle of Building Envelope and Application ● Liu Jiaping
14:10-14:30	Keynote Speech 7: Mizunamikita Zero Energy Junior High School-achieving ZEB via Smart Design & Student Eco-activities ● Tanaka Hiroaki
14:30-14:50	Keynote Speech 8: Application of the Multiplication Formula in Green Building Design and Operation Innovation ● Lin Borong
14:50-15:20	Roundtable Discussion 3 <ul style="list-style-type: none"> ● Han Jihong ● Shi Xing ● Zhang Xiaosong ● Iseda Hajime
15:20-15:30	Break

Session III	
Sustainable Wisdom in East Asian Traditional Architecture and Contemporary Inheritance	
Moderator: Liu Yonggang	
15:30-15:50	Keynote Speech 9: Climate-configuring Model of Vernacular Architecture, an Inherent Conversion Structure between Climate, Space and Energy ● Zhang Tong
15:50-16:10	Keynote Speech 10: Indoor Thermal Environment and Energy Consumption of Chinese Houses and Applications of Traditional Building Features ● Yoshino Hiroshi
16:10-16:30	Keynote Speech 11: Application of Climate Space Wisdom from Traditional Residential Buildings for Designing Low-carbon Buildings in South China ● Xiao Yiqiang
16:30-16:50	Keynote Speech 12: Quantification of the Hygrothermal Behavior of Traditional Houses and the Transmission of Culture through the Integration of Traditional Housing and Modern Technology ● Ogura Daisuke
16:50-17:20	Roundtable Discussion 4 ● Ni Jun ● Tan Gangyi ● Yang Wei ● Kubota Tetsu ● Iba Chiemi
17:20-17:30	Break
Closing Ceremony	
Moderator: Zhang Tong	
17:30-17:55	Concluding Remarks and Joint Initiative ● Wang Jianguo, Academician, Chinese Academy of Engineering Professor, School of Architecture, Southeast University ● Ogura Daisuke, Professor, Department of Architecture and Architectural Engineering, Graduate School of Engineering, Kyoto University
17:55-18:00	Closing Address Yoneyama Haruko, Executive Officer, Japan Science and Technology Agency

* Each keynote speaker will have 20 minutes, with the first 15 minutes for the keynote speech and the last 5 minutes for Q & A

Chairs

Wang Jianguo

Academician, Chinese Academy of Engineering
Professor, School of Architecture, Southeast University
Director, Urban Design Research Center, Southeast University

Wang Jianguo is holding several important academic posts including the Vice President of ASC, the Director of the Urban Design Expert Committee of MOHURD, the Editor-in-chief of *Frontier of Architectural Research (FoAR)*, and the Editorial Board of *Engineering*. His research is focused on architecture, urban design and architectural heritage protection, covering both frontier and engineering practice. His works include *Urban Design, Theory and Method of Modern Urban Design, Protection and Renewal of the Industrial Heritage Buildings in Post-industrial Era*, etc. He has presided over several architectural design and urban design projects such as the tourist center of Niushou Mountain, the main exhibition pavilion of the 10th Jiangsu Horticultural Expo, the integrative urban design of Guangzhou and the integrative urban design of Nanjing, and has gained prizes of the National Excellent Architectural Design Awards and Urban Planning Awards, and several international awards.



Ogura Daisuke

Professor, Department of Architecture and Architectural Engineering, Graduate School of Engineering, Kyoto University

Ogura Daisuke serves as a Visiting Researcher of Nara National Research Institute for Cultural Properties, the Chairperson of Conservation Environment Working Group of Conservation and Utilization Committee on Horyu-ji Temple Kondo Mural Painting, and the Expert Member of International Council on Monuments and Sites (ICOMOS). He has received several awards including Achievement Award of SHASE of Japan for the Development of *SHASE Guideline for Energy Efficient Residential Buildings* in 2009, Best Poster of the 13th International Vacuum Insulation Symposium in 2017, and Grand Prize of ENEMANE HOUSE in 2017. He has long been engaged in the preservation of mural paintings in various world cultural heritages and stone cultural properties, the evaluation and improvement of thermal environment with considering health and comfort in dwellings and vernacular architecture in Asian hot and humid regions, the use of hygroscopic materials to provide moisture buffering in indoor climate using air-conditioning system.



Moderators

Sun Litao

Vice President, Southeast University

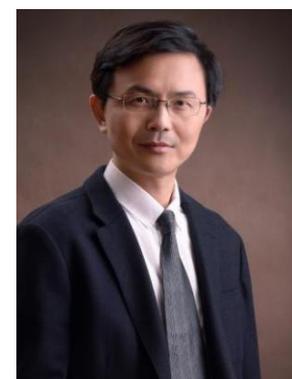
Sun Litao is the Chair Professor of Southeast University, the Young Leading Talent in Science and Technology Innovation from Ministry of Science and Technology of the People's Republic of China (MOST), and the Changjiang Scholar Chair Professor from MOE. He was supported by the National Science Fund for Distinguished Young Scholars and was selected the Global Highly Cited Researchers list by the Web of Science Group. He is the Founding Chairman of Institute of Electrical and Electronics Engineers (IEEE) Nanotechnology Council Nanjing Chapter, the Chairman of Jiangsu Vacuum Society, the Member of Scientific and Technological Collaborative Innovation Special Committee of the Ministry of Housing and Urban-Rural Development of the People's Republic of China (MOHURD), and the Member of European Science Foundation College of Expert Reviewers. He is the author and co-author of around 200 papers on international journals including 2 in *Science*, 16 in *Nature* and *Nature* series journals, etc. He holds around 100 patents, has given more than 180 invited presentations and realized the industrialization of graphene in the field of environmental protection. He serves as the Editor-in-chief of *Electronic Devices*, the Editorial Board Member of *Materials Today Nano*, *Microstructures* and *Materials*. He has won the Nano Research 2021 Young Innovator Award and China Industry-university-research Cooperation Innovation and Promotion Award.



Zhang Tong

Dean, School of Architecture, Southeast University

Zhang Tong is the Member of the International Union of Architects (UIA) Architectural Education Commission and UNESCO-UIA Validation Council for Architectural Education. His research focuses on architectural regionalism and sustainable urbanism and architecture, with 15 published books and more than 70 papers on architectural journals. He was awarded the UIA Award for Innovation in Architectural Education in 2020. More than 20 of his design works have been awarded international and national architectural prize including Gold Winner in ARCASIA Awards for Architecture. His works has been invited to attend high level exhibition including La Biennale di Venezia 2010, 2016 and 2020, and UIA Congress Exhibition 2014, 2017 and 2020.



Tian Wei

Vice General Manager, Nanjing Yangtze River Urban Architectural Design Co., LTD

Tian Wei is the Doctor of Engineering, a Professorate Senior Engineer, the Leading Talent and Outstanding Technology Leader in Shanghai and the Innovative and Entrepreneurial Talents in Jiangsu Province. He is well experienced in the research and engineering practice of green building and prefabricated building, and has won many awards such as National Green Building Innovation Awards and Shanghai Science and Technology Progress Awards.



Hokoi Shuichi

Associate Dean, Architecture Internationalization Demonstration School, Southeast University
Professor Emeritus, Kyoto University

Hokoi Shuichi established the Hokoi's Research Laboratory in Kyoto University, Japan in 1992, and served as the Leader of the research direction of Architectural Environmental Engineering. He focuses on the field of building environment engineering. And the field of his study is concerned with stochastic modeling of weather data, heat and moisture transfer, energy-saving, comfortable indoor environment, conservation of cultural heritage, and more recently human thermo-physiology model and lifestyle. He has been working for the international standard-making process through International Organization for Standardization (ISO), belonging to Technical Committees (TC)163 (Thermal performance and energy use in the built environment) and TC205 (Building environment design). His Ph.D. research results related to heat and moisture transfer were adopted as ISO standard, ISO16957. Recently he has been focusing on healthy building, and developed human thermo-physiological and cardio-vascular models.



Liu Yonggang

General Manager, Jiangsu Research Institute of Building Science Co., LTD

Liu Yonggang is a Professorate Senior Engineer and an Expert Enjoying Special Allowance from the State Council. He is currently the General Manager of Jiangsu Research Institute of Building Science Co., LTD, the Director of Jiangsu Building Energy Conservation Technology Center, the Chief Expert of Jiangsu Key Laboratory of Green Building and Structural Safety, the Vice Chairman of the Special Committee of the Architectural Society of China (ASC) on Building Renovation and Urban Renewal, the Vice Chairman of Jiangsu Civil Engineering & Architecture Society, the Chairman of Jiangsu Green Building Association and the Vice Chairman of Jiangsu Science and Technology Consulting Association. He has mainly engaged in building energy conservation and green building technology research, key technologies of comprehensive renovation of existing buildings and other scientific research and technical services. He has undertaken or participated in more than 10 scientific research projects at or above the provincial and ministerial levels including major national R & D projects, published more than 30 papers, participated in compiling 7 standard specification, authorized 5 patents for invention, won 3 provincial and ministerial level scientific and technological awards, and won the honorary title of National Excellent Scientific and Technological Worker.



Speakers

Wang Jianguo

Academician, Chinese Academy of Engineering
Professor, School of Architecture, Southeast University
Director, Urban Design Research Center, Southeast University

Wang Jianguo is holding several important academic posts including the Vice President of ASC, the Director of the Urban Design Expert Committee of MOHURD, the Editor-in-chief of *Frontier of Architectural Research (FoAR)*, and the Editorial Board of *Engineering*. His research is focused on architecture, urban design and architectural heritage protection, covering both frontier and engineering practice. His works include *Urban Design, Theory and Method of Modern Urban Design, Protection and Renewal of the Industrial Heritage Buildings in Post-industrial Era*, etc. He has presided over several architectural design and urban design projects such as the tourist center of Niushou Mountain, the main exhibition pavilion of the 10th Jiangsu Horticultural Expo, the integrative urban design of Guangzhou and the integrative urban design of Nanjing, and has gained prizes of the National Excellent Architectural Design Awards and Urban Planning Awards, and several international awards.



Title: Preliminary Thinking on Green Building Development Under the Background of Dual Carbon Target

Abstract

Architectural form is directly related to human life and production activities and the environment carrier formed by nature. China has declared to the world that it aims to peak its carbon dioxide emissions by 2030 and strive for carbon neutrality by 2060. At present, the Chinese government has set a timetable for carbon reduction. The report briefly introduces several representative scientific viewpoints and technical ideas of achieving the global dual carbon goal, analyzes the key and difficult points of China's construction industry to achieve the dual carbon goal, discusses the active role that architects should play in the development of green building, and proposes research priorities and strategies for 2030 and 2060 stages. It is suggested that in the development of green buildings in China, in addition to the improvement and optimization of physical environment data indicators, we should also make full use of the design and construction wisdom and construction skills contained in the Chinese architectural context, and pursue the "harmony of culture" and "beauty of vision" of green buildings. Green building development is ultimately "people-oriented".

Senda Mitsuru

Chairman, Environment Design Institute

Senda Mitsuru is an Environmental Architect, the Doctor of Engineering, the Professor Emeritus of Tokyo Institute of Technology, and the Chairman of Association for Children's Environment. He was served as the President of Architectural Institute of Japan (AIJ), and the Member of Science Council of Japan. He established Environment Design Institute in 1968. He has received a number of awards such as International Architecture Award for Shanghai Qizhong Forest Sports City Tennis Center and Foshan Pearl Gymnasium, International Association for Sports and Leisure Facilities (IAKS, Internationaler Arbeitskreis Sportstättenbau) Award Silver Medal for Shanghai Qizhong Forest Sports City Tennis Center, Architects Regional Council Asia (ARCASIA) Architecture Award Gold Medal and IAKS Award Gold Medal for Foshan Pearl Gymnasium, and The Grand Prize of AIJ. His publications are *Design of Children's Play Environments*, *Kan-Chiku-Environment and Architecture*, *SENDA MAN 1000-Book of Circular Play System*, and *The Theories of Environmental Design and The Theories of Urban Environmental Design*. The projects he designed include Tokyo Tatsumi International Swimming Center, Library of Akita International University, Hiroshima Municipal Baseball Stadium, Minamioguni Town Office, etc.



Title: Architecture for Sustainable Future

Abstract

In 1990, AIJ established the Global Environment Committee as a special research committee, and it became a permanent committee in 1995. Third session of the Conference of the Parties (COP3) was held in 1997 and the Kyoto Protocol was adopted. In 1998, AIJ also issued a presidential statement calling for a 30% reduction of Life Cycle carbon dioxide (LCCO₂) and a threefold increase of the life span of buildings. Under the influence of these AIJ activities, the *Charter on the Global Environment and Architecture* was published in 2000. Then four books on global environmental architecture as a series were also published by the next five years. Subsequently, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) released the *Japanese Evaluation Standards for Built Environment Considerations*. In the 1970s, Japan switched from wood construction to reinforced concrete or steel construction in order to create fire-resistant towns. AIJ has also taken the lead in this shift. However, the sustainable aspects of wood construction have been reassessed since the 2000s. Japan has a tradition of wooden architecture, such as Horyuji Temple, which has a lifespan of over 1,000 years. About 70% of the country is covered with forests. Architecture using timber from these forests is not only long-lasting, but also extremely comfortable and gentle as a vessel for human life. Based on these considerations, we need to devise various ideas and new developments to make larger building spaces possible in wood construction and to make wood construction fire-resistant. It is fair to say that the future of architecture depends on wooden structures. It would also be necessary to revitalize the area with wooden structures.

Cui Kai

Academician, Chinese Academy of Engineering

Honorary President, Chief Architect, China Architecture Design & Research Group (CADG)

Cui Kai is the Founder of Land-Based Rationalism Design & Research Center of CADG and the Vice President of ASC. He has been committed to academic researches and practices in architecture. He has been the Principal Architect of over 130 projects with national or local significance, winning more than 100 design awards at home and abroad. He has been honored with the titles of National Excellent Scientific and Technological Worker, Expert Enjoying Special Allowance from the State Council, The Medal of Chevalier of the Order of Arts and Letters of France, Liang Sicheng Architecture Award, etc. He has been promoting the development and research of land-based architectural practice in China, and has published several books including *Land-based Rationalism*. Through long-term study of Chinese traditional architectural culture and wisdom, he has been exploring the path of innovation for land-based architecture in China



Title: Innovation of Green Living Environment Design in the Process of Carbon Neutrality

Abstract

The concept of carbon neutrality means the CO₂ emitted by human activities can be absorbed and offset through afforestation, energy conservation and emission reduction so as to ultimately curb global warming. The core strategies are to reduce emissions, use less fossil fuels, plant more trees and sequester more carbon. They are closely related: neutralization in place is the optimal choice, and the innovation point of green living environment design.

With the ecological restoration of the century-old mine as an opportunity, Nanjing Garden Expo Future Garden creates scenes guiding low-carbon green life and becomes an attractive ecological resort complex by embedding underwater garden and Banyan Tree Hotel. It follows the technical route of ecological environment, open building, lightweight structure, and functional landscape.

The main venue of Sichuan Tianfu Agricultural Expo Park creates pastoral characteristics of low-carbon venue facilities by taking agricultural products and agricultural science and technology exchanges as the mission, and choosing daily pastoral life as the scene. It follows the technical route of open space, low-carbon structure, transparent roof, and complex function.

Rongcheng Children's Palace creates a landscape between the sea and the lake to guide young people to love nature and protect the environment. It follows the technical route of environment ecology, spacial place, and material longevity.

Guangzhou Pazhou Fangsuo Headquarters Building is a high-rise office building on the bank of the Pearl River. Due to the east-west terrain conditions, the building is built to be green and artistic in response to climate and low-carbon goals. It follows the technical route of sun-shading exterior wall, open space, and planting subjectification.

Miura Ken

Professor, Graduate School of Engineering, Kyoto University

Miura Ken graduated from the Department of Architecture, Faculty of Engineering, Kyoto University in 1993. He became a Research Fellow of the Japan Society for the Promotion of Science (JSPS) in 1997, an Assistant at the Graduate School of Engineering, Kyoto University in 1998, an Associate Professor at Osaka City University in 2005, and a Professor in 2013 before assuming his current position in 2016. He engaged in architectural and facility design and research based on human behavior and psychology. He is a Member of the Evaluation Committee for the 2018 Ministry of Land, Infrastructure, Transport and Tourism Smart Wellness Housing Promotion Model Project, etc. He involved in the planning and design of Group House Amagasaki, Nikke Tetote Kakogawa, Nikke Asumo Ichikawa, etc. He is the author of *Small Multifunctional Home Reader* and *Ikiteiru Nagaya*, and the translator of *Introduction to Environmental Design Studies*. He has received a number of awards such as 2004 Incentive Award, Architectural Institute of Japan, 2012 Research Award, Juso-Soken Research Institute (joint), 2018 Architectural Institute of Japan Book Award (joint), etc.



Title: Carbon Strategies for Residential Environment Improvement in a Super-aging Society

Abstract

Rapid economic growth in Asian countries over the past two decades, improved diets, and advances in medical care have resulted in an aging population and longer life spans. While this is a welcome development, economic growth is simultaneously accompanied by urbanization, the shift to nuclear families, and a declining birthrate, all of which require facilities for the elderly to care for them. However, the construction of elderly care facilities consumes CO₂. We would like to examine Japan's efforts to balance the goal of low carbon with the need to protect the elderly, who will become socially vulnerable in a super-aged society, from four main perspectives.

Ichinose Masayuki

Associate Professor, Department of Architecture and Building Engineering, Tokyo Metropolitan University

Ichinose Masayuki is organizing research laboratory for building environmental engineering at Tokyo Metropolitan University that is only public university organized by Tokyo Metropolitan Government. He has carried out significant research collaboration with industry to develop new products for building facade and conduct investigation of actual building performance regarding built environment and energy efficiency toward normalization of building performance evaluation. He has won a number of prestigious scientific awards, including the First Place American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Technology Award in the Commercial Buildings, "YKK80 Building" role of commissioning that is the first project got this award in Region XIII. He is currently keen to collaborate with community of Asia Pacific with respect to education and research project of Zero Energy Building for technology transfer and internationalization under the intensive support of Tokyo Metropolitan Government.



Title: Local Elements of Green Building Performance for Indoor Environmental Quality (IEQ) and Energy Use Intensity (EUI) in Asia

Abstract

Design based Green Building Evaluation System has been expanded all over the world against background of greenhouse reduction, corporate social responsibility, asset management, etc. One of the most successful aspects of this system is enlightenment of sustainable building concept for building stakeholder, occupants, architect, engineer, manufacture and so on. However, some of the issues also become obvious that is related to performance gap between design and actual phase. This kind of performance gap is derived from variety of building use, human behavior, local climate, etc. Based on the above background, our research unit has been doing on-site survey in Taipei, Hong Kong, Hanoi, Bangkok, Singapore and Jakarta for several years under collaboration with local researchers and students. In this presentation, highlights of our research achievement will be described for discussion of how the local factor is going to be considered to establish sustainable building design or operation discipline.

Liu Jiaping

Academician, Chinese Academy of Engineering
Professor, Xi'an University of Architecture and Technology

Liu Jiaping is the Doctor of Engineering, a green building expert, the Director of the State Key Laboratory of Western Green Building and the Vice Director of the Architectural Society of China. He has been engaged in basic research, teaching and application promotion in the field of green building and building energy conservation for a long time. He has presided over and completed dozens of national research projects, including major projects of the National Natural Science Foundation of China (NNSFC), and made outstanding contributions to the design theory and methods of green buildings in the West and ultra-low energy consumption buildings. He has won the National Model Teacher, Ho Leung Ho Lee (HLHL) Award, the first National Innovation Award, National Advanced Worker, International Honorary Fellow of Japan Air Conditioning and Sanitary Engineering Society and other honors. In 2011, he was elected as an Academician of Chinese Academy of Engineering.



Title: General Thermal Design Principle of Building Envelope and

Application

Abstract

The thermal design principle of building envelope given in China's current code for thermal design of civil buildings stems from the thermal insulation and moisture-proof requirements of heating residential buildings in severe cold climate areas. The specific method is to adopt the construction mode of "external thermal insulation layer" as far as possible. Unfortunately, this "narrow sense" principle and method are used in the design of energy-saving buildings in all regions of the country, which violates the design principle of climate adaptability of buildings. The report will introduce how to improve the "narrow sense" design principle and method to the "broad sense" level to meet the "low-carbon" architectural design requirements.

Tanaka Hiroaki

Senior Director, Building Services Design Group, Nikken Sekkei LTD

Tanaka Hiroaki is the Doctor of Engineering. He lectures part-time at Nagoya University and Mie University, and is a Professional Engineer in Sanitary Engineering and a Mechanical, Electrical & Plumbing (MEP) Design 1st-class Kenchikushi (Licensed Architect). He joined Nikken Sekkei LTD in 1994 after studying environmental planning in graduate school of Kobe University. He was responsible for designing buildings, facilities and environmental systems for main office building of Toyota Motor Corporation, the head office building of Shizuoka Gas Corporation, the headquarters of Rokugo Elemec, the Ekinan branch office of Hamamatsu Shinkin Bank, and Mizunamikita Junior High School, the first Zero Energy Building (ZEB) school in Japan. He has received the Energy Conservation Grand Prize, the Sustainable Architecture Award, the Co-generation Grand Prize, and the Award of Technology from the Society of Heating, Air-Conditioning and Sanitary Engineers (SHASE) of Japan.



Title: Mizunamikita Zero Energy Junior High School-achieving ZEB via Smart Design & Student Eco-activities

Abstract

Global warming and rising climate change-induced natural disasters were once environmental concerns. They are now social issues facing all of mankind. As future leaders, students at Mizunamikita Junior High School in Gifu Prefecture confront such issues every day in practicing energy conservation through direct action. The Nikken Sekkei-designed school opened in 2019 as part of the Super Eco School Demonstration Project of central government. It achieved ZEB status for the year between September 2019 and August 2020. The keys to success were two-fold: maximizing natural energy with architecture, and fostering daily awareness of the dynamic movement of air and light.

The resulting building embodies Nikken Sekkei's vision of environmental architecture. In its essence, this does not mean painful endurance for the sake of energy conservation, but rather the creation of a comfortable environment for students enabled by an energy conservation system. It also inculcates further values such as the enjoyment of nature and its blessings as portrayed via natural light and education.

Lin Borong

Deputy Dean, Professor, School of Architecture, Tsinghua University

Lin Borong serves as the Director of Key Laboratory of Eco Planning & Green Building commissioned by MOE, and the Fellow of International Building Performance Simulation Association (IBPSA). He was awarded the Changjiang Scholar, National "Ten Thousands Talents" as the Scientific and Technological Innovation Leader, and 2020 Xplorer Prize. He won the National Science and Technology Progress Award in 2019 as the Principle Investigator. His research focuses on the technology development to improve built environment quality and to enhance energy efficiency. He is one of the Chief Editors of *Assessment Standard for Green Building*, and the first *Assessment Standard for Healthy Building*, and serves as the Editor of 7 international and domestic peer reviewed journals. He has published over 100 SCI journal papers and has frequently won the best paper and poster awards at international academic conferences. His research findings have been applied to more than 60 national projects with a total area of 40 million square meters.



Title: Application of the Multiplication Formula in Green Building

Design and Operation Innovation

Abstract

Developing high-quality, efficient and high-quality green building is the key to implementing the dual carbon target, meeting people's health and comfort needs and promoting the high-quality development of the construction industry. Focusing on the needs of green building design and operation and maintenance technology innovation, this report puts forward the idea of applying the multiplication formula of energy consumption and carbon emission in space -shape-technology design and optimization, trying to break through the problem of separation between traditional architectural design and environmental construction strategy, and jump out of the process of design first and performance optimization later. Research on the design strategy and intelligent optimization method of performance driven automatic shape generation of public buildings based on the concept of "part space, part time". Finally, based on the case analysis, this report introduces the exploration and attempt on the trinity of "space-shape-technology".

Zhang Tong

Dean, School of Architecture, Southeast University

Zhang Tong is the Member of the International Union of Architects (UIA) Architectural Education Commission and UNESCO-UIA Validation Council for Architectural Education. His research focuses on architectural regionalism and sustainable urbanism and architecture, with 15 published books and more than 70 papers on architectural journals. He was awarded the UIA Award for Innovation in Architectural Education in 2020. More than 20 of his design works have been awarded international and national architectural prize including Gold Winner in ARCASIA Awards for Architecture. His works has been invited to attend high level exhibition including La Biennale di Venezia 2010, 2016 and 2020, and UIA Congress Exhibition 2014, 2017 and 2020.



Title: Climate-configuring Model of Vernacular Architecture, an Inherent Conversion Structure between Climate, Space and Energy

Abstract

Climate adaption and environmental regulation are the basic motivation and process of architectural progressing. There has been accumulated inherent and stable structure in the long-term evolution of vernacular architecture, uncovering the relationship between physical transformation caused by energy flows, and environmental changes resulted from configuration adjustment, which is defined as Climate-configuring Model. It induces the bio-climatic type of the region, the mutual formation mechanism of space and energy, and the characteristic appearances of local tectonic system. It was the wisdom refined from the local tradition of construction, and need to be approached as an archetype to guide and regulate the valid path of contemporary sustainable design, construction and operation towards a carbon-neutral human habitat.

Yoshino Hiroshi

Professor Emeritus, Tohoku University

Yoshino Hiroshi is presently the Advisory Professor of Tongji University, the Distinguished Professor of Chongqing University, the Professor of Yangtze Delta Region Institute of Tsinghua University, Zhejiang, and the Member of Science Council of Japan. He used to be the Operating Agent at International Energy Agency's Energy in Buildings and Communities Programme, responsible to the Annex 53 Total Energy Use in Buildings. He was the President of the Architectural Institute of Japan from 2013 to 2015. He is one of the contributors to the reports of the Intergovernmental Panel on Climate Change (IPCC), which was awarded the Nobel Peace Prize in 2007. He has been involving in research subjects for building science such as indoor environment and energy conservation, ventilation and indoor air quality, occupant's health and indoor environment, and passive solar system performance. He is the author of around 30 book chapters and has more than 200 publications including articles in academic journals and conference proceedings.



Title: Indoor Thermal Environment and Energy Consumption of Chinese Houses and Applications of Traditional Building Features

Abstract

This report describes the problems and the future tasks related to the indoor environment of general housing, and then discusses the applications of traditional building features.

Indoor thermal environment and health in Chinese houses. In China, the temperature in winter varies greatly from north to south, as well as the heating equipment. On the whole, the indoor temperature in houses in the north is generally higher than that in southern cities. There are concerns about health adverse in low-temperature rooms. Our survey found that the blood pressure of the elderly when waking up is higher in a house where the temperature is lower.

Energy consumption and strategies for energy saving. Energy consumption in housing in China is lower than in developed countries, apart from district heating. In Shanghai it is about one-third the average in Japan. However, the energy consumption by district heating is large. In order to decrease the energy consumption in a house, it is effective to reduce the amount of district heating. For that purpose, it is important to provide sufficient thermal insulation.

Application of thermal capacity in traditional Chinese buildings. Yaodong and Tulou are famous as traditional buildings. The heat capacity of these buildings creates a stable indoor environment all year round. Therefore, indoor is cool in summer, but the temperature remains low in winter if there is no space heating. The characteristics of stable environment are similar to those of today's brick and concrete panel houses. Therefore, sufficient insulation is important to take advantage of their heat capacity.

In conclusion, installation of thermal insulation is most effective to reduce the heating load and improve thermal environment, and well being for urban and rural houses with thermal capacity.

Xiao Yiqiang

Professor, Deputy Dean, School of Architecture, South China University of Technology (SCUT)

Xiao Yiqiang is the Doctor of Engineering in Architecture, the National First Class Registered Architect, the Director of the Center of Design & Science of the State Key Laboratory of Subtropical Building Science, the Associate Editor of *South Architecture*, the Director of Atelier Y Studio Architects, the Director of the Institute of Sustainable and Climate Design (SCD), the Director of the Digital Teaching Committee of the National Supervision Board of Architectural Education, the Vice President of Guangdong Society of Landscape Architecture, the Director of the Chinese Society of Landscape Architecture in the sixth session, and the Member of the Green Building Evaluation Marks Committee of the Department of Housing and Urban Rural Development of Guangdong Province. He has long been engaged in teaching, scientific research and design practice, focusing on green architecture, ecological landscape and urban design, with more than 130 papers and 2 books published. He was a three-time Primary Investigator of projects funded by NNSFC.



Title: Application of Climate Space Wisdom from Traditional Residential Buildings for Designing Low-carbon Buildings in South China

Abstract

The speaker has long been engaged in the research on regional climate adaptation strategies of rural and urban dwellings in South China, focusing on the spatial design of regional dwellings, and proposed the concept of climate space system for South China region. He developed spatial design principles that were used to guide low-carbon architectural design. The speaker instructed the team of SCUT to participate in three international solar decathlon competitions, achieving excellent results. Based on the innovated study of regional residential space design, his projects achieved an architectural space system and produced a remarkable improvement on the building performance.

Ogura Daisuke

Professor, Department of Architecture and Architectural Engineering, Graduate School of Engineering, Kyoto University

Ogura Daisuke serves as a Visiting Researcher of Nara National Research Institute for Cultural Properties, the Chairperson of Conservation Environment Working Group of Conservation and Utilization Committee on Horyu-ji Temple Kondo Mural Painting, and the Expert Member of International Council on Monuments and Sites (ICOMOS). He has received several awards including Achievement Award of SHASE of Japan for the Development of *SHASE Guideline for Energy Efficient Residential Buildings* in 2009, Best Poster of the 13th International Vacuum Insulation Symposium in 2017, and Grand Prize of ENEMANE HOUSE in 2017. He has long been engaged in the preservation of mural paintings in various world cultural heritages and stone cultural properties, the evaluation and improvement of thermal environment with considering health and comfort in dwellings and vernacular architecture in Asian hot and humid regions, the use of hygroscopic materials to provide moisture buffering in indoor climate using air-conditioning system.



Title: Quantification of the Hygrothermal Behavior of Traditional Houses and the Transmission of Culture through the Integration of Traditional Housing and Modern Technology

Abstract

Traditional houses, a type of vernacular architecture with sustainable techniques, have been adapted over many years to the local climate and materials available in the region. The transmission of architecture itself, meaning the transmission of culture, is also an important theme.

Technology for quantitative prediction and evaluation methods for the hygrothermal environment of traditional houses. There is a need to be able to estimate quantitatively the hygrothermal environment in terms of the thermal comfort and energy conservation of traditional houses using sustainable natural materials. A case study of quantitative prediction of the hygrothermal environment of a thatched roof is described in this report.

Sustainable house renovation technology by adapting modern technology to traditional houses. This report describes a case study of a refurbishment that improved the thermal insulation performance and energy conservation while maintaining the traditional appearance of an existing townhouse. It is possible to obtain a cool space with natural ventilation in summer and to obtain a warm space with low heating load in winter through renovation.

Need to develop climate change adaptation technologies. In recent years, climate change has led to an increase in absolute humidity in summer in Japan. This has led to the need for countermeasures against summer condensation in housing. The need to develop adaptation technologies for housing to climate change is described in this report.

Roundtable Attendees

Zhou Jingyu

Vice President, East China Architecture Design Group

Zhou Jingyu is the Professorate Senior Engineer, the Fellow of Chartered Institute of Building (CIOB) and the Fellow of Royal Institution of Chartered Surveyors (RICS). She is the Distinguished Expert of Foreign Aid Projects of the Ministry of Commerce of the People's Republic of China and the Distinguished Professor of School of Economics and Management at Tongji University. She is also the Business Mentor of Shanghai Jiaotong University. She has been recognized as Shanghai Woman Pace-Setter in 2013. In 2014, she has been awarded the title of Outstanding Person in Construction of Shanghai Major Projects. She has also received Shanghai Labor Day Medal in 2015 and Tien-yow Jeme Civil Engineering Prize in 2018. In 2019, she has won the Shanghai Science and Technology Progress Award. She has worked as the General Manager of Arcplus team in Shanghai Disney Resort project and served as the Director of several Disney projects, the Director of Shanghai Haichang Ocean Park and the Person-in-charge of the 10th China Flower Expo. She has presided over a number of major international projects and has won more than 10 national, provincial and municipal awards and honors.



Song Yehao

Tenured Professor, Director, Building & Technology Research Institute, School of Architecture, Tsinghua University

Deputy Chief Architect, Architectural Design and Research Institute, Tsinghua University

Song Yehao is the National First Class Registered Architect. His projects include Changshu Library, Deyang Surface Engineering Research Institute, post 512 earthquake reconstruction of Tumen Primary School and Nursery, Waterfowl Pavilion of Beijing Zoo, Central Canteen & Student Center of Tsinghua University, Tsinghua Eco Studio, Xuhui Demonstrative Project-Holistic Design Strategies on Sustainable Architectural Design, Passive House Pavilion Lonfor Sundar-Publication, Indoor Playground of Yueyang County No.3 Middle School, Village Lounge of Shangcun, History Museum of Qifeng Village, Swirling Cloud Pavilion, Tea Leaf Market of Zhuguanlong and Hainan Smart Ecological New City Digital City Hall, etc. His projects won many national and international awards including ARCASIA Awards for Architecture, World Architecture Festival Architectural Design Category Award, World Architecture News (WAN) Gold Award, Iconic Awards: Innovative Architecture 2019, 1st UIA Award for Innovation in Architectural Education, etc.



Komiyama Yosuke

Junior Associate Professor, Department of Architecture and Architectural Engineering, Graduate School of Engineering, Kyoto University

Komiyama Yosuke is an architect and researcher. He received his Ph.D. from the University of Tokyo. He worked in Horden Cherry Lee Architects in London, UK, and Emeraude Architectural Laboratory in Gunma, Japan. He works on designing prototypes of various architecture with new timber technologies, especially cross laminated timber. When he worked for Horden Cherry Lee Architects, he was the Leader on concept and detail designs and construction supervision for a cross-laminated timber (CLT) building, Kingsgate House, which was a 7-storey affordable housing completed in 2014 and the world's first Programme for the Endorsement of Forest Certification Schemes (PEFC) certified building. Since returning to Japan, he has worked on many CLT projects and also joined various collaborative CLT research projects with manufactures and construction companies. He wrote a serial article *12 Sections of CLT* about CLT development in 2017-2018 in a Japanese architectural magazine *Shinkenchiku*. He received Excellent Research Awards in Young Architects' Design Sessions in International Symposium on Architectural Interchanges in Asia (ISAIA) 2018 for the project "Tablets Archive + Gallery in Haruna".



Li Yonghui

Vice Director, Institute of Building Technology and Science, School of Architecture, Southeast University

Li Yonghui is the Associate Professor and Doctoral Supervisor at the School of Architecture, Southeast University. He is currently the Full-time Vice Director of the Research Center for Architectural Heritage and Environment, and the Member of the Scientific Committee of ISO/TC163. His research interests include green and healthy buildings, thermal and hygroscopic physics of buildings, and healthy environments for people and materials. In the past five years, he has presided over six research projects, including NNSFC and the National Key R & D Program of the 13th Five-Year Plan, and published more than 70 papers in domestic and international academic journals and conferences, including more than 30 SCI/EI retrieved papers.



Guo Yimin

Associate Professor, School of Architecture, Southeast University

Guo Yimin is the Director of the Archi-Neering Design Research Center, which is a school-enterprise academic research platform dedicated to the integration and innovation of structure and architecture at the design level, jointly established by the School of Architecture of Southeast University, the Department of Architecture of Tokyo Institute of Technology, and the East China Architectural Design and Research Institute (ECADI) in 2017. Based on the two frontiers of contemporary architecture, Archi-Neering Design and the design and theory of Behaviorology, he is engaged in the research and development of innovative and forward-looking architectural design methodology. The theory of Behaviorology is to take the correlation and interrelation between buildings, people, environment, etc. as a perspective, through observation (Modernology), capture (Type) and reorganization (Design), to establish a commonality (Commonality) space design theory. The theory is one of the important topics and research directions when contemporary architecture is facing more and more severe external changes in recent years.



Han Jihong

Senior Chief Engineer, Shanghai Research Institute of Building Sciences Co., LTD

Han Jihong is the Expert Enjoying Special Allowance from the State Council, the Member of Green Building and Energy Efficiency Committee of MOHURD, the General Deputy Director of R & D Center of Green Building Technology of MOHURD. She has long been engaged in green building, built environment and low-carbon eco-city on technology research, projects demonstration, standards editor and technology consultant. She is in charge of many major projects such as the Shanghai Ecological Demonstration Building, the Shanghai Case Pavilion Eco-Housing in Shanghai Expo Urban Best Practice Area (UBPA), and the Shanghai Center Tower, which won three stars project of Green Building Evaluation Labeling and the First Prize of Green Building Innovation Award from the MOHURD. She is the Major Editor of *Assessment Standard for Green Building (GB/T50378-2006/2014/2019)*, completing more than 30 key technology research projects of the 10th to 13th Five-Year Research Projects of green building, healthy indoor environment, low-carbon and ecological urban district development, etc.



Shi Xing

Professor, College of Architecture and Urban Planning, Tongji University
Chair, the Key Laboratory of Ecology and Energy-saving Study of Dense Habitat, MOE

Shi Xing received his Bachelor degree from Tongji University in 1998. He then studied at the Pennsylvania State University and received his Ph.D. in 2005. From 2005 to 2008, he worked at Walter P Moore in Houston as a Consulting Engineer. In 2008, He joined the School of Architecture at Southeast University. His research interests include green building performance and optimization design, building energy efficiency, urban physics, and urban energy modeling. He is the PI of more than 20 research projects, including those funded by NNSFC, MOST, MOE, etc. The total funding of these research projects exceeds RMB 15 million. He has extensive design and consulting experience.



One of his recent work is leading the project of green design and sustainable technology integration of the National Cultural Center in Beijing, China. He has published more than 130 papers on journals and conferences, including journals such as *Applied Energy*, *Energy and Buildings*, *Building and Environment*, etc. He is the author of 4 books and holds more than 20 patents.

Zhang Xiaosong

Director, Engineering Research Center for Building Energy Environments & Equipments, MOE

Zhang Xiaosong is the Doctor of Engineering, the Chief Professor and Doctoral Supervisor of Southeast University, formerly the Deputy Dean of School of Energy and Environment of Southeast University. He is also the Director of the E2 Committee of the International Institute of Refrigeration (IIR), the Executive Director of the Chinese Society of Refrigeration, the Director of the Chinese Society of Engineering Thermophysics, and an Expert Enjoying Special Allowance from the State Council. He has been engaged in teaching and research in the fields of refrigeration and air conditioning, solar energy utilization, and building energy conservation. As the project leader and the first accomplisher, he won the second prize of the National Technical Invention Award, and has been awarded multiple provincial and ministerial level scientific and technological achievements, including the first prize of the Ministry of Education Invention Award and the first prize of Jiangsu Provincial Science and Technology Invention Award once each. He has presided over more than 50 major scientific research projects. He has published nearly 300 papers in prestigious journals and academic conferences, including more than 100 SCI papers.



Iseda Hajime

Sustainable Design Manager, Takenaka Corporation

Iseda Hajime joined Takenaka Corporation in 2006, and has worked on numerous projects. As a specialist in Mechanical, Electrical & Plumbing (MEP) engineering and Sustainable engineering, he has been working in several architectural projects including Tokyo American Club, Meiji Yasuda Seimei Shin Toyochō Building in Japan, and Capita Green in Singapore. After completion of Capita Green project, he went to California and joined University of California, Berkeley as a Visiting Scholar for two years and seven months. He studied not only Sustainable Engineering, but also Computational Design, Human Health and Wellness, Big Data, Machine Learning, IoT Technologies and VR/AR/MR there. Before going back to Japan, he did an intern at Gensler and Loisos + Ubbelohde and learned sustainable design, engineering and some other related technologies and knowledge. Recently, his major work is Technical Development of ZEB Design Guideline & Tools and Research about World Green Building Design and Technologies.



Ni Jun

Chairman, President, Suzhou Crownhomes Timber Structure Technology CO., LTD

Ni Jun is MBA, and Professorate Senior Engineer. He has been deeply involved in the wood structure construction industry for many years and has rich experience in the production and management of the wood structure construction industry. He has published 6 papers and 1 book, and won the first prize of Jiangsu Province Science and Technology Award, the third prize of Shanghai Science and Technology Award, the first prize of Guangdong Province Science and Technology Progress Award, and the first prize of Wuzhong District Science and Technology Progress Award for three times. Suzhou Crownhomes Timber Structure Technology Co., LTD, which he is at the helm, is currently a leading enterprise in wood structures in China. The company has undertaken 16 scientific research projects above the provincial level, 4 authorized inventions and 14 utility model patents. It also participated in the compilation of 11 national standards and 4 industry standards. The company is committed to the research and development, design, manufacture and construction of modern wood structure green, low-carbon and energy-saving buildings. Now it has become a high-tech professional enterprise of modern prefabricated wood structure, ranking first in the domestic wood structure industry for a long time. It has won the first batch of National Prefabricated Construction Industry Demonstration Bases, Key High-tech Enterprises of the National Torch Program, National Intellectual Property Advantage Enterprises, China Construction Engineering Luban Prize, and the first prize of Jiangsu Province Science and Technology Award.



Tan Gangyi

Vice Dean, School of Architecture and Urban Planning, Huazhong University of Science and Technology

Tan Gangyi is the Secretary-general of Committee of Vernacular Architecture (CVA)-ASC, the Vice Chairman of Institute of Architecture Education (IAE)-ASC, the Visiting Scholar of the University of Hong Kong and the University of Sheffield, and the Deputy Editor-in-chief of *New Architecture*. He is mainly engaged in research on traditional vernacular architecture, cultural heritage conservation and design practices. He has published above 5 monographs, pressed about 60 periodical papers, taken charge of 3 research items supported by NNSFC and 1 research item of the British Academy. He received the 2019 Baosteel National Outstanding Teacher Award. He won the Honorable Mention Prize of National Excellent Doctoral Dissertation, 2003 UNESCO Asia-Pacific Heritage Awards for Culture Heritage Conservation, third place award of the International Residential Design Competition and other prizes, first prize of Rural Architecture Design by ASC and other design awards.



Yang Wei

Assistant Dean, Professor, School of Architecture, Tianjin University

Yang Wei obtained the Bachelor and Master Degrees in Architecture and the Doctor of Engineering from Tianjin University. She is currently serving as the Director of International Cooperation of the school, and the Associate Director of Tianjin Municipality Key Laboratory on Building Environment and Energy. She is leading a research group on Carbon Neutral Building Design, Construction and Operation. She studied at Karlsruher Institut für Technologie (KIT) from 2003 to 2005 as an exchanging Ph.D. student, where she started her research topic on building Life Cycle Assessment (LCA) and building stocks. She is teaching the design studio on Building in Life Cycle, which concerns the sustainability of the built environment, especially the climate responsive and resource conservation design strategies. Her seminar course on Built Environment in a Resource Conservation Perspective introduces the theories and analytical methods of the environmental, economic and social-cultural issues during the evolution of the urban building stocks. Her recent research projects are on the integration of Building Information Modeling (BIM), LCA, Life Cycle Cost (LCC) with the design process, and the parametric design methods and tools to optimize building life cycle performances. She had also done projects on China's national building stock, urban housing stocks and urban fragments.



Kubota Tetsu

Professor, Graduate School of Advanced Science and Engineering, Hiroshima University

Kubota Tetsu obtained a Doctor degree from Shibaura Institute of Technology (SIT) in 2001. In 2003, he went to Malaysia and started his post-doctoral research in Universiti Teknologi Malaysia (UTM) and became a Lecturer in the Department of Urban and Regional Planning, UTM from 2005 to 2009. In 2009, he was appointed as an Associate Professor by the Graduate School for International Development and Cooperation, Hiroshima University, Japan. He then became a Full Professor since 2021. He has been a Member of AIJ since 1995. His major research fields include building science, especially focusing on energy-saving and low-carbon techniques for urban houses in hot-humid climates. His research is conducted primarily through field works in Southeast Asia in collaboration with local counterparts. He aims to extract these local contexts through a long-stay and incorporate them into the design proposals. His major research topics include passive cooling techniques, natural ventilation, adaptive behavior, indoor thermal comfort, indoor air quality and urban heat islands. As of April 2020, he published 148 refereed academic papers, including 23 SCI papers. His research was awarded 9 times as Best Paper/Presentation Awards, mostly by international academic associations, including the Passive and Low Energy Architecture (PLEA) Beat Paper Award in 2012. Major journals of his publications include *Building and Environment*, *Energy and Buildings*, *Sustainable Cities and Society*, etc. He has published a co-authored book as the Chief Editor, entitled *Sustainable Houses and Living in the Hot-Humid Climates of Asia* in 2018, which has been highly evaluated internationally.



Iba Chiemi

Associate Professor, Department of Architecture and Architectural Engineering, Graduate School of Engineering, Kyoto University

Iba Chiemi is a Member of Laboratory for Building Environment Control, Kyoto University. After graduating from Graduate School of Kyoto University in 2002, she worked as a Researcher in Hokkaido Northern Regional Building Research Institute. She conducted practical research on thermal insulation method and material durability there, as well as carried out many tests of material properties and building components performance. She obtained Ph.D. in Engineering at Kyoto University in 2010. She started working as an Assistant Professor at Kyoto University in 2012, then, has been in current position since 2019. Her recent research topics are conservation of historical building, especially frost damage of stone and ceramic, environmental control of exhibition and storage room in museum, and improvement of thermal environment in traditional dwellings and temporarily houses in Japan.

