

Hu'nan



香港大學
THE UNIVERSITY OF HONG KONG



香港大學建造及基建創新研究中心
Centre for Innovation in Construction and Infrastructure Development



MiCLab

Strategic Public Policy Forum

Jiangxi

Modular Integrated Construction (MiC) Supply Chain in the Greater Bay Area for Hong Kong Development

Guangxi

Guangdong



Guangdong

30 August 2023

Rayson Huang Theatre, HKU



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香港大學建造及基建創新研究中心
CENTRE FOR INNOVATION IN CONSTRUCTION AND
INFRASTRUCTURE DEVELOPMENT

About the Project

Project Title:

Enhancing Modular Integrated Construction (MiC) Supply Chain in the Greater Bay Area (GBA) for Hong Kong Development

提升大灣區組裝合成建築法供應鏈以推動香港發展的策略性公共政策研究

Project Aim:

To establish a favourable business environment and policy roadmap with action plan for enhancing MiC supply chain in the GBA for improving productivity, cost-effectiveness, quality, safety and sustainability of Hong Kong development.

Project Objectives:

First, the project will contribute a better understanding of MiC supply chain complexity and dynamics, regulatory and business drivers and constraints, and develop and verify strategies for MiC supply chain identification and enhancement.

Second, the project will develop and validate a systemic MiC supply chain measurement framework and KPIs to support Hong Kong industries' and community's decision-making of MiC supply chain selection and evaluation.

Third, the project will investigate the relationships between demand for MiC in various building sectors of Hong Kong and supply from the GBA, and develop a 'demand-and-supply' predictive model with scenarios.

Fourth, the project will recommend a policy roadmap with action plan for addressing relevant regulatory and business constraints and concerns and achieving mature MiC supply chain, which leverages government buying power and private-sector market drivers in Hong Kong.

Fifth, the project will verify the developed model, policy roadmap and action plan through GBA-wide questionnaire surveys, focus groups, workshops and policy forum.



About the Strategic Public Policy Forum

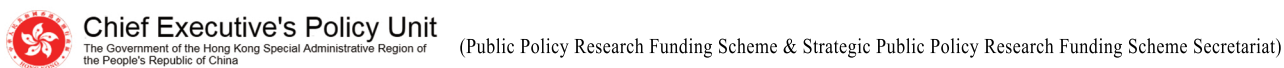
Modular Integrated Construction (MiC) is widely regarded as the most advanced off-site construction approach, with demonstrated benefits in the areas of quality, productivity, safety and sustainability. Since 2017, there has been a significantly increasing demand for MiC in Hong Kong for various sectors including public and private housing, elderly homes, hostels, hospitals, etc. but the MiC supply chain is still in its early stage and facing various technical and management challenges. This forum is part of the research project entitled “Enhancing Modular Integrated Construction (MiC) Supply Chain in the Greater Bay Area (GBA) for Hong Kong (HK) Development” funded by the HKSAR Government under the Strategic Public Policy Research (SPPR) funding scheme (Project Number: S2019.A8.013). The project aims to establish a favourable business environment and recommend a policy roadmap with an action plan for enhancing the MiC supply chain in the GBA for HK development.

The forum will share the preliminary public policy roadmap with action plan for the MiC supply chain and solicit feedback from wide stakeholders. The event will feature renowned speakers from government, industry and academia to share state-of-the-art research, practice and policy for MiC supply chain and enable exchange of innovative ideas and practices.

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Event Rundown

2:30 – 3:00 pm Registration

3:00 – 3:05 pm Welcome Remarks

Professor PAN Wei
Acting Executive Vice-President (Administration & Finance), HKU

3:05 – 3:15 pm Opening & Keynote

Ir LAU Chun-kit, Ricky, JP
Permanent Secretary for Development (Works), Development Bureau

3:15 – 3:25 pm MoU Signing for MiCLab & Kick-off of MiC Safe Lifting Project

3:25 – 3:30 pm Photo Session

3:30 – 3:50 pm MiC Supply Chain Preliminary Policy Roadmap with Action Plan

Professor PAN Wei
Executive Director, CICID & Director, MiCLab, HKU

3:50 – 4:05 pm Development Status and Prospect of the Prefabricated Construction Supply Chain in Guangdong Province

Mr LIANG Jianming
President, Guangdong Construction Industry Association, China

4:05 – 4:20 pm The Supply Chain Challenge for MiC Product in the Greater Bay Area

Ir Dr WONG Tin-cheung, Conrad, BBS, JP
Vice Chairman, Yau Lee Holdings Limited



4:20 – 4:35 pm Refreshments

4:35 – 4:50 pm ArchSD's MiC Journey continues

Mr LI Kiu Yin, Michael, JP
Deputy Director of Architectural Services, Architectural Services Department

4:50 – 5:05 pm Strengthening the MiC Supply Chain

Dr David-John Gibbs
Director (Infrastructure Advisory), Ernst & Young Transactions Limited

5:05 – 5:20 pm Long-term Sustainable Development of MiC Supply Chain for Hong Kong

Mr DING Kun
Executive Director, Yahgee Modular House Co., Ltd.

5:20 – 5:35 pm Panel Session

Moderator:
Professor CHAN Yu Sum, Sam, Associate Director, CICID, HKU

5:35 – 5:40 pm Closing Remarks

Professor MAK Chai Kwong, GBS, JP
Vice Chairman, CICID, HKU



Welcome Remarks



Professor PAN Wei

*Acting Executive Vice-President (Administration & Finance)
Executive Director, CICID & Director, MiC Lab
The University of Hong Kong*

Professor Wei Pan is Acting Executive Vice-President (Administration & Finance) of the University of Hong Kong where he is also Executive Director of Centre for Innovation in Construction and Infrastructure Development (CICID), Director of MiC Lab, and Professor at Department of Civil Engineering. Prof Pan's research covers modular integrated construction, productivity, smart construction, net zero carbon, and sustainable infrastructure. He is a civil engineer, a chartered builder and a chartered environmentalist, and has practiced in China, Singapore, UK and Hong Kong. He has authored over 300 publications and is a top 1% scholar worldwide by citations ranked by Clarivate Analytics. He was named Distinguished Young Investigator of China Frontiers of Engineering by the Chinese Academy of Engineering in 2019, and achieved CE's Commendation Award in 2020.

MiC Supply Chain Preliminary Policy Roadmap with Action Plan

This presentation unveils a systematic policy roadmap and action plans crafted for enhancing modular integrated construction (MiC) supply chain in the Greater Bay Area (GBA) for Hong Kong development. Drawing upon a wealth of industry feedback and suggestions pertaining to the development of MiC supply chain, the preliminary policy roadmap outlines a dynamic framework for enhancing various aspects of the MiC supply chain, including supply, demand, delivery and stakeholder perspectives. Additionally, a series of actions were identified and categorised into short-term, medium-term, and long-term phases, ensuring a phased implementation for continuous improvements. Attendees are invited to delve into the nuances of this roadmap and action plans and your insights and suggestions are highly valued as we collectively aim to strengthen the MiC supply chain.



Opening & Keynote



Ir LAU Chun-kit, Ricky, JP

*Permanent Secretary for Development (Works)
Development Bureau, HKSAR Government*

In October 2021, Ir Ricky LAU was appointed as the Permanent Secretary for Development (Works) to oversee public works policy and infrastructure development.

Ir LAU was the Director of Civil Engineering and Development from October 2018 to October 2021, and was responsible for overseeing the strategic planning and the implementation of various reclamation, new development area and major infrastructure projects. He joined the Hong Kong Government in 1992 as an Assistant Engineer. Before joining the Civil Engineering and Development Department in 2015, he worked in the Highways Department and the Development Bureau.



Invited Speech



Mr LIANG Jianming

President

Guangdong Construction Industry Association

Mr Liang Jianming, with a master's degree, is a Professorate Senior Engineer in building construction. Mr Liang currently serves as the President of the Guangdong Construction Industry Association and the President of the Building Decoration Branch. Mr. Liang is also a council member of the China Construction Industry Association, Executive Director of the China Association of Construction Enterprise Management, and a council member of the China Building Decoration Association. He has been appointed as an expert judge for prestigious awards such as the Guangdong Government Quality Award and the China Construction Engineering Luban Prize (National Prime-quality Project). Additionally, he serves as the Deputy Director of the Scientific and Technological Committee of the China Association of Construction Enterprise Management.

Development Status and Prospect of the Prefabricated Construction Supply Chain in Guangdong Province

The presentation provides an overview of the current state of the prefabricated building industry in Guangdong Province and the other provinces of Mainland China, elaborating on the development of the industry and policies and measures for enhancing its growth. The presentation also highlights the national and provincial demonstration cities and industrial bases for prefabricated buildings, as well as pilot/demonstration prefabrication projects in Guangdong Province. Furthermore, it explores the development of the MiC (Modular integrated Construction) supply chain, presenting the MiC projects and the status quo of MiC supply chain in Mainland China, introducing the core enterprises of the MiC supply chain in Guangdong Province, and discussing the prospects of MiC development in Hong Kong and Guangdong. Finally, the presentation provides recommendations for fostering collaborative development of the Guangdong-Hong Kong MiC supply chain, focusing on topics such as joint establishment of technical standards and co-building and sharing of the supply chain.



Invited Speech



Ir Dr WONG Tin-cheung, Conrad, BBS, JP

Vice Chairman

Yau Lee Holdings Limited

Ir Dr Conrad Wong is a professional engineer who has over 30 years of building construction experience. He is the Vice Chairman of Yau Lee Holdings Limited, Managing Director of Yau Lee Construction and REC Engineering Co Ltd. He has a keen interest in green building technologies, Building Information Modeling (BIM), modular and precast construction, and manufacturing automation.

Since 2017, Ir Dr Wong has been putting a great deal of effort in developing various robotic and Artificial Intelligence (AI) applications for the construction industry. He received his Doctor of Philosophy Degree at City University of Hong Kong, specializing in adopting AI to optimize energy consumption for large scale central air conditioning system.

Ir Dr Wong is very active in public and community services. Currently, he is appointed as the Chairman of the Council of the Hong Kong Metropolitan University, the Chairman of the New Energy Transport Fund Steering Committee, the Member of the Energy Advisory Committee and the Member of the Town Planning Board. In the past, Ir Dr Wong served as the Deputy Chairman of Vocational Training Council, the Chairman of the Occupational Safety and Health Council, the Chairman of the Hong Kong Green Building Council, the President of the Hong Kong Construction Association, the President of the International Federation of Asian and Western Pacific Contractors' Associations, the Chairman of Pneumoconiosis Compensation Fund Board, the Member of Construction Industry Council, the Member of the Antiquities Advisory Board, the Member of the Advisory Council on the Environment, and the Director of the World Green Building Council.

The Supply Chain Challenge for MiC Product in the Greater Bay Area



Invited Speech



Mr Li Kiu Yin, Michael, JP

Deputy Director of Architectural Services

Architectural Services Department, HKSAR Government

Michael LI is an architect by profession and studied at the Bartlett School of Architecture in London and joined the Architectural Services Department in 1997. Before returning to the department in 2014, he was posted to the Development Bureau's Energizing Kowloon East Office in facilitating the transformation of Kowloon East area into another premier Central Business District of Hong Kong.

He has extensive professional experience and handled a number of projects including the Hong Kong Children's Hospital, Heung Yuen Wai Boundary Control Point Complex, Kowloon East Regional Police

Operation Base, disciplinary staff quarters at Pak Shing Kok and elderly homes at Kwu Tung North adopting Modular Integrated Construction, Hong Kong Wetland Park, the Improvement to Victoria Park, the Diamond Hill Columbarium and Crematorium, the City Gallery, Quarantine Camps with about 4,100 quarantine units at various locations of Hong Kong in 2020, eight Community Isolation Facilities in 2022 with about 40,000 units in about four months to combat against COVID-19 and 30,000 units of Light Public Housing by 2027-28.

ArchSD's MiC Journey continues

With first highrise concrete modular integrated construction (MiC) project, Pak Shing Kok Disciplined Services Quarters, completed in 2021, reaping benefits in reducing waste, reducing energy, water conservation, cleaner site environment, etc. ArchSD continued to observe these benefits with projects adopting MiC.

Policy has created demand, industry has started to invest in innovation and supply chain started growing. In time, it is prudent that industry would learn to drive down cost to be competitive. With lowered cost, it allows for higher ambition. In the journey of MiC, we are probably in the phase where industry has started to invest more on innovation and at the same time supply chain is growing, not just in numbers but also maturing. With coming projects adopting MiC in the pipeline, experience gained and by observing from other industry stakeholders, standardization of design, repetition or scaling and partnering with supply chains are key in the whole MiC process and should be further explored.



Invited Speech



Dr David-John Gibbs

*Director (Infrastructure Advisory)
Ernst & Young Transactions Limited*

Dr DJ Gibbs is a Director at Ernst & Young Transactions limited, where he provides strategic advice to governments, public bodies and private organisations in the built environment. DJ also supports not-for-profit organisations to facilitate cross-industry engagement and provides independent opinion on innovation.

DJ has worked on MiC studies aimed at identifying the blockers and enablers, as well as strategies and measures, for establishing a sustainable and reliable supply chain for the implementation of offsite construction to support the delivery of public and private developments in Hong Kong.

Strengthening the MiC Supply Chain

This presentation will share insight into a section of the work that Ernst & Young Transactions limited has undertaken in collaboration with the Development Bureau on "Strengthening the MiC Supply Chain". The presentation will include details on the importance of the MiC supply chain in achieving Government objectives, the approach taken to engage with MiC Manufacturers and Suppliers, details on the estimated pipeline demand for MiC modules between 2023 and 2032, as well as insights into the capacity of GBA Manufactures and Suppliers to meet the demand.



Invited Speech



Mr DING Kun

Executive Director

Yahgee Modular House Co., Ltd.

Mr Ding received his bachelor's degree from Shaanxi University of Science & Technology in 1993. He worked on different building materials industry before joining Yahgee in 2005, where he served successively as manager assistant, manager and general manager. He has participated in a variety of prefabricated buildings for construction site, including temporary buildings for 2008 Olympic Games construction, Sichuan Wenchuan massive earthquake disaster in 2008, Beijing Fangshan flood disaster in 2012, and COVID-19 quarantine hospitals and hotels during 2020 and 2022.

With his leading, Yahgee immediately completed the important construction task and reconstruction relief works, which were highly recognized by the society and the national leaders. Mr. Ding Kun was also awarded as Beijing Advanced Individual for assisting the construction of transitional housing by Beijing Personnel Bureau and Beijing Municipal Construction Commission in 2008. Since 2013, he has been working as leadership of Yahgee group and he worked on accelerating Yahgee's transformation to high-rise modular building and worked on a number of off-site modular building projects in mainland China, Japan, Singapore, Northern Europe, North America, Australia, New Zealand as well as Hong Kong. He made great efforts to drive Yahgee to push forward modular building standardizing and industrializing to improve quality, reduce costs and increase efficiency. In 2022, he was awarded Bellwether Award of Nanshan Group, which was Yahgee's holding company.

Long-term Sustainable Development of MiC Supply Chain for Hong Kong

This speech introduces the modular construction projects delivered in other countries and regions that Yaghee contributed to the design and manufacturing, demonstrating the potential obstacles that may arise in MiC systems/products as well as offsite construction. Particularly, by sharing the problems encountered in the production process for Hong Kong's pilot MiC project, the Student Residence at Wong Chuk Hang Site for the University of Hong Kong, and solutions, we further elaborate on Yaghee's vision for sustainable development of Hong Kong's MiC supply chain in the future, triggering industry-wide discussions on GBA MiC supply chain, which ultimately would promote the development of Hong Kong.



Panel Session



Professor CHAN Yu Sum, Sam

Associate Director

CICID, The University of Hong Kong

Professor Sam Chan has over 40 years' experience working with clients, consultants and contractors in Hong Kong and the Mainland since graduation from The University of Hong Kong in 1973. He joined the civil service in May 1992 and was appointed Assistant Secretary in the Works Policy Unit of the then Works Bureau in August 2001 on implementation of the CIRC recommendations relating to alternative procurement approaches, sustainable construction, life cycle costing, partnering, security of project payment, site supervision and project delivery. Professor Chan was responsible for the planning, design and implementation of capital works projects at HyD (2004 to 2011). He served as a volunteer at DEVB and provided professional advice and support to the HK-SAR-funded reconstruction projects in Sichuan (2011 to 2012). Professor Chan is the Deputy Chairman of the Construction Dispute Resolution Committee (CDRC) of HKIE and Chairman of its Adjudicator Appointment Sub-committee (2022). He serves as Director and Chairman of the Property Development and Management Committee of the Chinese YMCA of Hong Kong since 2008, overseeing tendering and progress of the Association's development projects. He also served as a member of the Appointment Advisory Board of the HKIAC (2017-2020).



Closing Remarks



Professor MAK Chai Kwong, GBS, JP

Vice Chairman

CICID, The University of Hong Kong

Professor C. K. Mak joined the HK Government after graduating from The University of Hong Kong in 1973. During his 37 years as a career civil servant, he served as Head of the Railway Development Office, Project Manager in the Territory Development Department, Director of Highways and Permanent Secretary for Development. Since 1980's, he has taken up teaching assignments at the universities in Hong Kong. His passion is to build and strengthen the bonds between students, young professionals and the more experienced seniors through teaching, sharing, mentoring and experiential learning ventures.



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CICID

The Centre for Innovation in Construction and Infrastructure Development (CICID), which is in the Department of Civil Engineering of The University of Hong Kong (HKU), was established in November 2002.

The aims of the Centre include fostering continuous improvements, while targeting excellence in the construction industry in general and infrastructure development in particular, through the development of innovative strategies and techniques.

CICID strives to achieve excellence and innovation in construction and infrastructure research with a desire to contributing to the advancement of the practice and improvement of performance of the construction and infrastructure sector in Hong Kong and around the world.



MiCLab
The University of Hong Kong

MiCLab

The MiCLab was established in 2020 to lead innovative research in MiC to enhance its widespread uptake and adoption in Hong Kong and beyond. It is the first Lab, dedicated solely to the enhancement of research in MiC.

MiCLab includes a number of relevant professors and a team of postdoctoral fellows and PhD researchers with diverse research backgrounds covering MiC, structural engineering and material science, computer science, supply chain management, and construction engineering management.

The vision of the MiCLab is to become the global hub for research and consultancy in MiC-related issues, within the sub-region and beyond, offering a comprehensive range of services including but not limited to: integration of innovative and smart building technologies with MiC project delivery, MiC supply chain and logistics, Design of modular structures, MiC project feasibility analysis.

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