

**Construction Industry Council**

**Committee on Productivity**

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Meeting No. 004/16 of the Committee on Productivity (Com-PRO) was held on 6 December 2016 (Tuesday) at 2:00 pm at Meeting Room, ZCB, 8 Sheung Yuet Road, Kowloon Bay, Hong Kong.

Present:	Christopher LEUNG (KYL)	Chairman
	Ivan Chin-shing FU (FI)	
	KWAN Kai-sing (KSKn)	for Permanent Secretary for Transport and Housing (Housing)
	Raymond CHEUNG (WMC)	for Permanent Secretary for Development
	Kwok-Kwan NG (NKK)	
	PAN Shujie (PSJ)	
	WONG Sze-chun (SCW)	
	Tommy NG (TN)	Association of Consulting Engineers of Hong Kong
	Ringo SHEA (RSh)	Hong Kong Federation of Electrical and Mechanical Contractors
	TSE Kam-leung (KLT)	Architectural Services Department
	Vincent CHEUNG (VC)	Hong Kong Construction Association
In Attendance:	Kelwin WONG	(Presenter)
	Ray SU	(Presenter)
	LENG Zhen	(Presenter)
	Victor CHAN (VCh)	Buildings Department
	CHEUNG Hau-wai (HwC)	Executive Director
	James WONG (JsW)	Manager - Research & Development
	Alan TANG (AnTg)	Government Seconded
	Carol DU (CD)	Officer – Research & Development
Apologies:	Clarice YU (CYu)	Buildings Department

**PROGRESS REPORT**

**Action**

**4.1 Confirmation of Progress Report of the Previous Meeting**

Members confirmed the notes of Meeting No. 003/16 for the Com-PRO (Paper CIC/PNR/R/003/16).

**All to Note**

**4.2 Assessing the Performance of the Hong Kong Construction Industry, Key Performance Indicators (KPI): An International Comparison Study (Consultancy initiated by Com-PRO)**

Dr. Kelwin WONG representing the University of Hong Kong (HKU) delivered a presentation on the progress of the consultancy. HKU started the consultancy in June 2015 with a target to completing it in 1st Quarter 2017. Dr. WONG had collected data for the KPIs mainly in productivity, site safety, environment, manpower and construction cost.

The Chairman concerned whether the data of selected KPIs would be compared with the relevant figures in other relevant places. Dr. WONG replied that the relevant KPIs in Hong Kong and other places would be compared in the analysis. Factors affecting the trends would be investigated. HKU would prepare guidance notes to explain the trends for different places.

PSJ concerned on the high construction cost in local market. Dr. WONG said construction cost was an important aspect of KPIs under the research. He would identify the factors causing high construction cost and conduct correlation analysis for HK and the relevant places. Number of working hours would be considered in the amount of workforce. HKU would propose improvement strategies in a specific manner.

Dr. WONG furthered that continuity of the data was crucial factor in determining sets of KPIs suitable for HK. Members agreed that HKU should benchmark the position of Hong Kong's industry

performance based on the data collected and formulate strategies including recommendations in policy aspect to improve the performance of the construction industry in Hong Kong. Dr. WONG noted and would follow in the study.

4.3 **Practical Guidelines on Seismic Detailing for Concrete Buildings in Hong Kong (Research initiated by HKU)**

Dr. Ray SU from HKU delivered a presentation on the findings of the research. The research started in July 2014 and completed in March 2016. Dr. SU had prepared guidelines on seismic detailing on walls, dual and frame systems of concrete buildings in Hong Kong.

The Chairman opined that the findings of the research could be forwarded to Buildings Department (BD) for review noting that BD was currently devising code for seismic design and would subsequently take it into account in the codes for structural use of concrete and steel. Dr. SU advised that he had forwarded the draft detailing guideline to BD's consultant on the seismic code for comment.

KSKn considered that guideline for seismic detailing might ease the working difficulties for bar benders and fixers particularly on in-situ bar fixing at joints or transfer areas. BD would forward the code for seismic design to appropriate technical committee for consideration concrete code as soon as possible.

The Chairman added the Committee Secretariat could circulate the draft detailing guideline to Members for comments.

**Committee  
Secretariat**

*[Post meeting note: Secretariat had circulated the draft guidelines to members. The guideline has also been forwarded to BD afterwards.]*

4.4 **Quality Control and Quality Assurance of Asphalt Pavement Construction Using Innovative Non-destructive Methods (Research initiated by PolyU)**

Dr. Zhen LENG from the HK Polytechnic University (PolyU) delivered a presentation on the progress of the research. The research started in March 2015 for completion in March 2017. The study is to investigate the practical application of adopting electromagnetic (EM) density gauges and ground penetrating radar (GPR), non-destructive test (NDT) devices, for testing density of asphalt for road works in Hong Kong.

WMC concerned about the accuracy of using GPR as NDT device. Dr. LENG responded that the NDT could check uniformity of the density. The accuracy of the GPR could be calibrated by density gauges at the selected locations. WMC shared that GPR as NDT device operators' interpretation was crucial in terms of accuracy of the results. They had been used in tracing drainage defect areas where the precision requirement was different. Members considered that the research finding could supplement the traditional destructive test for asphalt pavement. It could help contractors to locate potential problematic areas for further tests.

The accuracy of NDT method relied on calibration. TN enquired the criteria to be used in the calibration. Dr. LENG clarified that the mix sample could be used as calibration materials, which could minimize the disruption to the site.

As next step, PolyU would assess the on-site performance of EM density gauges and GPR with HyD's assistance, and would recommend the appropriate NDT method and the testing protocol.

4.5 **Endorsement on Investigating the Potential Application of 3D Printing Technology for Construction Supply Chains in Hong Kong (Proposed consultancy initiated by Com-PRO)**

Committee Secretariat delivered key points of the study proposal to seek members' endorsement on the study. The consultancy was proposed to be led by Prof. Mirosław J. SKIBNIEWSKI from the University of Maryland, targeting for completion in 18 months.

Members shared that the study could serve as strategic research on 3D printing technology for industry application before large scale implementation. After deliberation, Members agreed that the research proposal should be revised to increase its practicality for the industry, particularly integration with BIM and raising imminent benefits for the industry.

Committee Secretariat would contact Prof. SKIBNIEWSKI (i) to address the imminent and medium industry needs, (ii) to provide solid information for on-the-ground implementation e.g. identification of manufacturers for batch production of deliverables, (iii) to explore its integration with BIM, and (iv) to list out practical outcomes of the consultancy. Committee Secretariat would circulate the revised proposal to Members for consideration.

**Committee Secretariat**

*[Post meeting note: Secretariat circulated the revised proposal to member for endorsement on 6 March 2017.]*

4.6 **Any Other Business**

4.6.1 Work plan for the consultancies under Com-PRO

Committee Secretariat tabled a draft work plan on the progress and implementation strategies of on-going and planned consultancies under the Com-PRO (See **Annex 1**) for Members' discussion. Overall, it was targeted the participating consultants could provide more specific suggestions and strategies, e.g. members to promote prefabrication and buildability, and policy and regulatory enhancement strategies in the studies.

**Action**

Members supported to engage consultants to investigate integration of buildability in project planning and design which should take into account the findings of other relevant studies in CIC and Government. Committee Secretariat would draft the assignment brief for members comment in due course.

**4.6.2 Seminar/visit for prefabrication**

The Chairman appreciated the new development in prefabrication as observed in attending a CTBUH<sup>1</sup> conference in Shenzhen. Members considered that a seminar and/or field trip on “Prefabrication” could be arranged in 2017 for promotion. Committee Secretariat would follow up the issue.

**Committee Secretariat**

**4.6.3 Co-organizing forum with other research institutes**

Committee Secretariat briefly introduced a recent visit to LSCM<sup>2</sup> – R&D centre in end November 2016. Members supported Committee Secretariat to coordinate a forum with LSCM which could serve as platform for promotion of research findings to the relevant industry stakeholders and facilitating the stakeholders to voice out their specific needs to the research institutes. Committee Secretariat would liaise with the relevant research institutes.

**Committee Secretariat**

**4.7 Tentative Date of Next Meeting 001/17**

The next meeting was tentatively scheduled in March 2017. The Secretariat would inform Members when the meeting date was confirmed.

The meeting was adjourned at 4:30 pm.

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<sup>1</sup> *CTBUH stands for Council on Tall Buildings and Urban Habitat. The theme of the conference is “Cities to Megacities: Shaping Dense Vertical Urbanism”*

<sup>2</sup> *Logistic and Supply Chain Management Enabling Technologies*