

**Construction Industry Council**

**Committee on Productivity**

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Meeting No. 003/21 of the Committee on Productivity was held on 14 September 2021 (Tuesday) at 2:30 pm in the Board Room, 29/F, Tower 2, Enterprise Square Five (Megabox), 38 Wang Chiu Road, Kowloon Bay

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|----------------|------------------|--------|--|
| Present:       | Ken WONG *       | (KnW)  | Chairperson  |
|                | Kwok-fai CHUNG * | (CKFi) |  |
|                | Ivan FU *        | (FI)   |  |
|                | Thomas HO        | (TH)   |  |
|                | Simon KWOK       | (TKK)  |  |
|                | Eddie LAM *      | (ELM)  |  |
|                | Tat-wai LI *     | (LTWi) |  |
|                | Kenneth MO *     | (KM)   |  |
|                | Tai-hing MOW     | (THM)  |  |
|                | Shujie PAN       | (PSJ)  |  |
|                | Rocky POON       | (LKP)  |  |
|                | Derek SO         | (KLS)  |  |
|                | Dennis WAN *     | (DsW)  | for Permanent Secretary for<br>Development (Works)             |
|                | Rayson WONG *    | (RnWg) | for Permanent Secretary for<br>Transport and Housing (Housing) |
|                | Franki YEUNG *   | (FY)   |  |
| In Attendance: | Thomas CHAN *    |        | Development Bureau   |
|                | Billy LAI*       |        | (Presenter)  |
|                | Charles WONG*    |        | (Presenter)  |
|                | Cherry CHEN*     |        | (Presenter)  |
|                | Richard PANG     | (RPg)  | Director – Industry Development                                |
|                | Daniel SUEN      | (DSn)  | Director – Industry Development                                |
|                | Thomas TONG      | (TsT)  | General Manager – Industry<br>Development                      |
|                | James WONG       | (JsW)  | Senior Manager – Industry<br>Development                       |
|                | Eason YUNG       | (EnY)  | Assistant Manager – Industry<br>Development                    |
|                | Norelle MAK      | (NeM)  | Senior Officer – Industry<br>Development                       |
|                | Christy KWONG    | (CyK)  | Officer – Industry Development                                 |

Apologies: Nil

\* Members and presenters attended the meeting online via MS Teams.

MINUTES

Action

3.1 **Confirmation of the Minutes of the Previous Meeting**

Members confirmed the minutes of the Com-PRO Meeting No. 002/21 without further amendment.

**All to Note**

3.2 **Matters Arising from the Previous Meeting**

Mr Thomas CHAN from DEVB briefed Members on the latest development of the Rebar Product Certification Scheme. CEDD is undergoing the tendering process to engage a third party as a scheme owner and certification body to be accredited by the Hong Kong Accreditation Services (HKAS). Establishment of the certification scheme was expected to be completed by end of 2023 with a 2-year trial period. Subsequent to the trial run of the scheme, DEVB will seek comments from the industry, the Buildings Department and the Independent Checking Unit of Housing Department, prior to the official launch of the scheme.

**Item 2.2 – 1.2:** Three reports of the research study entitled “MiC for High-rise Buildings in Hong Kong: Supply Chain Identification, Analyses and Establishment”, including market analysis, practical guide and roadmap, had been uploaded to the CIC website for industry’s reference.

The final report and reference materials on adopting DfMA for MEP works had been approved by Members. A concise version of the reference materials will be compiled by end of December 2021 for industry stakeholders’ easy reference as well as training and promotion purposes. Besides, a funding proposal on MiMEP will be submitted for the consideration by the MiC Vetting Sub-committee on CITF in early October 2021.

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**Item 2.2 - 1.5:** The first eDM promotion on the CIExpo 2022 had been blasted in September 2021, to all Council, Committee and i-Club Members which consisted of more than 1,100 organisations and 7,500 individual industry practitioners. Tendering on event management and production services would be invited by the end of September 2021 and the contract was scheduled to be awarded by November 2021. The CIExpo 2022 was planned to be officially announced at the Outstanding Contractors Award Presentation Ceremony on 2 December 2021.

**Item 2.3 - 2022 Business Plan and Budget:** The 2022 business plan and budget had been endorsed by Members. The progress of some action items was reported as follows:

Formulate framework and methodology for measuring productivity

Mr Dennis WAN from DEVB updated Members that tender had been issued for a DEVB study on the captioned topic. It was aimed to commence the study in early October 2021. Initial findings would be available in 3-6 months and DEVB would update Com-PRO Members at the next meeting.

Benchmarking and target setting on DfMA levels and productivity

The Secretariat presented a data collection plan (i.e. project particulars, DfMA adoption level and performance data) to collect information from at least 30 building projects in both public and private building sectors, in order to benchmark the DfMA adoption levels and examine the possible correlation between the DfMA adoption levels and project performance in terms of construction productivity, safety and sustainability. Invitations would be sent out mainly to client bodies and contractors through email by the end of September / early October 2021. The Secretariat targeted to propose KPIs on DfMA adoption levels and discuss possible strategies at the next meeting.

Members suggested including projects of Hospital Authority and MTR station development in the data collection plan, while study on DfMA adoption levels in the civil engineering sector could be conducted in a later stage. The Secretariat took note of Members comments and would execute the data collection accordingly.

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**Item 2.5 - Update on the Research on “Smartphone as Next-generation Monitoring Devices for Construction-induced Vibrations and Noise”:** The final report and user guide were approved by Members in August 2021. Both the user guide and a summary report will be published on the CIC website by early October 2021. The mobile application will be available on the iPhone app store for free download. Relevant sample specification had been compiled for industry application. The research outcomes will be further promoted to the industry through webinars. Members requested the Secretariat to consider how to gain acceptance from the regulatory bodies (e.g. BD and EPD) on the use of iPhone and mobile application to obtain the monitoring data to pave the way for wide adoption in the construction industry.

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**Updates on Ongoing Consultancy and Research Projects:**

Research on “Application of Maturity Method for Determination of Early-age Concrete Strength in HK Construction Industry”

A practical guide was compiled and circulated to the Expert Group in August 2021. The research team was addressing the Expert Group’s comments. The research team submitted a request for extension of time (EOT) of 4.9 months, with no financial implication, due to the site concreting schedule restriction, unexpectedly long sensor procurement

process, non-availability of calibration test results and non-existence of onsite data from in-situ temperature monitoring. Members approved the EOT request under the condition of no further extension would be accepted. Members were informed that all outstanding sensors and equipment had been purchased and it was expected that there would be no further delay.

Advisory Services by Mr Tim HALL

Services provided by Mr Tim HALL were completed including knowledge exchange on DfMA, liaison with experts/speakers, launching of the DfMA Alliance, hosting seminars, webinars, factory visits and organising Residential Hub and Infrastructure Hub meetings. The final payment had been settled. Members suggested to send an appreciation letter to Mr HALL for his contribution. For the continuous development of the “DfMA ecosystem” and sharing international best practices, Members suggested to engage a facilitator or Mr HALL on a need basis.

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**Updates on Webinar:** The webinar on “Advancement in System Formwork in Construction” was held on 20 August 2021 with a total of 768 participants.

**3.3 Proposed Consultancy Project on Development of a Buildability Assessment Scheme for Private Buildings in Hong Kong**

The Secretariat presented the proposed consultancy project with the aim to drive the productivity and buildability improvement in the private building sector, encourage standardisation, maximise offsite works and minimise on-site wet trade works. The scope of works includes reviewing existing means to enhance productivity and buildability both locally and internationally; to deliver an effective buildability assessment scheme; and to propose a practical implementation plan for the scheme. The project duration was proposed to be around 6 months for developing the scheme with an additional 2-3 months for approval and an estimated tender sum of HK\$1.25 million.

Members suggested to rename the scheme as “Productivity Assessment Scheme (PAS)” with a focus on buildable design, “plug and play” (defined as quick assembly of offsite component/assembles modules upon delivery on site), high levels of DfMA adoption, maximising adoption of offsite works and multi-trades integration. Members also reminded the Secretariat to study the Buildability Evaluation System being adopted for buildings projects developed by the Architectural Services Department.

Members had no adverse comments and approved the proposal. The Secretariat would prepare the Assignment Brief and issue the tender accordingly.

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3.4 **Update on the Consultancy Study for “Establishing a Certification Scheme for Construction Robots”**

SGS Hong Kong Ltd (SGS) presented the progress of the captioned consultancy study. Industry consultations and visits to testing centres and suppliers were conducted over the past few months to formulate the robot certification scheme. Assessment standards including administrative and technical requirements, corresponding acceptance criteria, certification decision processes and a 5-year strategic plan had been developed and reviewed by the Expert Group chaired by Professor KF CHUNG.

Members opined that the accreditation scheme should be user-friendly, attractive to relevant applicants, and well recognised among worldwide standards. The Secretariat took note of Members’ expectations and will follow up with SGS on finalising the contract deliverables.

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3.5 **Applications for the CIC R&D Fund**

13 research proposals relating to construction productivity were received for applying the CIC R&D Fund. Initial assessment was conducted based on three key criteria: value of research, cost-effectiveness and research implementation. Three research proposals were shortlisted for Members’ consideration and two were invited for presentation at the meeting.

i) **Study of Artificial Intelligence for Road Surface Depression Detection Using 3D LiDAR Data**

Dr Charles WONG from The Hong Kong Polytechnic University presented that the proposed research aimed to develop an artificial intelligence application for road surface depression detection using LiDAR data and to devise the Hong Kong first-ever 3D point cloud library of road defects.

While the application would be limited to public roadworks, Members agreed that the benefits generated from the research deliverables on road maintenance would be significant. Hence, Members approved the proposed research under the Collaborative Project Scheme with a duration of 18 months and at a funding support of HK\$690,000, while another HK\$690,000 will be funded by the Highways Department. The research agreement will be prepared accordingly by the CIC Secretariat.

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ii) **Performance Improvement Analysis of Adopting an External Wall Painting Robot in Public Housing Project in Hong Kong**

Ms Cherry CHEN from Amber Builder Robotics Limited presented her research proposal on the captioned subject with a duration of 8.5 months at a cost of HK\$1,547,800.

The aim of the proposed research was to develop an external wall painting robot to be applied for public housing projects in Hong Kong. The main objectives include (i) to evaluate performance improvement in site productivity, safety and quality versus traditional manual paint method; (ii) to identify possible limitations and problems during implementation; and (iii) to suggest mitigation measures and key directions for such implementation in Hong Kong.

Members expressed such external wall painting robots had already been adopted in the Mainland, provision of funding for the proposed research was questionable. In addition, the applicability in Hong Kong for different types of buildings with components in various shapes was not comprehensively considered in the proposal. The Secretariat will consolidate Members' comments for Ms CHEN's consideration.

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**iii) Research Agenda in 2022**

Members had no adverse comments on the proposed agenda and reminded the Secretariat to specify enhancement on construction productivity as the key objective.

**3.6 Any Other Business**

Members took note of the tentative programme of the International Symposium on Robotics and Automation scheduled to be held on 10 Dec 2021, and the proposed list of companies to be invited for the subsequent business matching event. This event will be co-organised with the HKSTP.

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**3.7 Next Meeting 004/21**

The next meeting would tentatively be held on 7 December 2021. The Secretariat would inform Members once the meeting details are confirmed.

**All to Note**

The meeting was adjourned at 4:50 pm.