

**Construction Industry Council**

**Committee on Environment and Technology**

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Meeting No. 002/13 of the Committee on Environment and Technology for 2013 was held on 18 April 2013 (Thursday) at 2:30 pm at CIC Headquarters, 15/F, Allied Kajima Building, 138 Gloucester Road, Wanchai, Hong Kong.

Present: Kevin POOLE (KP) Chairman  
Siu-hung CHAN (SHC)  
Anthony CHAN (AnC)  
Robert LAM (RL)  
Christopher LEUNG (CL)  
Choi-kai AU (CKA) Director of Buildings  
Connie YEUNG (CY) Housing Authority

In Attendance: Simon WONG (SW) Chair of TF-RFID  
Russell JONES (RJ) Hong Kong Construction Association  
Thomas NG (TN) The University of Hong Kong  
Sam-choi CHAN (SCC) Construction Site Workers General Union  
Pun-hing HO (PHH) The Hong Kong Federation of Electrical and Mechanical Contractors  
Jimmy CHAN (JC) Development Bureau  
Joe FONG (JF) Environmental Protection Department  
Hon-kwok WONG (HKW) Architectural Services Department  
Conrad WONG (CW) Hong Kong Green Building Council  
Ringo YU (RY) Hong Kong Construction Association  
Ivan WONG (IW) Senior Manager - Council Services 2  
Julian LEE (JL) Manager - Research  
Ivan KO (IK) Manager - Council Services 2  
James WONG (JW) Officer - Research

Apologies: James KWAN (YCK)  
Hau-wai CHEUNG (HWC)  
Reuben CHU (RC)  
Sze-chun WONG (SCW)  
Wai-wah HO (WWH) Chair of TF-RSS  
Kenneth POON (KP) Hong Kong Institute of Surveyors  
James PONG (JP) Hong Kong Institute of Surveyors  
Ping-wai CHOW (PCH) Hong Kong Construction Industry Employees General Union

## **PROGRESS REPORT**

### **Action**

#### **2.1 Introduction and Confirmation of the Progress Report of the Previous Meeting**

Mr. Kevin POOLE was nominated by the Council as Chairman of the Committee of Environment and Technology due to resignation of Mr. YU Wai-wai, the immediate past Chairman, from the Chairmanship. Chairman thanked for Mr. YU's great effort and contribution to the Committee.

Chairman welcomed the following new Members to join the Committee:

- i. Mr. Anthony CHAN
- ii. Prof. WONG Sze-chun
- iii. Ir Reuben CHU
- iv. Mr. Robert LAM

Members took note of Paper CIC/ENT/R/001/13 and confirmed the progress report of the last meeting held on Thursday, 17 January 2013 at CIC Headquarters, 15/F, Allied Kajima Building, 138 Gloucester Road, Wanchai, Hong Kong.

#### **2.2 Matters Arising from the Previous Meeting**

##### **2.2.1 Construction Product Certification**

(Item 1.2.2 of the Previous Progress Report)

This agenda item would be discussed at the next Com-ENT meeting in view of numbers of agenda items in this Com-ENT meeting.

##### **2.2.2 Research on River Sand Substitutes for Concrete Production and Cement Sand Mortar Production (Phase One)**

(Item 1.3 of the Previous Progress Report)

The Council has approved the Study Report and agreed to publish the Study Report. The Report was available in the CIC's website for download.

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**2.2.3 Research on River Sand Substitutes for Concrete Production and Cement Sand Mortar Production (Phase Two)**

(Item 1.3 of the Previous Progress Report)

The matter was covered by the agenda item 2.5.

**2.2.4 Carbon Labelling Scheme Implementation Proposal**

(Item 1.4 of the Previous Progress Report)

The matter was covered by the agenda item 2.6.

**2.2.5 Working Group on Strategic Implementation of Prefabrication and Modular Construction (Phase One)**

(Item 1.8 of the Previous Progress Report)

The Council has approved the Study Report and the Study Report was for internal reference only.

**2.2.6 Strategic Implementation of Prefabrication and Modular Construction (Phase Two)**

(Item 1.9 of the Previous Progress Report)

The matter was covered by the agenda item 2.8.

**2.2.7 Report of The Hong Kong Construction Association – Hong Kong’s Construction Industry Vision 2020**

(Item 1.10 of the Previous Progress Report)

The matter was covered by the agenda item 2.4.

**2.3 Report of the Hong Kong Construction Association – Hong Kong’s Construction Industry Vision 2020**

Members took note of Papers CIC/ENT/P/010/13.

*[Mr. Ringo YU joined at this juncture.]*

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The Secretariat briefed Members that Strategic Planning and Steering Committee of the CIC requested the relevant committees to review the respective items in the HKCA's Vision 2020 and to consider if the CIC could take forward those suggestions in the report.

Mr. Ringo YU represented Environment Committee of Hong Kong Construction Association (HKCA) to deliver the presentation on the section of Environment and Natural Resources of the HKCA's report of Hong Kong's Construction Industry Vision 2020 (the Report) as follows:

1. The Report intended to offer a roadmap for the construction industry and this section of Environment and Natural Resources mainly focused on two areas:
  - (a) Preserving the environment and reducing energy resources.
  - (b) Improving energy efficiency by encouraging and rewarding innovation.
2. Mr. YU presented the recommendations and targets proposed in the Report relating to the following two aspects:
  - (a) Carbon, Clean Air and Energy Saving.
  - (b) Waste Management.

After much deliberation, Members' major views were summarised as follows:

1. The report was a good start to set out initiatives and benchmark for Hong Kong construction industry. Members took note that the CIC is taking similar actions as the initiatives proposed in the Report in general.
2. Construction Innovation, frontline welfare and health care, recycling of construction materials, reduction of the use and recycling of natural resources could be included in the Report.
3. HKCA expressed that the targets set forth was a matter of wishes and no vigorous analysis had been conducted in relation to the

achievability of the targets set out in the Report.

4. HKCA advised that, unless specified otherwise, the baseline of the targets would generally base on the figures of the current year.
5. No additional items were suggested by Com-ENT with respect to the proposed initiatives stated in the Report.

*[Mr. Ringo YU left at this juncture.]*

#### 2.4 **Research on River Sand Substitutes for Concrete Production and Cement Sand Mortar Production (Phase Two)**

Members took note of Paper CIC/ENT/P/011/13.

*[Declaration of Conflict of Interest: Prof. Thomas NG declared that he is working for HKU while this tender proposal was submitted by HKU. Chairman advised that this tender is single tender submission and the discussion did not involve selection of tenderer; such that, Prof. NG was invited to stay in the meeting.]*

The Secretariat recapped that in order to expedite the study process and to maintain continuity between the Phase One Study and the Phase Two Study, the Council agreed in principle to go for single tender of the Phase Two Study subject to the recommendation of the Com-ENT. Professor Albert KWAN of The University of Hong Kong (HKU) was then invited to submit a proposal.

The proposed objectives for the Phase Two Study were:

- a. To draft a local construction standard on aggregates for mortar based on existing standards in Europe, UK and China;
- b. To study the effects of fines content on concrete to determine the optimum and allowable fines contents so as to draft general guidelines for fine aggregate for concrete;
- c. To study the effects of fines content on various types of mortar to determine the optimum and allowable fines contents so as to draft a set of specifications for aggregate for different types of

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mortar and a set of requirements for classification of manufactured sand;

- d. To study the feasibility of crushing and processing waste glass for recycling as aggregate for mortar; and
- e. To study the feasibility of crushing and processing old concrete for recycling as aggregate for concrete and mortar.

It was recommended to commission HKU to conduct the Phase Two Study through single tender in view of:

- a. There was growing concern over limited supply of river sand from the Mainland and hence, it is necessary to expedite the research process;
- b. To maintain continuity between the Phase One Study and the Phase Two Study;
- c. Professor Albert KWAN of HKU had demonstrated an in-depth knowledge in river sand substitutes and his recommendations in the Phase One Study are well-recognised by Members;
- d. HKU's proposed cost for the 12 months' consultancy service was reasonable compared with the CIC's prior research / consultancy studies.

Members endorsed on:

- a. the Phase Two Research Proposal;
- b. the commissioning of HKU to conduct the Phase Two Research through single tender; and
- c. the proposed budget as stipulated in the discussion paper.

## 2.5 **Carbon Labelling Scheme Implementation Proposal**

Members took note of Paper CIC/ENT/P/012/13.

*[Mr. Conrad WONG joined at this juncture.]*

*[Declaration of Conflict of Interest: Prof. Thomas NG declared that*

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*he is working for HKU while HKU is one of the participating organisations mentioned in the proposal. Chairman invited Prof. NG to stay in the meeting in order to better explain the proposal.]*

Mr. Conrad WONG, Chairman of Hong Kong Green Building Council (HKGBC), and Prof. Thomas NG of The University of Hong Kong (HKU) explained the implementation proposal as follows.

1. The proposed implementation scheme would be executed by the concerted efforts of the CIC, HKGBC, Hong Kong Accreditation Service and the University of Hong Kong;
2. The proposed scheme consisted of training, auditing and certification processes;
3. The CIC's Carbon Labelling Scheme was proposed to integrate with HKGBC's Green Building Product Labelling Scheme and Hong Kong BEAM Plus.

Mr. WONG elaborated that the CIC and HKGBC would launch "Carbon Label" and "Green Product Label" respectively.

Some Members still concerned that the industry practitioners may be confused by these two schemes operating by two organisations because the nature of the certification was quite similar. Mr. WONG and the Secretariat explained that it was proposed to commence this implementation scheme in third quarter of 2013. The issuance of both labels by one organisation may result in lengthy discussion over the intelligence property rights which would severely delay the launch time.

After much deliberation, Members endorsed the implementation proposal and recommended the Secretariat to keep track on the industry's feedback on the implementation scheme.

*[Mr. Conrad WONG left at this juncture.]*

## **2.6 Hong Kong Construction Industry Performance Report for 2001 - 2011**

Members took note of Paper CIC/ENT/P/013/13.

As directed by the Com-ENT to have independent check on the KPI

worked out by the Secretariat, Rider Levett Bucknall (RLB) Limited had been engaged to verify the calculation of the KPI.

The Secretariat advised that the report vetted by RLB would be available in the CIC's website for public access. In this report, construction industry performance in terms of productivity, health & safety and manpower over the last 11 years (2001 ~ 2011) was presented.

With Members' comments on a few terminologies, the Secretariat would update the reports accordingly.

## **2.7 Strategic Implementation of Prefabrication and Modular Construction (Phase Two)**

Members took note of Paper CIC/ENT/P/014/13.

Following the opinions set out in the Phase One Study Report, in the last Com-ENT meeting, the Com-ENT decided to carry out in-depth studies in the four key areas:

- a) Manpower - any manpower saving, impact on existing labour market, and effectiveness of attracting new bloods to join the industry;
- b) Local Yard - study on the requirements of establishing a prefabrication yard in Hong Kong and its competitiveness over the same in Mainland;
- c) Type - opportunities to widen the scope of adoption in other types of building components and their alternative technical solutions on vertical positioning such as less reliance on tower crane;
- d) Scope - opportunities to adopt precast construction of structural building elements.

Further studies were proposed to be conducted in two phases:

- a) The study objective of Phase Two includes:
  - i. To study the feasibility of establishing prefabrication yard in Hong Kong and the criteria of its establishment;



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- ii. To study the opportunities to improve construction manpower situation through wider adoption of prefabrication construction by establishing prefabrication yard in Hong Kong.
- b) The study objective of Phase Three includes:
- i. To explore new prefabricated elements and opportunities for prefabrication, and to revisit the adoption of prefabrication to components commonly constructed in-situ at construction site.
  - ii. To explore new technical solutions on vertical positioning of prefabricated elements such as less reliance on tower crane during positioning at construction site.

After much deliberation, in view of some new Members participated in the Com-ENT for the first time and did not fully understand the rationale of the recommendations in the Phase One Study Report and the decision on the scope of further studies at the last Com-ENT meeting. As such, Chairman suggested the Secretariat briefing on the Phase One Study Report and the conclusion made at the last Com-ENT meeting, and further discussing this matter at the next meeting.

**CIC  
Secretariat**

**2.8 Local Construction Standard - Migration from British Standards to Eurocodes**

Members took note of Paper CIC/ENT/P/015/13.

The Secretariat recapped that some of the British Standards relating to structural design were withdrawn in March 2010. The migration to Eurocodes is being undergone. The full adoption of Eurocodes in the design of civil engineering structures is targeted at 2015. Accordingly, DevB invited the CIC to comment on the following extracts of the updated/ new parts of design guiding documents:

- Structures Design Manual for Highways and Railways (by Highways Department)
- Stormwater Drainage Manual (by Drainage Services)

- Department)
- Sewerage Manual (by Drainage Services Department)
  - Civil Engineering Design Manual (by Water Supply Department)
  - Guidelines for Structural Design of Slope Works (by Civil Engineering and Development Department)

DevB explained that these design guiding documents were drafted in accordance with the Eurocodes, whereas the major changes were updates made to the parameters and material properties.

The aforesaid design guiding documents on Eurocodes were circulated to Members on 1st March 2013 through email and no comment was received before and during the meeting.

## 2.9 Working Group on Roadmap for BIM Implementation

Members took note of Paper CIC/ENT/P/016/13, Paper CIC/ENT/P/017/13, Paper CIC/ENT/P/018/13

The Secretariat prepared a draft report including the topics of driving force and challenges for the adoption, benefits, strategic implementation roadmap, and suggested 8 key areas of initiatives. Working Group Members generally viewed the draft report well-documented and comprehensive. Some revision was necessary in relation to the additional comments made by Working Group Members. The revised draft report would then be circulated to Working Group Members for their further comment soon.

The Working Group was finalising the roadmap for BIM implementation in which two of the key actions were:

- a. Set up a new task group to work out industry standard/ specification/ common practice/ reference document to let the industry to follow;
- b. To promote BIM to industry stakeholders who are observers or beginners for the adoption of BIM.

Members suggested extending the Working Group membership by inviting the following organisations to participate the Working Group:

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1. Development Bureau
2. The Hong Kong Federation of Electrical and Mechanical Contractors
3. Hong Kong General Building Contractors Association

With respect to Action (a) above, a new task group has been formed and the first meeting has been held on 17 April 2013.

With respect to Action (b) above, it was proposed to have a new publication as set out in Paper CIC/ENT/P/018/13 to disseminate the news about BIM and to promote BIM, as well as the updated working progress of the CIC on BIM.

Members endorsed the proposed publication subject to the following amendments:

1. Change the publication name from “Call to Action” to “Fact Sheet”.
2. Carry out copy-writing before publishing.

**CIC  
Secretariat**

**2.10 Task Force on Schematic Design for Application for RFID, GPS and Sensor Technology in Monitoring the Movement of Construction Waste**

Members took note of Paper CIC/ENT/P/019/13.

Through the first Task Force meeting and subsequent small group discussions, the industry’s views and needs were ascertained. Members agreed that the focus of this Task Force should be “how” these readily available technologies to be adopted easily by the construction industry. As such, the following outputs of the Task Force were expected:

- a. Set out the scope of application of the solution;
- b. Produce solution prototype and conduct trial on construction site;
- c. Prepare guideline/ reference document/ single specification of the solution and its implementation.

Trials on solution prototype would be carried out in Hong Kong

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Housing Authority's construction site(s). Tentatively, the trials may commence in May 2013 but subject to confirmation.

For the sake of easy implementation, from the technical point of view, the followings were suggested:

1. To work out one standard/ system specification of the proposed solution for whole construction industry in Hong Kong aiming to avoid one truck installing more than one system;
2. While active RFID has the best performance, the use of active RFID might result in monopoly in the choice of active RFID tag and receiver;
3. To adopt semi-passive RFID tag (rather than active RFID tag) aiming to avoid proprietary solution and allow more solution providers entering the market. However, some technical issues might need to be resolved which could be revealed during the site trial;
4. To align standard/ system specification with current key users such as Hong Kong Housing Authority.

**2.11 Any Other Business**

- a. CIC Conference 2013 themed "Construction Innovation: Technology and Productivity" was scheduled for 29 November 2013. Local and overseas professionals will be invited to share their experience and views in enhancing productivity through the latest technology and new construction method. Building Information Modelling (BIM) is a key topic of the conference. Topics on radio-frequency identification (RFID), prefabrication and modular construction, and their cross-over with BIM will also feature in the conference programme.

**2.12 Tentative Date of Next Meeting for 2013**

3 July 2013 at 2:30 pm at CIC Headquarters, 15/F, Allied Kajima Building, 138 Gloucester Road, Wanchai, Hong Kong.

**All to note**

There being no further business, the meeting was adjourned at 5:30 pm.