CIC/ENT/R/001/13

Construction Industry Council

Committee on Environment and Technology

Meeting No. 001/13 of the Committee on Environment and Technology for 2013 was held on 17 January 2013 (Thursday) at 2:30 pm at CIC Headquarters, 15/F, Allied Kajima Building, 138 Gloucester Road, Wanchai, Hong Kong.

Present:	Wai-wai YU	(WWY)	Chairman
	Andrew CHAN	(AC)	
	Jan-ming KO	(JMK)	
	Wo-hei LAM	(WHL)	
	Christopher LEUNG	(CL)	
	Choi-kai AU	(CKA)	Director of Buildings
	Clarence FUNG	(CF)	Housing Authority
In Attendance:	Wai-wah HO	(WWH)	Chair of TF-RSS
	Simon WONG	(SW)	Chair of TF-RFID
	Russell JONES	(RJ)	Hong Kong Construction Association
	Kenneth POON	(KP)	Hong Kong Institute of Surveyors
	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
	Chuen-fai WONG	(CFW)	Environmental Protection Department
	Hon-kwok WONG	(HKW)	Architectural Services Department
	Albert KWAN	(AK)	The University of Hong Kong
	Ronald CHIN	(RC)	Hong Kong Green Building Council
	James WONG	(JW)	The University of Hong Kong
	Christopher TO	(CT)	Executive Director
	Guiyi LI	(GYL)	Director - ZCB
	Ivan WONG	(IW)	Senior Manager - Council Services 2
	Julian LEE	(JL)	Manager - Research
	Ivan KO	(IK)	Manager - Council Services 2
Apologies:	James KWAN	(YCK)	
	Siu-hung CHAN	(SHC)	
	Hau-wai CHEUNG	(HWC)	
	Kevin POOLE	(KP)	
	Derrick PANG	(DP)	Chair of WG-IPM
	James PONG	(JP)	Hong Kong Institute of Surveyors

Thomas NG	(TN)	The University of Hong Kong
Ping-wai CHOW	(PCH)	Hong Kong Construction Industry Employees General Union

PROGRESS REPORT

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1.1 Confirmation of the Progress Report of the Previous Meeting

Members took note of Paper CIC/ENT/R/005/12 and confirmed the progress report of the last meeting held on Thursday, 22 November 2012 at ZCB, Sheung Yuet Road, Kowloon Bay, Hong Kong.

1.2 Matters Arising from the Previous Meeting

1.2.1 Research on Adhesion Technologies for External Wall Tiles

The study was concluded with the Study Report of both English version and Chinese version uploaded to CIC's website for public access.

1.2.2 Construction Product Certification

The issue would be discussed at the next Com-ENT meeting.

CIC Secretariat

1.2.3 Report of The Hong Kong Construction Association – Hong Kong's Construction Industry Vision 2020

The matter was covered by the agenda item 1.10.

1.2.4 Working Group on Strategic Implementation of Prefabrication and Modular Construction

The matter was covered by the agenda item 1.8 and 1.9.

1.2.5 Research Proposals from Research Institutes

The matter was covered by the agenda item 1.5, 1.6 and 1.7.

1.2.6 **Establishing a Hong Kong Based Carbon Labelling Framework for Construction Materials**

The matter was covered by the agenda item 1.4.

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

Members took note of Papers CIC/ENT/P/001/13, CIC/ENT/P/002/13 and CIC/ENT/P/003/13.

Final Report

The Researcher - Prof. Albert KWAN of the University of Hong Kong delivered a presentation on the final report.

Prof. KWAN presented the following:

1. the study objective and the study approach;

2. results of field trials on the uses of river sand, crushed rock fine and manufactured sand in plastering;

3. identified the following possible river sand substitutes for the production of concrete and production of cement sand mortar:

   - Substitute 1: Manufactured Sand
   - Substitute 2: Crushed Waste Glass
   - Substitute 3: Recycled Aggregate
   - Substitute 4: Furnace Bottom Ash

4. Substitute 4 - furnace bottom ash was not an option because of limited supply and not sufficient for the market usage;

5. Substitute 3 - recycled aggregate could be a viable substitute to river sand; however, production technique and quality standard of recycled aggregate have to be defined clearly before use;

6. Substitute 2 - crushed waste glass is also a viable substitute to river sand; however, the problems of possible risk of alkali-silica reaction, high brittleness of glass, and high production cost have to be resolved;

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7. Substitute 1 - manufactured sand is the most viable substitute to river sand with respect of its reasonable production cost, packing density and workability; and it is also suitable for the production of high-performance concrete;

8. for the way forward, it was recommended to pursue the following tasks in Phase Two study:

- Priority 1:	Develop Construction Standard for Aggregates for Mortar
- Priority 2:	Research on Effects of Fines Content on Concrete
- Priority 3:	Specifications and Classification of Manufactured Sand
- Priority 4:	Research on Crushed Waste Glass as Aggregate for Mortar
- Priority 5:	Research on Recycled Aggregate as Aggregate for Mortar

[Prof. Albert KWAN left at this juncture.]

After much deliberation, Members endorsed the final report for onward submission to the Council for approval. **CIC Secretariat**

The Way Forward

There was a growing trend of the demand of river sand in coming years. As such, detailed research on river substitutes by using manufactured sand should be imminent to satisfy the upcoming market demand.

In order to cope with the substantial market demand, Members agreed that further study would be necessary and all aforesaid five priorities should be covered in the Phase Two study.

In order to achieve consistency and continuity between the two phases of studies, and to expedite the research process to fulfil the upcoming market demand of the substitutes, Members also agreed to invite HKU to submit a proposal with a view to going for single tender for Phase Two study. The Secretariat was directed to request

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HKU to submit tender proposal for Com-ENT's consideration. Besides, the details of the way forward of the Phase Two study will be discussed at the next Com-ENT meeting. **CIC Secretariat**

Members agreed that the current Task Force would continue to work towards the Phase 2 study and invited Mr. HO Wai-wah (Chair of the Task Force on Phase One study) to stay as the Chair of the Task Force. Mr. HO accepted to continue the chairmanship of the Task Force.

The Chairman thanked for the Task Force Members' effort and contribution to the study.

Feasibility Study on Identification of New Quarry Sites in Hong Kong

GEO of CEDD commissioned a "Feasibility Study on Identification of New Quarry Sites in Hong Kong". The key issues of the first Focus Group Meeting were summarised as follows:

I) The current situation in Hong Kong:

a. all the existing quarries will be closed down after ten years. By then, Hong Kong will no longer have its own local supply of rock and aggregate.
b. currently, approx 70% of the aggregate is imported from Mainland whereas approx 30% being locally supplied.

II) Participants of the Focus Group expressed the follows:

a. maintaining approx 30% of local supply of aggregate is necessary;
b. the needs of sustaining local quarry by comparing carbon footprints of local quarry deliverables and that outside Hong Kong.

In view of the declining local supply of rock and aggregate, Members were requested to take note of the possible measures set

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out in the presentation materials delivered in the Focus Group meeting.

1.4 **Carbon Labelling Scheme Implementation Proposal**

Members took note of Paper CIC/ENT/P/004/13.

[Mr. Ronald CHIN and Mr. James WONG joined at this juncture.]

Mr. Ronald CHIN of Hong Kong Green Building Council (HKGBC) and Mr. James WONG of The University of Hong Kong (HKU) delivered a presentation on the implementation proposal.

Mr. CHIN and Mr. WONG presented the following:

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.

Some Members concerned with the integration of the CIC's Carbon Labelling Scheme and HKGBC's Green Building Product Labelling Scheme as they would be operated separately by the CIC and HKGBC. The industry practitioners may be confused by the two schemes because the nature of the certification was quite similar and some of the certification products (e.g. cement, tiles, etc) could be found in both schemes. From the end users' point of view, they would find it difficult to differentiate these two schemes and difficult to make a choice.

Members suggested that the CIC and HKGBC should form a joint working group to work out a system to effectively execute/ promote both carbon labelling scheme and green labelling scheme to avoid confusion to the industry practitioners.

HKGBC/ CIC Secretariat

[Mr. Ronald CHIN and Mr. James WONG left at this juncture.]

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1.5 **Research Proposals by Research Institutes**

Members took note of Paper CIC/ENT/P/005/13 in previous circulation.

This Paper had been circulated to Com-ENT on 11 Jan 2013 for Members' comment and was submitted to Com-ANF for endorsement by circulation on 15 Jan 2013.

[Post meeting note:
The following six research submissions have been accepted by both Com-ENT and Com-ANF:

1. *Formulation of sustainable trigeneration system design for high-rise commercial buildings in Hong Kong;*
2. *Development of high modulus concrete for tall buildings;*
3. *Development of an automatic image collection and analysis system for improving onsite construction productivity;*
4. *Innovative design technique for steel-concrete composite structures in Hong Kong;*
5. *Adopting Eurocodes by Hong Kong construction industry technical guide on effective design and construction to European Steel Code;*
6. *S-Helmet – a proactive construction safety management system based on real-time localization.]*

1.6 **Procedures for Vetting Research Proposals of the CIC Research Funding Grants**

It was expected that multi-disciplinary research proposals would be received in future. As such, it would be preferable to have a new Task Force with multi-disciplinary representatives to evaluate the research proposals and to make recommendation on the funding grants. In this regard, it would be more appropriate for Com-ANF to deliberate the matter and no discussion at the meeting of Com-ENT would be necessary. Hence, the Paper for this agenda was dropped.

1.7 **Task Force on Administration of the CIC Research Funding Grants**

The matter had been discussed under agenda item 1.6 and the Paper for this agenda item was also dropped.

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1.8 **Working Group on Strategic Implementation of Prefabrication and Modular Construction**

Members took note of Paper CIC/ENT/P/008/13.

Following the discussion at the last meeting, the report was revised in accordance with Members' comments made in the previous meeting.

Members endorsed the report for onward submission to the Council for further deliberation. **CIC Secretariat**

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

Members took note of Paper CIC/ENT/P/009/13.

Following the opinions set out in the Phase One Study Report, Phase Two Study was proposed to carry out in-depth studies in the following 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.

Besides, the scope of the future study should also include:

a. cover prefabrication of Mechanical, Electrical and Plumbing (MEP) works;

b. explore the opportunity of technology driven construction mode to replace current labour intensive construction mode.

Members agreed the aforesaid scope of the Phase Two study in principle.

Members also agreed to set up a new task force for Phase Two study. The terms of reference and task force membership will be worked out by the Secretariat. **CIC Secretariat**

1.10 **Report of The Hong Kong Construction Association – Hong Kong's Construction Industry Vision 2020**

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

Strategic Planning and Steering Committee requested the relevant committees to review the respective items in the Vision 2020 to identify if CIC could take forward any suggestions in the report.

Mr. Ringo Yu, as the spokesman of HKCA on Environment & Energy Efficiency, has been invited to attend the meeting to elaborate on the report and answer questions raised at the meeting but he was not available for attending the meeting.

In absence of the spokesman of HKCA for the environment and energy efficiency issues in the Vision 2020, Chairman advised to defer this agenda item to the next meeting again. **CIC Secretariat**

1.11 **Any Other Business**

a. Audit service for the Report on Construction KPI for the publications of year 2010 and 2011 would be awarded in January 2013; and it was estimated that the audit service would be completed by end March 2013.

b. It was reminded that Technology Forum would be held at ZCB tomorrow (14.00 – 17.00hrs) at ZCB with theme on "Construction for Sustainability".

c. The Chairman proposed a vote of thanks to Mr. LAM Wo-hei, Dr. Andrew CHAN, Prof. KO Jan-ming who will retire from

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CIC by the end of January 2013, for their effort and contribution to the Com-ENT.

d. In light of recent Policy Address delivered by Chief Executive, The Chairman suggested exploring opportunities in relation to any items (mentioned in the Policy Address) relevant to construction environment and technology.

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

10 April 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.