



## **Evening Talk on Current Construction Practices in Melbourne, Australia**

*by Ir. Hooi Wing Chuen*

**T**he evening talk on “Current Construction Practices in Melbourne, Australia” organised by the Civil and Structural Engineering Technical Division was held at Wisma IEM on Tuesday, 24 January 2011. Total of 73 participants were attended the evening talk.

The speaker, Dr Chan Toong Khuan, holds a Bachelor of Engineering (Civil) degree from University Malaya and a PhD degree from the University of Cambridge. He is currently Senior Lecturer in Construction Management and Technology at the University of Melbourne’s Faculty of Architecture, Building and Planning. Dr. Chan previously taught at the Nanyang Technological University, Singapore and his research in construction economics and technology is well published.

The speaker began by introducing participants to typical residential construction, which comprises of timber framed walls on top of either a concrete slab-on-ground or a suspended timber floor on shallow timber stump, concrete block or brick masonry footings. Prefabrication in the framing of the timber wall, floor or roof trusses is very common. Exterior wall claddings are typically brick veneer or weather boards. The timber roof trusses are usually cladded with rolled steel profile roofing.

Reinforced concrete is widely used in commercial and industrial construction, such as in the bored piles and precast panels for basement walls construction. It was interesting to note that typically less effort was required to de-water basement excavations in Australia as compared with the case in Malaysia, owing to the dry Australian climate.

Precast and prestressed concrete elements such as columns, beams, half-slabs, hollow core slabs, lift core wall panels; tilt-up panels are popular in Australia. The production, handling and erection methods used were well-planned. In-situ concrete floor constructions were predominantly post-tensioned (PT) flat slabs.

The use of steel tubes as column formwork and profiled steel decking in composite construction for flooring were some of the labour reducing methods adopted. Extensive use of mechanical tools or equipment was evident from simple vibrating beams to laser guided screeders; resulting in higher quality finishes.

Dr Chan attributed the high level of industrialisation, technology and mechanisation to the high cost of labour and the logistic challenge in Australia. He illustrated this with a case study comparing the costs of two similar commercial projects, one in Malaysia and the other in Australia, to be built using precast (PC) in contrast with cast in-situ (CIS) concrete. The findings showed that:

In Australia CIS-PT was 29% costlier than PC, while

In Malaysia PC was 64% costlier than CIS-RC.

The speaker explained that the large cost difference between PC and CIS in Malaysia was driven by the availability of cheap labour when compared against the material costs, as illustrated in Figures 1 and 2.

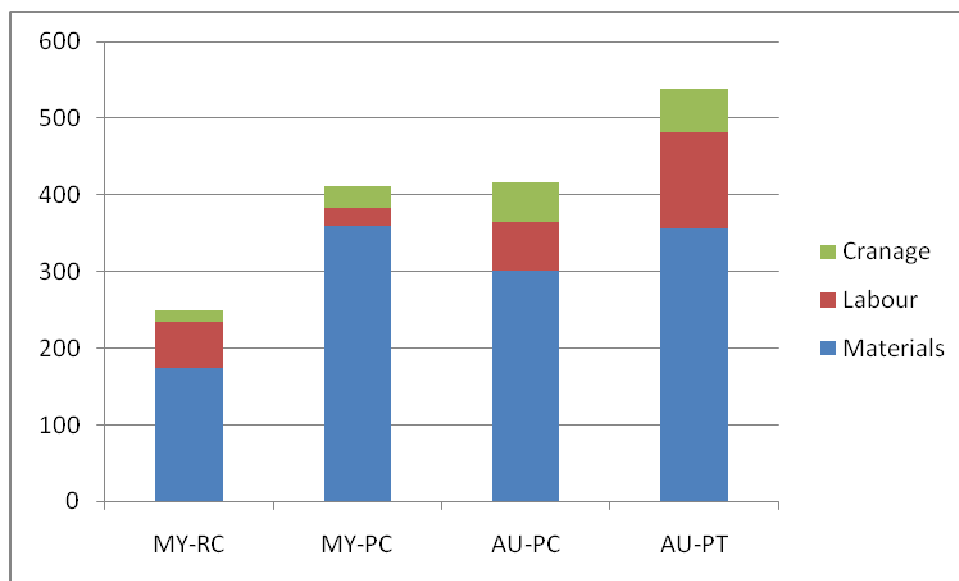


Figure 1: Materials, labour and cranage costs compared (AUD/RM per m²)

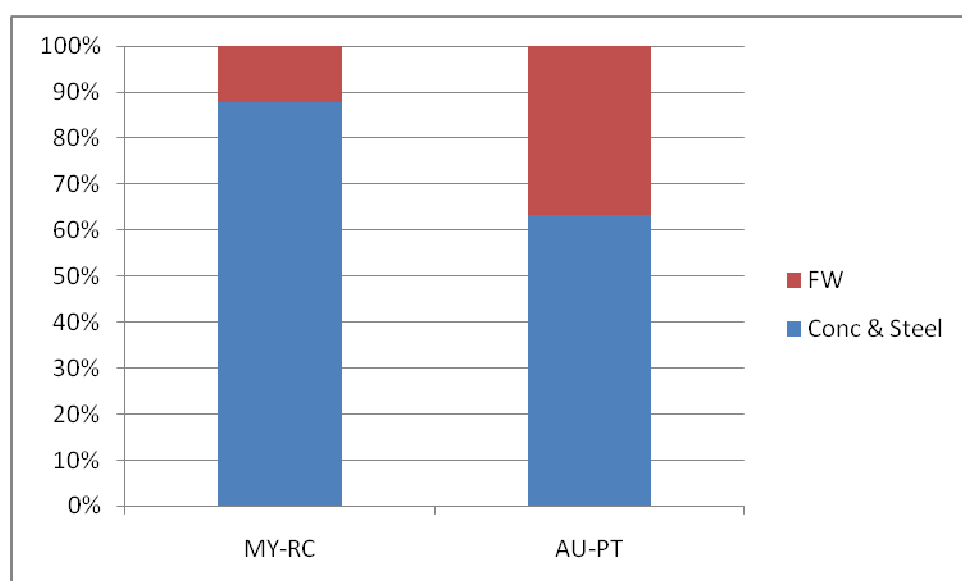


Figure 2: Formwork placed cost as a percentage of CIS cost

He also highlighted that the daily wages of construction labour in Australia ranged from AUD115 to AUD150 and in Malaysia from RM50 to RM150 for unskilled to skilled workers respectively. The small difference between skilled and unskilled labour resulted in a higher application of technology in Australian construction practice. The inverse was true for Malaysia, where the addiction to cheap labour resulted in slower uptake on new construction methods.

The speaker then proceeded to discuss the Construction Industry's shrinking contribution to the Malaysian GDP (3%) and the low economic multiplier values achieved (1.68%) as compared with Australia (2.5%) and China (3+%).

In rounding up his talk, Dr. Chan gave participants insight into the Malaysian Government's Construction Industry Master Plan, which was conceived to address the foregoing issues through its strategies to encourage mechanisation and industrialisation for enhanced productivity; to improve build quality and skills; to increase public spending on construction; to increase export of construction products and services and to develop the maintenance and repair subsector of the industry.

A short but lively Q&A session was followed by participants asking enthusiastically on Australian engineering practices. The talk was adjourned a little after 7.00pm by the Chairman, Ir. WC Hooi, who called on all present to thank the speaker. The event came to a close with the presentation of a token of appreciation to the speaker by IEM Vice President – Ir. MC Hee.

