

# Technical Visit to Lafarge's Construction Development Lab (CDL)

CIVIL AND STRUCTURAL ENGINEERING TECHNICAL DIVISION



reported by  
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The Civil and Structural Engineering Technical Division (CSETD) recently organised a technical visit to Lafarge Construction Development Lab (CDL) Petaling Jaya. There were 40 participants, comprising student members, academicians and practitioners.

On arrival at CDL, the participants were welcomed by a Lafarge staff member who gave a safety briefing, followed by a presentation on the background of Lafarge and an introduction to CDL. According to her, CDL is the fifth in the world and the first in Southeast Asia which aims to promote construction efficiency by adapting innovative solutions to better meet our construction and building needs.

CDL houses three labs (cement, concrete and aggregates and soil labs) which are equipped with state-of-the-art testing equipment for quality control and assurance of its products. It also has an open testing area for prototypes and demonstrations of new building systems and structures.

After the briefing, the participants were divided into two groups for a tour of the labs and testing area. They were ushered to the two model houses, concrete pavement, cement lab, concrete lab and finally soil lab.

One of the model houses was constructed using the conventional method and the other was constructed using monolithic building system which engages the use of an aluminium formwork, with the spaces filled with Self Compacting Concrete (SCC). The whole process of construction takes four days, from the installation of vertical rebars and wall formwork, installation of horizontal rebars and deck formwork, M&E, formwork alignment and filling of Self Compacting Concrete to the final removal of the formwork.

The next stop was the car park which was constructed using both coloured concrete and pervious concrete. The latter allows the flow of water into the ground and reduces ponding. Adjacent to the car park were 2 concrete pavements, JPCP (Jointed Plain Concrete Pavement), and RCC (Roller Compacted Concrete). Both were constructed using 2 types



Demonstration on SCC at Concrete and Aggregates Lab

of finishing, i.e. without surface treatment and with surface treatment of exposed aggregates method.

In the lab tour section, CDL houses three labs: Concrete and Aggregate Lab, Cement Testing Lab and Soil Lab.

The Concrete and Aggregate testing lab is equipped with 3-layer curing tank and refrigerated bath circulator, coring machine, Methylene Blue Test (MBT), in addition to the usual compression and flexural test equipment. MBT is used to assess the quantity of potentially harmful fines in fine aggregates. A demonstration on the SCC was conducted during the visit.

The Cement Testing Lab is equipped with lab oven, mini ball mill, Rapid Chloride Permeability Test Equipment (RCPT) and a full range of EN mortar testing equipment. The lab officer explained and showed us the RCPT. The Soil Lab is equipped to test California Bearing Ratio (CBR), plastic limit of soil, and Unconfined Compressive Strength (UCS).

After the tour, there was a Q&A session, during which the visitors could seek further clarification to their queries. Then, the Chairman of CSETD, Ir. Hooi WC, presented a memento of appreciation to Lafarge at the end of the Q&A session. It was certainly an informative visit to the group. ■