



Talk on “The Need to Satisfy Mechanistic Fundamentals for Valid Forensic Engineering Findings”

by Ir. Kenny Yee

Ir. Kenny Yee is currently the committee member of IEM Geotechnical Engineering Technical Division (GETD).

An evening talk on the need to satisfy mechanistic fundamentals for valid forensic engineering findings was given by the Chairman of the Geotechnical Engineering Technical Division (GETD), Ir. Yee Thien Seng. The talk was held at the Tan Sri Prof. Chin Fung Kee Auditorium at 5.30pm on 20 November 2014.

The talk started with the renowned investigations on the failures of St. Francis Dam in USA in 1928, Carsington Dam in England in 1984 and Teton Dam in USA in 1976. The conclusions and postulations from the forensic investigations were disputed and suffered severe criticisms for many years by various industry practitioners and academicians. Their official findings were deemed to lack credibility since they could not be supported by mechanistic fundamentals.

The speaker highlighted the objectives of conducting a forensic investigation on constructions that occasionally suffer failure. Determining why the failure took place is invariably the single main objective. Correct findings are important to assist in the formulation of repairs to damaged facilities and to identify possible deficiencies in the body of knowledge in engineering design and/or construction processes that had led to the failure. A correct conclusion to the investigation will also assist in the apportionment of responsibilities and liabilities in litigations resulting from the failure.

To validate the conclusion and postulation to the cause for the failure, the speaker illustrated the importance of satisfying mechanistic fundamentals in the forensic investigation studies. Three local failure events were presented by the speaker. The first failure event was a partial collapse of a salt storage facility built in 1990 which satisfactorily performed its intended function for 10 years although its construction fell significantly short of complying with the design code for reinforced concrete structures. It eventually suffered a collapse to its roof and its containment wall on one side from severe chloride intrusion into the concrete. The second failure event presented a critical review into the official findings on the collapse of Block 1 of Highland Towers Condominium where a 14-storey building was toppled over on 11 December 1993 following the collapse of a series of slopes into it from its rear. The collapse of Block 1 caused 48 deaths and led to the complete evacuation of the remaining two blocks due to safety concerns. The last failure event presented a brief discussion on the Bukit Antarabangsa landslide on 6 December 2008. The landslide tragedy which occurred about 1.5 kilometers away from the Highland Towers Condominium had destroyed or damaged 14 bungalows causing 15 casualties and 4 deaths.

To conclude the evening talk, a Q&A session was opened to the floor. The talk ended at 7.15pm with Ir. Kenny Yee presenting a memento and a certificate of appreciation to Ir. Yee Thien Seng.



Ir. Yee Thien Seng speaking at the IEM Evening Talk