Technical Seminar on Geotechnical Earthquake Engineering and Its Recent Development in Hong Kong

By Mr. Jimmy Ho

Earthquake activities can induce adverse geotechnical effect including soil liquefaction, soil movement, etc., which may hazard the building or public safety. On 16th April 2015, we are in great honor to invite an experienced professional, Ir Raymond C H Koo, Geotechnical Engineer of the Geotechnical Engineering Office of the Civil Engineering and Development Department, to introduce the general view on earthquake hazard in Hong Kong and East Asia.

Ir Koo began by introducing the background knowledge of earthquake including Magnitude, Intensity, earthquake chance. These three factors were used to define earthquake ground motion.

Then, seismicity of Hong Kong was introduced. Hong Kong lies within Eurasian Plate and is located rather far away from Circum-Pacific Seismic Belt, but near Binhai Fault zone. Throughout the local history, earthquakes were occurred at 2010 in Deep Bay, at 2014 in Tai Lam Reservoir, etc. On the other hand, Hong Kong was affected by earthquake from surrounding area.

Afterward, Ir Koo introduced a performance based design concept for earthquake design. Numerical assessment for seismic performance could be carried out using computer program “FLAC 2D dyn.” which was adopted on East Artificial Island of HK-Zhuhai-Macau Link.

Seismic study in Hong Kong was established since 1980s included Pilot Seismic Microzonation Study. The north-western portion of Hong Kong was selected for studying site response due to difference topography and soil dynamic response. A 3-D geological map terrain model and ground investigation were carried out for assessing basic background of the site. Then, in-situ geophysics tests including Downhole seismic test, suspension PS logging test, Crossholeseismis test, Multichannel Analysis of surface waves, Microtremor test were carried. After retrieval of result from site, seismic microzonation map, site response analysis, advanced laboratory cyclic triaxial testing, soil amplification of the surface ground motion response spectra, etc., were accomplished.
Last but not least, Q&A session was held and participants expressed their deep interest and appreciation on the topic and we would like to express our sincere gratitude to Ir Koo for delivering the informative and meaningful seminar.

The seminar was well attended by members