



The Institution of Engineers, Malaysia

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Talk on "Reduction of Blast-Induced Vibration in Tunnelling Using Barrier Boles and Air-Deck"

Organised by: Tunnelling & Underground Space Technical Division, IEM

BEM Approved CPD/PDP Hours: 2

Ref No: IEM15/HQ/480/T

Date: **16 February 2015 (Tuesday)**

Time: **5.30 pm – 7.30 pm** (*Refreshment will be served at 5.00 pm*)

Venue: Auditorium Tan Sri Prof. Chin Fung Kee, Third Floor

Speaker: **Prof. Seokwon JEON, Department of Energy Resources Engineering, Seoul National University (SNU)**

SYNOPSIS

Two different kinds of blasting techniques are introduced for reducing blast-induced vibration in tunnelling, which are applicable according to the location of nearby structures: line-drilling; and bottom-air-deck. Numerical investigations through a non-linear hydrocode, which can numerically model chemical explosives, were carried out in order to obtain quantitative information on the effectiveness of both methods, and then the numerical results were verified through field experiments. The numerical and experimental results agreed well with each other, and indicated that both methods effectively reduced blast-induced vibration according to the location of structures. From the present numerical and experimental study, it was revealed that when both methods are applied to tunnelling sites, the vibration-reduction effects, that were predicted through the numerical study, can be expected and thus based on the numerical results, design conditions of both methods for the reduction of blast-induced vibration in tunneling were proposed by introducing the concept of factor of safety.

BIODATA OF SPEAKER



Seokwon Jeon is a Professor in the Department of Energy Resources Engineering at Seoul National University (SNU) in Seoul, Korea. He obtained his BSc and MSc degree in Mineral and Petroleum Engineering in SNU. And he received his MEng degree in Geotechnical Engineering and Ph.D. degree in Mining and Geological Engineering in University of California and University of Arizona, respectively. Since 1997, he has been teaching at SNU. He has been supervising 21 Ph.D. and 35 MS students, while he published more than 100 peer-reviewed domestic and international journal articles

and made more than 150 conference presentations. His research interests include mechanized tunneling, blasting, rock fractures and fragmentation, ground subsidence and more. He has been awarded for his Outstanding Scholastic Achievement from Korean Society for Rock Mechanics, Korean Geotechnical Society, Korean Tunnelling Association, Korean Society of Mineral and Energy Resources Engineers, and the Ministry of Knowledge and Economy. He served as Editor-in-chief of Tunnelling Technology, the peer-reviewed journal of Korea Tunnelling Association, Associate Editor of International Journal of GeoEngineering, the Springer peer-reviewed journal of Korean Geotechnical Society, and an editorial board member in various international journals. He is current ISRM Vice-President for Asia for the office term 2015-2019.

Ir. Andrew Yeow

Chairman

Tunnelling & Underground Space Technical Division, IEM

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