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THE NTU-MINDEF PROTECTIVE TECHNOLOGY RESEARCH CENTRE

Abstract: Established on 29 September 1998 via a memorandum of understanding signed between the Ministry of Defence (MINDEF) and the Nanyang Technological University (NTU), the Protective Technology Research Centre (PTRC) is an inter-disciplinary research centre. PTRC is therefore jointly funded by NTU and MINDEF, and hosted in the School of Civil and Environmental Engineering at NTU. The Centre provides a platform for synergistic R&D programmes which involve NTU’s applied science and engineering schools. Most of the joint R&D projects and programmes in PTRC have been funded by the Defence Science and Technology Agency (DSTA) of MINDEF.

PTRC has carried out many joint R&D projects with various agencies. Some of the projects have been on the effects of dynamic, explosion or blast loading on blast doors, foundations of civil defence shelters, underground facilities and aboveground structures. These research projects involve both numerical simulations and experimental investigations on the effects of high-intensity transient dynamic loading on soil and rock media as well as on structural components and systems.

PTRC’s R&D project with DSTA on the development of underground space for civil and military uses represents one of the most successful examples of joint R&D projects with the industry or government agencies. The projects support the national efforts in constructing caverns and tunnels within Bukit Timah granite and Jurong Formation for storage of strategic materials. Recent terrorist bomb attacks around the world have demonstrated the ferocity, cruelty and unpredictability of the hazards posed by terrorism. The transient dynamic response of high-rise commercial buildings as well as government buildings to the air blast overpressure loading resulting from terrorist bombing have thus become an important issue to address. PTRC has since worked with both the Ministry of National Development and the Ministry of Home Affairs to identify R&D topics and carry out research projects as part of the national effort towards the protection of non-hardened building structures.

PERFORMANCE ASSESSMENT OF REINFORCED CONCRETE STRUCTURES IN BLAST ENVIRONMENTS

Abstract: With the increase of terrorist activity throughout the world, the possibility of public or commercial buildings becoming the targets of bomb attacks is ever greater. Hence the design and construction of structures against accidental or deliberate explosions is deemed necessary with the increasing importance laid upon safety against terrorism. The current knowledge of reinforced concrete behavior under dynamic loads with primary emphasis on seismically induced forces is mostly based on research works conducted over the past 25 years. The information on the behavior of reinforced concrete structures and components under blast loadings is scarce. This seminar will present selected results from on-going research work at Nanyang Technological University, Singapore to develop more rational design guidelines which will enhance the survivability of the structures subjected to blast loading for designers and builders.

DATE: TUESDAY, MAY 25th, 2004
TIME: 3:30 – 4:30 PM (EST)
LOCATION: 140 KETTER HALL, NORTH CAMPUS, UB

FACULTY, STUDENTS & ALL OTHERS ARE INVITED TO ATTEND. For further information please see the UB-EERI webpage: http://civil.eng.buffalo.edu/UBEERI/

Refreshments will be served