THE SOCIETY FOR EARTHQUAKE AND CIVIL ENGINEERING DYNAMICS

AN ASSOCIATED SOCIETY OF THE INSTITUTION OF CIVIL ENGINEERS

EVENING MEETING

AT THE

INSTITUTION OF CIVIL ENGINEERS
ONE GREAT GEORGE STREET, WESTMINSTER, LONDON SW1P 3AA

ON

WEDNESDAY 25TH FEBRUARY 2009, 6PM

HIGH MASS LOW VELOCITY IMPACT

Speaker:

PROFESSOR IAN MAY
Heriot-Watt University

Chaired by:

Andrew Mair

Jacobs Engineering

Synopsis Overleaf

NON-MEMBERS OF THE SOCIETY ARE WELCOME TO ATTEND
Please note that there is no charge to attend.
Seats are allocated on a first come, first served basis.
Tea and biscuits will be served from 5.30pm - 6pm.

For further information please contact Pauline Arundel, Engineering Dept, at the ICE on
Tel: 020 7665 2236, or ***Fax*** 020 7799 1325 or ***Email:*** Pauline.arundel@ice.org.uk
Visit the SECED website at http://www.seced.org.uk

Synopsis

This talk will follow the publication of the Special Issue of the Proceedings of the Institution of Civil Engineers Structures and Buildings Journal on High Mass Low Velocity Impact of Concrete and Masonry Structures of which the speaker was Editor. The talk will address some of the issues discussed in the papers. In addition the talk will describe the results of an investigation into high mass - low velocity impact behaviour of reinforced concrete beams and slabs. Tests have been conducted on a number of beams and slabs under drop-weight loads. A high-speed video camera was used in order to record the crack formation, propagation, particle spallation and scabbing. A high-speed data logging system was also used to record the impact load, strains, accelerations, etc. so that time histories can be obtained.

The data from the research has been used in the validation of computational techniques based on both combined continuum/discontinuum methods (finite/discrete element methods), using ELFEN, and finite element methods, using LSDYNA, to permit the simulation of impact loaded reinforced concrete members. Some initial studies using both methods will be described.

One particular study within the research programme which was carried out in collaboration with Arup has been to investigate the penetration of slabs by column sections which could occur in fast track building construction.

The results of the research could prove to be invaluable in practical cases of high mass, low velocity impacts for example ship impact on columns, offshore structures, vehicles hitting bridge piers, objects falling from cranes, rock shelters, etc.

Speaker

Ian M May is Professor of Civil Engineering at Edinburgh's Heriot Watt University. He has an interest in the testing and analysis of full-scale structures using in particular non-linear finite elements. Current research interests include the effects of impact on reinforced concrete structures, which is being studied both experimentally and numerically using finite element analysis. Research is also being carried out to investigate fatigue of steel structures and the use of advanced composites to repair fatigued structures.

He has just completed a three year appointment as Chairman of the Editorial Advisory Panel and Honorary Editor of the Structures and Buildings Journal of the Proceedings of the Institution of Civil Engineers, and as described above is guest editor for Special Issue of the Journal on High Mass Low Velocity Impact of Concrete and Masonry Structures.