The Institution of Structural Engineers

Australia Division - Victoria State Group

http://www.istructev.tk/

Meeting: Monday 6th June 2011

Topic: Christchurch Earthquake – post disaster building assessment and insights of ground motion monitoring

Presented by: Dr Helen Goldsworthy – Senior Lecturer at the University of Melbourne
Gary Gibson – Seismology Research Centre, Environmental Systems and Services Pty Ltd

Helen Goldsworthy and Gary Gibson represented the Australian Earthquake Engineering Society (AEES) on reconnaissance trips to Christchurch soon after the February 22nd 2011 "Lyttleton" earthquake. They observed first-hand the dramatic effects of liquefaction, ground vibrations and landslides on buildings, roads and bridges in the area surrounding the city centre and also close to the fault rupture at Lyttleton. Dr Goldsworthy also spent two days conducting building assessments for the city council in the inner cordoned-off area of the city. The brittle failure of two older reinforced concrete buildings, the CTV building and the Pyne Gould building claimed many lives. Out-of-plane failure of masonry was prevalent given the often inadequate nature of the anchorage to the building structure. Many parapet walls and masonry shop fronts had fallen in their entirety, and gables of churches and older heritage buildings were also vulnerable.

Helen Goldsworthy will share her photos that illustrate the dramatic effects of the Lyttleton earthquake and provide some brief background information on seismic design and specialised topics such as liquefaction and pounding. She will discuss the latest displacement-based approach to earthquake-resistant design and assessment of buildings in regions of low to moderate seismicity.

Gary Gibson will provide insights into the nature and level of the ground motion experienced during the Lyttleton event and compare this with the Darfield earthquake close to Christchurch in September of 2010. He will also put this into the context of Australian seismicity.

Dr Helen Goldsworthy is a senior lecturer at the University of Melbourne. Her interest in earthquake resistant design of buildings stems partly from working in the early 1980s for Skidmore, Owings and Merrill in San Francisco. Since working at the University of Melbourne she has devoted many of her research efforts to this topic. In recent years she has coordinated and lectured in a Masters subject on Earthquake Resistant Design of Buildings (with considerable input also from Associate Professor Nelson Lam) that encompasses the latest approaches to design. She is a member of the national committee of the Australian Earthquake Engineering Society.

Gary Gibson is a member of the Executive Committee of the International Seismological Centre and has completed a four-year term as Chairman. He is on the steering committee of the Asian Seismological Commission, and is the Australian representative to the International Association for Earthquake Engineering

Venue: Melbourne University Engineering Building

Lecture Theatre C1, 4th Floor, Engineering Block B
(Refer Map below)

Time: 6.00pm
Refreshments from 5.30pm, room B309, 3rd Floor, (West end) Engineering Block B
Telephone Evelyn Yung (0437 688 663) if you have trouble locating the room

Please RSVP by Wednesday 1st June 2011 to admin@burnshamilton.com.au

Notes: IStructE-Victoria policy for all our evening technical meetings is to make no charge at all unless specifically state otherwise. Rooms may subject to change due to their availability. You will receive a notification email of any changes

MAP OF MELBOURNE UNIVERSITY

Directions:

Entering from **Gate 10** on **Grattan Street**, The **Engineering Building Block B** is the first building on your right.

By car:
- Melway Ref. 2B & 43
- On street parking can be found on streets nearby, such as Barry St, Leichester St, Bouverie St and Pelham St (chargeable till 6.30pm in general)
- Off street parking including on campus see attached

By bus:
- 401: North Melbourne Station — Melbourne University stops outside of Gate 10
- 205: Melbourne University — Doncaster Shoppingtown (via Kew Junction & Bulleen) & 546: Heidelberg — Melbourne University — Queen Victoria Market (via Clifton Hill & Carlton) stop outside of the Arts Centre of the University of Melbourne on Swanston St

By tram:
- Get off at the stop no.2 on Swanston St on routes 01, 03, 05, 06, 08, 16, 64, 67 or 72
- Get off at the stop no.10 on Royal Pde on route 19