

**Planning and Engineering for
Performance in Earthquakes**

Conference 2005

Wairakei Resort, Taupo, New Zealand



2005 NZSEE
Conference

Conference Programme

Friday, 11 March 2005

12:30 – 13:00

Registration

13:00 -- 13:15

Welcome & Conference Opening

NZSEE President

Mark Stirling

NZSEE Conference Organiser

P Brabhakaran

13:15 – 14:00

Keynote Address :

- **Engineering characterization of near fault ground motions**

Paul Somerville

14:00 – 15:30

Session 1 : Defining Earthquake Hazards

Chair : Mark Stirling

- **A paleoseismological investigation of the Cadell Fault Zone, Victoria, Australia**
Heath, A, Clark, D, Gibson, G, McCue, K & Van Dissen, R
- **On the seismicity of the Buller region, New Zealand**
Stafford, PJ, Berrill, JB & Pettinga, JR
- **Characterisation of late Quaternary displacements on the Waitangi Fault at Aviemore Dam, New Zealand**
Barrell, DJA, Van Dissen, RJ, Berryman, KR & Read, SAL
- **A time of recurrence model for large earthquakes**
Smith, EGC & Christophersen, A
- **A tested method of long-range earthquake forecasting**
Rhoades, DA & Evison, FF
- **How big, how often and how strong ? Aftershocks and urban search and rescue operations**
McVerry, GH, Cousins, WJ, Bull, DK & Brunndon, DR

15:30 – 15:50

Afternoon Tea



15:50 – 16:50

Session 2 : Understanding Local Effects

Chair : Andrew King

- **Spatial distribution of ground shaking**
Dowrick, DJ & Rhoades, DA
- **Use of microtremors to assess local site effects**
Davenport, PN & Stephenson, WR
- **Shallow shear-wave velocity from ReMi™ surface wave dispersion: method and case study**
Kaiser, A & Smith, E
- **Effects of earthquake magnitude and source distance on the response spectral amplification ratios of soft-soil sites**
Zhao, J, Zhang, J & Irikura, K

16:50 – 18:00

Session 3 : Poster Paper Session & Drinks

- **Effects of non-linear soil deformation on the response of simple 2-D basins**
Zhang, J & Zhao, J
- **Shear model for URM walls retrofitted with FRP**
El Gawady, MA
- **Seismic design of multi-storey buildings using Laminated Veneer Lumber (LVL)**
Palermo, A, Pampanin, S, Buchanan, A, & Newcombe, M
- **On the flexural ductility of very lightly reinforced concrete sections**
Davey, RA & Blaikie, EL

18:00 – 18:30

Annual General Meeting: NZ Soc for Earthquake Engineering



08:30 – 10:00

Session 4 : Learning From Earthquakes

Chair : David Middleton

- **South Asian tsunami reconnaissance, 26 December 2004**
Bell, R, Evans, N, & Goff, J
- **Performance of highway bridges under Chuetsu Earthquake, Niigata, Japan**
Shanmuganathan, S
- **Fire-fighting and rescue operations after earthquakes - lessons from Japan**
Thomas, GC
- **Achievable precision in earthquake loss modelling**
Cousins, WJ

10:00 – 10:20

Morning Tea

10:20 – 11:50

Session 5 : Assessing Effects on the Built Environment

Chair: Graeme Beattie

- **Time history analysis as a method of implementing performance based design**
Tremayne, W & Kelly, TE
- **Modelling rocking structures using standard finite elements**
Ma, Q, Butterworth, J & Davidson, B
- **Whole house seismic racking evaluation**
Thurston, SJ
- **Methodology for the seismic assessment of face-loaded unreinforced masonry walls and parapets**
Blaikie, EL, & Davey, RA
- **Interaction between ductile RC perimeter frames and floor slabs containing precast units**
Fenwick, RC, Davidson, BJ & Lau, DBN
- **Reinforced concrete seating details of hollow-core floor systems**
MacPherson, C, Mander, JB & Bull, DK



11:50 – 12:30

Session 6 : Making Progress

Chair : Hans Brounts

- **Risk assessment : providing an objective basis for risk management decisions**
Smith, WD
- **NZSEE working party on integrated planning for earthquake response – 2004 report**
Brunsdon, D
- **Development of a technician-level qualification in earthquake engineering**
Butcher, P & Cooper, K
- **Rational design of multiple-rack pallet storage systems for earthquake safety**
Beattie, G
- **BIA report on surveys of hollow core use in New Zealand**
Bialostocki, R
- **Earthquake prone buildings - implications of the new legislation**
Bialostocki, R
- **Status of NZS 1170.5 Earthquake Loadings Code**
King, A

11:50 – 12:30

Light Lunch followed by Leisure Activities

18:45

Conference Dinner – Wairakei Resort

Sunday, 13 March 2005



08:30 – 10:00

Session 7: Planning & Mitigation for Earthquake Performance

Chair : Bruce Deam

- **The performance of hillside earth fills under earthquake loading**
Brown, IR & Larkin, TJ
- **Seismic assessment and retrofitting of New Zealand state highway bridges**
Chapman, HE, Lauder, MK & Wood, JH
- **Seismic assessment of the Clarence River bridge**
Ho, KY & Murashev, A
- **The seismic assessment and retrofit of the Shell Gully bridges**
Kirkcaldie, DK, Hobman, J & Saul, GJ
- **Vulnerability assessment and retrofit strategies for existing under-designed RC frame buildings**
Pampanin, S
- **Improving seismic safety of adobe construction with used car-tyre strips: preliminary investigations**
Charleson, AW & French, MA

10:00 – 10:15

Morning Tea

10:15 – 11:30

**Session 8 :
Performance Based Design for Earthquake Performance**

Chair : Les Megget

- **Direct displacement-based seismic design**
Priestley, MJN, Grant, DN & Blandon, CA
- **A displacement-focused, force-based structural design procedure**
Deam, BL
- **Resetable devices with customised performance for semi-active seismic hazard mitigation of structures**
Chase, JG, Mulligan, KJ, Gue, A, Mander, JB, Alnot, T, Rodgers, G, Deam, BL, Cleeve, L & Heaton, D
- **Application of hybrid concept for an improved seismic ductile design of bridges**
Palermo, A & Pampanin, S
- **Performance based earthquake risk mitigation of retaining walls at Ngaio Gorge, Wellington**
Brabhakaran, P & Saul, GJ

11:30 – 13:00

Session 9 : Designing for Earthquake Resistance



Chair : Richard Sharpe

- **Strategy for anti-buckling design of transverse reinforcement**
Dhakal, RP
- **Earthquake design of rectangular underground structures**
Wood, JH
- **Approaches to design of shallow foundations for low-rise framed structures**
Pender, MJ, Wotherspoon, LD, Ingham, JM & Carr, AJ
- **Inclined reinforcement to prevent soil liquefaction**
McManus, KJ, Turner, JP & Charton, G
- **Potential seismic resistant design strategies from other fields**
Reich, E & Charleson, AW
- **Seismic performance of URM walls retrofitted using FRP**
ElGawady, MA, Lestuzzi, P & Badoux, M

13:00 – 13:15

Conference Closure