



Proceedings of the 2023 New Zealand Society for Earthquake Engineering Annual Technical Conference

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Keynote Presentations

Stephanie Chang – Modelling socio-economic dimensions of large urban earthquakes to inform decision-making.

John Hooper – Navigating Seismic Hazard Updates and Performance Target Changes

Invited Speaker Presentations

Resilient Buildings - *Shannon Abeling, Charlotte Brown, Dave Brunsdon, John Hare, Ken Elwood, Hugh Cowan, Helen Ferner, Rob Jury*

MBIE Update and Joint Committee for Seismic Assessment of Existing Buildings – *Ken Elwood, Rob Jury, Charlotte Brown, Dave Brunsdon, Phil Clayton, Andy Thompson, Nicola Borgfeldt.*

Advances in Geotechnical Earthquake Engineering – *Liam Wotherspoon, Doug Mason, Saskia de Vilder*

Rū ana te whenua: Te Ao Māori perspective of earthquakes – *Dan Hikuroa*

Getting on the Same Page – Various Perspectives on Sustainable and Resilient Design – *Anotonia Reid, Richard Naish, Mark Willard*

Oral Presentations

[Shaking Table Tests on RC Frames strengthened with Simplified Friction Damper](#)

H Muhammed, H Lee, S Kang, K Shin,

[Shake-table testing of resilient, low-cost seismic isolators based on rolling rubber spheres](#)

A Katsamakas, M Vassiliou

[A Practical Approach to Design Supplemental Damped Isolation Systems](#)

K Makan, D Pettinga,

[Comparison of optimal versus a convenient distribution method of viscous damper design](#)

A Rad,

[A Review of the State of Practice for Fluid Viscous Damper Applications in North America and New Zealand](#)

N Canney, K Eriksen, A Tiapon

[Optimum service and seismic structural protection with adaptive dampers and base isolators for immediate occupancy after the earthquake](#)

P Huber, F Weber, M Gruber

[Liquefaction induced kinematic loads on piles and inertia loads-literature review and recommendations for design](#)

B Rama, S Palmer, E Chin

[Earthquake Design Pressures from Soil Interaction on Building Basement Walls](#)

J Wood

[Optimisation through an Alternative Solution approach to incorporating soil-structure interaction](#)

L Storie, M Al-Ani, J Robinson, D Bradley, S Van Ballegooy

[Optimising seismic resilience assessments - Part II: Integrating geophysical and geotechnical investigations](#)

E Sutter, I Antonopoulos, J Philpot, L Ingham, N McConachie

[Modelling of residential house perimeter foundation beams subjected to ground deformations](#)

M Dawson, T Sullivan, M Millen

[Simplified approach to rapidly predict road blockages caused by co-seismic landslides](#)

A Lin, L Wotherspoon, C Zorn

[Seismic design for temporary works: Recommendations for a Temporary Works forum NZ design note](#)

T Watson, N Bamford, D McBride, S McHattie

[Developing Construction 4.0 transformation of Aotearoa New Zealand's construction sector](#)

K Andisheh, M Karpenko, G Macrae, A Chang-Richards, C Clifton, B Moaveni, S Eftekhar Azam, H Heinzl,

Lincoln University Waimarie building: An application of friction damping devices with recentering for low damage design

A Hashemi, C Wallington, S Govind, D Whittaker, P Quenneville,

[Understanding and Improving the Seismic Resilience of Hospital Buildings](#)

D Brunson, M Stannard

[Wellington Children's Hospital - a different approach to a seismic restraint project](#)

I Black

[Post-disaster building functionality: preliminary findings of a systematic review](#)

B Mayer, M Boston, A Chang-Richards

[Seismic Performance Comparison of New Zealand and Japanese Concrete Moment Frames](#)

N Buck, M Stephens, L Hogan, G Clarke

[Testing of heavily damaged reinforced concrete walls repaired using concrete and steel replacement](#)

G Muñoz, R Henry, K Elwood

Seismic Behavior of Slender Rectangular Reinforced Concrete Walls based on analytical methods

A Niroomandi, C Stevenson, M Najafgholipour, M Firoozbakhtian, T Sullivan

[Experimental study structural performance and damage characteristics of repaired flexural RC members](#)

K Miura, A Mikawa, T Nagai, A Shegay, T Anabuki, K Yonezawa, M Maeda, M Seki

Dynamic analysis of tall reinforced concrete walls designed with minimum vertical reinforcement

T Deng, R Henry

Behavior of Unreinforced R.C. Beam-Column Joints Under Bidirectional Loading
A Moshref, M Khanmohammadi, I Palmer

[Trends in systematic site residuals with geomorphic categories for New Zealand ground-motion instrument sites](#)

A Tiwari, C de la Torre, B Bradley, F Kuncar, R Lee

[Estimates of site periods from mHVSr analysis of IRIS temporary seismograph networks](#)

A Stolte, C Brown, K Lee, E Manea, L Wotherspoon

[Site-specific seismic hazard analysis – evolving developments in practice](#)

S Orchard, M Taylor, R Jury, K Berryman

[GeoNet’s Shaking Layer Tool: Generation of near-real time ground shaking for post-event response](#)

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[Method for the explicit consideration of ground motion duration in NZS 1170.5](#)

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[International alignment and update of the New Zealand earthquake intensity scale](#)

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[Base isolated building performance and the impact of the national seismic hazard model](#)

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[Source of numerical non-convergence in the analysis of bilinear SDOF systems](#)

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How to assemble elemental damping?

C Lee

[Investigating the Effect of Stiffness on the Seismic Performance of RC structures](#)

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[Seismic Ratcheting Considerations](#)

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J Mou, M Tripathi, R Dhakal, R Chandramohan

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[A Prescriptive Method for the Design of New Steel Moment Frame Structures with Supplemental Damping](#)

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[Residual Stress Effects on Steel Structure on Seismic Response](#)

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[Finite Element Convergence Study of the Asymmetric Friction Connection \(AFC\) in the Optimised Sliding Hinge Joint \(OSHJ\)](#)

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[Seismic design of an XblocPlus® revetment using multi-model approach](#)

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[Seismic Damage States and Damage Quantification of Light Timber Framed Walls in Residential Houses](#)

A Liu, D Carradine

[Earthquake Protection of Residential Buildings: New Resilient System for Light Timber Framing](#)

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S Menegon, J Hashemi, E Gad

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D Brunsdon, S Faulkner, D Carradine, M Willard

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Z Du, S Xu

[Assessment of lateral spread potential used smeared strengths of liquefied/non liquefied soils](#)

E Peebles, S Palmer

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A Ham, M Taylor

[Vs30 Assessments: Understanding the Underground](#)

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[Experimental proof of the effectiveness of timber panels in the seismic retrofit of URM buildings](#)

I Giongo, M Piazza, D Riccadonna, E Rizzi

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A Moshref, M Khanmohammadi, E Bigsby, M Katrangi

Retrofit and Repair of Reinforced Concrete Columns with Active Confinement

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Response of Retrofitted 3D RC Frames under Dynamic Loading Conditions

J Woo, W Lee, H Park, K Shin

Seismic strengthening of RC walls using FRP to prevent axial failure

Z Li, E del Rey Castillo, R Henry

Innovative Retrofit Solution for Exterior Unreinforced R.C. Beam-Column Joints

A Moshref, M Khanmohammadi, E Bigsby, M Katrangi

A Sensitivity Study of the Design Parameters Affecting the Global Stability of Buckling-Restrained Braced Frames

B Saxey

Chevron Buckling Restrained Brace Frame Seismic Behaviour Considering Out-of-Plane Effects

T Simpson, A Donald, G MacRae

Avoiding moat wall pounding of base-isolated buildings using D3 viscous dampers

N Hazaveh, G Chase, G Rodgers

Effect of serviceability and over-strength mechanism on seismic response of low damage structures

A Hashemi

Timber-based seismic retrofit of a 5-storey RC structure built in 1955

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Earthquake strengthening clay brick masonry parapets – proof-tested solutions

M Giaretton, D Dizhur, J Ingham

Area Ratio or Volumetric Ratio: Which is better for quantifying the confinement of concrete?
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Cyclic behavior of older concrete columns reinforced with high-performance fiber reinforced cementitious composites
S Han, H Kang

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Site-specific seismic hazard evaluation of critical bridge infrastructure in Cebu, Philippines
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Seismic hazard analysis for a bridge across Marikina River with consideration of near-fault effects
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Evaluation of prioritization schemes for bridge stock assessment
S Hamidpour, N Scattarreggia, R Nascimbene, R Monteiro

Public expectations of damage and disruption to existing multi-storey buildings in earthquakes
S Abeling, C Miranda, J Becker

Achieving earthquake-safe buildings – an educational initiative for developing nations
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Societal Expectations for Functional Recovery of Primary and Secondary School Buildings
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Risk thresholds in the built environment
C Dunne, W Saunders

Reimagining Community Resilience through a Te Ao Maori Worldview
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[A displacement-based design method of low-damage dual systems with hysteretic and nonlinear viscous energy dissipation](#)

A Gu, G Rodgers, R Henry

[Feasibility of capacity spectrum method for analysis of low damage structural systems with friction connections](#)

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[Three-dimensional numerical simulation of tsunami-borne debris-loads on bridges](#)

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