nzsee
NEW ZEALAND SOCIETY FOR EARTHQUAKE ENGINEERING

NEW ZEALAND SOCIETY FOR EARTHQUAKE ENGINEERING
2024 ANNUAL TECHNICAL CONFERENCE

2024

Raising the Bar for Resilient Design

Conference Programme

NEW ZEALAND SOCIETY FOR
EARTHQUAKE ENGINEERING
ANNUAL TECHNICAL CONFERENCE

9–11 April 2024

Tākina Wellington Convention
and Exhibition Centre

Day 1: Tuesday 9 April 2024

08:00 - 18:00	**Registration Desk Open** Room: Level 2 Foyer		
09:00 - 10:30	**Mihi Whakatau** **Conference Opening** Opening Address by Minister Chris Penk **Keynote 1: Silvia Mazzoni** **At the Intersection of Research, Practice, and Standards in Performance-Based Earthquake Engineering: Seismic Hazard, Ground Motions, and Numerical Simulation** Chair: Dion Marriott Room: Tāwhirimātea A		
10:30 - 11:00	**Morning Tea Break** Room: Level 2 Foyer		
11:00 - 12:30	**O1A: Structural Response & Experimental Testing of Structural Systems** Room: Tāwhirimātea A Chair: Rowan Ballagh	**O1B: Project Case Studies & Learning from Earthquakes** Room: Tāwhirimātea E Chair: Umair Siddiqui	**O1C: Foundations, Slope Stability and Retaining Structures** Room: Whātaitai Chair: Pathmanathan Brabhaharan
11:00 - 11:15	**O1A.1 Shake-table test of flexural RC beams subjected to different levels of repair** Kota Miura	**O1B.1 Challenges associated with geotechnical design of Te Kaha - Canterbury's Multi-Use Arena** Sam Baker	**O1C.1 Geotechnical design of a secant piled underground pump station in liquefiable ground** Shahin Ghanooni
11:15 - 11:30	**O1A.2 Investigating the interaction between rocking amplitude and ground motion characteristics via artificial neural networks** Anastasios Giouvanidis	**O1B.2 Turnbull Library: Strengthening for Heritage and Resilience** Nicki Vance	**O1C.2 Evaluating the benefits of rocking shallow foundations** Maxim Millen
11:30 - 11:45	**O1A.3 Effective and economic combination of seismic isolation and vibration insulation within one innovative device** Marcel Gruber	**O1B.3 Nationwide investigation of systematic site effects in New Zealand: Residual analysis of physics-based ground motion simulations** Ayushi Tiwari	**O1C.3 Soil structure interaction in laterally displacing ground** Bhavesh Rama
11:45 - 12:00	**O1A.4 The ROBUST Steel Building Response** Gregory MacRae	**O1B.4 Performance of RC buildings in the 2023 Turkey-Syria earthquakes** Alex Shegay	**O1C.4 Innovative design methodology for secant pile walls** Paulo Alves
12:00 - 12:15	**O1A.5 Damage Level Prediction of RC Building for Future Earthquakes Based on Seismic Response Observation** Zhuoran Yi	**O1B.5 Towards 3D ground motion simulation-based site amplification: a Wellington case study considering multiple basin geometries** Robin Lee	**O1C.5 The use of 3D LE methods to calculate slope stability during strong earthquake shaking** Ian Brown
12:15 - 12:30	**O1A.6 Shake-Table Testing of the Resilient Slip Friction Joints** Pierre Quenneville	**O1B.6 Seismic Resurrection of 13-storey Apartment Building at 66 Oxford Terrace, Christchurch** Russell Poole	**O1C.6 SESOC Retaining Wall Design Guide – Methodology and Validation** Geoff Bird
12:30 - 13:30	**Lunch** Room: Level 2 Foyer		

Day 1: Tuesday 9 April 2024

13:30 - 15:00	**O2A: Concrete Structures** Room: Tāwhirimātea A Chair: Annie Scott	**O2B: Structural Analysis** Room: Tāwhirimātea E Chair: Dion Marriott	**O2C: Seismic Policy, Communication of Seismic Risk & Societal Perception** Room: Whātaitai Chair: Enrique del Rey Castillo
13:30 - 13:45	**O2A.1 Prediction of crack widths in NZS 3101 and its significance in the seismic design of connections** Dorian Borosnyoi-Crawley	**O2B.1 A Review on Nonlinear Time History Analysis of Structures** Gholamreza Hashemi	**O2C.1 Communicating seismic risk with commercial building tenants: Preliminary results** Catalina Miranda
13:45 - 14:00	**O2A.2 Practical issues in time-history analysis of low-rise concrete wall buildings with subterranean levels** Tongyue Zhang, Mehrdad Seifi	**O2B.2 NZ Industry Nonlinear Response History Guidelines** Stuart Oliver	**O2C.2 Evaluating and Communicating Seismic Risk for Low Rating Buildings** Dave Brunsdon
14:00 - 14:15	**O2A.3 QA/QC methods for grouted Drossbach duct connections in precast concrete shear wall panels – case study: new 12-storey building in Auckland** Henry Rowden	**O2B.3 Building collapse due to P-delta - what is the risk?** Timothy Sullivan	**O2C.3 Impact of seismic demand on construction costs** Enrique Del Rey Castillo
14:15 - 14:30	**O2A.4 Effect of Strengthening Techniques Applied to RC Walls with Post-installed Openings on Shear Resistance** Jonathan Monical	**O2B.4 Time History Analysis is easy, and you should do it: Here's how** Rowan Ballagh	**O2C.4 The role of risk perception, risk communication, and comparative risk principles in resilience building** Lauren Vinnell
14:30 - 14:45	**O2A.5 Proposal of repair index and strategy for recovery of reinforced concrete buildings damaged by earthquakes** Masaki Maeda	**O2B.5 Code Based Design vs. Performance Based Design** Arun Mankavu-Puthanpurayil, Athol Carr	**O2C.5 Rapid Earthquake Rupture Characterisation for New Zealand Using the FinDer Algorithm** Jen Andrews
14:45 - 15:00	**O2A.6 Seismic resilient structures using pre-cast pre-stressed concrete panels for modular construction** Farhad Mohammadi Darani	**O2B.6 Seismic response of sustainable, resilient eccentrically braced frames** Maryam Hasanali	**O2C.6 Residential Reconstruction of Christchurch City Centre: Is sustainability the key to promoting inner-city living?** Akram Fatourehchishabestari, Olga Filippova
15:00 - 15:30	**Afternoon Tea Break** Room: Level 2 Foyer		
15:30 - 17:00	**Plenary 1: Integrated Design - What it Takes to Deliver a Successful Project** **Michael Newcombe, Claire Stevens, Matt Pattinson, Rosalind Luxford, Colin Russell** Chair: Rowan Ballagh Room: Tāwhirimātea A		
17:00 - 17:30	**NZSEE Awards:** **NZSEE/QuakeCoRE Emerging Women Leaders Award** **Otto Glogau Award** **NZSEE Research Scholarship** **Bulletin Service Award** Room: Tāwhirimātea A		
17:30 - 18:00	**NZSEE Annual General Meeting** Room: Tāwhirimātea A		
18:00 - 19:30	**Welcome Reception, Poster Session and Young Professionals Meet & Greet** Room: Level 2 Foyer & Tāwhirimātea C		

Day 2: Wednesday 10 April 2024

07.30 - 18:00	**Registration Desk Open** Room: Level 2 Foyer		
07:30 - 08:30	**Breakfast Session 1** **Design Competition Presentations** Room: Tāwhirimātea A		
08:30 - 09:30	**Keynote 2: Kit Miyamoto** **Disaster Reconstruction; Turkey, Afghanistan, Ukraine, and Gaza** Chair: Umair Siddiqui Room: Tāwhirimātea A		
09:30 - 10:30	**Keynote 3: EQC Toka Tū Ake Keynote Speaker Tiziana Rossetto** **Earth and Water: Research and Insights into Building Response to Earthquakes and Tsunami** **EQC Toka Tū Ake Ivan Skinner Award Presentation** Chair: Lauren Vinnell Room: Tāwhirimātea A		
10:30 - 11:00	**Morning Tea Break** Room: Level 2 Foyer		
11:00 - 12:30	**Plenary 2: Geotechnical Design of Earth Retaining Structures** **Jonathon Stewart, John Wood, Pathmanathan Brabhaharan** Chair: Pathmanathan Brabhaharan Room: Tāwhirimātea A		
12:30 - 13:30	**Lunch and He Tohu Pūpū Seismic Design Competition** Room: Level 2 Foyer		
13:30 - 15:00	**O3A: Performance of Non-Structural Components & Structural Connections** Room: Tawhirimātea A Chair: Jan Stanway	**O3B: Geotechnical Performance, SSI & Liquefaction Assessment** Room: Tawhirimātea E Chair: Sanjay Bora	**O3C: Seismic Performance & Retrofit of Bridges & Infrastructure** Room: Whātaitai Chair: Pathmanathan Brabhaharan
13:30 - 13:45	**O3A.1 Assessing the Impact of Drilling Techniques on the Tensile Strength of Mechanical Screw Anchors in Masonry** Devina Shedde	**O3B.1 Geotechnical design for severe liquefiable ground improvement with SCRR technique: Waikato case study** Zhaodong Du, Hong Zhou	**O3C.1 Multi-scenario approach for the assessment of liquefaction exposure and impact across New Zealand State Highways** Amelia Lin
13:45 - 14:00	**O3A.2 Implications for Design of Parts and Components from Updates to New Zealand Seismic Loading Standard and National Seismic Hazard Model** Kieran Haymes	**O3B.2 Liquefaction-Induced Parabolic Subsidence Method for analysis of shallow foundations** Fabio Parodi	**O3C.2 Omāroro Reservoir: A Case Study. It's Cheaper to Work with Nature** Safia Moniz
14:00 - 14:15	**O3A.3 Recommended practice for seismic restraint design of suspended ceilings** Mark Browne	**O3B.3 Resin Injection ground improvement for liquefaction mitigation at Poverty Bay Rugby Club, Gisborne** Daniel Gunchenko	**O3C.3 Testing the Cyclic Strain Softening Behaviour of an Ageing Puddled Clay Core Dam** Ian Walsh
14:15 - 14:30	**O3A.4 Coordinating for Success - Enhancing Seismic Restraint Through Early Design Involvement** Benjamin Westeneng	**O3B.4 Applicability of existing CPT-Vs correlations to direct-push crosshole and cone penetration test data for shallow Holocene-aged New Zealand soil deposits** Hui Zhou	**O3C.4 Highbank Power Station Redevelopment – Design Process for a Concrete Encased Turbine and Generator Plinth Replacement** Scott Osborne, Simon Therkleson

Day 2: Wednesday 10 April 2024

14:30 - 14:45	**O3A.5 Seismic response of frames with building cladding elements** Gregory MacRae	**O3B.5 Dynamic Shaking Layer models for large New Zealand earthquakes (M6.5+): from rapid source characterization to landslide and impact forecasting** Anna Kaiser	**O3C.5 Estimation of electricity supply restoration time with interdependencies under cascading hazard risk approach** S R Uma
14:45 - 15:00	**O3A.6 Out-of-plane capacity of low-damage partition wall systems: the balance between maintaining robustness and allowing relative movement** Scott Menegon	**O3B.6 Analysis of Site-Response Residuals from Empirical Ground-Motion Models to Account for Observed Sedimentary Basin Effects in Wellington, New Zealand** Chris de la Torre	**O3C.6 Non-contact Structural Damage Detection by Natural Frequency Measurement using Microphone** Yuxin Huang
15:00 - 15:30	**Afternoon Tea Break** Room: Level 2 Foyer		
15:30 - 17:30	**Plenary 3: Industry Working Group Updates** **Ken Elwood, Stuart Oliver, Jared Keen, Andrew Thompson, Jan Stanway, Caleb Dunne** Chair: Umair Siddiqui **and Joint Committee for Seismic Assessment and Retrofit Updates** **Stuart Palmer, Henry Tatham, Andrew Thompson, Alistair Cattanach, Nicholas Brooke** Chair: Anna Philpott Room: Tāwhirimātea A		
17:30 - 18:00	**NZSEE Learning from Earthquakes Workshop** **Greg MacRae, Jonathan Stewart** Chair: Greg MacRae Room: Tāwhirimātea E		
19:00 - 22.00	**Conference Dinner** **Kindly sponsored by D&H Steel Construction** **NZSEE Awards: Distinguished Members - Fellows and Life Members of the Society** **John Hollings Seismic Resilience in Practice Award** Room: Tāwhirimātea A		

Day 3: Thursday 11 April 2024

07:30 - 17:00	**Registration Desk Open** Room: Level 2 Foyer		
07:30 - 08:30	**Breakfast Session 2: NZS Standards Updates** **Charles Clifton, Rick Henry** Chair: Dion Marriott Room: Tāwhirimātea A		
08:30 - 09:45	**Plenary 4: NZSEE Resilient Buildings Project** **Helen Ferner, Derek Gill, Charlotte Brown, Mark Willard, John Hare, Rob Jury, Hugh Cowan** Chair: Dion Marriott Room: Tāwhirimātea A		
09:45 - 10:45	**Plenary 5: The Climate Crisis is Now** **John Hare, Phoebe Moses, Annie Scott** Chair: Katie Symons Room: Tāwhirimātea A		
10:45 - 11:15	**Morning Tea Break** Room: Level 2 Foyer		
11:15 - 12:45	**O4A: Engineering Seismology, Seismic Hazard and Ground Motions** Room: Tāwhirimātea A Chair: Matt Gerstenberger	**O4B: Seismic Assessment & Retrofit Solutions** Room: Tāwhirimātea E Chair: Dion Marriott	**O4C: Timber Structures** Room: Whātaitai Chair: Gregory MacRae
11:15 - 11:30	**O4A.1 Shallow Shear Wave Reflection Surveys in the Wellington CBD** Sam Thorpe-Loversuch	**O4B.1 Experimental Testing of Brittle RC frames Strengthened by RSFJ-toggle bracing system** Sajad Veismoradi	**O4C.1 Impact of base conditions on the bracing performance of LTF walls** Angela Liu
11:30 - 11:45	**O4A.2 Impacts of ground motion and scaling method selection on the performance of rocking wall systems with friction connections** Soheil Assadi, Ashkan Hashemi	**O4B.2 A risk-based framework to account for step-change behaviour in seismic assessment** Faraz Zaidi	**O4C.2 Standardised timber moment-resisting frames for multistorey buildings** Jack Tombleson, Michael Newcombe
11:45 - 12:00	**O4A.3 Earthquake scaling relations, and testing and evaluation of the New Zealand National Seismic Hazard Model 2022** Mark Stirling	**O4B.3 Application of Low Damage Tension Braces in Top Extensions of Existing Buildings: A Case Study for Seismic Upgrade** Ashkan Hashemi	**O4C.3 From Research to Practice: Case Study on Mixed Angle Screws Hold Down Connections for a 6-Storey CLT Shear Wall Building** Thomas Wright
12:00 - 12:15	**O4A.4 Urban Geophysics and Seismic Hazard Assessment in the Wellington CBD** Tim Stern	**O4B.4 Performance-based Assessment and Seismic Strengthening of the Christ Church Cathedral** Joel Smith	**O4C.4 Te Living Pā: Kaitiakitanga; Whanaungatanga; Akoranga** Rowan Ballagh
12:15 - 12:30	**O4A.5 Comparing alternative methods to account for shallow site effects in hybrid broadband ground-motion simulations** Felipe Kuncar	**O4B.5 Improving structural performance of an existing EBF and moment frame structure using fluid viscous dampers** Joseph Camajani, Lawrence Burkett	**O4C.5 Seismic Performance of Prefabricated Modular Mass Timber Structures with Inter-Story Isolation** Rajnil Lal
12:30 - 12:45	**O4A.6 New Zealand National Seismic Hazard Model Revision 2022: Hazard changes with respect to NZ NSHM 2010** Sanjay Bora	**O4B.6 Low-Rise Buildings Guideline – Stage 1 Review** Henry Tatham	**O4C.6 Pres-Lam: An innovative and collaborative timber solution** John Gin, Amber Coulthard
12:45 - 13:45	**Lunch** Room: Level 2 Foyer		

Day 3: Thursday 11 April 2024

13:45 - 15:15	**O5A: Structural Resilience, Including Low-Damage Systems & Earthquake Protection** Room: Tāwhirimātea A Chair: Ashkan Hashemi	**O5B: Steel Structures** Room: Tāwhirimātea E Chair: Rowan Ballagh	**O5C: Disaster Response & Recovery** Room: Whātaitai Chair: Lauren Vinnell
13:45 - 14:00	**O5A.1 A Case for Resilience in New Zealand** Tessa Beetham	**O5B.1 Seismic Ratcheting Considerations** Mereen Hussain	**O5C.1 Improving the Post-Earthquake Response of Hospitals: The Implementation of Priority Response Agreements** Dave Brunsdon
14:00 - 14:15	**O5A.2 Exploring resiliency between different steel lateral systems for new construction** Nathan Canney	**O5B.2 Moment Curvature Analysis of wide-flange steel columns with local buckling dominant mode of failure** Arsalan Niroomandi	**O5C.2 Indicators for quantifying post-disaster functionality: a neighbourhood scale** Megan Boston
14:15 - 14:30	**O5A.3 Informing Clients on the Business Case for Seismic Resiliency** Jan Stanway	**O5B.3 Panel Zone Strength in Moment Frames with Slabs** Ed Macalister, Cameron Henderson	**O5C.3 Tsunami resilience: Aotearoa New Zealand's path to integrated risk management and engineering design** David Johnston
14:30 - 14:45	**O5A.4 Earthquake Protection Technologies for Structural and Non-Structural Applications: Case Studies Worldwide** Javier Lopez Gimenez	**O5B.4 Multistage Friction Connection Optimisation** Gregory MacRae	**O5C.4 Improving Post-Earthquake Emergency Management of Heritage Buildings** Clara Caponi
14:45 - 15:00	**O5A.5 Performance of Seismically Isolated High-Speed Railway Bridges against Near-Fault Ground Motions** Ravi Jangid	**O5B.5 Insights into the Response of Multi-Storey Eccentrically Braced Frame Steel Structures to Earthquake Ground Motion** Clark Hyland	**O5C.5 Quantification of economic benefits of functional recovery-based design: a stepwise review of the methodology** Kasra Habibi
15:00 - 15:15	**O5A.6 Enhancing Structural Resilience: Three-Dimensional Seismic Isolation (3DSI) in Practice** Masoud Pourmasoud	**O5B.6 Evaluating the Effect of Initial Gravity Forces in Buckling-Restrained Brace Frame Braces** Brandt Saxey	**O5C.6 Post-Earthquake Response: Update on the Improvements to the Rapid Building Assessment Process and Building Management In Emergencies** Paul Campbell
15:15 - 15:45	**Afternoon Tea Break** Room: Level 2 Foyer		
15:45 - 16:45	**Keynote 4: Park and Paulay Keynote Speaker Daniel Zepeda** **California's Journey in Seismic Policy Development** Chair: Dion Marriott Room: Tāwhirimātea A		
16:45 - 17.00	**Conference Closing** **Conference Awards:** **Best Student Paper award** **Best Research Paper award** **Best Practice Paper award**		

Friday 12 April 2024

09.00 - 12.30	**Post-Conference Workshop** **Communication of Seismic Building Risk with Commercial Tenants**

POSTER SESSION

Tuesday 9 April 18:00 – 19:30

TĀWHIRIMĀTEA C ROOM

No.	Poster Title	Presenter
P.01	Finite Element Modelling (FEM) of the Asymmetric Friction Connection (AFC) with Belleville Springs (BeSs): challenges and ongoing developments	Fatemeh Alizadeh
P.02	Analysis of Felt Detailed 'Final Comments' for the 2016 Kaikōura earthquake	Sajan Neupane and Julia Becker
P.03	Heritage Buildings and Community Sense of Place: Towards Addressing the Challenge of Earthquake Prone Heritage Buildings	Megan Boston
P.04	Integrating both passive and active methods to estimate Vs30: A case study	Alan Thorp
P.05	Seismic Retrofitting Concrete Structures with Post-installed Connections in New Zealand	Samuel Caloba Aguiar
P.06	Liquefaction Response of a Pile-Supported Wharf on Liquefiable Gravelly Reclamations from 2D Nonlinear Dynamic Analyses	Riwaj Dhakal
P.07	Bridging engineering and social perspectives of post-earthquake functional recovery of commercial buildings	Sally Nkrumah
P.08	Seismic behaviour of ductile moment frame structures with D3 Viscous Damper	Nikoo Hazaveh
P.09	The 2022 New Zealand NSHM applied in the Wellington Basin, New Zealand	Anna Kaiser
P.10	Site amplification at high-spatial resolution in Wellington	Anna Kaiser
P.11	An energy dissipation and seismic reduction design of a hospital inpatient building using viscous fluid dampers	Lei Li
P.12	P-delta or P-theta analysis ?	Gregory MacRae
P.13	Nailed Plywood Connections for Steel-Timber Hybrid Lateral Force Resisting Systems	Gregory MacRae
P.14	Simple Three-layer Pagoda Analysis	Gregory MacRae
P.15	Holistic Considerations for Low-Rise Building Design	Gregory MacRae
P.16	Machine Learning Correction of Overpredicted Liquefaction Manifestation using Liquefaction Severity Number	Nathan McDougall
P.17	Experimental and Analytical Study of Fillet Welds for Seismic Actions	Shahab Ramhormozian
P.18	Comparison between weld sizing methods included in steel structure standards	Hafez Taheri
P.19	A Framework for a Distributed Seismicity Model: A case study from the New Zealand National Seismic Hazard Model 2022	Kiran Kumar Thingbaijam
P.20	Finite Element Method Analysis of Reinforced Concrete Exterior Beam-Column Joint Structures Subjected to High Varying Axial Forces	Neng Zhao

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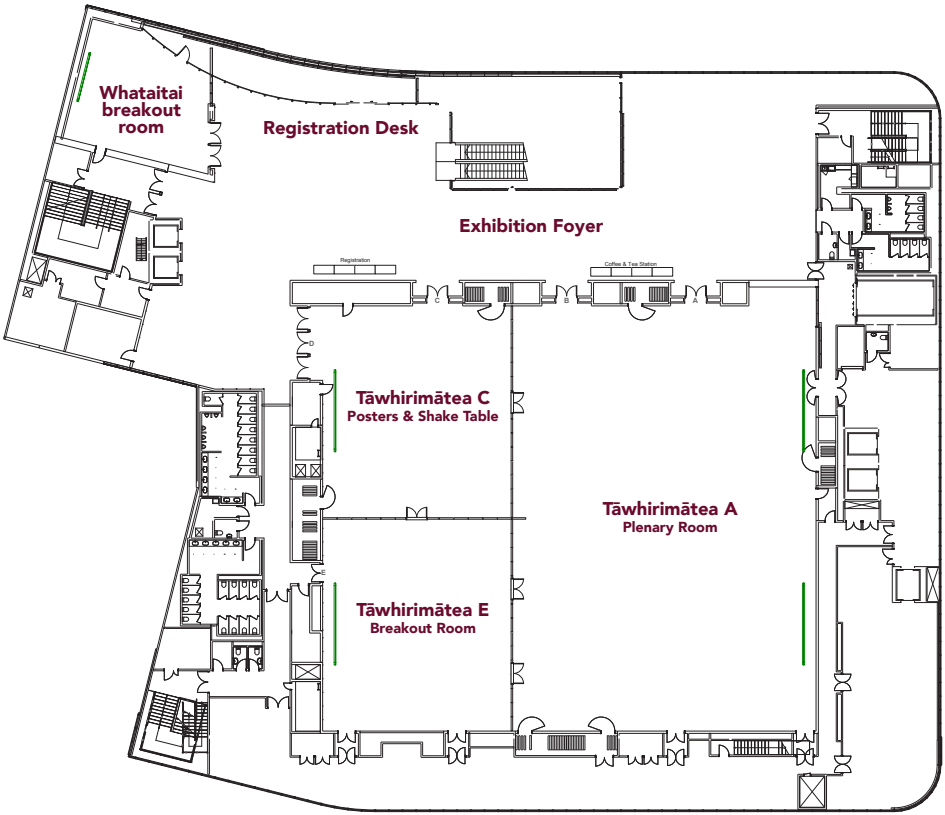
TĀWHIRIMĀTEA LEVEL 2



NZSEE 2024 APP

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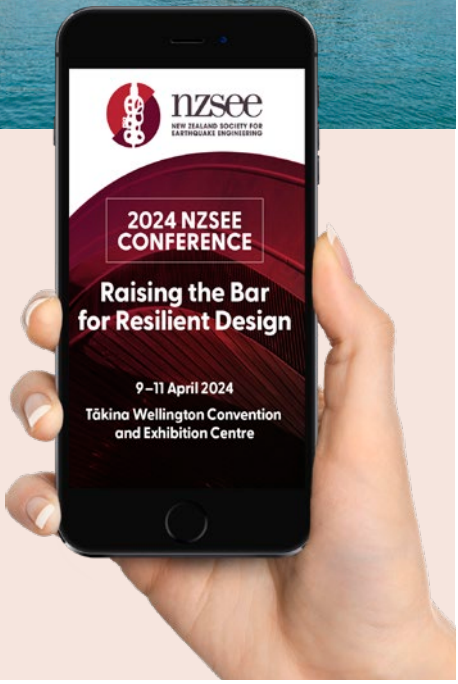

Conference Committee

Rowan Ballagh, Dunning Thornton

Sanjay Bora, GNS Science | Te Pū Ao

Pathmanathan Brabhaharan, WSP

Dion Marriott, BECA, Conference Convenor

Geoff Rodgers NZSEE President, Canterbury University

Annie Scott, Aurecon

Umair Siddiqui, Wellington City Council

Lauren Vinell, Massey University

Special Dietary Requirements

If you indicated your dietary requirement during the online registration, this has been forwarded to the Tākina caterers. Depending on your requirement, the main food may be suitable for you or a separate table will have your food.

Please make yourself known to the catering staff who will assist or please see the Registration Desk for assistance.

Notes:

THE CONFERENCE ORGANISING COMMITTEE GRATEFULLY ACKNOWLEDGES THE CONFERENCE SPONSORS FOR THEIR GENEROUS SUPPORT.

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