

Global safety, sustainability and resilience conference: Australasia session

The Institution's global reach and purpose

Brian Uy, President, IStructE (Australia)

Find out more about the Institution's global reach and purpose, through knowledge-sharing, professional development and a commitment to safe, sustainable, and resilient engineering. The presentation will showcase key initiatives that strengthen engineering capacity and help address global challenges.

Safety and sustainability: the core pillars of the Institution

Sustainable construction in Australia: lessons from two years 'down under'

Muiris Moynihan, Technical Leader – Sustainability, Laing O'Rourke (Australia)

This presentation highlights three factors shaping project delivery in Australia.

- *Material selection must account for carbon intensities that differ from those in other parts of the world, influencing embodied carbon outcomes and sustainability strategies.*
- *Australia's vast geography affects both imported and locally sourced materials. Transport impacts need to be assessed, supply chain planning is crucial, and regional availability is a critical design consideration.*
- *The federal regulatory system offers both opportunities and challenges: variations at state level can drive innovation but require careful navigation to ensure alignment and efficiency.*

Championing safety: an update from CROSS-AUS

Colin Caprani, University of Monash, Trustee, IStructE and Director, CROSS-AUS Ltd (Australia)

Resilience in a local context: case studies, initiatives, and research

Beyond CBA: low probability, high consequence risk for earthquake-prone buildings in New Zealand

Juliane Spaak, Principal Structural Engineer & Technical Director, Beca (New Zealand)

This presentation focuses on the cost–benefit analysis (CBA) undertaken as part of the wider review of the Earthquake-Prone Building (EPB) system in New Zealand. The study compares current and future states of seismic risk management by evaluating the costs and benefits of seismic strengthening across an inventory of more than 5,000 buildings, with emphasis on vulnerable unreinforced masonry and high-risk multi-storey concrete buildings. The risk model incorporates hazard, exposure, and displacement-based fragility functions developed across ten building types and multiple seismic retrofit options. The analysis follows the principles of an international loss-modelling framework.

SESOC production of carbon reduction guidance for local practitioners: a summary & Embodied carbon risk in a seismic context

Nick Carman, Technical Director, Mott MacDonald (New Zealand)

Steph Miller, Project Director, Holmes AUS & NZ (New Zealand)

The Sustainable Design Taskforce working group under New Zealand Structural Engineering Society (SESOC) has prepared, curated, and presented to the industry on many aspects of Sustainable Design with a focus on practical and locally appropriate tips and guides for reducing embodied carbon on projects. This presentation will also cover a New Zealand research paper that looks at the tensions between designing for resilience in a seismic region and minimising embodied carbon: what should be prioritised and does an upfront carbon investment have a probabilistic carbon pay-off long-term.

Prioritising resilience

Deb Young, Principal Resilience Specialist, NZ Transport Agency (New Zealand)

Reactive risk management practices in the transport sector impose significant economic, operational, and safety costs. Shifting to a proactive resilience-based approach enables earlier intervention, reduces the severity of system disruptions, and lowers whole of life costs. The New Zealand Transport Agency (NZTA) uses an internal tool to build the evidence base to support resilience decision-making. By providing a standardised, evidence-based framework for risk characterisation, consequence assessment, and intervention prioritisation, resources are targeted toward investments that deliver the greatest resilience, safety, and sustainability outcomes across the transport network.