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From the President

Welcome!

What a strange year we are having in this Covid-19 impacted world. I hope you and your loved ones and all your work colleagues and friends are coping OK and have not been too badly affected. As we continue to be reminded, by supporting each other, together we will get through this.



The government, some months ago identified the construction industry as a key industry to support New Zealand's recovery. The shovel ready projects list was born with selected projects around New Zealand getting government support to facilitate construction managed by Crown Infrastructure Partners Limited (CIP). A number of additional ideas are also underway to support this idea of utilising the construction industry to support New Zealand's recovery as it becomes clear that the Covid-19 recovery is going to take some time.

One that may be of particular interest to the earthquake engineering community is an idea I heard about very recently from some in the business community for a national programme to support the seismic upgrades of earthquake prone buildings. The idea being promoted is a plan to incentivise building owners to undertake seismic upgrades now by allowing seismic upgrades to be fully tax deductible in the year the costs were incurred just as asbestos removal is currently treated within our tax code. An interesting idea. Let's see if this idea gets traction with the new government. Watch this space!

Notwithstanding the various lockdowns and restrictions much is happening in New Zealand's earthquake engineering world.

As I summarised in our recent update to members these activities included a very successful webinar series earlier in the year covering a wide range of earthquake engineering related topics, the establishment of a networking programme for emerging women leaders in earthquake engineering, submission of the bid to host the 2024 World Conference on Earthquake Engineering and continued work on the Resilient Buildings Project.

2020 WEBINAR SERIES

Keep an eye on your Inbox and the NZSEE website for registration details for the remaining 2020 NZSEE Webinars.

UPCOMING EVENTS



2020 AEES Conference

Online

18 – 20 November 2020

www.aees.org.au

QuakeCoRE Annual Meeting 2020

Nelson

7 – 10 December 2020

<http://www.quakecore.nz/annualmeeting/>

IABSE Congress

Christchurch

3 – 5 February 2021

<http://www.iabse.org/Christchurch2020>

2021 NZSEE Conference

Christchurch

14 – 16 April 2021

<https://confer.eventsair.com/nzsee-2021/>

17 WCEE

Sendai, Japan

27 September – 2 October 2021

<http://www.17wcee.jp/>

3 ECEES

Bucharest, Romania

19 – 24 June 2022

<http://www.3ecees.ro>

All these activities could not have happened but for your support and the active involvement of many members. I particularly want to thank the management committee Brabha, Tony, Rajesh, David, Bruce, Tony, Geoff, Patrick, Andy, Charles, Scott, Ken, Chris, Quincy and of course our executive officer Lisa for their significant contributions.

The management committee has over the course of the past few months been giving significant thought on how to further engage with you, our members.

Webinars are an apt example. Given the great feedback we had for the series earlier in the year we are holding four further webinars over the course of the next month with two focussed on bridging topics and two on non-structural elements. The first was held on 21 October. I hope you were able to join us! Watch out for more information and how to register for each webinar.

We have also been considering our younger members and younger potential members. We want to encourage people to join NZSEE early in their professional careers in earthquake engineering. As a result, we have changed our membership dues for fulltime NZ based students so they can join for free while getting online access for the Bulletin and get all the benefits of being able to join in our activities.

We have also been planning some activities specifically for our younger members. Look out for information about a design competition that is being planned to be held at next year's conference open to groups of students or young professional members. The plan is for building models to be created and then tested on the shake table. I encourage you to form a team and join in if you are a student or young professional member or encourage your younger colleagues to do so if you are a little more senior. It should be a great event and a lot of fun. Currently we are seeking some sponsorship to create a prize pool for the competition.

I recently attended a meeting at MBIE along with Hamish McKenzie SESOC President at the request of Jenni Tipler and Mike Kerr about the possibility of interim seismic hazard advice focussed particularly on the Lower North Island. It was a wide ranging discussion.

Following the meeting your management committee summarised our views in a brief document to MBIE noting that while engineers probably know the current hazard estimates are low, we don't know by how much and that many clients and stakeholders are looking to the engineering profession for advice. Knowing the potential for increase NZSEE considers this cannot be ignored. We consider a key issue is assisting Engineers to deal with uncertainty effectively. We encouraged sharing of the current knowledge available and promoting awareness and skills in designing for resilience and reliability in the face of uncertainty as well as providing interim guidance on the hazard to be used in design.

I also recently attended several meetings at Engineering NZ. One was about possible changes to CPEng. Apparently MBIE have decided to start afresh and engage again about options to improve the current system. I understand that further consultation is likely. Another was a meeting of the Programme Challenge Group where many of the projects currently underway funded by MBIE and managed by Engineering NZ were discussed. Look out for a summary later in this newsletter.

Take care, stay safe and be kind.

Helen



2021 NZSEE Conference

Abstract submissions for next year's NZSEE Annual Technical Conference have now closed and planning for the conference is proceeding at pace. We've had a good number of abstracts submitted, which cover a broad range of subjects. The plenary sessions are also coming together and we're looking forward to having some great speakers that will really do justice to the conference's theme of "The Christchurch Earthquake 10th Anniversary: Turning Challenges into Positive Legacies"

The conference will be held at the University of Canterbury, Christchurch from 14-16 April 2021. For further information see <https://confer.eventsair.com/nzsee-2021/>

Matt Fox
Conference Convenor

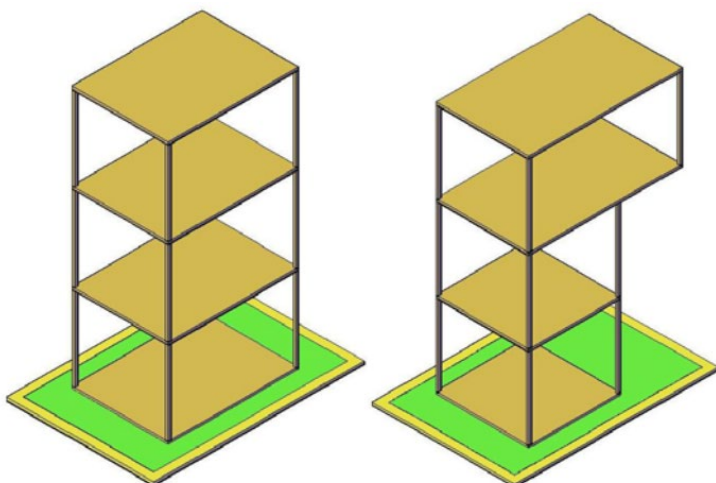
2021 Design Competition

We will be running a Seismic Design Competition alongside the 2021 NZSEE Conference involving designing and building a small scale earthquake resistant model building which will be tested on a shake table during the conference. The competition is open to undergraduate and postgraduate students and early career practitioners.

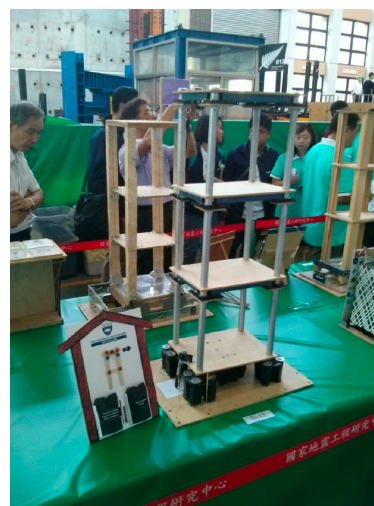
Requirements for participants include (1) creating or joining a team, (2) designing and building a scale building model, and (3) testing your model at the conference.

Teams will be limited to 4 participants and multiple teams from individual firms and universities are encouraged.

Detailed rules for the competition have not been finalized; however, for your reference, preliminary requirements for design of the model building have been included below. It is envisioned that the buildings will be fairly simple and the final rules will be written to ensure the time commitment for participants is minimal.



Example Building Model Concepts



Model Building at Competition in Taiwan

Preliminary Building Model Requirements

The final model requirements have not been finalized, but it is expected that the approximate footprint of the building will be 200 mm x 200 mm (so models are easily transportable to the conference). The building will be required to have a minimum of three stories with typical story heights of 200 mm. The model building must be capable of supporting approximately 40 kg distributed between the floors. Teams may select materials for design of the gravity and seismic resisting systems, however the diaphragms must be constructed using medium density fibreboard.

Contact

To register your interest and find out more please email Max Stephens at the University of Auckland max.stephens@auckland.ac.nz.



NZSEE Webinars

The NZSEE are running a further four webinars in 2020. The webinars are free for everyone but priority will be given to NZSEE members.

Wednesday 21 October 2020, 12 – 1.30pm

NZSEE 2020 Bridge Webinars | 1: Bridge Superstructures – Contemporary Approaches

Thursday 29 October 2020, 12 – 1.30pm

NZSEE 2020 Non-structural Seismic Performance Webinars | 1: New Zealand’s State of Practice – Consultant and Contractor Perspectives

Wednesday 4 November 2020, 12 – 1.30pm

NZSEE 2020 Bridge Webinars | 2: Bridge Substructures and Soil Structure Interaction

Wednesday 11 November 2020, 12 – 1.30pm

NZSEE 2020 Non-structural Seismic Performance Webinars | 2: Summary of Recent Research, and a Client Perspective

Registration will open about one week before each webinar. Keep an eye on your inbox or check out our website for more information and for registration details for further webinars. Webinars will be recorded and uploaded to our YouTube channel.

Bulletin Update

The Bulletin has progressively undergone various changes over the past few years including:

- Expanding the editorial board to include both New Zealand and overseas practitioners and researchers.
- Strengthening the review process to consistently comprise blind reviews by at least two reviewers for all articles and an increased focus has been put on formatting consistency of the published articles.

The aims of these changes are to raise both the profile and status of the Bulletin. These initiatives have helped the Bulletin pass the rigorous scrutiny and high-threshold entry criteria for its inclusion in the “Web of Science” Emerging Science Citation Index. Currently, Bulletin papers are listed in all major global Citation databases (e.g. Web of Science, Scopus, Google Scholar) and the Bulletin is rated/ranked by most major journal impact measures (e.g. Scimago, CiteScore, SNIP).

The Bulletin has seen a sustained rise in its ranking over recent years.

As per the 2019 CiteScore measure, the Bulletin is ranked at 81 percentile among Civil and Structural Engineering journals (up from 43 percentile in 2015) and 82 percentile among Geotechnical Engineering and Engineering Geology journals (up from 53 percentile in 2015). In particular, it is heartening to see the Bulletin ranked above highly reputed journals like “Soil Dynamics and Earthquake Engineering”, “Journal of Earthquake Engineering”, “Soils and Foundations”, and “Structures”.

To make the Bulletin more visible and easily accessible, the long-existing embargo policy (restricting access of Bulletin papers only to NZSEE members until two years after they are published) was lifted in 2019. Currently, the Bulletin operates as a fully open-access journal and does not charge any publication fee, which makes it a rare top-quartile journal.

These changes have resulted a marked rise in submissions from international authors. With increased number of submissions and 30%-40% rejection rate, the Bulletin has established itself as one of the top journals in the disciplines it covers, and provides strong reasons why researchers and practicing engineers should prefer to publish their top quality works in it.

As the Chief-Editor, I am thankful to all Authors, Reviewers, Subscribers and Editorial Board members for their help in this fulfilling journey of the Bulletin, and I hope I can count on you for your continued support in the years to come.

Professor Rajesh Dhakal
Chief-Editor

QuakeCoRE

In case you haven’t already heard QuakeCoRE was successful in the refunding bid. It is for eight years this time. The news came through just a few days before the election.

We are delighted!



Resilient Buildings Project

Establishment phase for the resilient buildings project has now been completed. This phase had several key tasks:

- engaging with the engineering community about the issues, context and vision for the project,
- clarifying the relationships between the various seismic projects and how these relate and interface, and
- framing the problem and develop an operational structure for the project.

This initial work identified significant interest and support about the project across the engineering and resilience communities with acknowledgement the project is both needed and timely.

“aligns and follows on from the seismic risk working group project”

“a positive and timely legacy 10 years on from the Christchurch earthquakes”

We are currently planning the next stages of the project. Watch this space!

We are very grateful for the support EQC are providing to make this work possible and also for the support Engineering New Zealand provides along with our allied technical groups.

Earthquake Engineering Sector Programme Update

The sector programme was initiated by Engineering New Zealand and MBIE in 2018 as a way to engage with industry experts across NZ in support of improving the building regulatory system. The initial eighteen month pilot for this programme has now been completed and the arrangement has been confirmed for a further five years from July 2020.

A number of projects are being undertaken as part of this programme. These include the Seismic Risk Working Group, the Low Damage Seismic Design Project, the C5 Evidence Project and the Earthquake Geotechnical Engineering Practice Series finalisation.

A number of NZSEE members are members of these various project teams along with members of the other technical societies. In addition to support and advise the programme, a Programme Challenge Group was established in March 2019, comprising members of relevant technical society management committees (including NZSEE) which meets approximately every two months.

The Seismic Risk Working Group comprised a small group of senior industry experts picked by MBIE to provide high level advice on areas of the building control system related to earthquake engineering. The focus for the group was on identifying areas to improve for the future building control system rather than solving immediate issues the industry faces. The group’s report was issued to MBIE in July 2020 and the agency is considering its recommendations before sharing with the industry including NZSEE and the other technical societies. We hope this report is issued very shortly.

The Low Damage Seismic Design project team is hard at work with the aim of completing the advice documents in 2021. The advice is split into two parts, the first is focussed towards clients who are engaging and briefing design teams as to their requirements. The aim is to prompt clients to consider insurance, contents protection, business continuity, safety and wellbeing, sustainability and community resilience in ways that will inform site selection, structural and non-structural design needs. The plan is to include a reflected design briefing tool for designers with the aim of creating a shared understanding of options and trade-offs.

The second part is oriented towards designers with technical advice on “enhanced seismic performance” better than code. An additional “damage control limit state” is being considered benchmarked by repair costs and reoccupation timeframes.

The C5 Evidence Project was commissioned by MBIE to compare Red C5 with Yellow C5 chapters of the Seismic Assessment of Existing Buildings Technical Guidelines. The phase 1 report of six analysed building assessments was issued in December 2019, and is available on the Engineering NZ website. It highlighted that while the %NBS result remains generally the same between the red and yellow versions of C5 there are differences at the component level. MBIE agreed to the report’s recommendations for further investigations in a second phase focussed particularly on precast floor systems. This second phase includes detailed analysis of 12 buildings by a group of consultants, with review by the Precast Floor Monitoring Group and Programme Challenge Group. All findings are planned to be summarised in a final report planned to be issued to MBIE in November 2020.

The **Earthquake Geotechnical Engineering Practice Series** is proceeding generally on programme not withstanding Covid-19 related impacts with modules 1- 5 in draft and currently undergoing review. These cover 1. Overview, 2. Investigations, 3. Liquefaction, 4. Foundations and 5. Ground Improvement. It is anticipated these will be issued to MBIE by February 2021. Module 6. Retaining Walls is underway and is planned to be completed by mid-2021.

We understand that MBIE’s future strategy will be strongly aligned with the Building for Climate Change programme, plus an increasing focus on high-density housing, and the Sector Programmes team is meeting them in late October to discuss the implications of this strategy for the forward programme.



National Seismic Hazard Map Update

The National Seismic Hazard Map (NSHM) officially began work on 1 May 2020 and is due for completion 31 August 2022. This will be the first significant science update since 1998 with revisions to the input data in 2002 and 2010 and it may result in significant changes given the recent research. The project is being undertaken by GNS with a technical advisory group of 16 scientists and end users to help ensure the usability of the outputs. NZSEE has the representation of ManCom members Tony Holden and Ken Elwood on this group.

The project has been specifically briefed to consider and convey managing uncertainty in seismic risk. We are advised that the Wellington basin will be covered by a separate and parallel project with a likely somewhat later completion given resource constraints.

EERI – NZSEE Relationship

Helen Ferner, Ken Elwood and Lisa Moon met recently with Laurie Johnson (EERI President) and Heidi Treymayne (EERI Executive Director) to discuss how to strengthen the relationship between our respective societies.

We agreed to focus on collaboration and sharing of information and we have instituted a regular quarterly catchup. We identified three focus areas for collaboration: LFE, the NZSEE Resilient Buildings Project and communications. As part of this initiative it is planned that we will share invitations to webinars held by our respective societies to members.

Learning From Earthquakes

You will, I know, have been fascinated to read the latest NZSEE Learning from Earthquakes trip report in the latest edition of the Bulletin about the 2017 Puebla Mexico earthquake.

NZSEE is in the process of forming a small subcommittee focussed on our LFE programme with management committee members Scott Kelly and Ken Elwood leading this group.

Recognising our mutual interest in LFE with EERI it naturally is a focus of our mutual relationship. We have agreed with Laurie and Heidi that our aims with EERI include to:

- Develop protocols for responding to events in each other's countries, and
- Work out how to best support each other in our own LFE missions. For example, the virtual clearing house for the Kaikoura earthquake was created with help from EERI and was invaluable to the NZ response.

Stakeholder Feedback Requested – Proposed Structural Steel Category 3 Member Material Requirements

The current structural steel category 3 member material requirements are considered overly onerous and, as a consequence, unnecessarily limit the range of compliant products, particularly for columns in seismic-resisting systems.

In collaboration with HERA and Dr Charles Clifton (University of Auckland), SCNZ has developed proposed category 3 material selection criteria for inclusion in the Steel Structures Standard (NZS 3404). These draft provisions are based on those in NZS 3404.1:2009 and the material selection methodology presented in a recent paper by Hobbacher and Karpenko (2020) entitled "Provisions for avoiding brittle fracture in steels used in Australasia".

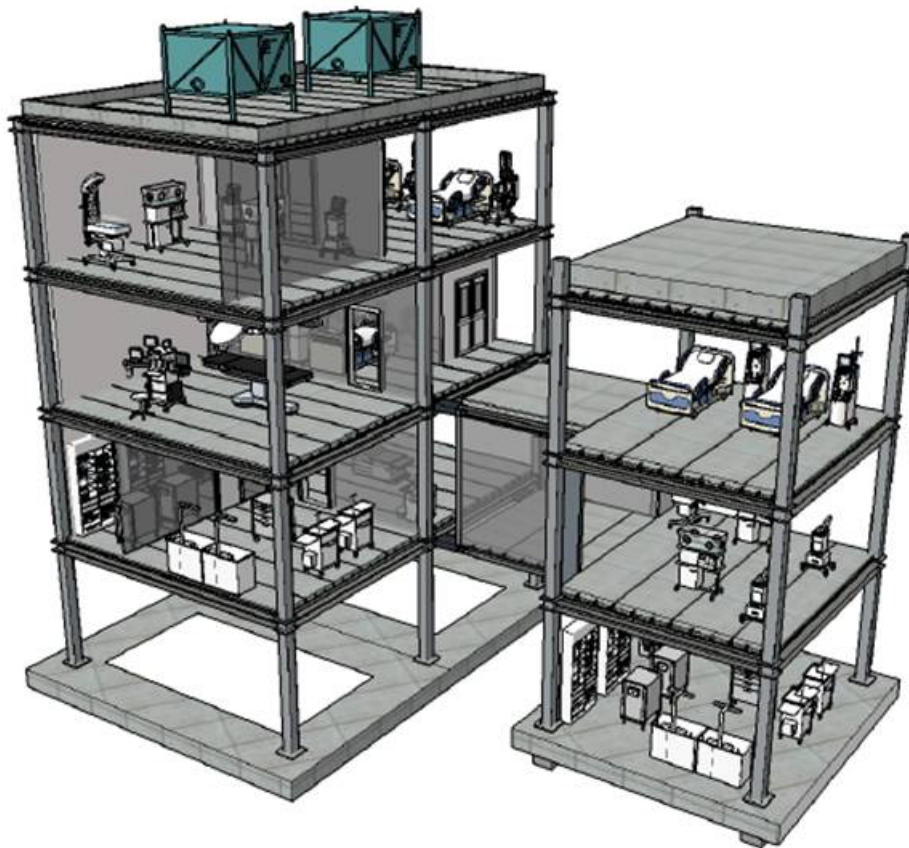
The intention is that these material requirements will form the basis for changes to the current NZS3404 provisions. To this end, SCNZ is seeking stakeholder feedback on the proposed provisions before submitting these to the recently convened steel structures standards committee for consideration. For a copy of Steel Advisor Mat 2002, "Proposed Material Requirements for Category 3 Members in Seismic-resisting Systems", please visit the SCNZ website www.scnz.org.

Feedback on the proposed changes to the category 3 member material provisions is requested by **Friday 20 November 2020**. This can be provided to SCNZ by emailing alistair.fussell@scnz.org.



2020 Integrated Structural/ Non-Structural System Blind Prediction Contest

Sign up now for 2020 Integrated Structural/Non-Structural System Blind Prediction Contest!



A full-scale, two-building, fixed and isolated hospital building model will be tested on the e-Defense shaking table in Japan in December 2020. The building will be equipped with various medical equipment and non-structural elements. The testing will provide quantitative data to improve hospital functionality assessments in earthquakes and examine current modelling accuracy.

Academic teams and practitioners are invited to participate in a Blind Prediction Contest to predict the structural and non-structural component response, and the system functionality. More information about the contest and the sign up form is available at the contest website:

<https://sites.google.com/view/2020bpc/>

Signing up enables you immediate access to an information packet including building drawings, equipment data and also selected test data. A contest results workshop is tentatively planned at an international conference in 2021/2022.

Sign-up now!

Tentative schedule

Sign-up begins:	3 August 2020
Phase I prediction submission due date:	20 November 2020
E-defense test:	December 2020
Phase II prediction submission due date:	23 April 2021
Top teams notified:	May 2021

For any queries, please contact contest organisers:

Associate Professor Masahiro Kurata (kurata.masahiro.5c@kyoto-u.ac.jp) DPRI, Kyoto University;

or NZ contacts:

Dr. Quincy Ma (q.ma@auckland.ac.nz), The University of Auckland.

Dr. Megan Boston (megan.boston@waikato.ac.nz), The University of Waikato



NZSEE Regional Groups

NZSEE Regional Groups are active in Auckland, Wellington and Christchurch. The Regional Groups organise regional events and presentations and host New Zealand wide travelling lectures, and they are interested in presentations from local members. There are plans to set up an additional regional group in Dunedin in 2020 – keep an eye out for further details.

Contacts for the regional groups are:

Auckland	Liam Wotherspoon & Sam White
Wellington	Jenni Tipler & Karina Dahl
Christchurch	Anna Winkley & Nigel van den Akker
Dunedin	Mark Stirling

For further information please contact Tony Holden: tony.holden@arecongroup.com

Contact

All correspondence regarding the Society should be sent to

E-mail: exec@nzsee.org.nz

EQC Support

The Society would like to acknowledge the generous support provided by the EQC in the form of annual conference and Bulletin publication sponsorship.

