

Welcome to the 10th edition of SESOC NEWS. For general information regarding the New Zealand Structural Engineering Society (SESOC) and for committee contact details refer www.sesoc.org.nz



Southland Stadium.

SESOC
Structural Engineering Society
of New Zealand

For general information and for committee contact details refer www.sesoc.org.nz

Postal Address:
 PO Box 6508
 Auckland

ISSN 2230-3995

IN THIS ISSUE

[President's Comment](#)

[Life Members of SESOC](#)

[SESOC – “Sample” Design Features Reports Available for Download](#)

[Website](#)

A forum section is now available on the SESOC website for members to discuss technical issues of interest.

[Radiata Perp-to-grain Strength – NZS 3603](#)

[International Awards for New Zealand Structural Engineers](#)

Two New Zealand companies feature in the IStructE 2010 Awards.

[Standard Residential and Low-rise Steel Framing](#)

[Auckland City Liaison](#)

IPENZ, ACENZ and SESOC met with the new Auckland City Council to discuss building consent issues.

[Invercargill Stadium](#)

SESOC members are assisting with the investigation into last year's Stadium Southland roof collapse.

[Seminars](#)

[Technical Issues Meriting Attention](#)



President's Comment



The Canterbury earthquakes have dominated the thoughts of many structural engineers in recent months, not least those (such as myself) who live there. However, in a country the size of New Zealand an event of this magnitude touches everyone. SESOC wishes to convey its thoughts and sympathies to people who lost family, friends, property and possessions in the quakes. Many SESOC members, both those who live in Canterbury and others who travelled to assist in the recovery phase, were heavily involved in the immediate triaging of buildings in the days following the earthquake, and are now carrying out seismic assessments and improvements of damaged structures. To everyone involved, we offer our support for the long months to come.

The earthquake dominated our recent meeting, where a substantial amount of time was spent addressing current issues in structural engineering. Naturally, attention will be given in the immediate future to lessons learnt from the earthquake, and to that end SESOC will be collaborating with other technical groups in identifying potential improvements in structural engineering design and assessment.

With all of the attention given to the failures that have occurred, it is easy to overlook the positives, two of which I'd like to emphasise. The first is that well-conceived, well-designed and well-executed structures performed well in the earthquake, considering the extreme forces they were subjected to – as much as twice the current code loads in some cases. The second is the tremendous response of structural engineers from all over the country who supported Christchurch in its time of need. Many of these people are SESOC members (and all should be!), and it is a matter of pride for SESOC and the wider engineering community that so many rose to the challenge.

Under these circumstances, it is easy to overlook the fact there is still a need to continue as usual. This newsletter reflects that approach, so members can be assured we are still trying to cover all engineering matters as we should be.

John Hare – SESOC President



[Contents](#)

Life Members of SESOC

The outgoing SESOC president Mark Batchelar recently had great pleasure in awarding three past presidents of SESOC with Life Memberships at a joint SESOC/Auckland Structural Group meeting. Tony Gibson (1994-1996), Trevor Robertson (1997-1999) and Ashley Smith (2006-2008) are role models for our profession, and their efforts in the leadership of SESOC are gratefully acknowledged.

SESOC – “Sample” Design Features Reports Now Available for Download

Sample Design Features Reports (DFR) are now available for members to download. This follows on from work done by the SESOC Management Committee on guidelines for design documentation and review.

There are two versions of the reports: a Commercial DFR version with detail covering most major residential, industrial or commercial projects, and a Domestic Housing DFR covering domestic housing generally in accordance with NZS 3604 but with elements of specific design.

Both documents are available in Word format from the website and can be freely edited to suit your particular project. We encourage all members to view these reports and consider using a DFR report to clearly explain design objectives for designs submitted for review.



[Contents](#)



Website

A forum section is available on the SESOC website for members to discuss technical issues of interest. The procedure for accessing the forum site is detailed below.

Log on to the website as you would normally, using your IPENZ login. Under the “Events” section on the front page you will find links to the various forums.

Members are invited to share their observations and reflections on aspects of building performance in the recent earthquakes, along with any other topical issues that may emerge. Members can also start their own threads on items of interest.

Radiata Perp-to-grain Strength – NZS 3603

SESOC members who design with timber should note that researchers at the University of Auckland have observed that the compression strength perpendicular-to-grain of radiata pine timber is approximately 50 per cent of the characteristic value given in NZS 3603. Tests clearly show the proportional limit strength is in the range of 4.1 MPa to 5.5 MPa. The characteristic value in NZS 3603 is 8.9 MPa. Timber designers need to be aware of the un-conservative value of 8.9 MPa, particularly in joint design where perpendicular-to-grain bearing may be significant.



[Contents](#)



IStructE Awards for New Zealand Structural Engineers

It is excellent to see New Zealand structural engineers do well internationally. Both Beca (Winner – Award for Education or Healthcare Structures) and Holmes Consulting Group (Winner – Heritage Award for Building or Infrastructure Projects) are featured in the recent IStructE 2010 Awards – see www.structuralawards.org

Standard Residential and Low-rise Steel Framing

An important document prepared by the National Association of Steel Framed Housing (NASH) is currently out for comment. The NASH Standard Residential and Low-rise Steel Framing Part 1: Design Criteria Version 2: October 2010 document explains how to comply with the performance criteria of B1 for steel framing of low-rise buildings such as houses and commercial buildings. The draft document can be accessed at:

www.nashnz.org.nz/publications/Residential_and_low-rise_steel_framing_2010_V2.pdf



[Contents](#)



Auckland City Liaison

Executive members of IPENZ, Association of Consulting Engineers New Zealand (ACENZ) and SESOC attended a meeting with the new Auckland City Council to discuss issues around building consent and lists of engineers on the CPEng register. Discussion also considered the quantity of professional indemnity insurance required by structural designers submitting Producer Statements.

It is recognised that this work is ongoing with Territorial Authorities and SESOC members are encouraged to report any issues they have with the acceptance of Producer Statements to either IPENZ or ACENZ.

Invercargill Stadium

SESOC offered assistance, through IPENZ, to provide an independent investigation of the Stadium Southland roof collapse during heavy snowfall on 18 September 2010. The Department of Building and Housing (DBH), which has the authority to investigate such matters, accepted our offer of support and engaged SESOC members Ashley Smith and Clark Hyland to investigate and report on the reasons for the roof collapse. An initial draft report has been prepared and is currently being edited before submission back to the DBH for final review. It is expected the report will be made public. SESOC members will be notified.



[Contents](#)

Seminars

A collaborative seminar was recently delivered on topics associated with the assessment and improvement of buildings in earthquakes. It covered topics associated with building foundations, steel framed buildings and unreinforced masonry buildings.

An upcoming seminar series is scheduled for late April and May on building performance in the February 2011 Christchurch earthquake.

Technical Issues Meriting Attention

The SESOC Management Committee reflected on some of the topical technical issues that have emerged from the recent Canterbury earthquakes. A list of some of the more high-priority issues is provided below.

High priority:

- Post-earthquake assessment and repair provisions
- Diaphragm design
- Building irregularity
- Adequate level of construction monitoring
- Performance of precast concrete elements, including stairs, and other secondary systems
- Low-cycle fatigue of reinforced concrete members
- Reinforcement coupler systems
- Anchor failures in masonry
- Shoring design
- Collapse prevention of non-ductile medium and high rise buildings.



[Contents](#)



Medium priority:

- Serviceability criteria for high ductility buildings
- Promote independent peer review
- Precast concrete flooring
- Base isolation and low damage design guides
- Conduct post-earthquake review of critical facilities
- Review performance of slender precast concrete walls
- Use of mesh in structural diaphragms
- Weld plate connection details
- Performance at the Maximum Credible Earthquake
- Clarification of vertical acceleration design provisions
- Foundations in liquefiable ground
- Earthquake-prone statues and other non-building structures.



[Contents](#)