

STEEL FUTURES

SCNZ MEMBERS ENJOY AUCKLAND AGM & MEMBERS EVENT

SCNZ members gathered at the Novotel Hotel Ellerslie in Auckland on 16th September for the SCNZ Annual General Meeting and Members Event.

Congratulations to Chris Kay, New Zealand Steel Ltd and Mike Sullivan, D&H Steel Construction Ltd, who were re-elected at the AGM for a second term as chairman and vice chairman respectively.

Congratulations also to Peter Donohue of Steel & Tube Holding who was elected by the SCNZ Executive Council as the replacement Steel Distributor council representative for Terry Carter. Thank you to Terry and outgoing Councillor Bob Hawley of Red Steel (Napier) for their service to SCNZ over the past few years.



After dinner speaker, Eric Rush

The promotional material for this event asked the question; Do you know how amusing Eric Rush is? Well we now know the answer to this question – very funny! The former All Black and NZ Seven representative had everyone in stitches for an hour as he regaled us with humorous stories from his eventful life; from school boy growing up in Kaeo (Northland) to

international sportsman and now supermarket operator.

The afternoon programme consisted of two business speakers and a member’s forum. SCNZ would like to thank OneSteel for sponsoring Gareth Kiernan, Managing Director of Infometrics, who gave an interesting, yet not overly optimistic economic forecast with particular emphasis on the construction sector.

Blair Cranston, Managing Director of Cranston Homes and current president of the Registered Master Builders Association, presented tips on growing your business and

staying profitable. Blair drew on his experience of running his own business to share insights that will hopefully help members run their businesses better.

The member’s forum was a good opportunity for SCNZ chairman Chris Kay to update members on the SCNZ Manager recruitment process. Chris advised that unfortunately the leading candidate for the position had withdrawn his application at the beginning of the week to take up another job in the building industry. The position will now be re-advertised.

Former SCNZ training officer, John Kotoisuva, now CEO of the C-Me Mentoring Foundation Trust, talked about the Trades@School programme that will be launched late September at an event to be attended by the Minister of Education.

The two year Trades@School pilot scheme has ended with 14 of the 18 original intake of year 12 school students successfully completing the academic and practical requirements of the programme. Four of the students have now been employed by SCNZ member companies.

The programme is intended to provide a bridge between high schools and the steel construction industry with year 12 and 13 students undertaking the first year of their heavy



SCNZ members enjoying dinner at the Novotel Ellerslie



Trades@School students

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UPCOMING EVENTS

2010

- October 12-14 — SCNZ Steel Structures Seminars (Christchurch, Wellington, Auckland)
- October 19-22 — The 9th Pacific Structural Steel Conference
- October 28 — SCNZ Steel Structures Seminar (Nelson)
- November 2-3 — SCNZ Steel Structures Seminars (Taupo, North Shore)

SCNZ MEMBERS ENJOY AUCKLAND AGM & MEMBERS EVENT—continued

fabrication apprenticeship at the Manukau Institute of Technology while still at school.

During the school holidays the students spent time working in the fabrication shops of various SCNZ steel constructor members.

The programme is intended to reduce the risk and cost of recruiting and training trades people for the fabrication industry.

The C-Me Mentoring Foundation Trust has identified the Ministry of Education as the best long term sustainable funder for the programme and is working to secure such funding to allow the programme to be rolled out nationwide.

The SCNZ Executive Council recognises the potential value of the programme to SCNZ steel constructors and as a

sign of support for the programme has asked the C-Me Mentoring Foundation Trust to prepare a draft memorandum of understanding between the two respective organisations.

Acting Manager Alistair Fussell, recently returned from a trip to Christchurch presented his observations of the seismic performance of steel structures during the recent Darfield earthquake. This is discussed in more detail in a separate article dedicated to this event. Alistair also briefly overviewed an annual SCNZ publication, which is under development by the Membership, Marketing and Communication working group, which is intended to showcase the steel construction industry – watch this space for more details as the project develops.

STEEL CONSTRUCTION IN BUILDING TODAY MAGAZINE

SCNZ is running a steel construction feature with Building Today. In each feature we will be promoting excellence in steel construction. In particular we are looking for projects big or small in which a member company has shown excellence in some or all of the following:

1. Quality management in the workshop and on-site
2. Technical innovation
3. Project management
4. Health and safety practices



5. Environmental management in the workshop and on-site

SCNZ will write the article, you just need to tell us what you have been doing.

If you have a project you would like considered for an article please contact Rebecca at rebecca.symonds@scnz.org or phone 09 262 6682. Thank you.

Previous articles can be viewed in the Building Today magazines or on the SCNZ website.

UPCOMING SCNZ STEEL STRUCTURES SEMINAR: CONNECTIONS, CODES & COATINGS

Mark in your diary the upcoming Steel Structures seminar series. Sharpen your technical skills and gain valuable CPD hours.

SCNZ engineers will be accompanied in this series by Arun Syam, Tubular Development Manager for OneSteel Market Mills and Raed El Sarraf, HERA Structural Engineer.

The full day seminar for structural engineers will feature:

- Design of Braced Frame Connections
 - light cleat connections for low rise projects
 - heavy connections for multistory braced frames
- STEELMEP Software for Designing Columns for Moment Resisting Connections
 - A complimentary copy of this time saving design tool will be given to all seminar attendees
- Standards Update—AS/NZS 1163: 2009
 - An overview of the major changes to this recently revised joint Australian/New Zealand material supply standard for cold formed steel hollow sections used for structural purposes.
- Durability of Galvanized Coil Products in External Applications
 - Assessment of the durability performance of metal decking and purlins in external applications such as car parking and canopy structures
- The Benefits of Using the Local Supply Chain

The seminar will follow a lecture/workshop format to allow attendees to apply the material to practical problems.

Seminar dates and venues are as follows:

Christchurch - 12 October Crowne Plaza	Wellington - 13 October Cophthorne Oriental Bay
Auckland - 14 October Novotel Hotel, Ellerslie	Nelson - 28 October Fairfield House
Taupo - 2 November Millennium Hotel	Northshore - 3 November Aristotles North Shore

See the SCNZ website for more details and a registration form. www.scnz.org



DON'T MISS OUT—BOOK YOUR PLACE TODAY!

STEEL STRUCTURES PERFORM WELL DURING DARFIELD EARTHQUAKE

In the aftermath of the 4th of September Darfield earthquake, SCNZ were approached by Associate Professor Charles Clifton, a member of the Auckland University earthquake reconnaissance team that visited the Canterbury region the day after the event, to provide information on any repair work undertaken on steel structures by Canterbury steel constructors post the earthquake.



Preliminary fault trace mapped by GNS science

Acting SCNZ Manager Alistair Fussell visited Christchurch to meet with some of the local steel constructors to record details of any such repair work and also to inspect first hand a range of steel structures in the region that had been subject to seismically induced ground motion. The observations made in this article are based on the author's inspection of a limited number of steel structures which consisted of several low rise industrial buildings in the Rolleston area and a couple of multistory eccentrically braced buildings at different locations in Christchurch. The author's own observations have been supplemented by information provided by local steel constructors.

The epicenter for the magnitude 7.1 earthquake was located approximately 40 km to the west of Christchurch near Darfield. The initial earthquake which was of relatively short duration, 40 seconds, resulted in up to 4 metres sideways movement between the two sides of the fault near Darfield. While seismologists use a magnitude scale, which is a measure of the energy released by an earthquake to quantify earthquake events, this is not a good measure of how potentially damaging the earthquake motion is at a specific site to buildings. Structural engineers are more interested in the peak accelerations induced in the ground



Sideways movement of the fault line.

by the earthquake event. The reason that the ground acceleration is an important parameter is that the forces acting on a structure during an earthquake event are related to the ground acceleration. You will have experienced this phenomena if you ever have tried to stand in the aisle of a bus when it is accelerating from a standing start or breaking before coming to a stop. The direction of the force you experience is dependent on whether you are accelerating or decelerating. Similarly if you drive a sporty car and you have accelerated quickly from a standing start you will find yourself pinned to your seat. Simplistically this is what a building experiences when the ground beneath it is accelerated by earth motion generated by a fault rupture.

A feature of the peak ground accelerations experienced in the Canterbury region is how quickly they reduced away from the earthquake epicenter. The peak ground

accelerations in the city centre were in some cases only 20 to 30% of those experienced in the Darfield area. A



Porsche 911

measure commonly used to quantify earthquake ground accelerations is to quote them in terms of percentage of gravity or gravitational acceleration. If you drop an object it will fall with an accelerate of 1g or 9.81 ms⁻². Car manufacturers like to quote the time taken to accelerate a car from a standing start to 60 miles an hour (100 km/hr) as a measure of performance. If a car accelerated at 9.81 ms⁻² or 1g, it would reach 60 miles per hour in 2.83 seconds. A Porsche Turbo 911 according to manufacturers data will take 3.4 seconds to achieve 60 miles per hour (0.83g) while the average family car will achieve this speed in the more sedate time of 7.1 to 9.4 seconds (0.3-0.4g). The peak ground accelerations in the Darfield area were nearly 1g while in Christchurch City they were in the order of 0.2 to 0.3g.

Initial reports from the Canterbury region indicate relatively modern commercial buildings in the Canterbury region have performed well with no major structural damage or collapse. The older unreinforced masonry buildings have not fared so well with a number of building



Wall collapse—unreinforced masonry building.

STEEL STRUCTURES PERFORM WELL DURING DARFIELD EARTHQUAKE—continued

so seriously damaged they have already or will have to be demolished and also a number of residential buildings have suffered significant damage due to soil liquefaction. The good performance of modern buildings while pleasing when compared to the recent Haiti earthquake of similar magnitude where hundreds of thousands of people may have perished is to be expected as preliminary findings indicate the earthquake induced actions in the structures for the most part were below the levels required by the New Zealand Loadings Standard (NZS 1170.5).



Non-structural damage at University of Canterbury

shutter doors etc.

Consistent with regional peak ground acceleration records which indicate high ground accelerations (70%g) in the vicinity of Rolleston; there is evidence of yielding and permanent stretch of wall and roof rod bracing in low rise industrial buildings in the area. After the event rod bracing required re-tightening and in some cases the connections of



Damaged roller shutter doors

proprietary tension only brace systems failed and needed replacing. While none of these connection failures led to collapse of the structures this is not a desirable mode of behavior for tension only braces. The cause of failure being the stripping of threads of the screw in connection detail. Christchurch does not have a large number of multistorey steel buildings. These range from several to 22 storeys. Consistent with the variability of ground shaking, there was evidence in one structure of limited yielding of some of the active links while in other buildings the structure appears to have responded elastically. Structures are typically designed for some yielding in designated locations, such as the links of eccentrically braced frames to reduce the design loads the structure must resist. This is known as designing for ductility. These yielding regions act in a similar manner to a fuse in a circuit, they limit the demand on the rest of the braced frame by yielding at a given load level. In the process of yielding they absorb earthquake energy. All these buildings were back in service after the earthquake and have performed as expected during the subsequent aftershocks. An interesting observation from one of the multistorey buildings was that there was evidence as suggested by cracking in the slab over the support beam, that the

earthquake had caused vertical motion of cantilevered metal deck flooring.

There was also some spalling of concrete around cast in bolts and plates connecting structural steel to precast concrete elements. This damage to non-seismic connections is due in part to a lack of connection flexibility to accommodate the interstorey displacements that occurred during the earthquake event.

A meeting organized by Gavin Lawry of Pegasus Engineering was convened with local SCNZ steel constructor members to debrief on what had happened to steel structures in the region during the recent Darfield earthquake. In total 17 people attended the meeting. SCNZ Acting Manager Alistair Fussell opened the session with a brief overview of the seismological data for the earthquake. South Island Manager for Reid Construction Systems Peter Johnston provided a manufacturers perspective on the performance of their proprietary rod bracing system. After this there was an open forum where members could discuss their post earthquake remedial activities. As previous mentioned this consisted of tightening stretched rod bracing, replacing a small number of proprietary rod bracing system connections and replacing some loose bolts in cover plate portal frame rafter splice connections.

Our thoughts are with our Canterbury members who have experienced a very difficult time in the past month with the initial earthquake and the numerous aftershocks. The assistance of Canterbury Steel Constructors Chris Chapman of Chapman Engineering and Gavin Lawry of Pegasus Engineering is acknowledged; Gavin for organizing the members meeting and Chris for giving up a morning to take me to visit a number of low rise building projects in the Rolleston area. The assistance of Dr Charles Clifton in providing earthquake seismological data and some of the photographs is also acknowledged.



Spalling of cast in bolt connections



Rod bracing with failed connection



Stripped threads - screw in connection detail

Would you like to become a SCNZ member? For an annual subscription of only \$100 + GST you can enjoy the benefits of belonging to an association dedicated to the advancement of steel construction.

Please tick the box below and fax back to 09 263 5638.

Yes, I would like to become a SCNZ member.

STEEL ESTIMATING RATES UPDATE—BE IN TO WIN \$500 CASH!

An important plank in the successful strategy to grow the market share of structural steel solutions in the New Zealand building construction market has been the development of the online estimating guide.

The purpose of this guide is to set out a method and provide sufficient data for design, fabrication and construction professionals to develop quick and reliable preliminary estimates of the constructed cost of structural steelwork for building projects in New Zealand.

This important estimating tool relies on the regular input of steel constructor member companies to ensure the rates are representative of current market conditions. We therefore encourage member companies to take the time to

fill out the pricing request forms and return them to SCNZ. As an added incentive, all companies who return the forms will go into a draw to win a \$500 cash prize. All information will be treated in the strictest confidence.

The rates supplied will not only be used to update the online estimating guide rates, but will also form the basis for the rates to be published in the 2010 Rawlinsons Construction Handbook.

So don't delay, send in your pricing information now and be in to win!

See the SCNZ website for more details about the online steel estimating guide www.scnz.org.

GST INCREASE

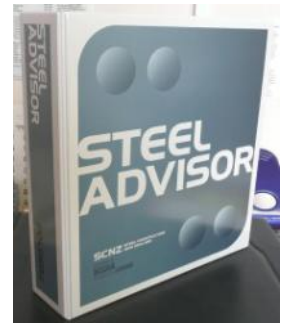
From the 1st October all membership fees and SCNZ publications will be subject to the GST increase to 15%.

STEEL ADVISOR LATEST ISSUE

The latest Steel Advisor issue contains two articles. Alan McClintock, of HERA, has written an article on the **Withdrawal of Welder Qualification Standard NZS 4711**. This is to take effect on 1st April 2011. The second article, **Galvanic/ Dissimilar Metal Corrosion**, has been written in response to a number of similar queries received

on this subject. This article identifies what causes galvanic corrosion and how to avoid it.

The Steel Advisors articles are available for subscribers at www.scnz.org/steel-advisor



THE 9TH PACIFIC STRUCTURAL STEEL CONFERENCE OCT 19-22, 2010 – BEIJING

The Pacific Structural Steel Conference (PSSC) is a major initiative bringing together expertise in structural steel research, education and construction from all around the Pacific Rim and beyond to promote cooperation among the structural steel associations and communication on developments in the field of steel structures in Pacific countries.

For more details, please visit the PSSC conference website at www.pssc2010.com.



STEEL STRUCTURES LICENSING

The Department of Building and Housing has made a decision, following a public consultation process undertaken last year, not to include steel constructors in the licensed building practitioner scheme. The reason given was that

steel constructors typically work in the commercial not residential building sector where the licensed building practitioner scheme is directed.