

STEEL FUTURES

OCTOBER 2020

COUNTDOWN TO THE 2020 EXCELLENCE IN STEEL AWARDS



Anticipation is building for this year's Excellence in Steel Awards, which has been rescheduled to lucky Friday the 13th of November.

Thanks to everyone who entered this year's awards. Our judging panel had a tough time arriving at a shortlist for each of the five categories. So, congratulations to our finalists. We've provided a round-up of the contenders below. Enjoy!

STANDALONE RESIDENTIAL FINALISTS

Pasadena Avenue, Point Chevalier

This was a very demanding small project on a confined site with limited access. The intricate design includes some unusual geometry and required very careful detailing. Internally, exposed steel is expressed as a design feature of the build and includes steel-framed stairs and balustrades.

Project Team: Structural Steel Contractor, Jay Cee Welding; Builder, Matt Cherishov; Steel Modeller, ASSL; Structural Engineer, Wilton Joubert; Architect, Ark Studio



The Spur

Glenelg Spur is a small lane in the hills of Christchurch; the house sits at the end of this lane. During the design process considerable thought was given to the way the steel would be transported to site and the detailers designed in such a way that no steel member was longer than 13m.

Project Team: Structural Steel Contractor, Modeller & Quantity Surveyor, VIP Steel; Builder, Fortis Construction; Structural Engineer, Calibre Consulting; Architect, Sheppard & Rout Architects



UNDER \$500K FINALISTS

NZ Blood Atrium

The project for NZ Blood involved the demanding installation of a new atrium roof within the central compound of an existing building. The design of the atrium structure was such that the entire roof was to 'float', unfixed, on the strengthened existing structure until such time as all roof fixtures were installed.

Project Team: Structural Steel Contractor & Modeller, Global Engineering; Builder, Q Interiors; Structural Engineer, GHD; Architect, GHD Woodhead; Developer/Owner Q Construction



Vaka 'A Hina Sculpture

The distinctive, angular shape of Vaka 'A Hina was inspired by the Tongan folklore story about the goddess Hina and her journey to the moon in a vaka (canoe). The seven-tonne sculpture is fabricated from Corten plate and comprises elaborate and complex geometric shapes that move in multi-directional and multi-dimensional ways.

Project Team: Structural Steel Contractor, Modeller & Builder, John Jones Steel; Structural Engineer, GHD; Artist, Sēmisi Fetokai Potauaine; Developer/Owner, Scape Public Art.



Auckland Zoo - Canopy Climbers

The canopy climbers are an integral part of Auckland Zoo's South East Asia Jungle Track. Steel was the obvious choice to design the climbing frames for the primate habitat – no other material could be formed into the complex shapes of trees and still provide the structural integrity to support the climbing ropes linking all of the climbers together.

Project Team: Structural Steel Contractor, George Grant Engineering; Steel Modeller, 3D Steel; Builder, NZ Strong; Structural Engineer, Jacobs; Architect, Studio Hanson|Roberts; Quantity Surveyor, Beca; Developer/Owner Auckland Zoo.



\$500K-\$1.5M FINALISTS

Westhaven Marine Village

Architecturally, the distinctive sawtooth roof form derives from the Devonport naval shipyards, while the consistent ridge heights and varying width bays articulate the façade. Use of structural steel starts from the ground up with driven steel piles penetrating the potentially liquefiable soils to anchor the building soundly to the bedrock below.

Project Team: Structural Steel Contractor & Modeller, D&H Steel Construction; Builder, Argon Construction; Structural Engineer, BGT Structures; Architect, ArchOffice; Developer/Owner, Panuku Developments



128 Anzac Avenue

A structural steel solution was used on the external elevations to strike a balance between the structural and the architectural objectives. Architecturally, the external elevations had to be as open as possible to allow views to Auckland Harbour and the city. Structurally, these elevations were required for lines of lateral resistance for wind and seismic loading.

Project Team: Structural Steel Contractor & Modeller, Global Engineering; Builder, Arrow International and Kalmar; Structural Engineer, BGT Structures; Architect, Ashton Mitchell; Developer/Owner, Lamont & Co.



Chinese Embassy, Wellington

The Embassy sits at the heart of the Wellington Fault. The 11-storey building was constructed in the 1980s when building standards, particularly related to seismic strength, were significantly lower than they are today. A significant seismic upgrade was required to protect diplomats, the community and nearby buildings from the risk of falling debris or building collapse in an earthquake.

Project Team: Structural Steel Contractor, Petone Engineering; Steel Modeller, Beamline; Builder, JNS Construction; Structural Engineer, Focus Engineering Consultants; Quantity Surveyor, Walker QS Consultants



Redcliffs School

The new school in Christchurch makes innovative use of structural steel to overcome numerous site challenges, resulting in an extremely robust and efficient building. Steel allowed versatility for the design and detailing of the required structure and structural steel concentrically braced frames were adopted as the ideal bracing solution.

Project Team: Structural Steel Contractor, Modeller & Quantity Surveyor, VIP Steel; Builder, Naylor Love; Structural Engineer, Ruamoko Solutions; Architect, Tennent Brown Architects; Developer/Owner, Ministry of Education



\$1.5M-\$3M FINALISTS

Manawatu River Cycleway Bridge

This low-maintenance bridge is comprised of superstructure elements fabricated from weathering steel, and handrail and balustrade elements manufactured from grade 316 stainless steel. The lightweight steel structure allowed for minimal low-profile pier and abutment requirements.

Project Team: Structural Steel Contractor, Eastbridge; Steel Modeller, Construct n3D; Builder, Concrete Structures; Structural Engineer, Holmes Consulting and WSP; Developer/Owner, Palmerston North City Council.



Auckland Zoo - Shared Shelters & Aerial Pathways

The South East Asia Precinct is the new star attraction at Auckland Zoo. The high canopy primate habitat for orangutans and siamangs, who spend their lives ranging high up in the trees, features an extensive network of aerial pathways created using steel structures and linking ropes.

Project Team: Structural Steel Contractor, George Grant Engineering; Steel Modeller, 3D Steel; Builder, NZ Strong; Structural Engineer, Jacobs; Architect, Stevens Lawson Architects; Quantity Surveyor, Beca; Developer/Owner, Auckland Zoo



Tuvalu Convention Centre

This new Convention Centre has been built for the least-visited country in the world, the Pacific island of Tuvalu. The steel was manufactured and shipped to Tuvalu and a New Zealand team of riggers was assisted by the locals to erect the building to a tight timeframe, ensuring completion in time for the Pacific Island Forum.

Project Team: Structural Steel Contractor, George Grant Engineering; Steel Modeller, 3D Steel; Builder & Quantity Surveyor, Government of Tuvalu; Structural Engineer and Architect, Erasito Consultants; Developer/Owner, Government of Tuvalu



OVER \$3M FINALISTS

Bridge 20 - Transmission Gully

This bridge was designed to be launched over Cannons Creek Gully. The lightweight steel structure kept the piled foundations and piers slim and, due to the material's lower mass, allowed for longer spans and improved seismic performance.

Project Team: Structural Steel Contractor, Eastbridge; Steel Modeller, Construct n3D; Builder, CPB HEB JV; Structural Engineer, Aecom and URS; Developer/Owner, NZTA

Hobson Street Hotel

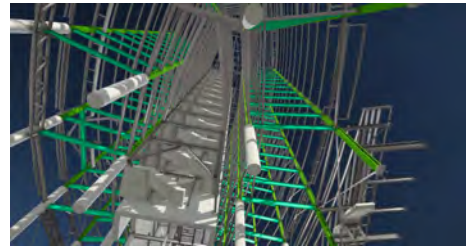
This project involved the contemporary design of a 12-storey, 300-room, five-star hotel. Steel columns, beams and buckling restrained braces were used to help designers efficiently address the design requirements for hotel-regular span decks and multiple levels with optimised connections.

Project Team: Structural Steel Contractor, Grayson Engineering; Steel Modeller, Cadtec Drafting; Builder, Fletcher; Structural Engineer, Beca; Architects, Warren and Mahoney; Developer/Owner, SkyCity

Spark - New Building, Christchurch

Built to be strong and sustainable, this 9,900m², five-storey, five-star green-rated building sits on a tight site in the centre of Christchurch. It is designed to withstand earthquakes with base isolators, rubber bearings and sliding plates. It is the first new building completed by private developers in Cathedral Square since the earthquakes.

Project Team: Structural Steel Contractor & Modeller, John Jones Steel; Builder, Naylor Love; Structural Engineer, Holmes Consulting LP; Architects, Sheppard & Rout Architects; Quantity Surveyor, WT Partnership & Construction Cost Consultants; Developer/Owner, Nexus Point



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MESSAGE FROM OUR GENERAL MANAGER

Dear Members

As you should all be hopefully aware, due to the COVID-19 lockdown situation at the time, we made the extremely difficult decision to postpone the SCNZ Steel Agenda and Gala Dinner until 13th November in Queenstown. Central to this decision was the need to ensure the health and wellbeing of our attending SCNZ members and guests.

On behalf of SCNZ I would like to thank members for your overwhelming support for this decision, some of whom, had their travel plans etc disrupted as a result of the postponement. We are looking forward to hosting the event and having the opportunity of not only celebrating the outstanding awards and successes of our industry but catching up with colleagues and peers.

Darren O'Riley
General Manager, SCNZ

SUSTAINABLE STEEL COUNCIL

As many of you are aware, prior to the Covid-19 shutdown the construction industry started seeing a growing concern from architects, designers, project owners, government bodies etc regarding sustainability of contractor businesses' product supply and potential impact on a New Zealand's goal re a low emission and circular economy. Whilst this has been initially seen predominately on large or iconic projects, it has begun to be seen on some minor buildings, so likely to be something we see more often, particularly when we eventually return to normality. Also, we have seen sustainability to be one of the key "broader outcomes" that the Government is using as a selection requirement for contractors/sub-contractors in the Government Procurement rules.

In response, Nick Collins from Metals NZ, Troy Coyle of HERA and Darren O'Riley (representing SCNZ) have successfully resurrected the Sustainable Steel Council (SSC) to coordinate and have a united approach on sustainability for the diverse steel industry of NZ. Troy and I are members of the SSC Board, along with representatives of Pacific Steel, NZ Steel, Fletcher Steel, Stainless Steel Industry amongst others. The Sustainable Steel Council, with input from Industry has developed the Sustainable Steel Charter compliance audit tool, which is a very useful tool to audit our businesses current sustainability performance. Sustainability is not just about the product that we produce but also covers contribution to adding value to the economy, employment welfare, society and nature. This is all covered by the Charter audit tool, which is not only relatively simple and easy to complete but also gives you tools and templates to help in areas where your business may require improving.

Another benefit of the Sustainable Steel Charter is that it is currently a key requirement for a the material credits of NZ Green Building Council Green Star Design and there are also other credits available for recycling and innovation.

A growing number of businesses have now been successfully audited to the Sustainable Steel Charter including 23 SCNZ Members and SCNZ itself – please see the following recommendation from David Moore from Grayson Engineering.

"Grayson Engineering is now certified to the Sustainable Steel Charter. Prior to the Covid-19 issue we had noticed a trend of architects and building owners being more concerned about greenstar points and sustainability during the tender process. As a result, with SCNZ's involvement with the Sustainable Steel Council, we inquired and were then audited to be certified to Sustainable Steel Charter. The charter is tailored to our industry and is relatively simple to undertake and easy to complete. It measures our business's contribution to financial, human, social and natural wellbeing, which is what the Government is using to measure the living standards framework. It also measures sustainability goals. There is also access to several tools and templates to assist with compliance.

The charter is also currently a requirement for a NZGBC Green Star Design so I would recommend SCNZ members start the process" – David Moore Grayson Engineering

For more details on the Sustainable Steel Council please visit the website www.sustainablesteel.org.nz . As a member of SCNZ, your company can join as a member of SSC at no additional cost (another benefit of being a member of SCNZ). Once you have done this, if you want to be audited to comply to the SSC charter, the cost is \$400 plus GST and is conducted via zoom.

If you are interested in being audited, please email Darren O'Riley at darren.o'riley@scnz.org



SFC

Our congratulations to the following SCNZ fabricators who have recently been successfully audited and have gained their Steel Fabrication Certification (SFC).

This now takes the total of 50 fabricators who now have SFC nationwide. We also have many more who are well done the track to achieving SFC over the coming months.

- Progressive Engineering Co. Ltd - Masterton
July 2020
- Stevensons Structural Engineers Ltd - Tokomaru
July 2020
- West Arc Engineering Limited - Auckland
July 2020
- Welding & Engineering Ltd - Christchurch
August 2020
- South Auckland Engineering Ltd - Auckland
August 2020
- ISSA Engineering Ltd - Auckland
September 2020
- Jay Cee Welding Ltd - Auckland
September 2020

HIGH STRENGTH BOLTING TRAINING

AUCKLAND AND WELLINGTON COURSES GOING AHEAD IN OCTOBER

The SCNZ High Strength Bolting Course for structural bolt installers, supervisors and inspectors is going ahead in October for Auckland and Wellington.

The introduction of this course comes after the [extension of the SFC scheme](#) to include a site erection module, capturing activities including on-site bolting, welding and erection.

The 2 ½ hour course is compulsory for structural steel contractors who want to achieve Steel Fabrication Certification (SFC) for erection; and provides attendees with a comprehensive knowledge of high strength structural bolted connections.

Attendees are able to understand and confidently apply the construction and inspection provision of the new AS/NZS 5131 Fabrication and Erection Standard, which applies to bolted connections.

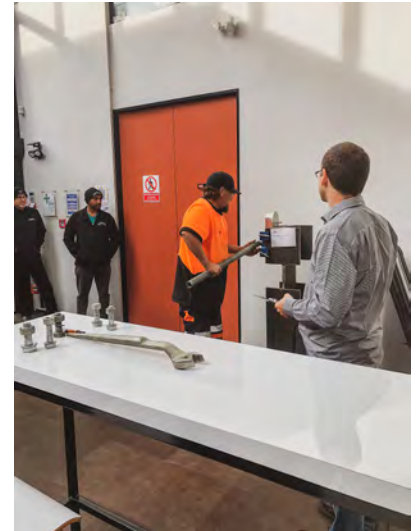
The topics covered include:

- Bolted Joints
- Bolting Materials
- Principal Bolt Installation Methods
- Inspection
- Quality Assurance

This course employs a “learn and apply” format comprising presentation material, practical demonstrations, and hands-on experience.

For more information and to register, please visit our website [HERE](#)

We are also looking for SCNZ Structural Steel Constructor Members to host this course - if you are interested, please contact Michelle Smith on info@scnz.org



“Best course I’ve been on for a while, great information and insight into how a bolt performs.....or doesn’t.” – Luke Te Whau, QA Manager Jensen Steel Fabricator

“David, our project manager attended & found it a very worthwhile course which was well presented by Kevin.” – Rod ISSA Engineering.

SCNZ CALL FOR COMMENT - WEBINAR

PROPOSED MATERIAL REQUIREMENTS FOR CATEGORY 3 STEEL MEMBERS IN SEISMIC-RESISTING SYSTEMS

When: Wednesday 21 October 2020, 3:00 pm – 4:00 pm

Cost: Free

This complimentary one (1) hour Live webinar will provide important steel updates for all practicing structural engineers.

The current Category 3 steel 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 steel material selection criteria for inclusion in the Steel Structures Standard (NZS 3404). The requirements are presented in Steel Advisor article MAT 2002, “Proposed Material Requirements for Category 3 Members in Seismic-Resisting Systems” which can be downloaded [HERE](#). 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 presentation will cover the proposed category 3 member material selection criteria, their technical basis and the potential benefits of adopting these requirements. SCNZ is seeking feedback on the proposed material selection criteria.

To register or for more information, click [HERE](#).

SCOPING REVISION OF NZS 3404 STEEL STRUCTURES STANDARD

NZS 3404 is a key Standard supporting the design and construction of steel buildings in New Zealand. MBIE considers NZS 3404 to be a primary reference that is a critical part of the Building Code compliance routes and is cited within the Verification Method, B1/VM1. MBIE have prioritize the revision to NZS 3404.

Given the importance of the Standard and the scope and scale of issues to be considered, an independent scoping phase is being carried out before the commencement of a project to revise the Standard. A Scoping Group has been formed for this scoping phase and the decisions made by this group will determine the technical scope of work of the future revision project, as well as the key principals and performance measures that will guide the full review of NZS 3404.

SCNZ is represented on the scoping group with SCNZ Senior Engineer, Kevin Cowie, as Chair. The first meeting was held on 13th September, with an additional meeting to be held in October.

For more information or to provide feedback, please contact Kevin - kevin.cowie@scnz.org

SCNZ NOTICE: AMENDMENT NO. 1 TO AS/NZS 5131 STRUCTURAL STEELWORK

AS/NZS 5131:2016 standard defines best practice for the fabrication and erection of fabricated structural steel in New Zealand and Australia. As of July 2018, it is cited in the NZ Building Code as the approved document for fabrication and erection. It also provides the basis for the industry-led quality assurance scheme, Steel Fabrication Certification (SFC). The standard is regularly reviewed and updated. AS/NZS 5131:2016 Amd 1:2020 has been published on the 14th August. Amd 1:2020 is available from [HERE](#).

Major changes include:

- Revisions throughout the document to the wording to reflect Australian Building Codes Board (ABCB) requirements for documents referenced under the National Construction Code (NCC). i.e. many 'shalls' changed to 'should' etc.
- Modifications to the definitions and application of traceability to better align with international practice. There is no real change to New Zealand practice but does change Australian practice.
- Normative reference to AS/NZS ISO 3834
- Revised reference to NZS 3404 and SNZ TS3404
- Added minimum bolt tension requirements for Property Class 10.9 bolts

In due course the SCNZ document: "New Zealand Structural Steelwork Specification in Compliance with AS/NZS 5131"; will be updated to reflect Amendment 1. This will take place after Amendment 1 is cited in the New Zealand Building Code, which could take up to 12 months.

The 2016 version of AS/NZS 5131 is cited in B1/VM1 as the primary Standard on steel fabrication and erection of steel for providing a means of compliance with the New Zealand Building Code.

Steel Construction New Zealand is considering recommending to MBIE that an amendment be made to the B1/VM1 document to reference Amendment 1 of AS/NZS 5131. Until this occurs the 2016 version remains the cited version in B1/VM1.

For questions or to provide feedback, please contact Kevin Cowie, Senior Engineer - kevin.cowie@scnz.org



STEEL FRAME CONSTRUCTION MONITORING

Quality Assurance and Inspection for Engineers

INCLUDING CERTIFICATE IN STEEL FRAME CONSTRUCTION MONITORING

Jointly developed by Steel Construction New Zealand and HERA, this 1½ day course is aimed at equipping professional engineers with the necessary skills and technical knowledge to monitor steel framed construction. The course is especially relevant to designers and engineers whose roles include construction review and the management of steelwork compliance inspection. It employs a "learn and apply" format comprising presentation material, practical demonstrations, and hands-on experience.

Space for this event is limited. To register interest, email Michelle - michelle.smith@scnz.org

For full event information, click [HERE](#)

STAKEHOLDER FEEDBACK REQUESTED - PROPOSED CATEGORY 3 MEMBER MATERIAL REQUIREMENTS

The current 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 our website [HERE](#)

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

SCNZ is also planning presentations for engineers, steel constructors, and steel distributors on this paper during October and November. Watch out for further details of these events in the near future.

COMPLIANCE CHECKLIST FACT SHEET



SCNZ have just published fact sheet FS10 entitled Compliance Checklists –Recommended for Structural Steelwork to AS/NZS 5131. This fact sheet provides checklists to assist engineers in establishing the compliance of structural steelwork to AS/NZS 5131. The checklists will also be useful to building officials as they provide an idea of the type of documents engineers should routinely be reviewing as part of their construction monitoring role.

AS/NZS 5131 features a risk-based categorisation of the structure, or elements of the structure, into one of four construction categories, i.e. CC1-CC4. The CC2 quality management requirements are considered overly onerous for simple, small projects such as residential houses so recommended compliance checklists have been prepared for CC2 simple, CC2 standard, and CC3 projects.

Download your copy [HERE](#)

STUD WELDING FACT SHEET

Shear studs are commonly welded to steel elements when steel-concrete composite action is required. SCNZ have recently published a stud welding fact sheet for engineers, stud welding contractors, builders, and building consent officials. The stud welding fact sheet discusses the key quality management provisions in the stud welding standard AS/NZS 1554.2 and the structural steelwork fabrication and erection standard AS/NZS 5131. In addition, it addresses the roles and responsibilities of the various parties associated with stud welding.

To support the release of the fact sheet, SCNZ have recently presented a webinar to Engineering NZ members based on this publication. It features informative video demonstrations of post stud welding test procedures. SCNZ is planning on re-presenting this webinar to members, details of this event will follow in due course.

The Stud Welding Fact Sheet is available via PDF [HERE](#) or hard copy. To request a hard copy - email info@scnz.org



An aerial photograph of Queenstown, New Zealand, taken at dusk. The town is illuminated with warm lights, and the surrounding landscape features a large lake, a forested island, and a range of rugged mountains with snow-capped peaks under a twilight sky.

HAVE YOU REGISTERED FOR THE UPCOMING SCNZ 2020 STEEL AGENDA & AWARDS DINNER

FRIDAY 13TH NOVEMBER
QUEENSTOWN

TICKETS ARE SELLING OUT - GET IN QUICK!
TO REGISTER NOW, CLICK [HERE](#)