

# Conference showcases steel innovations

## Jo Bailey

Emerging seismic-resisting steel technologies were showcased to around 180 delegates at the Steel Innovations 2013 conference held in Christchurch in February.

“The event was a great opportunity for the engineering community to assemble, share knowledge, and learn about these exciting, innovative systems and technologies and what they could offer the Christchurch rebuild,” says Alistair Fussell, manager of Steel Construction New Zealand that organised the event.

Fussell says one of the most notable changes in structural engineering since the disaster has been a move towards ‘Damage Control Design’ to limit building damage in future seismic events.

This has seen a departure from the traditional ductile design which saved lives in the quakes, but was unable to minimise structural damage to buildings.

“This resulted in significant economic loss for building owners and considerable downtime during the repair or rebuild process. However low-damage seismic-resisting steel technologies can withstand major earthquakes and require no major post-earthquake repair.”

A paper presented to the conference by Associate Professor Stefano Pampanin of the Department of Civil and Natural Resources Engineering, University of Canterbury and structural engineers Doug Latham and Alan Reay of Alan Reay Consultants highlighted New Zealand’s first application of steel PRESS technology in action on the new Kilmore Street Medical Centre building.

The 5000sqm, three-storey building in the central business district utilises a post-tensioned, steel controlled rocking and



The Kilmore Street Medical Centre being built in Christchurch is using the latest in steel construction technology.

dissipating (hybrid) system, which in a seismic event would allow controlled rocking of the structure to reduce damage to the primary structural elements.

Their report said the building was currently under construction and “generally within budget and on schedule. It has shown that this type of system is viable for future developments.”

Other systems that embody this performance-based design philosophy including the eccentrically braced frame (EBF) with removable link; and buckling restrained braces (BRB) which have been used overseas

for several years but have had only limited use in New Zealand to date.

Fussell says that he expects there to be “widespread uptake” of these technologies as the rebuild progresses.

“It meets the higher performance expectations of building owners in the post-earthquake environment.”

Fussell says he has received excellent feedback from delegates since the conference about the “quality and calibre” of its local and international speakers and the range of topics they covered.

“We had a great cross-section of speakers -

everyone from local consultants talking about their new projects; to academics revealing the latest research; and practitioners who are putting the technology to use in real-life projects.”

The conference programme also featured a number of papers involving post-graduate students under the leadership of local steel experts Associate Professors Charles Clifton (University of Auckland) and Greg MacRae (University of Canterbury).

“The research was highly innovative and is already finding its way into rebuild projects such as the Kilmore Street Medical Centre.”

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