

New Zealand Society for Earthquake Engineering Inc.



Electronic Newsletter 4

March 2002: Conference Special

Editorial

This is an informal commentary, prepared for the benefit of those NZSEE members who for one reason or another couldn't make the conference. I have not summarised every presentation, but emphasised wit and eloquence where it occurred! The intention is to give the flavour of what happened, not a detailed description.

Full notes, compiled at the time by David Hopkins, will be put onto the Society's web site later this week. These are primarily for reference by participants. There is also a copy of the presentation he used to summarise the main issues of the conference.

Napier turned out to be an excellent place to congregate: rain bracketed but did not interrupt the weekend, and the venue was very well situated and set up.

There were, as always, a good number of people who were either new members or visitors, as well as the usual mix of committed members. The tone of the weekend was set by the housekeeping brief, which included two important pieces of data:

- (1) a near-source tsunami would take 10 minutes to arrive, and
- (2) in that time, a 1 km safety distance should be put between members and the beach!

As always, the weekend turned out to be an excellent mix of the intellectual, technical and social – perhaps a reminder to diary next year's Pacific Conference!

Kevin O'Kane

Session One: Friday

Jeremy Dwyer, from the Hawkes Bay Regional Council, gave the opening address. In his role as an EQC commissioner, he suggested, "people call me any time there is a shake, rattle and roll in the Bay to say I'm not doing much of a job." He emphasised the need to learn from past experiences and to work together: "Each to their speciality, all to the common purpose".

All the sessions had a good mix of background research and practical application. This session set the pattern, under the chairmanship of Richard Sharpe. The first lifelines report from the Hawkes Bay was followed by an update of research knowledge. "In the world of research, the half-life of information is perhaps five years; but in the real world of structures, that half-life may be 50".

John Sinclair, President of the NZ Institute of Architects, gave a deliberately provocative outsider's view of what NZSEE does well and where it needs to improve its approach. The need to connect with a wider audience was emphasised: "NZSEE is as much a part of the problem as it is part of the solution." Not surprisingly, this address generated a number of comments and questions in response.

A first cut at a matrix of priority reduction issues emphasised the range of risks involved, including high-level goods storage in retail stores – an issue gaining attention from a number of members. The session finished with a report on the Arequipa earthquake – the highlights were the description of tsunami impact, and a highly dramatic picture of the cathedral, billowing dust as it shook in the main shock.

The session finished with an outline of Exercise Phoenix (23-27 July) and an invitation to visit www.civildefence.govt.nz

Out and About

On Saturday afternoon, delegates dispersed to gannets, golf and gaudy architecture (the Art Deco walking tour shows off the architectural features of central Napier) before gathering in the evening. A short bus trip took us to Brookfield's winery, where good food, wine and company did much to encourage further networking.

Session Five: Sunday

The Sunday began with a welcome extra hour (the end of daylight saving) to allow delegates to be ready at the appointed but early time. Two papers on bridges began the day; the first described the method of sorting through the very large number and range of highway bridges to establish the highest priority structures for retrofitting. The second outlined the use of micropiles as a cost-effective way of retrofitting bridge foundations.

We then heard about the earthquake response of building parts under the proposed joint AS/NZ loading standard: "The ceiling above us may fall into the category of a crowd hazard." A discussion of modelling fire spread highlighted the advance of information technology – in 1989, a single manual plot was attempted; now, it can be modelled repeatedly using GIS databases. The algorithm for separated properties (am I a fire? Am I fuel? Am I 'lucky') gave a good insight into the thinking underpinning the project.

Jitendra Bothara gave a talk described as "inspiring" on a programme to upgrade the seismic safety of schools in Nepal. The absolute necessity to connect with the wider community formed the central lesson for delegates.

The session ended with a report on the Earthquake Risk Buildings study group; finally, it seems, some progress on amending the Building Act to consider at least some of NZSEE's concerns has occurred.

Session Six

The final session of the conference opened with a discussion of displacement method applied to beam/ column failure in four modes. Then a paper on accounting for seismic loss in discounting the value at risk properties took us perilously close to economics, with the note that most retrofitting occurs in conjunction with other upgrade work since "much of the cost incurred is for making good."

A consideration of the response of foundations under storage tanks made a distinction between the effects of sloshing (long period, sustained waves) and impulse modes. The short-term fluid motion accounts for most of the energy displaced during an earthquake.

Comparison of the relationship between felt intensity and strong motion records showed the difficulty of trying to find a useful parameter to provide real-time estimates. At this stage, we are still dependant on observations and later surveys for establishing felt intensity. Note was made of how old-fashioned the Modified Mercalli scale has become, with its emphasis on rattling windows and toppled chimneys.

The final paper, on form and seismic behaviour of structures, examined the relationship between hysteretic form and the seismic design spectra in the loadings Standard.

Summary

Thus ended another well-conducted and informative conference. We finished with a call from David Hopkins to consider our image and role carefully.

Thanks were given to Jacquie Hamer and Gavin Treadgold for making sure that the whole event ran smoothly.

Stop Press

Jitendra Bothara was awarded the student prize for his paper on Nepalese approaches to Seismic Safety in Schools