

NZSEE working party on integrated planning for earthquake response – 2004 report

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**2005 NZSEE
Conference**

ABSTRACT: The activity focus of the NZSEE Working Party during 2004 was on assisting IPENZ with the establishment of the Professional Engineers and Emergency Management Task Force, and in commencing a revision of the NZSEE Post-earthquake Building Safety Evaluation procedures.

This report summarises the key activities of the NZSEE Working Party and the Professional Engineers and Emergency Management Task Force during 2004, and comments on progress being made.

1 INTRODUCTION

The activity focus of the Working Party during 2004 was on assisting IPENZ with the establishment of the Professional Engineers and Emergency Management Task Force, and in commencing a revision of the NZSEE Post-earthquake Building Safety Evaluation procedures.

The members of the Working Party during 2004 were:

David Brunsdon (convener)	Kestrel Group Ltd
John Buchan	Christchurch City Council
Hans Brounts	Ministry of Civil Defence & Emergency Management
James Dance	New Zealand Fire Service
John Gardiner	Department of Building & Housing (formerly IPENZ)
Rosemary Hazlewood	Building Officials' Institute of NZ
Andrew King	GNS
David Middleton	EQC
Richard Sharpe	Beca Carter Hollings and Ferner
Bruce Shephard	Seismic Consultants Ltd
Euan Smith	Victoria University of Wellington
Rian van Schalkwyk	Greater Wellington Regional Council Emergency Management
Katharine Wheeler	Wellington City Council
Peter Wood	Ministry of Civil Defence & Emergency Management

The continuing contribution of the members of the Working Party and others from related committees is gratefully acknowledged.

2 PROFESSIONAL ENGINEERS AND EMERGENCY MANAGEMENT TASK FORCE

The Professional Engineers and Emergency Management (PEEM) Task Force is headed by John Gardiner (formerly IPENZ, and now Department of Building & Housing), with Caroline Strachan of ACENZ, Peter Wood of MCDEM, Rian Van Schalkwyk of the Wellington Region CDEM Group and the author representing NZSEE. The objectives of PEEM and the associated key tasks are summarised in the appended terms of reference.

Activities include further developing and promoting the IPENZ emergency response list of engineers and the need for critical facilities operators to have priority response agreements with professional engineers and others.

PEEM & IPENZ Roadshows

The main output of PEEM has been a series of roadshows around the country to introduce the role of PEEM and to provide an update on the IPENZ emergency response list of engineers.

While the audiences were modest, those turning out are generally enthusiastic, and there has been good input from and engagement with regional and local CDEM personnel. Similarly, while there have been relatively few operators of critical facilities, those that have attended representing hospitals, airports and some utilities have received the Society's message about the need for Priority Response Agreements quite positively.

Feedback from those present at the roadshows has confirmed that the key tasks identified in the PEEM terms of reference are appropriately focused, and that there is much that needs to be done in this area. Other key observations from the six roadshows delivered to date in conjunction with the IPENZ Branches include:

- Some emergency management officers hadn't appreciated the potentially significant role that engineers will play following a major earthquake event
- Very few engineers who attended the seminars were involved in priority response agreements with critical facilities agencies
- The mechanics of interaction between CDEM Groups and engineers needs further consideration, along with the establishment of an Engineering Co-ordinator role in major metropolitan centres
- Many engineers remain anxious about liability aspects.

It is intended to continue this series of roadshows in the other regions if they can be accommodated within the IPENZ Branch programmes.

IPENZ Emergency Response List of Engineers

There was general support from attendees at the roadshows for the IPENZ emergency response list of engineers. The need to communicate this more widely was noted, along with exercising the arrangements and assumptions in conjunction with CDEM exercises. IPENZ and PEEM are also progressing the development of the list of engineers, although progress has been hampered by loss of key IPENZ personnel.

Liability of Engineers

Further specific consideration has been given to the question of liability of engineers providing advice in emergency situations, with a workshop involving Adam Thornton (ACENZ President), Richard Sharpe, Peter Smith and PEEM members being held. There are two contexts to this question – in non-declared (eg. single-site) emergencies and in declared emergencies. The CDEM Act provides general protection to volunteers and others working under the direction of a designated Controller in a declared emergency. The extent to which the Act covers the likes of consulting engineers from liability if technical operations affect people or property remains uncertain, as it lies outside the scope of a Crown Law Office opinion obtained by the Ministry of Civil Defence & Emergency Management.

For non-declared emergencies, there is no statutory protection for responders. The concept of a Priority Response Agreement between some consulting practices and the Emergency Services in each region, with liability issues covered off, has been raised. The possibility of aligning engineers with fire service volunteers in terms of indemnity arrangements is also to be investigated. This could also be similar to the Californian definition of 'Disaster Service Workers'.

The fundamental importance of progressing this issue to encourage more engineers to become involved is acknowledged. The ACENZ Board is also taking an active interest in this area.

National CDEM Plan

Input relating to the engineering emergency response functions, arrangements and resources has been provided by PEEM as input to the National CDEM Plan. Consultation on the plan with listed parties will be undertaken by MCDEM prior to June, with public consultation to follow. The Plan is required to be approved by December 2005.

3 REVISION OF THE NZSEE POST EARTHQUAKE BUILDING SAFETY EVALUATION GUIDELINES

Work by the NZSEE Working Party has focused on reviewing the first edition of the *Preparedness Checklist and Response Plans for Territorial Authorities* (NZSEE, 1998), and the development of a suitable training package.

The principal drivers for a revisitation of the post-earthquake building safety evaluation guidelines were:

- The two principal Acts which frame its implementation (the Civil Defence Emergency Management Act and the Building Act) have been completely changed within the past two years.
- The original document is only a guideline, and does not have any official status. While some territorial authorities have successfully implemented the procedures laid out in the guideline, many others have held back in the absence of any formal driver.
- Auckland City Council have customised the ATC-20 training package based on the original 3 placard regime, which is at variance to the 4 placard basis for the Rapid Evaluation element of the NZSEE 1998 Guidelines.

A review of the existing document noted the following:

- The overall process and hierarchy of inspections defined in the 1998 document are still appropriate and consistent with international best practice
- The continuum between the initial assessment of buildings for rescue purposes (as part of regional impact assessment) and assessment for occupancy should be emphasised
- A single national system for managing the process, linking with CDEM Group EOCs, placard wording and training is essential
- Formal national status of the next version of the document with respect to CDEM Act arrangements (eg. via a Director's Guideline) is to be pursued
- Updates to the legislative context and placarding arrangements are needed as a minimum
- Briefing of NZ Fire Service and Police at the national level and regionally via CDEM Groups on the procedures is necessary
- A high-level overview of the building safety evaluation process is required for the purpose of inclusion in the National CDEM Plan, briefing the Emergency Services and CDEM Groups, engineering consultants and building owners. This should be developed within the context of a broader interagency communications strategy.

The Working Party reviewed the appropriateness of the 4 placard system with respect to international arrangements and experiences, and the many challenges faced in successfully training engineers to implement this regime. It has been agreed to revert to the 3 placard system developed by the US Applied Training Council to enhance the consistency of assessments.

This decision required a modification of the existing ‘Yellow’ placard to provide encouragement to permit short period entry to moderately damaged structures, which was the focus of the existing ‘Orange’ placard. The proposed modified ‘Yellow’ placard is shown in Figure 1, which indicates the added wording to encourage controlled access.

MCDEM have confirmed that the Post-earthquake Building Safety Evaluation Guidelines could become a Director’s Guideline giving it national status in terms of CDEM Act arrangements. The current focus is on revising the existing document to produce a working draft suitable for subsequent conversion into a MCDEM Director’s Guideline. Progress to date has included obtaining legal advice on the redrafting of Section 5 of the current version to update the legal context to relate to the CDEM Act 2002 and the Building Act 2004.

The emerging US model of having ‘accredited’ engineers directly engaged by building owners with prior knowledge and approval of territorial authority Building Control and using aligned placards has been raised. It was felt that including this option in the next version of the Guidelines will be beneficial, particularly for Lifeline utility and Critical Facility operators, some of whom already have arrangements in place with specific consultants.

YELLOW MODIFIED

RESTRICTED USE

NO ENTRY EXCEPT ON ESSENTIAL BUSINESS

WARNING:
This building has been damaged and its structural safety is questionable. Earthquake aftershocks present danger. Enter only at own risk. Subsequent events may result in increased damage and danger, changing this assessment. Reinspection may be required. The damage is as described below:

Facility Name and Address:

This facility was inspected pursuant to (Act):

Inspector ID:

Acting on authority of:

Date: _____

Time: _____

Restrictions on use:

- No public entry nor residential occupation
- Entry for
 - emergency purposes
 - damage assessments, making safe
 - removal of essential business records
 - removal of valuables only
 - removal of property
 - conducting essential business with minimum staff
- _____

Do Not Remove this Placard. Placed by order of the Territorial Authority

Figure 1: Proposed Form of Revised Yellow Placard

It is currently intended to produce a draft revision of the guidelines during the first half of 2005. The subsequent process and likely timeframe involved in converting it into a MCDEM Directors' Guideline will influence the decision on whether or not it is made available as an intermediate draft document.

Discussions are also being held regarding the production of a national training package, with funding being sought from territorial authorities.

The addition of NZSEE member John Buchan of Christchurch City Council and Katharine Wheeler of Wellington City Council is providing welcome territorial authority input to the Working Party's deliberations.

4 RESCUE ENGINEERING

Level 1 Urban Search and Rescue (USAR) Engineer training courses were delivered under the auspices of the National USAR Steering Committee in Christchurch and Wellington during 2004. This course is aimed at engineers from all disciplines and levels of experience, and there are currently a total of 35 NZ engineers trained to this level. Further Level 1 USAR Engineer courses can be run in regions where sufficient numbers express an interest.

The Level 2 USAR Engineer training material, aimed at experienced engineers capable of working with USAR Task Force Technicians in confined spaces, was completed by Des Bull and the author during 2004. A pilot course was successfully delivered to 13 engineers in Christchurch in October. International rescue engineer David Hammond provided considerable assistance with this course, in addition to delivering the Society's Travelling Lectureship. The 13 Level 2 USAR Engineers include geotechnical and civil engineers in addition to structural, and are located in Kaipara, Auckland, Tauranga, Rotorua, Palmerston North, Wellington, Nelson and Christchurch.

The Australian Earthquake Engineering Society initiated the delivery of a USAR Engineer course for the South Australian Government in February 2005. Led by an initiative by Mike Griffith and John Wilson, a course framework and manual based on the NZ material has been established. It is intended that this package will be delivered in other Australian main centres.

5 SUMMARY

The NZSEE Working Party will maintain its focus on readiness and response aspects relating to major earthquakes, and in particular the revision and promotion of the building safety evaluation guidelines and associated training material. Active support will also be given to the Professional Engineers and Emergency Management Task Force in clarifying liability issues for professional engineers assisting emergency services in both declared and non-declared emergency situations.

If NZSEE members or other engineers and emergency managers are interested in obtaining more information about priority response agreements, the IPENZ emergency response list of engineers or the revision of the building safety evaluation guidelines, or becoming involved in rescue engineering, the activities of the Professional Engineers and Emergency Management Task Force or this Working Party, please in the first instance contact the author at db@kestrel.co.nz.

REFERENCES:

New Zealand Society for Earthquake Engineering, 1998. Post-Earthquake Building Safety Evaluation Procedures: Preparedness Checklist and Response Plan for Territorial Authorities, NZSEE, Wellington www.nzsee.org.nz

Professional Engineers and Emergency Management

A Joint Task Force Involving IPENZ Engineers NZ, ACENZ & Civil Defence & Emergency Management

Objective

- 1 To provide an interface between the engineering profession and the national structures for emergency management.
- 2 To prepare the engineering profession to respond effectively to a major national or regional emergency.

Key Tasks

- 1 Interact with key agencies and other organisations involved in emergency management (e.g. Ministry for Civil Defence and Emergency Management)
- 2 Ensure that the broader engineering profession is aware of the mechanisms and structures for handling major national emergencies.
- 3 Co-ordinate and promote other engineering initiatives involved in responding to a major emergency.
- 4 Identify and promote best practice in engineering responses to planning and responding to major emergency.
- 5 Promote and maintain a list of professional engineers capable of responding to a major emergency.
- 6 Provide information and resources to those on the list so as to assist them in maintaining their knowledge of the roles and responsibilities of being on the list.
- 7 Facilitate training and education opportunities for those on the list.
- 8 Develop an operational basis to manage the deployment of those on the list when required in a major emergency.