

From: Earthquake.InformationOffice
To: Earthquake.InformationOffice
Subject: FW: Discussion paper: Roles and Responsibilities July 2012.
Date: Monday, 13 August 2012 1:44:13 p.m.

From: Ian Fraser [mailto:ian.fraser@beca.com]
Sent: Monday, 13 August 2012 11:59 a.m.
To: canterbury
Subject: Discussion paper: Roles and Responsibilities July 2012.

Dear Commissioners,

I wish to make a submission in relation to the discussion document.

I have experience as a structural designer, code writer under a bilateral aid programme for Indonesia, a member of the New Zealand Standards Committee that wrote NZS4203 1992, and more recently in governance of companies procuring buildings and other civil engineering structures.

One matter that is central to roles and responsibilities in the design and regulatory approval is engineering judgement, and one of the most important judgements made by the designer of multistory buildings and major structures is the selection of the seismic load resisting concept. This step requires significant judgement as is difficult if not impossible to cover by codes of practice and building standard except by way of statements of principle. Experience with the Christchurch earthquakes and other damaging earthquakes worldwide is that the structural form and structural concept is one of the most significant factors if not the most significant factor which correlates with the amount of damage and resistance to collapse. In general terms, the more irregular the structure in both plan and in elevation the more the building or other structure is likely to be damaged. Similarly many regular structures are most often the ones which survive beyond their reliable strength. Examples in Christchurch may be the pwc building and say PGG or CTV. Obviously there are many other differences between these buildings which were built to differing codes, but the principles still apply.

The central problem is when the designer is determining the structural concept is that he or she is balancing competing architectural and commercial drivers which have immediate commercial benefit to the owner with better earthquake engineering concepts. The better engineering concept has a low probability of being required in the life of the structure, and however well trained the engineer may be they often yield to that pressure brought by the owner and other professionals. While the code may well be able to be improved in this regard, especially around building torsional resistance, the problem will still remain with the necessary application of judgement when determining the structural concept and throughout the design process.

The BCA officers will not often have the mana and experience to challenge the designer in this regard, as it will be a matter of judgement.

I suggest the introduction of a panel of senior professionals available to each BCAs to peer review structural designs of significant structures at concept stage. It is too late to do the peer review at completion of documentation. This panel can then give the backing needed for the BCA decisions and judgements.

My apologies for this rather brief and late submission

Ian Fraser DistFIPENZ

