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Compliance Document for New Zealand Building Code Clause B1 Structure Verification Method 1

Comments on the Department of Building and Housing's discussion paper A Joint Submission from IPENZ and ACENZ

A Background to IPENZ

The Institution of Professional Engineers New Zealand (IPENZ) has approximately 10,000 Members who include a cross-section of the engineering community from Students to senior Fellows in management or governance positions in important design or construction organisations. In making these comments IPENZ has drawn on the knowledge of its members, or members of kindred bodies, who are aware of the issues.

B Background to ACENZ

The Association of Consulting Engineers New Zealand (ACENZ) is the professional business association representing consulting engineering firms in New Zealand. ACENZ has 176 corporate members, in total employing over 8400 people. Nearly half of those are professional engineers or professional architects. Collectively ACENZ members generate over \$1 billion in services per year. ACENZ is a member of the International Federation of Consulting Engineers.

C Executive Summary

In principle IPENZ and ACENZ support the proposal to cite AS/NZS 1170 in B1/VM1 as the compliance document for structural loading. However we have some concerns relating to the nature of certification and review.

D Submission

IPENZ and ACENZ together represent almost all the Structural Engineering Professionals who design to the requirements of B1/VM1. AS/NZS 1170 is a key document for all practising structural engineers. It is vital that B1/VM1 and AS/NZS 1170 represent commonly accepted practice and remain practicable, workable documents.

IPENZ and ACENZ support the adoption of AS/NZS 1170 and in principle support Option 6 for the citation of the new loading standard. We do note that some greater flexibility with regard to phasing out NZS 4203 may be necessary.

The following comments use the numbering system Department of Building and Housing has used on pages 32 – 53 of its discussion document.

1.0.6 e): IPENZ and ACENZ note and agree with the wording “chartered professional engineer” in these proposed changes, thus requiring appropriately qualified professionals to be responsible for structural design, a matter of life safety. Clause 1.0.6 e) requires certification of the design, but we are concerned that the nature and wording of the certification has not been defined.

IPENZ/ACENZ recommends that the IPENZ/ACENZ/NZIA Producer Statement PS1 be the form on which the design is certified. A copy of a PS1 is attached to this submission.

1.0.6 f): This section requires that structures with an Importance Level of 3,4 or 5 be subjected to an independent review. We assume that this would be equivalent to a Peer Review of the structural design.

It is fair to say that there are differing opinions within the profession as to whether this should be mandatory in all cases as structures may be Important without being complex and there will be an associated compliance costs.

We also note the Structural Engineering Society's (SESOC) view that the words “independent review” be replaced with “independent design review”.

There are differing opinions on the meaning of the word “independent”.

- Some believe that another chartered professional engineer (CPEng) working in the same organisation, but not on that project, can be trusted by virtue of professional ethics to exercise sufficient independence to adequately review the design. One expression of this view is that the word “independent” makes the process prescriptive and inflexible, and does not recognise the existence of professional and corporate responsibilities for managing conflict issues when engaging in a review. Others have noted that an internal review may give a safer design, partly because of :
 - i. the difficulty of adequately briefing an external reviewer, and
 - ii. partly because of the difficulty of finding an external reviewer with sufficient breadth of expertise to review that particular design.
- Others believe that “independent” implies “external”, thus requiring a CPEng in another organisation to conduct the review. This view considers the high consequence for loss of human life, or very great economic, social, or environmental consequences of failure for IL 3, 4, (and 5) structures as tabulated in 1170.0 Table 3.1
- Another engineer has expressed the view that total independence in the legal sense may not always be practical in the small society we have in New Zealand. This engineer would rather not see the word “independent” entrenched in the code, but be part of the existing IPENZ and ACENZ professional ethics guidelines addressing conflict of interest.
- The term “transparent” may be closer than “independent” to what is required.
- We believe the Code should clarify when, or if, a Building Consent Authority's review can be considered as “the independent” review.

We believe that the Building Code should clarify the levels of independence of the various parties in regards to verification of Structure.

Also requiring clarification is the definition of “review”. Both IPENZ and ACENZ have comprehensive guideline documents on peer review. These would be a useful starting point in defining the scope, depth and detail required of a design review. What would also be helpful is some guidance on the relative responsibilities/liabilities of the primary designer and the reviewer.

As in clause 1.0.6 e) the nature and wording of the certification has not been defined. IPENZ/ACENZ recommends that the IPENZ/ACENZ/NZIA Producer Statement PS2 be the form on which the design review is certified. A copy of a PS2 is attached to this submission.

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