

Code feature section

A NOTE ABOUT N.Z.S. 1900 BUILDING CODES AND CHANGES

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Standards in General

New Zealand has a unique system of establishing its national building code through a system of voluntary committees, public consultation, statutory declaration and voluntary adoption of the product of general agreement.

The mechanism of agreement is provided by the Standards Association, in the form of the committee table, wide circulation of drafts for comment, and the drafting committee - sectional committee - Ministerial - Standards Council - chain of approval.

The mark of agreement is signified by the declaration of the documents by the Standards Council as "New Zealand Standards" - documents made by a process of consultation protected by statute.

The drafting process is a democratic affair - the committee chain is based on progressively wider representation. Specialist interests at drafting committee level - national interests at council level. Every person "who is affected thereby" should feel that he is represented at all levels. Subscribing members are notified of committees in being, and are invited to write in for committee membership lists, or to make representations.

The Standards Association is endeavouring to ensure that committee decisions are based on consensus of opinion, sometimes "nem con", but never, unless absolutely unavoidable, with a minority objection overruled by a majority vote. If such should arise, the Director requires a report on the circumstances, and may request the committee to re-open discussions to try again for an agreed solution.

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The Standards Association publicises the availability of draft standards through the formal notification in the Gazette, notification to subscribing members in the Newsletter, and general publicity in professional and trade journals. SANZ looks to all who are interested to take active part in formulating standards.

The standard serves as an agreed statement of some aspect of technology, accepted by the community as a basis for action, in the full knowledge that technological development will change matters, and that the standards can be updated as new developments are proved and accepted by the same representative process.

NZS 1900 and Complaints

The present model building bylaw was developed by additions and extensions from the original NZS 95, first published in 1936. Revised, extended, and republished in 1964 as NZS 1900, the current document has been criticized because of:-

- (a) Complex adoption procedure, because of the large number of documents incorporated by reference.
- (b) Difficulties in updating, and the time taken to redraft and publish revisions.
- (c) Difficulties in understanding, inconsistent coverage, and conflict of requirements.

The Standards Association has been examining the situation, and exploring possible ways of improving the form of the model bylaw. The traditional form of building regulations tends to describe "solutions": known acceptable methods prescribed direct in the law.

It appears that the increasing rate of change in technology in recent years has made this form of technological law an embarrassment to both authors and users. There is usually more than one solution to a requirement, and industry has found difficulty in gaining acceptance for new techniques. Law is properly slow to change.

The sheer size and complexity of the present model bylaw taxes committees to the utmost, and the task of writing complex technology in a form suitable for direct incorporation into law becomes unending. Court cases emphasising that by-laws can be challenged unless both "reasonable" and "certain" calls upon committees to be even more meticulous.

Re-arrangement

It appears that a practicable solution can be found to most of these problems by separating requirements from solutions.* Requirements, the standard of duty, do not change rapidly and appear to be appropriately embodied in law. Solutions, acceptable ways of meeting those requirements, do change - and we cannot afford to be bound to one particular version made permanent in law. Acceptable solutions can better be set out in separate detailed specifications, well illustrated with drawings, in the form of the actual specification used on the job, and with acceptability designated by some process of formal approval.

The Standards Association is therefore proposing that the present model building bylaw be re-arranged into the form of:

FIXED STANDARD OF DUTY
together with
NAMED ACCEPTABLE SOLUTIONS

It would also include, as at present, the various LEGAL REQUIREMENTS in connection with powers of engineers, the permit system and so on, together with QUALITATIVE VALUES. These include arbitrary values necessarily accepted as a basis for regulations, such as the figures for floor loadings, wind pressures or earthquake forces.

*For more detailed exposition of the methods see "Standards, Technology and Law" N.Z. Engineering, July 1968. An extension of the proposals to regulations drafted by Government Departments is set out in the N.Z. Journal of Public Administration, Vol 31, No 2, March 1969.

Fixed Standards of Duty

Some of these may be found at present by careful search in NZS 1900. Clauses such as "All parts of a building shall withstand the wind forces specified" in Chapter 8 may not be known to a builder working to Chapter 6.1. But in many cases they are not stated, and many a committee has argued on just what was the standard of duty to which some particular technical detail was a solution.

Oversimplifying, the fixed standard of duty of a chimney could be summarised as:

- 1) To permit the fire to burn without setting the building on fire;
- 2) To dispose of smoke to atmosphere clear of the building;
- 3) To stand up to wind;
- 4) To stand up to earthquakes without being damaged or causing damage. In the extreme case, if damaged, it should still contain the fire.

Clarification of standards of duty clarifies the acceptance criteria for acceptable solutions.

Named Acceptable Solutions

The by-law would then name a number of detailed specifications which have been established (by Standards procedure) as being acceptable solutions to the fixed standard of duty. Determination of ability to meet the fixed standard of duty could be ascertained by evidence directly of tests, by reports from appropriate professional consultants, or by committee assessment.

The majority of jobs would be covered by the Standards ready made : only the newly developed techniques would require proof of meeting the fixed standard of duty.

Similarly for design codes : the bylaw would call for design by accepted design methods; and name a number of codes already formally accepted by the Standards procedure.

Chimneys and resistance to earthquakes

A revision of NZS 1900 Chapter 7 for chimneys is in final stages of revision. It introduces an alternative to full height re-inforcement calling for a joint suitably designed to cope with seismic forces and seismic action.

This effectively introduces a performance requirement into a document that has been traditionally a collection of particular solutions and there is urgent need to indicate acceptable solutions. Standards Association has informed industry of this impending requirement and suggested that before it becomes law the industry ensures that its products can be established as complying. The Federation of Precast Concrete Manufacturers has retained a consulting engineer to prepare suitable designs, and the Ceramics Industries Association is in process of developing suitable specifications.

These draft specifications can be developed as the ready made solutions formally accepted as meeting the standard of duty prescribed in the bylaw by declaration as "New Zealand Standards" after the prescribed procedure.

The manufacturing industry will be protected by having products available that have formal acceptance officially announced. Local authorities responsible for regulation will have clear cut guidelines. The building industry will have detailed (and understandable, and well illustrated) specifications to work to. The houseowner has a clearly specified job, with its earthquake performance proved by properly constituted procedure.

The Chimneys Committee of the Standards Association has agreed to the review of the present draft to modify it more generally to performance requirements and named acceptable solutions.

The challenge of change

The Concrete Design Committee of SANZ is already proposing that the design code for concrete construction be kept flexible for updating by being made means of compliance with, not part of, law.

The challenge of today is for the community to devise satisfactory means of controlling technology - without stifling its development. Separation of building codes into standards of duty and acceptable solutions will permit the establishment of a further contribution to flexibility and efficiency - Standards procedure applied to an Approvals System for new technology.