



NEW ZEALAND INSTITUTE OF
ARCHITECTS
I N C O R P O R A T E D

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FOR DISCUSSION

THE REFORM OF BUILDING CONTROLS

PROBLEMS WITH THE BUILDING ACT 2004

and thus a

PROPOSAL FOR A NEW BUILDING ACT 2011

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A: EXECUTIVE SUMMARY: Proposal for a New Building Act 2011

- 1 The principal failings of the two Building Acts, 1991 and 2004, are that they -
 - Did not require Local Government to ensure that all its building controls officials have sufficient technical competencies and knowledge to be able to make the highly-skilled and sound technical judgements required by any rationally-based system of building controls;¹
 - Did not require that Local Government ensure that building materials, components and systems be shown to comply with performance standards and criteria designated by the Building Code.
 - Did not require all structures and buildings to be designed by technically competent designers and constructed by technically competent builders, with the specific exception of those that could be designed and constructed in accordance with a designated range of generic standards, and;

- 2 Consequently, it is recommended that a new Act be drafted that -
 - Specifies the purposes of building controls be those set out in its First Schedule
 - Specifies the legislative role of the Building Code (as in D1 below);
 - Sets up a new Building Controls Agency (as in D2 below);-
 - Requires the new Building Controls Agency to establish the most efficient and reliable methods and procedures by which designers and builders can jointly be held responsible for ensuring that buildings are designed and constructed so as to meet the Building Code's technical requirements and standards;
 - Sets up a new Housing Qualities Guarantee Agency,² with (*inter alia*) the aim of employing and re-training former local government building inspectors to reliably inspect the construction of all housing covered by the Agency's guarantees;
 - Confines Local Government's role in building controls to the approval of building sites in terms of the scope of section 2 of the newly-structured Building Code (see D1 below), subject to the requirement that this role be always administered by a registered engineer.
 - Provides for a two-step consent and permit process consisting of -
 - (1) an initial *project consent*, issued by Local Government agencies, covering compliance with section 2 of the Building Code; followed by -
 - (2) a *construction permit*, issued by the new Building Controls Agency, conditional on it being satisfied that the designer and the builder both have the technical competencies needed to be able to unequivocally demonstrate that the final building will meet all the Building Code's technical requirements and standards;
 - Requires the Building Controls Agency to research, develop and publish such additional (but non-binding) Codes as would most clearly and positively assist the NZ building industry in both sustaining and making the most economical and efficient use of all natural resources, whether in NZ or in other countries.
 - Amends the Building Research Levy Act so as to ensure that BRANZ's activities are directed to developing the building science basis of the Building Code and its standards.

¹ In 1986, the World Organisation of Building Officials (WOBO) advised NZ's government that NZ was the only country in the developed world that relied on unskilled building inspectors to administer its system of building standards. WOBO pointed out that all other developed countries relied on professionally-expert building officials to administer their building controls and used building inspectors only to inspect on-site construction.

² Based on the successful Building Performance Guarantee Corporation (1977-87) and Appendix 7 Volume 1 of the Building Industry Commission's Report (1990)

B: THE BASIS OF THIS BRIEFING

The economic role of professional architects

3 New Zealand's professional architects, along with NZ's professional structural engineers, are responsible for the specific design³ of virtually the entire "non-residential" portion of total output of New Zealand's building industry. They do this often in conjunction with major building contractors.

4 New Zealand's professional architects are also responsible for the specific design, small in number, but sizable in value, of the residential portion of the NZ's building industry's output.

The building controls responsibilities of professional architects

5 New Zealand's professional architects, along with architectural designers, are either primarily or solely responsible for ensuring design compliance with around 21 of the 35 requirements specified in the regulatory Building Code 1992, and so have the primary public responsibility for meeting around 60% of the scope of New Zealand's building controls. Professional architects very often also have a co-ordinating responsibility over the entire design of a project.

6 Consequently, they have a major professional interest in increasing the simplicity and efficiency of NZ's building controls, and in decreasing their regulatory cost and process impacts.

The Review of the Building Act 2004 (BA04)

7 The review of BA 04 facilitated by the DBH earlier this year precipitated significant discussion amongst the wider Institute membership. Our submission reflected the concern of the profession that the DBH review needed to be broader than the basic questionnaire format allowed and stepped outside that scope to make points that we thought to be very important.

But further to that and the view of this briefing is that both the Building Industry and the community at large would be better served by a new Act and not just a review of the present one.

The economic effects of the Building Act 2004

8 In the direct experience of many of the architects represented by the NZIA, the introduction of BA04, together with its downstream management by Local Government has:

- Failed to achieve any significant improvement in the efficiency and reliability of New Zealand's building controls;
- Imposed new and irrational regulatory burdens;
- Significantly increased processing costs and times, and
- Significantly reduced the building industry's already lagging productivity.

While it is accepted that the introduction of a technically sounder revision to the NZBC E2 *External Moisture* Compliance Documents has, first, staunched the growth of leaky building problems and, then, reversed the trend, the manner of its acceptance and operation by Local Government has been a major contributor to the overall failure noted in the four points above. All of which have had a major damaging effect on the economic situation of the country.

The need for a more productive kind of building controls

9 We argue that Government needs to realise that with the current system of building controls, it is virtually impossible to bring to fruition the potential of entrepreneurs in NZ's building industry to develop new building methods and technologies that are capable of contributing to -

³ "Specific design" methods, as distinct from "generic design" method, are discussed in **C.3** of this Briefing.

- the domestic productivity of NZ's building and housing industries, or to -
- the significant development NZ's value-added export industries through new wood-based building techniques and technologies.

10 Further, those two potentials will remain frustrated until and unless Government moves vigorously to fully develop -

- the objective-based building controls system that NZ has, so far, only partially developed; with the aim of -
- ensuring that it is globally comparable with, and so globally competitive with, the best of those in other developed countries, such as Canada's highly respected system.

The need for a fresh Government initiative

11 It is our view that, Government needs to initiate expertly-informed work on –

- Auditing the public policy objectives of NZ's building controls
- Rationalising and simplifying the Building Code
- Setting up an expert and efficient Building Controls Agency
- Designing a far simpler and more effective Building Act

C: BASIC POLICY ISSUES

C.1 THE FIVE TYPES OF BUILDING CONTROLS

12 There are essentially five types of Building Control Customarily, building controls have been of Types 1,2 and 3, but Type 4 combined with Type 5 - our present method - is clearly well suited in the NZ context.

Type 1: Informal standards

13 In most countries there is a customary method of house-building, using local materials, methods and skills, which has been quite adequately governed by the disciplines of local geology, climate and cultural traditions, and so has never needed to be regulated.

While some of these skills and methods have been set out in manuals or textbooks, most often there has been no public evidence of any need to formally specify them: whether in common building standards, or in statutory building regulations

14 In New Zealand, Government had a fundamental role in setting these informal building standards through the work of the engineers and architects of the Ministry of Works, and through the architects and valuers in its Housing Division. The loss of the major standards-setting roles of those two agencies in 1988 and 1990, respectively, led to an erosion of skills in NZ's building industry, most notably in the housing industry.

15 That erosion of skills was offset by Government's initiation, in 1977, of the Building Performance Guarantee Corporation. Even though its "Buildguard" scheme was voluntary and so covered only 25% of all new housing, its refusal of cover to careless builders led to a significant improvement in the quality of house construction until its abrupt abolition in 1988. It is now obvious that, had it been reinstated as a compulsory scheme, as the Building Industry Commission advised in 1990, the "leaky housing crisis" would never have developed with the speed or to the extent that it did.

16 The effect was that, by 1990, BRANZ was left as the only publicly-funded organisation involved in the promulgation of informal building standards. However, BRANZ was not a government agency, nor did it have any formal role in the building controls system. Nevertheless, when it incorrectly appraised several new cladding systems as complying with the Building Code's E2 requirements, the apocryphal evidence is BRANZ was regarded by many builders and local government building inspectors as being a "government agency" and consequently, that its "appraisals" were, effectively, "government approvals".

Type 2: Prescriptive regulations

17 The public policy idea that customary building practises need to be constrained by Governmental regulatory interventions seems to have arisen in Britain and Europe as knee-jerk reactions to significant building disasters (eg: the 1666 Great Fire of London). The typical nature of this kind of political reaction has been to impose *prescriptive regulations* focussed only on preventing any recurrence of that particular kind of building disaster. Typically, these *prescriptive regulations* have been based on Government officials selecting the one method of construction, using a limited range of materials, they have unilaterally judged to be the only sound way to avoid any further recurrence of that kind of building disaster.

However, because such *prescriptive regulations* are inevitably embodied in "the Law", they exclude any alternative way of dealing with that kind of building disaster. In effect, they "freeze" the selected regulatory method in a way that prevents any other type of technical "solution" from being developed or employed. I.e., they are, intrinsically, counter-productive.

18 Nevertheless, the virtues of such prescriptive regulatory control systems are that -

- They have established that building controls are justified only where there is evidence of a specific kind of harm to the community at large, as the public users of buildings; and that-
- their technical rigidity makes them simple to enforce, because they do not require building inspectors to make any skilled technical judgments.

Type 3: Consensus-based technical standards

19 The Industrial Revolution induced progressive industries to develop a sound method of agreeing on the requisite technical standards - for commonly-used materials and methods, etc - through a formal consensus of technically-expert judgements in each industry. For such

technical standards to remain practically useful, it was recognised that they must continually evolve with the progressive development of technical skills and knowledge within each industry

So far, such consensus-based technical standards have proven to be the only sound way of incorporating, into the control system -

- The background technical knowhow represented by all the "informal standards" developed within any industry, and -
- Rationally-based provisions against the full potential range of serious hazards to building users, as distinct from the narrower focus of those Type 2 prescriptive regulations that are based on reacting to only one specific kind of building hazard.

20 However, the continual technical evolution of such judgment-based technical standards makes it difficult for lawyers to reference them in any prescriptive legislative system, as the customary legal method of referring to them effectively "freezes" the development of each technical standard at the point in time that it was referred to.

21 This legalistic impasse was first addressed by the North American system of basing an entire range of building controls on one comprehensive set (or "Code") of such building standards, and then citing that entire Code as required by "the Law" on building controls. In Canada such an entire Code is revised on a 5-yearly rolling programme, and so re-adopted into "the Law" of each Province at 5-yearly intervals.⁴

Type 4: The NZ "means of compliance" system.

22 The NZ "means of compliance" system was developed in 1969 by the late E H Hitchcock PhD, (as Technical Director of the then Standards Association of NZ [SANZI]) and first employed by it in 1971.⁵ In essence, it simply avoided the legalistic difficulty in referring to continuously-developing building standards in regulatory law, by-

- Citing the building standards as the approved "means of compliance" with the public policy requirements of the Law, and -
- Revising and republishing a list of the "approved means of compliance" standards at intervals that best suits all the stakeholders involved. (e.g. every 5 years)

23 The major advantage of this system is that it decisively frees the entire technical development of building standards from the customary rigidities of regulatory law. (In the 1970s, NZ's structural engineers immediately exploited this advantage by producing a comprehensive set of well-written structural standards that still remain the principal basis of NZ's building controls system.)

24 This system requires a clear statement of the Objectives of Building Law, which, in NZ, did not happen here until the 1992 Building Code was published.

Type 5: Performance-based building controls

25 The global movement, from around 1970, to develop "performance-based" building controls was simply and only a direct reaction to the technical rigidities of Type 2 Prescriptive Regulations.

The intention was to go back to Square One and ask what kinds of technical performances are expected from building elements, then set the requisite performance requirements, plus their requisite performance criteria, and then write the appropriate sets of building standards that complied with those criteria.

In effect, it is identical to the Type 4 "means of compliance" system. In New Zealand we should have a building control system that beneficially combines Types 3, 4 and 5.

⁴ See - http://www.nationalcodes.ca/ccbfc/committee_e.shtml

⁵ See the preface to the Third Schedule of MP 101: 1985, Standards Association of New Zealand and Hitchcock's PhD thesis: "*Technological Law*" at <http://hdl.handle.net/2292/40>

C.2 SKILLS & RESPONSIBILITIES IN THE BUILDING INDUSTRY

26 The Building Act 1991 (BA91) placed all responsibility for compliance with building controls on the building owner, and treated *designers*, *builders* and *subcontractors* as the owner's agents or employees. This was typical of Acts written at that time. But, in reality, the owner does not design the building, nor construct it, nor is responsible for the quality of its workmanship other than being the promoter of all downstream activity.

For any system of building controls to work clearly and efficiently, it needs to clearly recognise and codify the two core types of skills and responsibilities involved in the design and construction process.

27 **Designers** (professional engineers, professional architects, architectural designers and draftspeople) need to be required by the control system to have the range of technical knowledge and skills, needed to design structures and buildings that will comply with requirements.

As the work of professional designers involves making constant technical judgements, they need to be able to rely on robust technical criteria - preferably in the form of technical standards arrived at by a consensus of the technical judgements of their peers, and so embodying the widest-possible range of knowledge and experience.

On the other hand, draftspeople and architectural designers most often prefer to work in accordance with prescriptive technical standards,⁶ in which all the crucial design judgements have been already made by more highly-skilled professional designers.

So the controls system needs to ensure that both kinds of standards are provided.

28 **Builders** vary in the levels of their skills, relative to the size and complexity of the building. Rational building controls legislation should ensure that the selected builder is capable of constructing what has been designed, and to the technical standards specified.

It is inevitable that builders need to work together with the designer to ensure that the final construction complies with requirements. Accordingly, rational building controls legislation should place the final responsibility for compliance jointly on the shoulders of the designer and the builder.

29 **Subcontractors:** So as to avoid any question of the responsibilities of subcontractors in complying with Building Code requirements, rational building controls legislation should identify builders as being finally responsible for the work of all subcontractors (including designing subcontractors) and tradespeople employed in construction.

30 Consequently, it is considered that the primary function of a "construction permit" should be to ensure that both the designer and builder are competent to design and to construct the building in question, and have chosen competent subcontractors. The construction permit would then act as a formal recognition that the designer and the builder are competent to take joint responsibility for the compliance of the finally-constructed building with the building control requirements.

This is the approach to quality assurance that has already proven to be far more effective and productive in the world-wide manufacturing industries than the archaic system of piece-by-piece inspection.

⁶ As distinct from prescriptive *regulations*

C.3 SPECIFIC vs GENERIC DESIGN & CONSTRUCTION METHODS

Specific design

31 "Specific design" is a term developed by New Zealand's structural engineers to encompass their professionally-skilled design of specific structures and buildings, for specific uses and specific clients, on specific building sites. It is a term that can equally be applied to the professionally-skilled technical design work of architects on specific buildings, for specific uses and specific clients, on specific building sites.

Generic (or "non-specific") design

32 'Non-specific' (or "generic") design is the term developed by New Zealand's structural engineers to refer to those sets of simple standards-based prescriptive rules that may be used by anyone with basic building skills to construct a defined range of small, simple, single-use buildings - including most housing - for any potential owner, on virtually any building site.

33 The concept of generic structural design rules has proved invaluable in New Zealand's building controls: It is the basis of NZS 3604, which is the "technical bible" for all timber-framed housing and for most other small timber-framed buildings up to three storeys and within specified wind zones and regions.

In the course of the Review of Building Controls in the early 1980s the expansion of the "generic design rules" concept was urged so that it could cover all other aspects of the design and construction of virtually any small simple building.

34 Unfortunately the subsequent Building Industry Commission (BIC) ignored the concept and instead, chose to employ the concepts of "Acceptable Solutions" as distinct from "Alternative Solutions" which were any other "verifiable" compliance method. This has caused considerable confusion since.

The problems with "Acceptable" and "Alternative" Solutions

35 These two terms were developed by the Nordic group of countries to assist with a mutual free-trade agreement covering building materials, products and methods. The term "acceptable solution" was used to cover any building method that had already been approved under the building regulations of any one of the Nordic countries. The term "alternative solution" covered any other method that required expert professional evaluation before it could be accepted under the free-trade agreement.

36 The BIC employed the term "Acceptable solution" to refer to the technical specification of any building method approved by the Building Industry Authority (BIA) under S49 of its Act as complying with the Building Code. In fact, most of these were technical specifications written by the BIA itself and published together with the Building Code. However, the BIA failed to write the performance criteria by which local government's building inspectors should evaluate any "Alternative Solution".

The effect was that, in the eyes of many in the building industry, "Acceptable solutions" were presumed to have the status of de-facto prescriptive regulations, and so were seen as actually being the Building Code itself; even though the Building Act itself in S49 made it clear that an Acceptable solution was not to be the only means of establishing compliance with the Code. The approval of "Alternative solutions" – other means of complying with the building code - then became a matter for the individual technical judgements by building inspectors, most of whom did not have the technical expertise to make such judgements.

37 The confusions, delays and costs that have resulted would be removed if NZ's building controls system was re-framed to decisively revert to the concept of professionally-expert "specific design" methods, alongside prescriptive "generic design" rules that can be safely used by anyone at all.

D: RECOMMENDATIONS

D.1 STRUCTURE OF A MORE EFFICIENT BUILDING CODE

38 The 1992 Building Code has 35 Clauses, in what seems to be a rough order of priority of concerns but which bears no relationship to the order in which the major elements of a building are actually dealt with during the design and construction processes.

It is recommended that -

- 39 The current Code be re-structured into 8 main sections, in the order -
- 1 Categorisation of uses (in terms of structural requirements, occupant vulnerabilities, fire safety categories, quality control of dwelling units, etc)
 - 2 Site (suitability, stability, conditions, services, etc)
 - 3 Structure and durability
 - 4 Enclosure (external envelope)
 - 5 Internal compartmentation (i.e: functional, fire and acoustic separations, etc)
 - 6 Access, internal circulation and emergency exitways
 - 7 Hygiene facilities and all other essential facilities
 - 8 Internal services, (water, power, gas, emergency alarm systems, etc)

40 It is of note that this code structure was an NZIA recommendation on the review of the Building Code.

41 The primary hazards to users, (such as fire safety, weather tightness etc), the essential facilities users require, and the consequent primary "functional" (technical) requirements, should then be clearly identified (in plain, non-technical terms) in terms of the scope of each elemental section;

42 These primary hazards and essential facilities should then be subjected to a rigorous audit in order to establish just which are accepted by Parliament as within the justified scope of building controls. Any conclusions should then be transferred to a draft new First Schedule to the Act, so that that Schedule can become the sole precise determination of public policy on the scope and objectives of building controls in New Zealand (i.e. "the Law").

- 43 The remainder of the current Code (as re-structured) be re-established as -
- (i) A set of primary technical performance requirements together with their objectively-measurable performance criteria (covering the risk assessments involved), in the form of consensus-based standards, (but given the status of regulations) plus -
 - (ii) The full range of identified consensus-based technical standards through which the performance requirements and their criteria may be satisfied.

44 The list (or Schedule) of this total set of technical standards should then be clearly identified as the Building Code *itself*.

45 The Building Code's legislative status should then be established in the new Act in the terms previously used for the preface to the 3rd Schedule of SNZ's MP 101: 1985 (*in brief*: that demonstration of compliance with the Code is sufficient evidence that the building controls objectives set out in First Schedule to the Act have been satisfied.)

46 The Act should provide that the total set of technical standards comprising the Code be thoroughly reviewed, by a new Building Controls Agency, on a widely consultative basis, on at least a five yearly cycle.⁷ Between each 5 yearly edition, the only changes permitted should be those needed to cope with new and un-anticipated significant developments or emergencies.

⁷ This is the practice that has proved to be successful in Canada.

D2 POWERS OF A NEW BUILDING CONTROLS AGENCY

47 The BIA appears to have failed principally because the Building Act 1991 had not given it -

- sufficiently clear and firm directions on its central responsibility for the effectiveness and reliability of the new building controls regime; nor -
- sufficiently clear and firm powers to be able to both promptly and fully exercise those "merely-implicit" central responsibilities; nor-
- sufficient authority to require the explicit assistance and cooperation of BRANZ ; nor-
- sufficient resources to swiftly commission the technically-expert investigations required to establish the initial causes and actual likely extent of the leaky housing crisis, and to swiftly implement the measures needed to reduce its social and financial impacts.

48 To do all these things and create the industry transformation it believed necessary, the Government of the day felt that it must produce a new Act creating a Department of State – the Department of Building and Housing (DBH) - to operate the building control regime in NZ in terms of the new Act.

49 A major factor preventing that transformation appears to be that the Building Act 2004 has not provided for the DBH to be able to make the technically robust and evidently independent policy decisions required by any technically effective and efficient system of building controls.

50 Consequently, it is recommended that Government now moves (via a new Building Act) to set up a fresh and technically-expert Building Controls Agency,⁸ at arms-length from direct Ministerial responsibility for all its technical judgement decisions, (again reference to the Canadian system is instructive); and which is -

- (a) required to design, manage and sustain the most efficient and effective form of the newly-structured Building Code (as outlined in E.1 above) that, within the statutory objectives of building controls, will provide the most efficient, effective and rational way of governing the methods for meeting the public requirements and expectations of structures and buildings;
- (b) and which is given-
 - the responsibilities and powers to ensure and publicly certify the technical competencies and skills of all designers, builders and tradespeople in the NZ building industry⁹; and -
 - the responsibilities and powers to identify all critical building materials, components and building methods, set compulsory performance standards for them, and ensure that they are duly certified; and
 - the responsibilities and powers to ensure that the funds of the Building Research Levy are used primarily to assist the sound technical development of the Building Code and the technical standards it relies on; and
 - the responsibilities and powers to supervise and monitor the work of a new Housing Qualities Guarantee Agency (as a compulsory version of the formerly-successful 1977-1988 Building Performance Guarantee Corporation) that is designed to ensure that -
 - (i) all new housing, and housing alterations are fully and satisfactorily completed,
 - (ii) all defects in their construction are immediately and fully remedied, and that -
 - (iii) the Housing Qualities Guarantee Agency be solely responsible for seeking proper recompense for all the costs entailed in its work.

⁸ e.g: either a Building Controls Commission, or a Building Controls Authority

⁹ i.e : as a more positively-focussed, and so more productive version of the LBP regime

D3 IMPLEMENTATION VIA A MINISTERIAL TASKFORCE

51 Finally it is recommended that the previous proposals would be most swiftly and efficiently implemented through -

- The Minister requiring DBH to establish, in consultation with NZIA and IPENZ, a technically-expert Ministerial Taskforce, consisting of the nominees of IPENZ and the NZIA, together with selected members of DBH's technical advisory committees; and that -
- This Ministerial Taskforce be required to -
 - (i) Seek advice and assistance to establish the scope and powers of the new Building Controls Agency, and the resources it would require including the range, nature and powers of the expert Standing Committees it would need to be able to carry out all its responsibilities.
 - (ii) Carry out the recommended re-structuring and clarification of the Building Code;
 - (iii) Draft the proposed First Schedule to the new Act, and assist the Select Committee to soundly deal with its purpose and objectives;
 - (iv) Draft the precise terms of reference for a new Building Controls Agency
 - (v) Draft the precise terms of reference for a new Housing Quality Guarantees Agency
 - (vi) Draft the new Building Act
 - (vii) Report back to the Minister by an agreed date.

ENDS