



Department of
Building and Housing
Te Tari Kaupapa Whare

Means of establishing compliance: alternative solutions

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This document has been prepared by the Department of Building and Housing ('the Department') as guidance information in accordance with section 175 of the Building Act 2004 ('the Act').

The recommendations and suggestions in this guide are not mandatory and are not intended to be prescriptive. good-quality documentation can be provided in a number of ways. This guide is intended to provide guidance only.

This document is not a substitute for professional advice. While the Department has taken care in preparing the document, it should not be relied upon as establishing compliance with the Building Code in all cases that may arise. This document is not a Compliance Document as defined in the Act and may be updated from time to time. The latest version is available from the Department's website at www.dbh.govt.nz

1. Purpose

This document provides guidance to building consent applicants on how to use alternative solution proposals when applying for building consents. Applicants can include designers, architects, engineers, and other building and construction professionals.

Guidance is also provided on the use and assessment of alternative solutions by building consent authorities. It covers general application guidelines and information on assessment methods.

This guide is intended to be read in conjunction with other guidance documents issued by the Department: *Guide to applying for a building consent (simple residential buildings)* and the *New Zealand Building Code Handbook*.

2. What are alternative solutions?

An alternative solution is a design (of all or part of a building) that complies with one or more requirements of the Building Code, but does not follow the solutions provided by the Compliance Documents.¹ It can include the use of a material, component or construction method that differs partially or completely from those described in Compliance Documents. It can be a minor variation from a Compliance Document, or a significantly different design and construction method.

Alternative solutions may be used for a number of reasons.

- There may not be a Compliance Document for the proposed construction.
- A building may otherwise fall outside the scope of a Compliance Document.
- A building may incorporate unusual design features.
- New materials and methods may have become available.
- Specifically engineered solutions might provide a better means of compliance.

¹ Compliance Documents contain details of Acceptable Solutions and Verification Methods that, if followed, mean that the part of the building that relates to the Compliance Document will comply with the Building Code.

3. Guidelines for applicants

Building consent applicants must provide documented evidence that shows how the requirements of the relevant Building Code clauses will be met. The type and amount of information needed to support an alternative solution proposal will depend on the complexity of the design.

3.1 The application process

It is important that an alternative solution proposal is clearly identified when submitting an application for building consent. Form 2 of the Building (Forms) Regulations 2004 (Application for Project Information Memorandum and/or Building Consent) requires details to be provided of how the relevant Building Code clauses will be complied with. If you are proposing an alternative solution, this must be noted on the application.

The table below has a recommended process for applying for a building consent containing a proposed alternative solution.

STAGE	DESCRIPTION
1	Scope the project. Determine which parts of the project are not covered by a Compliance Document. These parts will require approval as an alternative solution.
2	Identify the relevant Building Code clauses affected by the alternative solution.
3	Identify the performance criteria that apply, which in all cases need to include consideration of Clause B2 (Durability) of the Building Code.
4	Provide the evidence. The documentation for the proposed alternative solution must have enough evidence to show that the performance criteria of all identified Building Code clauses will be met. Applications clearly showing how the proposed alternative solution will meet the relevant Building Code clauses will help the building consent authority process the application and possibly even issue the consent more quickly.

² Such as the Register of Chartered Professional Engineers, maintained by IPENZ.

3.2 Presenting alternative solution proposals

Building consent applications proposing alternative solutions must be supported by evidence as to why they may be accepted as compliant with the Building Code. The evidence should be presented in a logical, methodical manner that clearly shows how compliance is achieved.

Providing a summary outlining the reasoning, including key factors, conclusions, and assumptions behind an alternative solution proposal, will assist the building consent authority to understand what is proposed. This will enable more efficient processing of the consent application.

Evidence and information applicants include has to be appropriate to the particular building project. Generic or irrelevant information should be avoided.

3.3 Expert judgement

An alternative solution proposal may be supported by expert judgement or opinion. This is the judgement of an individual (or organisation) that is qualified and/or experienced to determine whether a proposed building design method or the use of a product will comply with the Building Code requirements.

An expert (for example, a Chartered Professional Engineer or registered building surveyor) must clearly demonstrate how an alternative solution proposal meets the performance requirements of the Building Code. The expert could use one of the assessment methods outlined below.

Where an expert provides an alternative solution proposal to the building consent authority for approval, they should attach the following credentials to the application.

- Their skills, qualifications, and experience
- Whether they are registered on a statutory register (if applicable)² or belong to an organisation that promotes institutional ethics and evidence of continued professional development
- Information about their knowledge and expertise in the particular field

3.4 Assessment methods

Building consent applicants should justify their use of a chosen assessment method. This should include establishing the relevance of the compliance method and the conclusions drawn to the proposed building work.

The assessment methods listed below are not the only methods that may be used to demonstrate compliance with the Building Code.

- a) Comparison to Compliance Documents
- b) Use of other documents
- c) In-service history

a) Comparison to Compliance Documents

Compliance Documents provide solutions that are deemed to comply with the Building Code. In many cases, Compliance Documents provide excellent guidance for preparing an alternative solution proposal.

When comparing a proposed alternative solution to a Compliance Document, the proposal should:

- identify the relevant Compliance Document(s)
- confirm that the Acceptable Solution or Verification Method used for comparison is current
- present the proposal in comparison with the Acceptable Solution or Verification Method, identifying the areas of departure from the Compliance Document
- consider whether departures will have a detrimental effect on other Building Code clauses (eg, Clause B2 (Durability)).
- identify and address areas where there is a need to compensate for departures – sometimes apparently minor changes to Compliance Documents can affect the integrity of the building system
- demonstrate that the proposed solution still complies with the applicable Building Code requirements.

b) Use of other documents

Many documents contain valuable information you can use to support an alternative solution proposal. The information may be the result of many years' research and/or experience, or it could be comprehensive manufacturers' technical details for new materials or methods. A number of different documents may be used, including (but not limited to):

- i. Standards
- ii. Technical trade literature, including appraisals
- iii. Test results
- iv. Determinations
- v. Technical specifications
- vi. International Fire Engineering Guidelines (2005 edition).

i. Standards

Many Compliance Documents cite Standards as a means or partial means of complying with the Building Code. Sometimes the Standard is only partially cited, and sometimes the Standard is cited with various modifications.

Many Standards are not cited by the Compliance Documents (non-cited Standards).

When using a Standard (whether cited or non-cited), always consider its scope, basic assumptions and limitations compared to the building, material, component or building method proposed.

ii. Technical trade literature, including appraisals

Where applicants want to use a particular product, material, or proprietary system or method, the documentation provided needs to clearly show compliance with the Building Code.

Manufacturers' literature may contain detailed technical data that could be used to support an application for consent. However, much of this data is of a general or marketing nature only.

When using trade literature, including appraisals, ensure the information:

- is current and valid
- is relevant to the proposed building work
- has a clear scope and lists limitations and conditions of use
- contains design, installation and maintenance requirements that are clear, complete and correct
- lists the investigations undertaken (tests, calculations)
- is appropriate and applies to New Zealand-specific conditions
- identifies any special skills required of the building consent applicant, including the designer and installer
- identifies the Building Code clauses that will be met (including Clause B2 Durability)
- identifies the author and their credentials
- identifies the manufacturer
- identifies the quality control measures in place to ensure ongoing product quality.

iii. Test results

Laboratory tests and/or field tests may be used as evidence that a particular design, or the use of a particular material, meets the requirements of the Building Code. When using test results, ensure that:

- a clear statement of the product has been submitted for test, and that the product proposed to be used is the same as that tested
- an independent testing agency/laboratory has carried out the tests
- if the results are open to interpretation and manipulation, testing has been done correctly and impartially
- the proposed building work mirrors exactly what has been tested or any departures are accounted for
- the test procedure clearly defines the test situation (load, environment or other), and is relevant to New Zealand's conditions

- the test clearly defines what constitutes a pass/fail result
- the test results are clear and unambiguous
- any quality assurance measures are in place if the validity of the testing depends on them
- adequate evidence has been supplied.

iv. Determinations

A determination is a binding decision made by the Department. It is a way of solving disputes or questions about the rules that apply to buildings, how buildings are used, building accessibility, and health and safety.

A past determination that a building or building work complies with the Building Code can be used as evidence to support an alternative solution proposal with similar circumstances. However, determinations are case-specific and depend on the particular circumstances of the case. Past determinations can be downloaded free from the Department's website: www.dbh.govt.nz

When comparing a proposed alternative solution to a past determination, the proposal must:

- identify the relevant past determination
- present the proposal in comparison with the past determination
- demonstrate that the comparison between the proposal and the past determination is valid.

v. Technical specifications

Technical specifications can provide generic calculations and test procedures as they are from text books, papers, or technical bulletins published by experts and professional bodies.

When using technical specifications, the applicant needs to conduct similar checks to those listed under the 'Trade literature, including appraisals' heading above. The only difference is that, in this case, there is no manufacturer or particular proprietary product, so the last two bullets on the above mentioned list are not applicable.

vi. International Fire Engineering Guidelines (2005 edition)

The International Fire Engineering Guidelines provide a process for developing fire-engineering solutions using international best practice and have been endorsed by the Department, the New Zealand Fire Service, and the Institution of Professional Engineers New Zealand.

The Guidelines are divided into four parts. Three parts (process, methodology and data) are internationally applicable. A separate section (Part O), written for New Zealand, links the international sections to the New Zealand building control regulatory framework.

c) In-service history

In-service history may be suitable evidence that a particular material or method meets the requirements of the Building Code. For example, the proposed material or method may have been used successfully in a number of similar applications on similar sites.

When using in-service history, ensure that:

- the proposed building work is similar enough to the cited examples to make a valid comparison
- there is an adequate in-service history for the product
- someone with the appropriate expertise has interpreted the 'historical use' record where needed
- the historical record is relevant to New Zealand
- the history is relevant to the particular site and environmental conditions
- the historical record satisfies the current requirements of the Building Code
- the product is still the same as the in-service evidence presented – products do change over time.

3.5 Departure from literature

If a design does not fully match the document being used to demonstrate compliance, applicants should:

- make the departure only if competent to do so
- document the departure in sufficient detail
- consider other consequences as a result of departure from the literature, noting where these will not be limited to affect the performance of the product, system or design itself
- demonstrate compliance with the Building Code.

3.6 Durability

Clause B2 of the Building Code (Durability) must be considered in all alternative solution proposals, especially where products or methods are used outside their intended design parameters.

Although overseas evidence can be used, New Zealand conditions (such as seismic activity, exposure to salt-laden winds and sea spray, high ultra-violet light levels and wind-driven rain) must be considered.

4. Guidelines for building consent authorities to assess alternative solutions

4.1 'Satisfied on reasonable grounds'

A building consent authority can grant a building consent only if it is satisfied on reasonable grounds that the requirements of the Building Code will be met (see section 49 of the Act).

Under the Building (Accreditation of Building Consent Authorities) Regulations 2006, each building consent authority must have documented policies and procedures for assessing alternative solution proposals. Individual authorities may take different approaches to systems or products, to satisfy themselves that a proposed alternative solution complies with the Building Code.

It is likely building consent authorities will assess alternative solution proposals by using a mix of the following methods and tools.

4.2 Assessment of evidence

A building consent authority will consider whether the proposal meets the performance criteria of the relevant Building Code clauses. This includes whether the evidence provided is sufficient and robust.

A building consent authority will also consider the technical expert's judgements or opinions and whether:

- the design is applied correctly and the proposal is appropriate in the circumstances
- the judgements are made by people with appropriate skills, experience, qualifications and professional registrations
- the views expressed apply directly to the building work in question
- the relevance of the case has been established
- comparisons drawn are valid
- results have been interpreted correctly
- possible contingencies have been accounted for and are reasonable.

4.3 Design review

A building consent authority may require more information if it is not satisfied the design will meet the requirements of the Building Code. In this case, the application process stops until the applicant provides further supporting information such as a design review from a competent individual.

4.4 Fire designs

Fire designs that use an alternative solution proposal to meet the performance criteria of the Building Code may need to be sent to the New Zealand Fire Service's Design Review Unit (DRU). The New Zealand Fire Service Commission has a statutory role to assess fire designs in certain circumstances. This is described in the Act and Gazette notice 56/2005 (see overleaf).

Section 47 of the Act empowers the New Zealand Fire Service Commission to provide advice to the building consent authority concerned when it is provided with a copy of a building consent application. The DRU can provide advice about the following matters in respect of the building for which the building consent application relates.

- Provisions for means of escape from fire
- The needs of persons who are authorised by law to enter the building to undertake fire-fighting

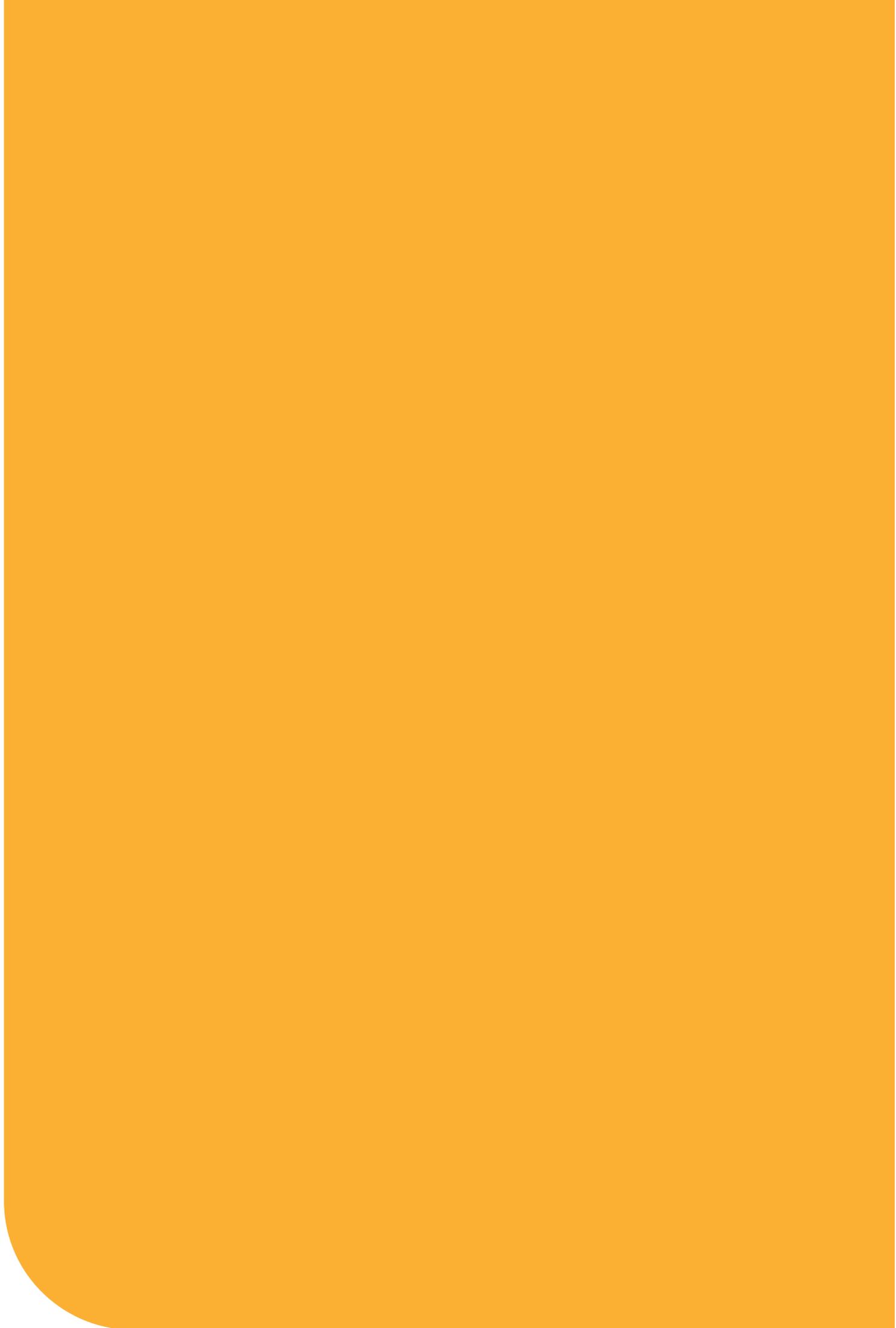
Importantly, building consent authorities are still responsible for assessing and approving all areas of compliance with the Building Code, including means of escape from fire. The New Zealand Fire Service Commission cannot set out advice that provides for the building to meet performance criteria that exceed the requirements of the Building Code (see section 47(2) of the Act). As such, the DRU's advice should not be considered a 'peer review' of a fire design.

Gazette notice 56/2005

Notice that Copies of Certain Applications for Building Consent to be Provided to the New Zealand Fire Service Commission

Pursuant to section 46(1) of the Building Act 2004 I give notice that copies of the following kinds of application for a building consent must be provided to the New Zealand Fire Service Commission:

1. An application for a building consent that relates to building work to be carried out in respect of any type of building or part of a building described in section 21A of the Fire Service Act 1975 regardless of whether the building or part of the building is sprinkler protected.
2. For the purpose of clause 1 an application for a building consent for building work means an application—
 - (a) where compliance with clauses C1-4, D1, F6 or F8 of the Building Code will be established other than by compliance with the provisions of an applicable compliance document; or
 - (b) that involves a modification or waiver of clauses C1-4, D1, F6 or F8 of the Building Code, under section 67 of the Building Act 2004; or
 - (c) that involves an alteration, change in use or subdivision and affects the fire safety systems, including any building work on a specified system relating to fire safety, except where the effect on the fire safety system is minor.
3. Clause 1 does not apply to an application for a building consent for building work to be carried out in respect of:
 - (a) single household units;
 - (b) buildings in which every fire-cell is a household unit separated vertically from the other fire-cells and each fire-cell has independent and direct egress to a safe place outside the building;
 - (c) an internal fit-out, unless the fit-out relates to a change of use under clause 2(c);
 - (d) outbuildings or ancillary buildings.
4. This notice comes into force on 22 April 2005.



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