New Zealand

Building Code Implementation - Country Summary


Section I: Code Development

History

Starting year

New Zealand has had national mandatory requirements for thermal insulation in new homes since 1978. When the government introduced the performance-based New Zealand Building Code (NZBC) in 1992, these requirements were converted to performance terms for residential buildings, and equivalent requirements were introduced for non-residential buildings (NZBC Clause H1, Energy Efficiency).

 Clause H1 was revised extensively in December 2000 to set mandatory energy efficiency requirements for the building envelope (i.e. thermal resistance and uncontrolled airflow), hot water systems and artificial lighting. Further revisions to Clause H1 occurred in 2007 and 2009 to improve the thermal performance of housing, the energy efficiency of lighting and to introduce energy efficiency requirements for HVAC systems in commercial buildings.

Designs can be shown to comply with Clause H1 in a variety of ways. Acceptable Solutions and Verification Methods are deemed-to-comply with the Building Code, but are not the only solution permitted. Alternative solutions can be used with suitable analysis / evidence to show compliance with Clause H1 is achieved.

Existing codes

Structural coverage

<table>
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<tr>
<th>Scale</th>
<th>Building size threshold</th>
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<tbody>
<tr>
<td>Residential buildings</td>
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<tr>
<td>New buildings</td>
<td>National Only requirements for building envelope and hot water apply to residential buildings.</td>
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</tbody>
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1 [http://www.branz.co.nz/cms_show_download.php?id=4d523bd153e72d99309bce46eb00bddee468f32](http://www.branz.co.nz/cms_show_download.php?id=4d523bd153e72d99309bce46eb00bddee468f32)
<table>
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<th>Existing buildings for retrofits</th>
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<tr>
<td><strong>Commercial buildings</strong></td>
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<tr>
<td>New buildings</td>
<td>National</td>
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<td>Existing buildings for retrofits</td>
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Buildings smaller than 300 m$^2$ are exempt from lighting requirements.

NZBC is a mandatory national building energy code for both residential and commercial new buildings (existing buildings not covered). The code has mandatory and voluntary provisions; voluntary provisions can be used to comply with the energy efficiency requirements. Building Consent Authorities (regional agencies) enforce the code at the local level at design and during construction.

**Measures covered**
- Envelope
- Service water heating
- Lighting
- HVAC

**Correction/new codes**

**Motivation/policies for improving existing building energy codes**

The building code is revised to incorporate political priorities, and allow for new technology and developments in construction.

**Revision schedule**

Clauses of the NZBC, including Clause H1, are reviewed when the New Zealand Government decides that a particular Clause needs to be updated.

**Involvement of stakeholders in the development of codes**

The Ministry of Business Innovation and Employment is responsible for engaging professionals and other stakeholders in reviewing parts of the Building Code.

Acceptable Solutions and Verification Methods, which are a voluntary and are used to show compliance with the Building Code, are published by the Ministry. Acceptable Solutions and Verification Methods are developed using industry experts and have wide industry input via mandatory public consultation, prior to being published.
Section II: Code Implementation

Administration

Administrative/enforcement structures

Mix of models

Administering the Building Act 2004 is a collective effort among several parties: The Ministry of Business Innovation and Employment (the Ministry), territorial authorities, building consent authorities, building owners and licensed building practitioners.

The roles of stakeholders

The government has been reforming the enforcement structure since 2010. The new amendments mandate that:

- Designers are accountable for ensuring that their plans, specifications and advice produce buildings that meet the requirements of the building code
- Builders are accountable for construction adhering to any approved plans and specifications or, if there are no approved plans or specifications, for meeting the requirements of the building code
- Owners of building work are accountable for obtaining necessary approvals. If they change the plans or specifications, or do the building work themselves, then they are accountable for ensuring the construction complies with the building code.
- Building consent authorities are accountable for monitoring, including checking plans and specifications for building code compliance, inspections at any prescribed points, approving any critical variations and certifying that the work has been completed in accordance with the consent. In practice, not all buildings are checked for compliance with the energy code provisions.

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<th></th>
<th>Design</th>
<th>Construction</th>
<th>Pre-occupancy check</th>
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<tbody>
<tr>
<td>The role of federal/central government</td>
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<tr>
<td>The role of state/provincial and local government</td>
<td>A Building Consent Authority (often the Territorial Authority) must issue building consent prior to construction starting. The issued building consent document will have a list of required inspections,</td>
<td>Inspections during construction.</td>
<td>On receipt of an application for Code Compliance Certificate, the Building Consent Authority will</td>
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which are scheduled at critical stages of construction.

conduct an assessment to ensure that the works comply with the works outlines in the consent issued.

Involvement of third parties and their role

An owner (or their agent) must obtain a building consent before starting construction.

A builder or installer may be required to certify that some parts of a building have been constructed in accordance with the building consent.

On completion of construction, an owner must apply to the Building Consent Authority for a Code Compliance Certificate. If a building does not have a Code Compliance Certificate, the building might not be able to be occupied, obtain insurance, be sold or qualify for financing loans.

Tools used for compliance checking

Software used for compliance checking

BRANZ has published online calculators and worksheets for complying with Clause H1: http://www.branz.co.nz/H1_support

A thermal calculation tool called ALF3.2 (http://alf.branz.co.nz/), and a thermal simulation tool called AccuRate NZ can be used to determine the heating and cooling energy of a proposed house, for showing compliance with Clause H1 (www.building.govt.nz/codewords-32-11).
Capacity building and education

*Education and capacity building programs that support code implementation*

Training of Building Consent Authority staff is important to improve enforcement of the provisions in Clause H1. Training takes the form of a series of seminars throughout the country, backed up by training visits to individual Building Consent Authorities.


**Section III: Compliance & Enforcement**

Penalties, incentives and other mechanisms for improving compliance

*Penalties for non-compliance with energy provisions in codes*

- Fines
- Refusal of permission to construct
- Refusal of permission to occupy

While these penalties exist in principle, local governments do not always apply them in practice.

*Incentives/rewards to go beyond minimum required performance level*

The Energy Efficiency and Conservation Authority provides Commercial Buildings Design Grants to support for HVAC improvements and refrigeration upgrades, up to 40% of the project costs to a maximum value of $100,000 per site. For lighting projects, the maximum funding available is 20% of the project cost, to a maximum of $50,000 per site. The actual amount of any grant approved depends on the authority's assessment of the economics of the project and the barriers to its implementation.²

² http://www.eecabusiness.govt.nz/services-and-funding/industrial/project-grants
Section IV: Building Materials & Energy Performance Certificates

Building materials (e.g., windows, insulation, HVAC, lighting)

Building materials rating

Methodologies for calculating and testing the thermal resistance of insulation materials are standardized, and while these Standards are not mandatory they are used widely by industry to show compliance with Building Code requirements. Similarly, material labelling is not mandatory, but is widely adopted in some industries.


Energy Performance Certificates

Enforcement of codes and energy performance certificates

NABERSNZ is a voluntary rating scheme that records the energy performance of office buildings. It uses actual metered energy data to benchmark and rate buildings.

Homestar is a voluntary rating tool that evaluates the sustainability attributes of New Zealand homes in terms of energy, health and comfort, water, waste and more.

Green Star is a comprehensive, national, voluntary environmental rating scheme that evaluates the environmental attributes and performance of New Zealand's buildings using a suite of rating tool kits developed to be applicable to each building type and function.

BASE (Building a Sustainable Environment) is a simple, introductory-level green building assessment for new office, retail and mixed use buildings to help the Greater Christchurch rebuild developed by the New Zealand Green Building Council (NZGBC) in conjunction with Christchurch City Council and property industry experts.

WEERS (Window Energy Efficiency Rating System) is a voluntary certification/labelling scheme for windows (www.wanz.org.nz/weers), which links into the EECA Energy Star scheme (www.energywise.govt.nz/products-and-appliances/windows). WEERS provides a star-based rating to represent the energy efficiency performance of window systems.