

Compliance guidance documentation NZ Building Code Clause H1

From 30 June 2008 Zone 2, Lower North Island is required to comply with the new requirements of NZ Building Code Clause H1 (Energy efficiency). (*Zone 2, Ref Appendix A, NZS4218*)

Wellington City Council (WCC) has provided this guidance documentation and the associated summary sheets to aid building consent applicants to provide appropriate documentation to demonstrate compliance. It is specific to the H1/AS1 acceptable solutions as a means of compliance (Schedule and Calculation methods). Applicants should note however that these are not the only means of demonstrating compliance.

New Energy Efficiency Building Code Requirements

The objective of H1.1 provision is to facilitate efficient use of energy, with a functional requirement for buildings to be built to achieve an adequate degree of energy efficiency wherever energy is used for heating, or hot water. This is achieved by constructing buildings to limit uncontrolled airflow and providing adequate thermal resistance. It also provides guidance on; physical conditions likely to affect energy efficiency, reduction of heat loss through hot water systems and energy efficient lighting for commercial buildings.

Summary Clause H1 Energy Efficiency

Performance requirements

- All Housing must demonstrate an 'Adequate Thermal Resistance' (*ref H1.3.1(a)(b)*)
- H1.3.2A – D are transitional clauses **ONLY**. From 30 September 2008, ALL Housing **BPI must not exceed 1.55**. (*ref H1.3.2E*) – (Note: **BPI** is the Building Performance Index measurement)
- Account to be taken for Physical condition likely to affect energy efficiency. (*ref H1.3.3 A-F*)
- Systems for hot water storage and delivery must limit heat loss (*ref H1.3.4(a)(b)*)
- Artificial lighting design must be energy efficient (*ref H.1.3.5 (a)(b)*)

Means of Compliance

H1/AS1 prescribes 3 methods of compliance;

Acceptable solutions

- Schedule Method (Guidance provided in this document and [Form WCC 052 Schedule Method Summary Sheet](#))
- Calculation Method (Guidance provided in this document and [Form WCC 053 Calculation Method Summary Sheet](#))

Verification Method

- Modelling Method

Alternative Solutions currently accepted as calculation methods for **BPI** are;

- ALF 3.1 (BRANZ)
- AccuRate (HERS)

Please Note

The use of these sheets is not mandatory, however they are the Wellington City Councils current interpretation of the minimum information required to demonstrate compliance using [H1/AS1](#) acceptable solutions.

Failure to provide this information or an acceptable equivalent will result in refusal of the application until this information has been provided.

The requirements of NZBC H1 apply to all new residential buildings with energy sourced from a network utility operator. This includes all new buildings, extensions and alterations to existing buildings.

New Buildings – Full H1 compliance is required for all 'new building work'.

New buildings may use all prescribed methods and the alternative solutions listed in this document and are required to achieve full compliance with NZBC H1. (It is recommended that designers confirm acceptance of alternative solution methods not listed before commissioning expensive design assessments)

Extensions to Existing Buildings - Full H1 compliance is required for all 'new building work'.

Extensions may use all prescribed methods and the alternative solutions listed in this document.

Schedule Method

Due to the anticipated increased dimension of construction elements to achieve the new thermal ratings it may not be appropriate to use the schedule method for compliance.

Calculation method

The Calculation method is the most practical method of compliance for extensions as it provides for design flexibility and limited trade-off.

Theoretically a calculation could be carried out for the existing and new extension combined, however this relies on the ability to establish accurate R-ratings for existing construction elements. Therefore it is recommended that the calculation be carried only for the new extension.

Note: Retro-fitting insulation into existing house in lieu of full compliance for new building work is not acceptable. (However retro-fitting insulation in addition to the fully compliant new building work is encouraged)

Alterations – H1 Compliance will be to the 'same extent' as prior to the alteration works.

H1 does not apply to internal alterations except for;

- Hot water systems (must comply with NZS4305)
- Installations of new down/spotlights through a ceiling/roof void (Note if the roof insulation layer is at the ceiling level the new lighting must not compromise the existing level of thermal resistance). Surface mounted is acceptable any proposal to cut holes through insulation must demonstrate how the thermal resistance will be maintained.

Alterations may use all prescribed methods and the alternative solutions listed in this document, however it is anticipated that the acceptable solution methods are sufficient to demonstrate compliance with the same parameters as applicable to extensions.

Replacement Windows, Facades, Walls, Floors and Roofs

Schedule 1 of Building Act 2004 refers to 'like for like' replacement of identical building elements in 'comparable materials' that have not failed due to durability of material, as exempt from requiring a building consent. All other replacement of windows, glazed joinery, facades and roofs that is not 'like for like' is new building work, and must comply with H1 to the same extent as prior to the works being undertaken.

New Windows

With the use of the schedule method, an R-rating of 0.26 is the minimum and the most practical way of achieving this is with a standard 12mm Double Glaze Unit.

With the use of the calculation method, a trade off can be made for the limited use of single glazing, **BUT** it may significantly increase the over all scope of work. The addition of a window to a wall may significantly reduce its thermal efficiency and may require additional insulation to compensate for any reductions caused.

PLEASE NOTE

Practical guidance from the glazing industry has indicated that retro-fitting Double Glazing units to existing frames (all materials) will not always be viable.

New Facades, Walls, Floors & Roofs

Where an exterior, wall, floor, or roof in its entirety is replaced, and its thermal efficiency is altered, (eg due to different structure, materials, construction, insulation... etc) full compliance with NZBC H1 is required.

Where only a partial replacement (eg: cladding change to the façade) is carried out, compliance with NZBC H1 is required to the same extent as prior to the work, for that thermal component. Therefore this situation may NOT require improved/additional insulation, however it is recommended that owners utilise the opportunity to upgrade the thermal element.

New Skylights

A new skylight into an existing roof constitutes a penetration into an existing thermal component. It will be necessary to use the calculation method to assess the existing thermal resistance of the roof and then the reduction caused by the skylight. The existing roof must continue to comply to the same extent as prior to the work; therefore it will be necessary to increase the existing roof space insulation to compensate the reduction caused by the skylight.

Recommendations for improving energy efficiency during building work

- ***It is recommended that during building work the property owners take the opportunity to insulate beyond the minimum requirements of the building code to increase energy efficiency.***
- ***Owners and designers wishing to take up this recommendation should ensure that any such proposal does not compromise ventilation, weathertightness, or any other aspect of the NZ Building Code before installing.***