



**window  
& glass**  
association nz

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Guide to  
Window & Door Performance  
in terms of  
NZBC Clause H1/AS1 - 5<sup>th</sup> Edition

Part 4  
Retro Glazing

For Housing Only

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## 4.1 - Introduction

This Section of the Guide has been put together by the Window and Glass Association to assist its members in understanding the recent changes to Clause H1 of the NZ Building Code and how the retro glazing of existing windows and doors fits within the regulations.

The introduction of H1, 5<sup>th</sup> Edition has brought with it increased thermal requirements for windows and doors in new builds. However, the question has been raised with MBIE regarding the performance requirements when it comes to the retro glazing of windows in our existing housing stock.

Whilst the retro glazing of existing timber windows can be brought up to meet the new requirements if desired, the upgrading of existing aluminium windows falls impossibly short of the new requirements as set out in H1/AS1, Table 2.1.2.2B, because of i) fitment issues with IGU's into older frame profiles, and ii) the thermal performance of aluminium frames.

**TABLE 2.1.2.2B: Minimum construction R-values for building elements that do not contain embedded heating systems**

Paragraph 2.1.2.2 b), 2.1.3.1

Building element	Construction R-values (m <sup>2</sup> K/W) <sup>(1)</sup>					
	Climate zone 1	Climate zone 2	Climate zone 3	Climate zone 4	Climate zone 5	Climate zone 6
Windows and doors <sup>(3)</sup>	R0.46 <sup>(3)</sup>	R0.46 <sup>(3)</sup>	R0.46	R0.46	R0.50	R0.50

**Notes:**

(1) Climate zone boundaries are shown in [Appendix C](#).

(2) In roofs with a roof space, where the insulation is installed over a horizontal ceiling, the roof R-value may be reduced to R3.3 for a distance of up to 500 mm from the outer edge of the ceiling perimeter where space restrictions do not allow the full-thickness of insulation to be installed.

(3) For building consent applications submitted before 2 November 2023, the minimum construction R-values for windows and doors in climate zones 1 and 2 are permitted to be reduced to R0.37 m<sup>2</sup>-K/W.

The intent of this Guide is to look at retro glazed windows and how they fit within the new regulations and compliance with Clause H1 and the Building Code.

### Scope

This Guide is limited to buildings that fit within the scope of H1/AS1 and has been further limited to housing only (regardless of floor area).

As a reminder of how our regulatory systems works, these documents are examples of how compliance with the NZBC can be demonstrated, but of course alternative solutions might be presented to demonstrate the same.

1.1.3.2 Options for demonstrating compliance with H1 Energy Efficiency through the use of acceptable solutions and verification methods are summarised in [Table 1.1.3.2](#). Compliance may also be demonstrated using an alternative solution.

**Key Point** - The interpretation here, in paragraph b) is that windows and doors in existing buildings may be retro glazed to a performance level not less than that of the existing glass.  
**Refer 4.4 - Compliance with H1**

## 4.2 - Definition

**Retro Glazing** Refers to the replacement of glazing into existing window and/or door frames, within an existing dwelling, to increase the overall performance of the window or door.  
The term does not apply to insert or replacement windows.

## 4.3 - Consent

The Building Act of 2004 sets out in Schedule 1 the building work for which a consent is not required, and Section 8 of the Schedule refers windows and exterior doors in existing dwellings.

*Existing buildings: additions and alterations*

**8 Windows and exterior doorways in existing dwellings and outbuildings**

Building work in connection with a window (including a roof window) or an exterior doorway in an existing dwelling that is not more than 2 storeys or in an existing outbuilding that is not more than 2 storeys, except,—

- (a) in the case of replacement, if the window or doorway being replaced has failed to satisfy the provisions of the building code for durability, for example, through a failure to comply with the external moisture requirements of the building code; or
- (b) if the building work modifies or affects any specified system.

The provisions of this section can be applied to retro glazing of windows and/or doors and confirms that the work will not require consent, provided the reason for retro glazing is not a failure of the window to satisfy the provisions of Clause B2 – Durability of the Building Code, or if the work “modifies or affects any specified systems.”

**Note** - the building must also be no more than two storeys in height.

## 4.4 - Compliance with H1

Section 112, subsection 1) of the Building Act refers to the Alterations to existing buildings.

### *Alterations to existing buildings*

#### **112 Alterations to existing buildings**

- (1) A building consent authority must not grant a building consent for the alteration of an existing building, or part of an existing building, unless the building consent authority is satisfied that, after the alteration,—
- (a) the building will comply, as nearly as is reasonably practicable, with the provisions of the building code that relate to—
- (i) means of escape from fire; and
  - (ii) access and facilities for persons with disabilities (if this is a requirement in terms of section 118); and
- (b) the building will,—
- (i) if it complied with the other provisions of the building code immediately before the building work began, continue to comply with those provisions; or
  - (ii) if it did not comply with the other provisions of the building code immediately before the building work began, continue to comply at least to the same extent as it did then comply.

The interpretation here, in paragraph b) is that windows and doors in existing buildings may be retro glazed to a performance level not less than that of the existing glass.

It is the Window & Glass Associations view that any windows or doors being retro double glazed, to a level that best fits the building and is balanced with the homeowner's budget and needs. Table 4.1 below, describes the Construction R values achieved with common glass and frame types and provides insight into the range of performance levels that might be achieved, allowing a more informed decision.

Retro Glazed Construction R values				
Type of Glazing			Type of Frame	
IGU Make Up	Spacer Width	U value $U_g$	Aluminium Frame $R_{Window}$	Timber Frame $R_{Window}$
Clr/air/Clr	8	3.1		
Clr/argon/Clr	8	2.9		
LowE <sub>2</sub> /air/Clr	8	2.3		
LowE <sub>2</sub> /argon/Clr	8	2.0		
LowE <sub>3</sub> /air/Clr	8	2.1		
LowE <sub>3</sub> /argon/Clr	8	1.7		
LowE <sub>4</sub> /air/Clr	8	2.0		
LowE <sub>4</sub> /argon/Clr	8	1.6	R0.33	R0.63

**Table 4.1**

## 4.5 - Other Code Clauses

The Window & Glass Association promotes the compliance of retro glazed windows and doors with the provisions of the Building Code, especially with regards to safety.

- Clause B1/AS1 refers to NZS 4223.3:2016 which describes the Human impact safety requirements for glazing.
- Clause F2/AS1 also refers to NZS 4223.3:2016.
- Clause F4/AS1 describes the requirements to provide Safety from Falling.

In order to satisfy their supplier warranties, IGU's are required to be marked in accordance with Clause B2 of the Code.

- Clause B2/AS1 refers to NZS 4223.2:2016 which describes the manufacturing requirements for Insulated Glass Units.
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