window & glass association nz

# Guide to Glazing Blocks

# Parts A & B

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This document has been prepared by the Glass and Component Committees of the Window & Glass Association of New Zealand.

# Contents

## Introduction

The correct setting of glass, ensuring there is no contact between the glass and frame and that adequate clearance is maintained for drainage, is a fundamental part of the glazing industry. The intent of this Guide is to reinforce and assist in the correct use of these very important components which are critical to the longevity of the glazing and the frame it sits within.

This guide is divided into two parts, Part A describes the correct use and installation of Glazing Blocks, and Part B covers the specification of Materials used in their manufacture.

Part A borrows much of its content from NZS 4223.1:2008. The Standard does a great job of reflecting and defining some of our industry's foundation principles in the use of all types of glazing blocks. The Standard should be read in conjunction with this Guide where possible.

Part B supersedes the "WANZ Specification 140307" referred to in NZS4223.1:2008, which also raises the importance of correct material selection, for Glazing Blocks in paragraphs 4.4.2, 4.4.3, and 4.4.4 below,

**4.4.2 Compatibility of materials**

A glazing material shall be used only where compatible with contiguous materials, including the rebate surface finish, setting or location blocks, distance pieces and glass type.

**4.4.3 Application of materials**

The application of glazing materials shall be in accordance with the manufacturer's instructions.

**4.4.4 Life expectancy of materials**

A glazing material shall only be used where its life expectancy (durability) has been established.

NOTE –

1. The manufacturer's advice should be sought for information regarding life expectancy.
2. For durability requirements, refer to the New Zealand Building Code Clause B2.

***Please refer to NZS4223.1:2008 to fully understand Glass selection and glazing in Buildings.***

# Part A

# USE AND INSTALLATION OF GLAZING BLOCKS

## 1.0 Definitions

For the purposes of this guide the following definitions apply.

**Glazing Block** The term generically used to describe blocks placed between a glass pane and the frame, to position the glass in the frame and prevent direct contact between the two of them. Glazing Blocks include Setting Blocks, Location Blocks and Distance Pieces, as follows.

**Setting Block** A block of resilient non-absorbent material used to support the dead load of the glass on the rebate platform and prevent glass to frame contact. Normally used in pairs and located at quarter points of the glass width. or as specified by the glass manufacturer or window systems supplier.

**Location Block and Jacking Blocks**
A block of resilient non-absorbent material used between the edges of the glass and the frame, other than the bottom, to prevent movement of the glass within the frame by thermal expansion or when the window or door is opened or closed. They are sometimes required to prevent the weight of the glass causing the frame to become out of square i.e. heel and toe.

**Distance Pieces** A block of resilient non-absorbent material used to prevent displacement of glazing compounds or sealant caused by external loading, such as wind pressure. They are positioned opposite each other between the glass and rebate and glass and bead.

## 2.0 Guidance and the Building Code

The foundations of Glazing in New Zealand are generally covered under NZS4223.1:2008 - Glazing in Buildings, Glass Selection and Glazing, and referred to in Clause B1 & B2 of the NZ Building Code. Within this Standard, references are also made to AS/NZS4666:2012 - Insulated Glass Units, among a number of other local, joint and international Standards.

### 2.1 Setting Blocks

NZS4223.1 defines setting blocks as follows,

**2.2.8 Setting blocks, location blocks, and distance pieces**

Setting blocks, location blocks, and distance pieces shall comply with WANZ Specification 140307 or equivalent and shall be:

(a) Of resilient, durable, load-bearing and non-absorbent materials;

(b) Compatible with all other materials that may come in contact with them;

(c) Of Shore-A hardness suitable for the application; and

(d) At least as durable as the glazing system.

NOTE – Refer to Section 4 for details on position, hardness, size and installation requirements.

***Note:*** *Part B of this Guide supersedes "the WANZ Specification 140307" mentioned above.*

Section 4.5 the Standard then goes on to describe more specifically the requirements of the setting block in points a), b), and c) below,

**4.5 Setting blocks**

The position of setting blocks shall be as shown in Figure 2 and Figure 3. Generally, all setting blocks shall be:

(a) Positioned at quarter points or not less than 30 mm from the corner, whichever is less;

(b) The minimum width of each setting block shall be not less than the glass thickness; and

(c) The minimum thickness of the setting block for drained glazing systems shall be 6 mm.

Setting blocks shall be located to equally support all panes of glass.

Setting blocks shall be of resilient, load-bearing, non-absorbent, rot-proof, material that is compatible with all other glazing materials that may come into contact with the blocks.

The minimum length of each setting block (or blocks side by side) shall be 25 mm in length for every square metre of glass area.

The Standard explains the ***minimum*** length for each setting block in this example.

Note 3. below nominates the recommended hardness for setting blocks, but this is dependent on the material being used. Refer to **Part B**.

*Example:*

For a 3.2 m² glass area, 3.2 x 25 mm = 80 mm long, i.e. 80 mm for each setting block.

NOTE –

1. Setting blocks are used between the bottom edge of the glass and the frame to centralise and equally support the glass.
2. Setting block width and location should not restrict water drainage.
3. Extruded material with 80 – 90 Shore-A hardness is recommended.
4. Shaped setting blocks will be required for a sloped glazing platform.

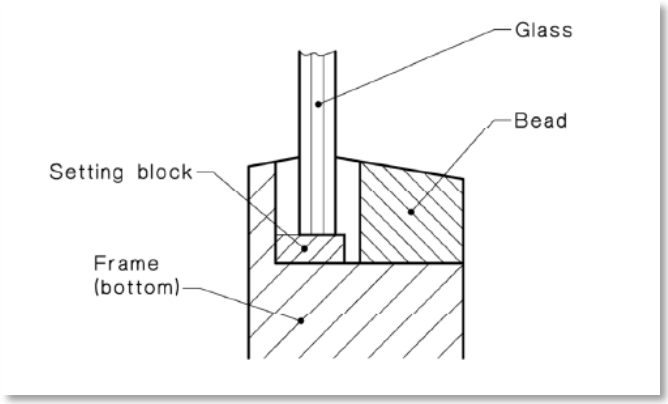
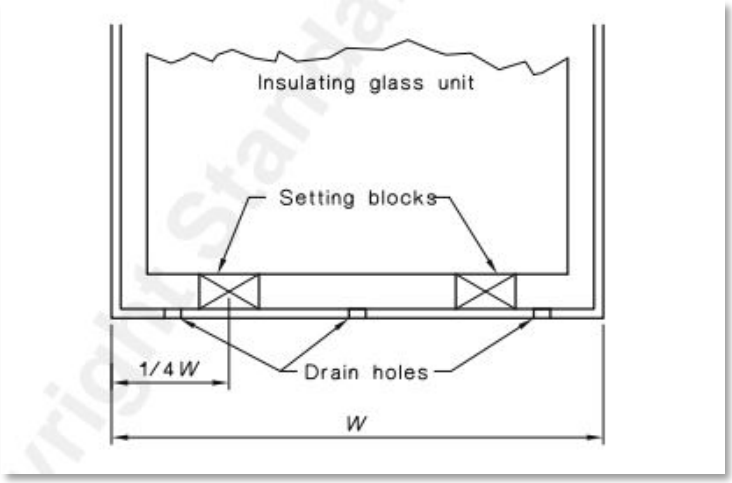


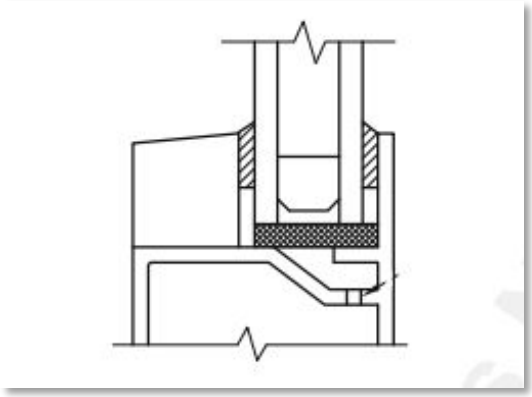

**Figure 2** – Position of setting blocks

Paragraph 4.5 a) refers to the location of the setting blocks, at 1/4 points across the width of the pane,

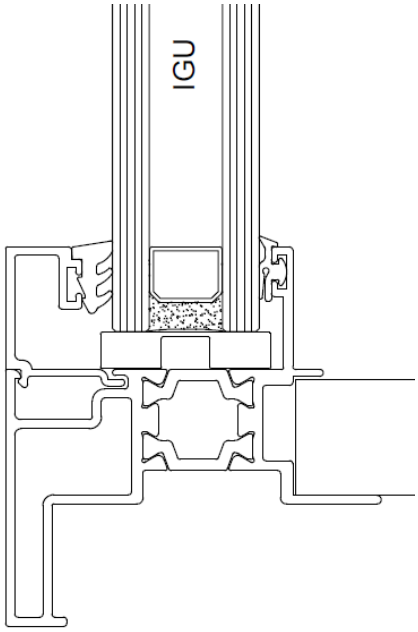



***Note:*** *It is* ***important*** *that the blocks do not interfere with the drain holes*

Paragraph 4.5 b) states the setting block shall not be less than the thickness of the pane,



Paragraph 4.5 c) refers to the minimum thickness of the setting blocks as 6mm. There is often some confusion when it comes to installing the double or drained setting blocks under IGU's, as to which way around these are to be used. To clarify they should be set with the web to the top so that clearance is maintained between the IGU and the level of the drainage path, as below,



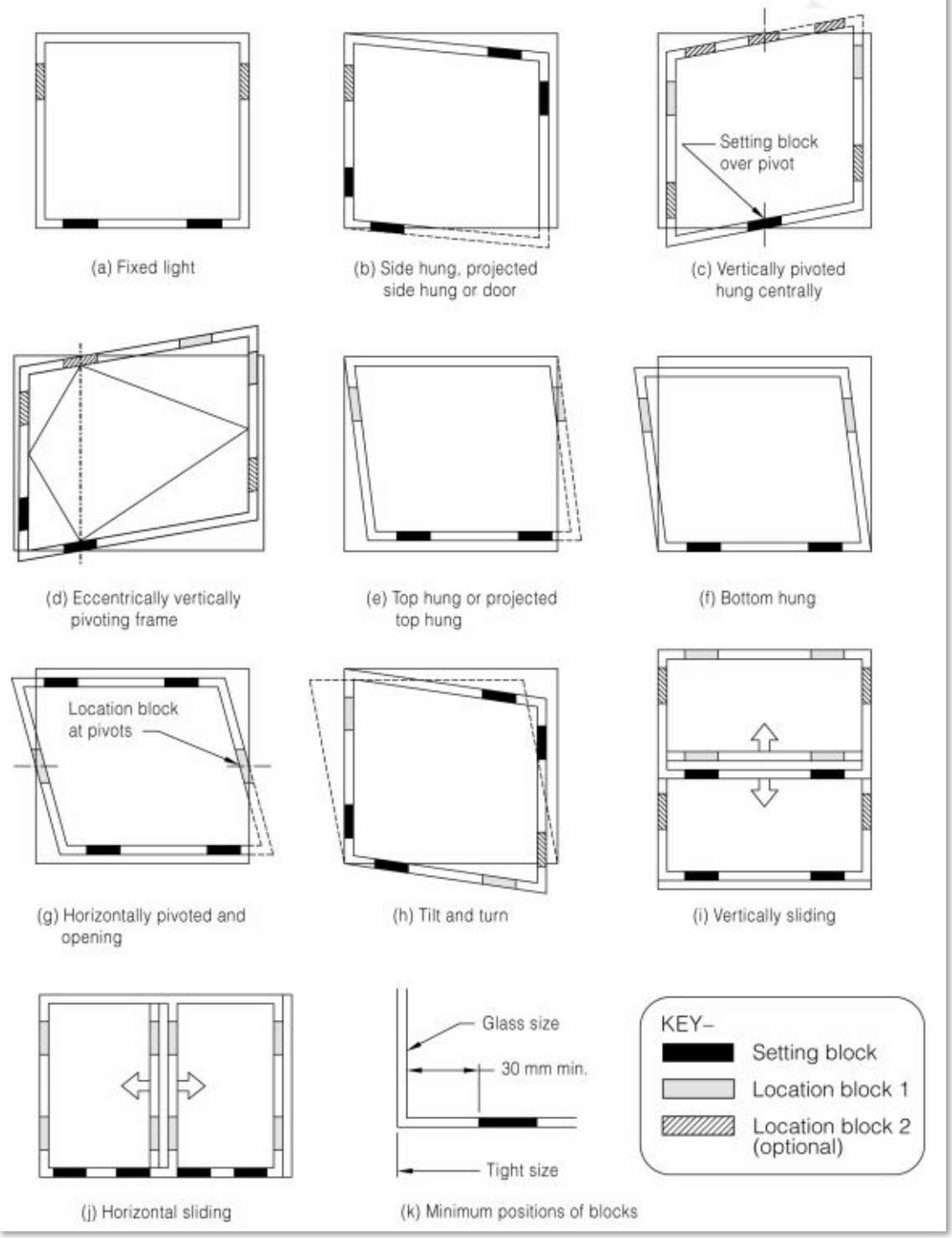

In the example explanation earlier, the ***minimum*** length of each setting block is based on the area of the pane it's supporting at the rate of 25mm per square metre of glass.
AS/NZS4666 (referenced in NZS4223.2:2016) agrees, but goes on to state that the minimum block length should be 50mm,

> The minimum length of each setting block (or two blocks side by side) shall be 25 mm in length for every square metre of unit area, with a minimum length of 50 mm.

The position of setting and location blocks is also set out in NZS4223.1:2008,

**NZS 4223.1:2008**

**Figure 3 – Recommended positions of setting and location blocks for the glazing of typical doors and windows**



## 2.2 Location Blocks

Paragraph 4.6 describes the use of location blocks.

Note 2. below nominates the recommended hardness for location blocks, but this is dependent on the material being used. Refer to **Part B**.

### 4.6 Location blocks

The position of location blocks shall be as shown in Figure 3 and Figure 4. Location blocks shall be:

(a) A minimum of 25 mm long;

(b) At least as wide as the glass thickness;

(c) Positively located to prevent displacement in service; and

(d) Sufficiently resilient to accommodate movement within the frame, without imposing stress on the glass, and of resilient, non-absorbent material.

NOTE –

1. Location blocks are used between the edges of the glass and the frame to prevent movement of the glass within the frame by thermal expansion or when the window or door is opened or closed. They are required to prevent the weight of the glass from causing the frame to become out of square.
2. Extruded material with 55 – 75 Shore-A hardness is recommended.

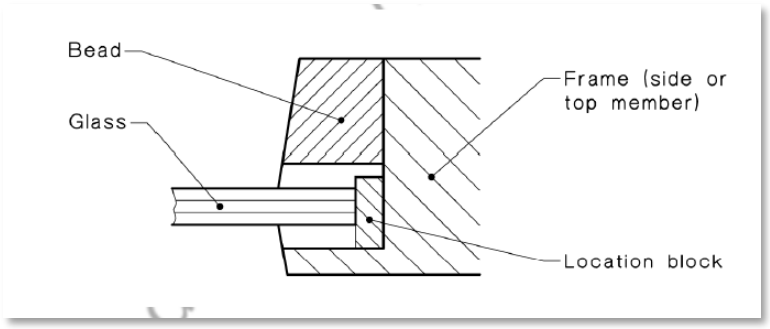



**Figure 4** – Position of location blocks

## 2.3 Distance Pieces

Paragraph 4.7 describes the use of distance pieces.

Note 2. below nominates the recommended hardness for distance pieces, but this is dependent on the material being used. Refer to **Part B**.

### 4.7 Distance pieces

Distance pieces, as shown in Figure 5, where required, shall be:

(a) Of resilient, non-absorbent material;

(b) 25 mm long and of a height to suit the depth of the rebate and the method of glazing; and

(c) Spaced opposite each other, approximately 50 mm from each corner at intervals of not more than 300 mm.

The thickness shall be equal to the front and back clearance, to retain the glass firmly in the frame.

NOTE –

1. Distance pieces are required to prevent displacement of glazing compounds or sealant by external loading, such as wind pressure.
2. Extruded material with 55 – 75 Shore-A hardness is recommended.

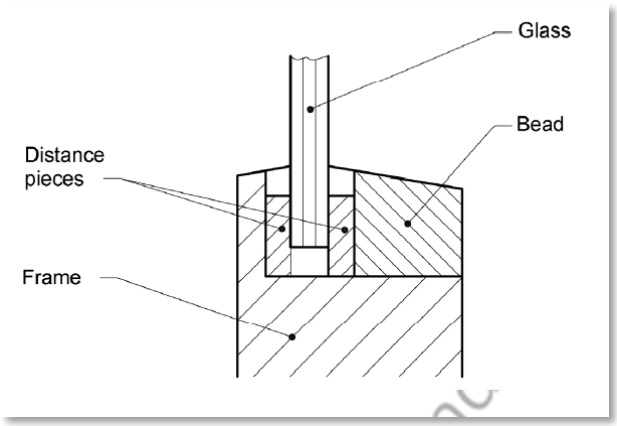



**Figure 5** – Position of distance pieces

# Part B

# MATERIAL SPECIFICATION FOR GLAZING BLOCKS

## 1.0 Scope

This section relates specifically to Glazing Block materials. The resulting Glazing Blocks are used in, but not limited to, the manufacture of Aluminium, Timber, uPVC, Composite, Steel, and Pultruded joinery. Glazing blocks may have specific names as noted below based on their end use.

## 2.0 Properties

### 2.1 Materials

Glazing blocks shall be tested for material compatibility with glass types, glazing tapes & sealants that they are likely to come in contact with. Only glazing blocks that have been tested and approved by the IGU manufacturer/supplier can be used in a window system.

The following Table 2.1 describes generally compatible materials to be used with different glass types: section relates specifically to Glazing Block materials. The resulting Glazing Blocks are used in but not limited to the manufacture of Aluminium, Timber, uPVC, Composite, Steel, and Pultruded joinery.

Glazing blocks may have specific names as noted below based on their end use.

**Table 2.1: Materials**

| Block Material | Glass Type | |
|---|---|---|
| | Monolithic (Single Glazing) | IGU (Double or Triple Glazing) |
| Polypropylene (PP) | ✓ | ✓ |
| Glass Fibre Reinforced Polypropylene (GFPP) | ✓ | ✓ |
| Glass Fibre Reinforced Polyamide (GFPA) | ✓ | ✓ |
| Silicone (Dependant on Composition) | ✓ | ✓ |
| Unplasticised Polyvinyl Chloride (uPVC) | ✓ | ✗ |
| Thermoplastic Elastomer (TPV) | ✓ | ✗ |
| Recycled Plastics or Rubbers | ✓ | ✗ |

***Note:*** *Laminated glass should undergo compatibility testing with all materials*

### 2.2 Material Hardness Requirements

**Table 2.2: Material Hardness**

| Block Type | Extruded | Engineered Plastic |
|---|---|---|
| Setting Blocks | 80-90 Shore A (Note 1) | 60-80 Shore D |
| Location Blocks | 55-75 Shore A (Note 2) | 60-80 Shore D |
| Distance Pieces | 55-75 Shore A (Note 2) | 60-80 Shore D |

***Notes:***

1. *Per NZS4223.1 and AS/NZS4666*
2. *Per NZS4223.1*

## 3.0 Test Methods

Use the following ASTM or ISO Test Methods to demonstrate compliance with the requirements of this Guide:

Shore Hardness *ASTM D-2240 / ISO 868*

Sealant Compatibility *IFT Guideline DI- 01/1 (Para 4.4 – VE-05/1)*

## 4.0 Quality Assurance

Those claiming compliance with this Guide, undertake that they will maintain a documented system of quality assurance that ensures:

i. That the product sold will perform the same as the tested sample.
ii. That the materials of manufacture will be the same as those tested.
iii. That the instructions for the use of these product is available from the window and door systems supplier.