

HOW to SPECIFY IGUs

● Introduction

When making a significant investment in your home you need to be assured that you are getting quality Insulating Glass Units that will last and achieve your objectives in improving energy efficiency, and home comfort.

There are some important issues you should consider when specifying Insulating Glass Units (IGU) for your project.

● Quality

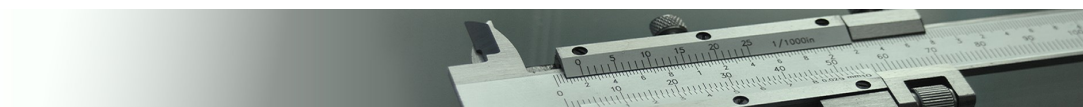
Even the best IGU's have a finite life which makes it important to source from a reputable manufacturer. The Insulating Glass Manufacturers Association of New Zealand (IGUMA) has a rigorous external testing requirement and an independently audited factory quality assurance (QA) program.

Ask for proof of compliance to a recognised international testing Standard (EN1279) and evidence of an externally audited factory QA program.

Refer to GANZ website for a list of current tested and audited IGUMA members.

● Availability

Your building program is a critical cost factor (time is money) so look for a product that is readily available in the New Zealand market with ready access to spares or replacements.



● Compliance with the New Zealand Building Code

The New Zealand Building Code requires compliance with a range of Standards, covering durability, safety, strength, identification, energy efficiency and testing. Ensure that your supplier is fully familiar with all of these requirements to ensure that code compliance by the local Territorial Authority is not compromised.

● Energy Efficiency

The thermal insulation of IGU's can vary in performance, depending on the frame and glass types and space combinations. The NZ Building Code provides a range of frame and IGU options (via NZS 4218) to comply with Energy Efficiency (H1) requirements.

- Typically an aluminium frame window and IGU with 4/12air/4mm combination will provide the minimum Rwindow 0.26 requirement to comply with the Building Code. In some situations higher R values are required and thus it is important to discuss the options with your designer, builder or IGUMA member and ask for the highest Window R Value (Rwindow) rating within your budget.

Refer also to the Window Energy Efficiency Rating System (WEERS) for guidance, as this provides a 6 star rating system for windows.

● Insulation

The thermal insulation of an IGU is measured by its centre of glass U Value (Ucog). The lower the U value the better but when combined with the frame the insulation is measured as the window R value (Rwindow) and the higher the better. It is important not to confuse IGU cog performance with total window performance.

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● **Safety**

In some situations the Building Code will require that the IGU is manufactured with Safety Glass on one or both sides. IGU's incorporating Safety Glass must comply with relevant standards and permanent marking requirements.

● **Sound Control (Noise)**

While IGU's do reduce some noise transmission compared with single glazing, the use of laminated glass in one or both panes can produce a marked improvement in noise insulation. There are a number of rating systems for noise insulation that can be used in a specification. Refer GANZ Sound Control (acoustics) data sheet for guidance.

● **Solar Control and Glare**

IGUs can also reduce excessive overheating and glare with the use of tinted, reflective and Low E glass combinations. These issues are normally associated with large areas of east, west and north facing glass or overhead glazing and you should consider the use of solar control glass in the unit.

● **Fading**

Interior furnishings and fittings can have their life prolonged with the correct glass selection, which can achieve similar UV light elimination rates as many aftermarket films currently marketed for that purpose.

However fading is not just a function of UV elimination as visible light and infrared radiation (heat) play a part as well. To best compare the effects of fading it is best to compare the damage weighted transmission data for the IGU combination.

The draft specification below can be used as a guide for yourself, and your designer or builder to use when selecting a supplier and a specification for your IGU requirements:



Glazing – Insulating Glass Units - Draft Specification

● **A. DOCUMENTS**

All products must comply with the following Building Code Compliance Documents and Standards:

NZBC B1/AS1	Structure
NZBC F2/AS1	Hazardous building materials
NZBC F4/AS1	Safety from falling
NZBC H1/AS1	Energy Efficiency
NZS 4218	Thermal insulation - Housing and Small Buildings
NZS 4223.1	Glazing in buildings - Glass selection and glazing
NZS 4223.3	Glazing in buildings - Human impact safety requirements
NZS 4223.4	Glazing in buildings - Wind, dead, snow and live action
AS/NZS 2208	Safety glazing materials in building
AS/NZS 4666	Insulating glass units
AS/NZS 4667	Quality requirements for cut-to-size and processed glass

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B. PRODUCT

Glass must comply with the following:

Glass quality AS/NZS 4667 and 4666.

Glass thickness: NZS 4223 Part 1, 3 and 4.

(The greater value of these parts apply)

Glass Strength for Wind loading:

Select Wind Zone Low/Medium/High/Very High

Or

Specify Design Wind Pressure: _____ kPa

Glass Safety for Human Impact NZS 4223:Part 3

Laminated & Toughened Safety Glass: Grade A Safety Glazing Material to AS/NZS 2208

Safety Glass must be marked in accordance with NZS 4223 Part3

Insulating Glass Units AS/NZS 4666

EN 1279 Parts 1 to 6

Glazing must comply with NZS 4223 Part 1 and AS/NZS 4666

C. SUPPLIER

The IGU manufacturer must be IGUMA compliant with both external testing compliance and externally audited QA compliance. IGUMA compliance must be specific to the type of IGU being provided (e.g. Argon filled)

D. WARRANTY

Manufacturer to provide a minimum 10 year Warranty

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E. PERFORMANCE

ENERGY EFFICIENCY

IGU's to meet the energy requirements of NZBC H1/AS1 and NZS 4218 for housing and small buildings.

Windows to have a minimum total window R value (Rwindow) of _____

And/Or

IGU's to have a minimum centre of glass U value (Ucog) of _____

SAFETY

Glass must comply with NZS 4223: Part 3 - Human Impact Safety Requirements, and be permanently marked.

NOISE

IGU's to have minimum STC/Rw value of _____

SOLAR CONTROL

IGU's to have maximum Shading Coefficient (SC) of _____

Note. for non-heat treated glass, obtain a thermal stress analysis for IGU's containing solar control glass.

GLARE

IGUs to have a maximum visible light transmission (VLT) of _____ %