Product Name

Pro E™ – Low E Glass

Product Line

Glass Projects ***Energy Range***

Description of Product

Pro E™ Low E Glass is desirable for its solar control and thermal performance. There is a wide range of substrates and coatings available to meet specific performance values for any project and is available in single glazed (monolithic and laminate) and in Pro Comfort IGUs. The thermal performance (U value) of Pro E™ Low E Glass is best taken advantage of when used in a Pro Comfort IGU, but single glazed Pro E™ can perform well for solar control.

Pro E™ Low E Glass can be incorporated into Grade 'A' Safety Glass such as Projects Pro Tuf™ Toughened and Pro LSG™ Laminated Safety Glass as required to ensure glazing complies with NZBC clause F2 Hazardous Building Materials as well as F4 Safety from Falling in accordance with NZS 4223.3 2008 Human Impact Safety Requirements. For more information refer to Glass Projects Pro Tuf™ Toughened Safety Glass and Pro LSG™ Laminated Safety Glass technical information.

Intended Use

Anywhere.

Building types: residential, retail, commercial, assembly buildings

Uses: windows, facades, shopfronts, entranceways, doors, etc.

Designs: fully framed, partially framed.

Product Identifier

Pro Comfort IGU is part of the Glass Projects ***Energy Range***.

Relevant Building Code Clauses and Compliance

When designed, installed, and maintained in accordance with Glass Projects standard details and requirements, Pro E™ will comply with, or contribute to compliance of, the following performance clauses of the NZ Building Code:

B1 ***Structure***
Clause: B1.3.1, B1.3.2, B1.3.3, B1.3.4.

Compliance: Pro E™ can be designed to meet project requirements in accordance with B1/AS1 clause 7.1 NZS4223.1, clause 7.2 NZS4223.2, clause 7.3 NZS4223.3 & Clause 7.4 NZS4223.4 or by specific engineering design to B1/VM1.

B2 ***Durability***
Clause: B2.3.1 (b).

Compliance: When designed, installed, and maintained in accordance with Glass Projects standard details and requirements, Pro E™ will satisfy the durability performance requirements for a minimum serviceability life of 15 years.

Processed float glass has an in-service history of more than 50 years when used in ordinary conditions of exposure.

C2 ***Fire***
Clause: C4.1.2

Compliance: Protection from Fire - Internal Surface linings - Glass achieves Group Number 1-S to Appendix Table C1.2 as composed of glass and External Cladding Systems is non-combustible as composed entirely of glass (in accordance with definitions in NZBC C/AS1 & AS2).

E2 ***External Moisture***
Clause: E2.3.1, E2.3.2.

Compliance: Glass is impervious to water.

F2 ***Hazardous Building Materials***
Clause: F2.3.2 for unimpeded path of travel, F2.3.3 for use of safety glass.
Compliance: F2/AS1 clause 1.0 NZS4223.3. Pro E™ can be incorporated into Glass Projects Pro Tuf™ Toughened Grade 'A' Safety Glass and Pro LSG™ Laminated Grade 'A' Safety Glass products which are manufactured in accordance with NZS4223.3 for human impact location to the project requirements. Safety glass is marked in accordance with NZS4223.3 clause 2.8.

F4 ***Safety From Falling***
Clause: F4.3.4.
Compliance: Pro E™ can be incorporated into Pro Tuf™ Toughened Grade 'A' Safety Glass and Pro LSG™ Laminated Grade 'A' Safety Glass products which can be designed in accordance with NZS4223.3 clause 21 Window glazing safeguarding a fall, and clause 22 Barriers, to the meet project requirements, as well as other designs by specific engineering design to B1/VM1.

H1 ***Energy Efficiency***
Clause: H1.3.1, H1.3.2, H1.3.3.
Compliance: When Pro E™ is incorporated in a Pro Comfort IGU makeup and design can be altered to meet specific performance values required for any project and contribute to overall window (R-value) performance. Depending on the window or door type and dimensions, R-values between R0.17 and R0.91 can be achieved, determined in accordance with either H1/AS1 Fifth Edition Amendment 1, Table E1.1.1, or with H1/VM1 Fifth Edition Amendment 1, Appendix E1.

Limitations of use

1. Pro E™ is available in the following sizes in both single glazed and IGU (design restrictions apply).

IGU Max Thickness	70 mm
Minimum Dimension	350 mm x 200 mm
Maximum Dimension	2500 mm x 4500 mm
IGU Max Weight	600 kg

Larger sized panes are available upon request and subject to longer lead time.

2. Pro E™ is not classified as fire rated glazing.
3. Pro E™ is not classified as safety glass as standard but can be used is glazed areas according to NZS 4223.3 human impact safety requirements.
4. For areas where safety glazing is required, Pro E™ can incorporate Pro Tuf™ Toughened Grade 'A' Safety Glass and Pro LSG™ Laminated Grade 'A' Safety Glass products. Refer to associated information.
5. If Glass Projects is not the window framing materials provider, then coordination between Glass Projects and the glazing materials provider is required to establish compliance with NZBC H1 requirements for overall glazing Construction R value.
6. Silicone secondary seals must be used where the IGU edge seal is exposed to direct UV light.
7. Adequate drainage of window frames, preventing prolonged moisture contact with the IGU edge seal, is required to maintain product warranty. Glazing details must be approved by Glass Projects prior to glazing.
8. Not all Pro E™ products can be single glazed.
9. For single glazing, compliance with NZBC H1 is not possible.

Design Requirements

Pro E™ can be designed for use in projects with the following scope.

Any design and installation that follows NZBC B1/AS1 section 7 and the following glazing standards:

NZS 4223.1 Glazing in buildings – Glass selection and glazing
NZS 4223.2 Glazing in buildings - Insulating glass units
NZS 4223.3 Glazing in buildings - Human impact safety requirements
NZS 4223.4 Glazing in buildings - Wind, dead, snow, and live actions

Wind Zones: All NZS 4223.4 wind zones as well as Specific Engineered Design wind pressures when designed, used, installed, and maintained in accordance with Glass Projects standard details and requirements.

Exposure Zones: All NZS 3604 exposure zones when designed, used, installed, and maintained in accordance with Glass Projects standard details and requirements.

Pro E™ is custom designed and fabricated to the requirements of each project. The following details must be confirmed by the specifier:

- Glass size
- Required support type or framing method.
- Project wind zone or design wind pressure.
- Any glazing performance requirements that the glass should meet including centre of glass U-value, Shading Coefficient (SC), and Visible Light Transmission (VLT) as a minimum.
- Overall Construction R value (include the effects of both the glazing materials and the frame materials) must be provided to ensure compliance with NZBC H1 requirements.
- Any impact or barrier loading the glass should resist.

Typical performance values that can be achieved with Pro E™ and Pro Comfort IGUs. Note: these are indicative values only for guidance only.

Type of Glazing	Colour	VLT (%)	VLR (%)	SC	U_g (***W/m²K***)
Single Glazed	Neutral	68	9	0.69	4.1
	Green	56	7	0.47	4.1
	Grey	56	7	0.52	4.1
Double pane IGU	Neutral	33 to 61	11 to 57	0.49 to 0.69	1.00 to 1.70
	Green	27 to 50	9 to 33	0.28 to 0.38	
	Grey	16 to 30	6 to 12	0.30 to 0.38	

Performance values vary widely with glass makeup and visual appearance. Contact Glass Projects to discuss your requirement and options.

Installation requirements

Glazing systems utilising Pro E™ must be designed and glazed by Glass Projects or an approved installer.

Cleaning & Maintenance

Care must always be taken when cleaning any glass and clean, grit free water, cleaning solutions, cloths, brushes, sponges, and squeegee products must be always used.

During construction
Check weekly and clean every 1 - 2 months, or as required, during construction. Protect the glass from weld and grinding splatter, concrete and mortar plashes, and impact or scratch damage from other trades.

Regular maintenance
Proprietary cleaners should be used with a soft cloth, brush, or sponge, but a mild soap or liquid detergent and warm water can work well. After washing rinse with clean water and use a clean squeegee to remove excess water.

Ensure the glass is dry and spot free. Excess water droplets will evaporate and can leave dissolved minerals on the glass that can cause surface staining particularly when a hard water supply is used.

Never use harsh solvent, abrasive, or alkaline cleaners.

Never use scrapers or razor blades to remove paint spots or sticky residue from the glass surface.

The condition of glass should be checked as part of a regular building maintenance regime and should be cleaned as soon as any build of dirt or foreign particles is noticed, but as a minimum the following is recommended.

Industrial sites – glass should be cleaned every 1 – 2 months.

Urban areas - glass should be cleaned every 3 months.

Rural areas - glass should be cleaned every 6 months.

Samples

During the design phase, choosing the right type of glass is critical and viewing a particular glass type up close is essential to get a good understanding of its visual characteristics.

300 x 300mm glass samples are available from Glass Projects upon request. There are guidelines on how glass samples should be viewed to properly understand how different qualities of light and how different glazing methods and designs can affect a person's visual perspective of glass.

An alternative to glass samples is to view a project reference in real life. Glass Projects has an extensive range of case studies available to view on our website at glassprojects.co.nz/projects.

Please contact Glass Projects to discuss your needs.

Product Selection & Technical Assistance

We work closely with our clients to understand their specific needs and develop innovative design concepts that seamlessly integrate with the overall architecture of their building. Our team of sales and engineering experts specialise in custom glass design and have a deep understanding of New Zealand regulations. We are available to provide advice on glass products to suit any application.