

COOLING BROTHERS GLASS COMPANY
ARCHITECTURAL GLASS GUIDE



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Terms and conditions and limitation of liability

Cooling Brothers Glass Company Pty Ltd reserves the right to discontinue or change features, designs, materials, colours and other specifications of its products, and to either permanently or temporarily withdraw products from the market without incurring liability.

Please note this product guide does not contain a comprehensive analysis of all possible parameters. This may impact your glass design, and additional information could be required to develop a suitable solution. The information provided in this product guide is general in nature only and should not be treated as a substitute for detailed technical advice in relation to project circumstances or particular applications of glass products.

Some images within this document are for illustration purposes. Please contact us if you require further advice.



Redefining the possibilities of glass.

We partner with architects, fabricators, glaziers, designers and artists to match complex glass performance, engineering and design requirements with specialist glazing solutions.

Since 1946, the Cooling Brothers ethos has been one of a commitment to designing specialist solutions to meet client requirements and inspire new possibilities. This commitment started with being the first company in Western Australia to fabricate and mould perspex back in 1957 and it continues to where we are today, with custom laminating, full colour ceramic printing and triple silver soft coat performance glazing.

This commitment to driving innovative solutions is underpinned by decades of experience and deep global partnerships with industry leading glass and interlayer manufacturers. Combined, our experience and our partnerships enables us to meet our customers not where they are, but where they aspire to be. It is what enables us to be continually challenging, and redefining what is possible with glass.

[+ AGWA NATIONAL DESIGN AWARD OF THE YEAR](#)

[+ CROWN INNOVATION AND COLLABORATION AWARD - CROWN PERTH](#)

[+ AGWA NATIONAL WINNER BESPOKE GLASS PROJECT](#)

[+ GWA INTERNATIONAL FITOUT](#)

[+ AGGA COMMERCIAL PROJECT](#)

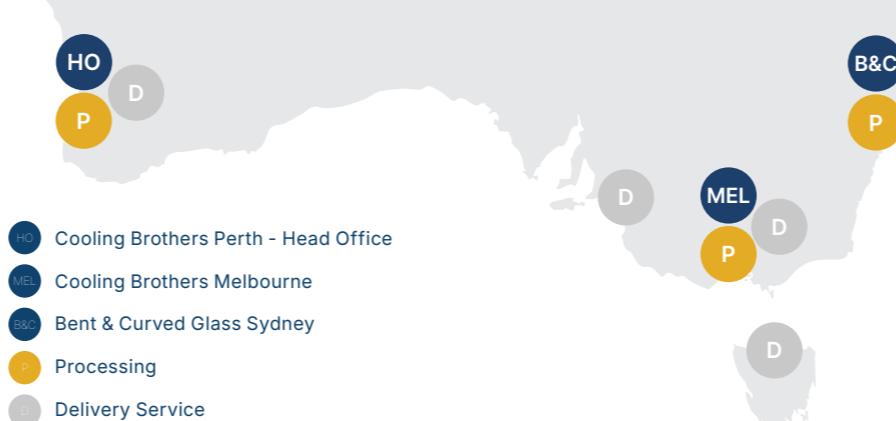
[+ GWA BESPOKE GLASS PROJECT](#)

[+ GWA INNOVATION IN GLASS](#)

Australia's Architectural & Commercial Glass Specialists



As Australia's only truly integrated glass processor, we provide the national market with commercial and residential glass processing services to meet any project requirement. Our facilities in Perth, Melbourne and Sydney supply glass for projects across Australia and New Zealand.



Integrated Processing Services

CUTTING AND EDGEWORK

Cutting
Waterjet
CNC
Polishing

HEAT TREATMENT

Toughening
Heat Soaking
Heat Strengthening

INSULATED GLAZING UNITS

Soft Coat Performance Glazing
Hard Coat Double Glazing
Triple Glazing

GLASS PRINTING

Printed Glass
Non-slip Glass Flooring

LAMINATING

Cyclonic Glass
Security Glass
Acoustic Glass
Engineered Balustrades
Custom Laminates
Printed Laminated Glass

CURVED GLASS

Curved Toughened Glass
Curved Laminated Glass
Curved Specialty Glass
Curved Double Glazed Units

Decorative Glass Solutions

Used in isolation or combination, our decorative glass products provide designers and artists with endless opportunities for creative expression in colour and light.

Decorative Glass Product Range

PRODUCT	BEST SUITED FOR	PROCESS
 IMAGINK™	High volume single colour prints; Large format full colour prints; Extreme UV exposure	Ceramic inks, direct to glass
 DESIGN COLLECTION	Projects requiring cost effective, off-the-shelf decorative patterns & textures	Ceramic inks, direct to glass
 ANTI-SLIP FLOORING	Glass flooring requiring non-slip treatment	Non-slip ceramic inks, direct to glass
 DIGIGLASS	CMYK colour reproduction; highly detailed photographic reproduction	Solvent based inks, printed to PVB interlayer
 VANCEVA® A WORLD OF COLOR	Large expanses of translucent or transparent vibrant coloured interlayers	Customisable coloured PVB interlayer





Print glass up to 4800mm long at 2880dpi resolution, using vibrant ceramic inks for the ultimate in outdoor longevity.

Printing at a resolution of up to 2880dpi, ImagInk™ can reproduce full colour photos, vector graphics and even textures on glass with pinpoint accuracy. Designs can be scaled for small scale specialty projects or large scale multi-pane developments, and the fade resistant properties of the ceramic inks are perfect for external applications.

Detailed performance data can be provided for the thermal design of printed glass facades, turning what was once an aesthetic decorative surface into an integral performance component.

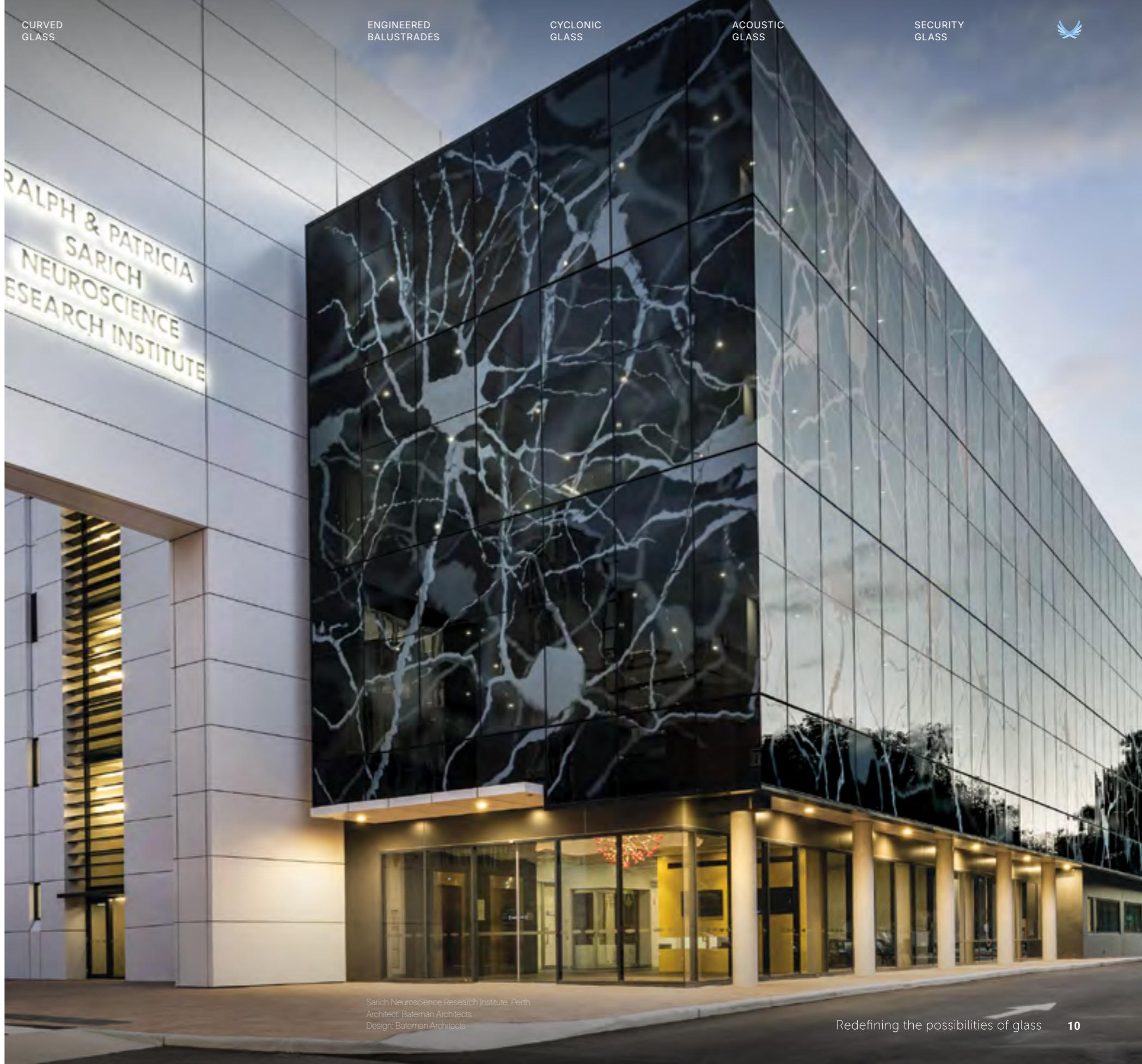
FEATURES

- + UV and scratch resistant ceramic inks
- + Performance data available for printed surface
- + Control of ink coverage allows fine tuning of light transmission for individual areas in the same panel
- + 25 Year warranty against fading and discolouration
- + Digital File Formats - PSD, TIFF, JPEG | AI, EPS, PDF

APPLICATIONS

+ Facades	+ Partitioning
+ Balustrades	+ Shower screens
+ Spandrel panels	+ Canopies
+ Public art	+ Splashbacks

SIZE (MM)	THICKNESS (MM)	CONFIGURATIONS
MIN. 240 x 400	A wide range of glass thicknesses are available. Please contact us for more details.	CLEAR, TINTED, LOW IRON LOW-E IGU CUSTOM LAMINATE DIGIGLASS VANCEVA
MAX. 2480 x 4500; 2450 x 4800		





Colour space, and printing characteristics

ImagInk ceramic inks are optimised for vibrant colour expression, delivering striking results – particularly in designs featuring rich reds, greens, and purples. While some colours such as bright pinks may naturally shift when converted for ceramic printing, our process ensures strong visual impact across a wide range of hues. Additionally, the unique translucency of ceramic inks can be creatively leveraged to add depth and layering effects. For guidance on preparing artwork for best results, download the ImagInk Artist Guide from our website.

IMAGINK CERAMIC INK BASE COLOURS



Red, green, blue, yellow, white, black

Print directly to the glass surface for ultimate creative expression

ImagInk uses ceramic inks that are printed directly onto the glass surface. The glass is then toughened or heat strengthened, fusing the inks directly into the glass. This creates a scratch resistant surface, that is guaranteed not to fade or discolour for 25 years.

Direct to glass printing opens up a range of options for artistic experimentation. Artists can use multiple printed layers to achieve visual depth, and change the positioning of the printed surface to achieve variations in glass surface reflectivity.



IMAGINK™ DESIGN COLLECTION

200+ Patterns and textures designed specifically for ImagInk Ceramic Inks. Choose from patterns configured to control light transmission, or high resolution ultra-realistic natural materials such as marble and timber cladding.

Single Colour Patterns are designed for overhead canopies, privacy screens, or any application requiring tiling. All patterns are tested for light transmission and offer a wide range of coverage options. Single colour patterns are available in white, black or custom colour matched to most RAL and Pantone swatches.

Natural Textures offer exceptionally detailed, ultra-realistic stone and timber textures, designed for reproduction on glass with the benefits of ceramic inks. All natural textures tile seamlessly for infinite use.

FEATURES

- + Performance data available for printed surface
- + Control of ink coverage allows fine tuning of light transmission for individual areas in the same panel
- + 25 Year warranty against fading and discolouration

APPLICATIONS

+ Facades	+ Partitioning
+ Balustrades	+ Commercial shower screens
+ Spandrel panels	+ Canopies

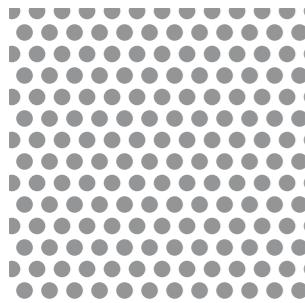
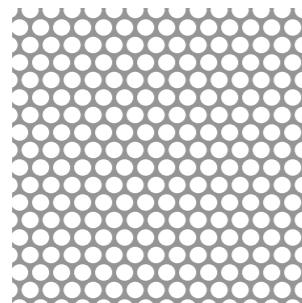
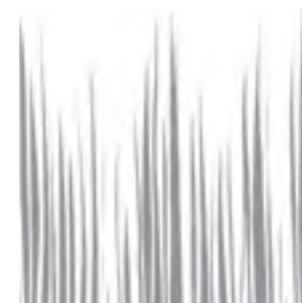
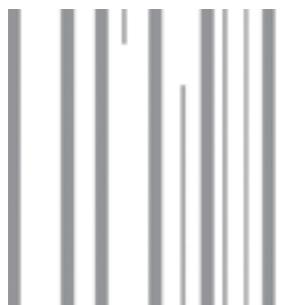
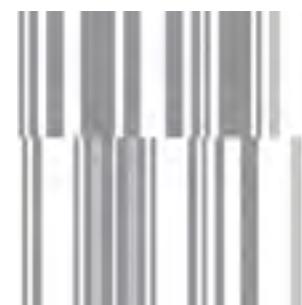
SIZE (MM)	THICKNESS (MM)	CONFIGURATIONS
MIN. 240 x 400	A wide range of glass thicknesses are available. Please contact us for more details.	CLEAR, TINTED, LOW IRON LOW-E IGU CUSTOM LAMINATE DIGIGLASS VANCEVA
MAX. 2480 x 4500; 2450 x 4800		



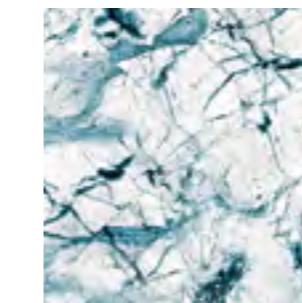
Hay St Apartments, Perth
ImagInk Design Collection: 'Peleton'



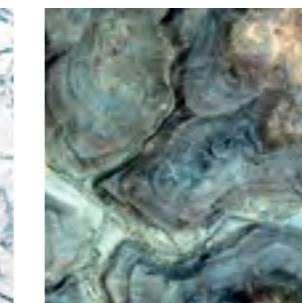
Single / Full Colour Pattern Samples

3MM DOT 40
LIGHT TRANSMISSION: 60%3MM DOT 40 INVERTED
LIGHT TRANSMISSION: 60%INTERLACE
LIGHT TRANSMISSION: 80%ORGANIC
LIGHT TRANSMISSION: 14%CRYSTAL MAZE
LIGHT TRANSMISSION: 56%SOLITAIRE
LIGHT TRANSMISSION: 60%GEOMETRIC
LIGHT TRANSMISSION: 31%ABSTRACT
LIGHT TRANSMISSION: 52%ORIENTAL
LIGHT TRANSMISSION: 52%VICTORIAN
LIGHT TRANSMISSION: 82%CIRCUMFERENCE
LIGHT TRANSMISSION: 71%ROMAN TIMES
LIGHT TRANSMISSION: 67%PELETON
LIGHT TRANSMISSION: 51%BARCODE
LIGHT TRANSMISSION: 20%CUBIC
LIGHT TRANSMISSION: 57%SNOWFLAKE
LIGHT TRANSMISSION: 58%

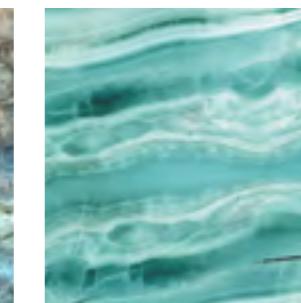
Natural Texture Samples



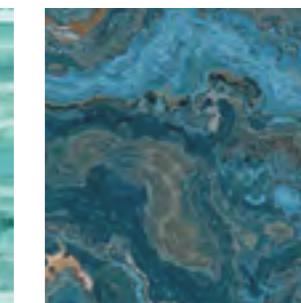
CRACKED ICE



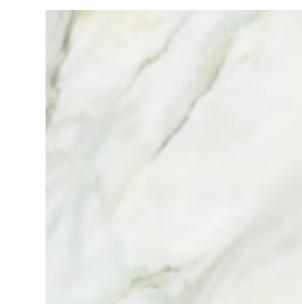
SWEEPING PEARL



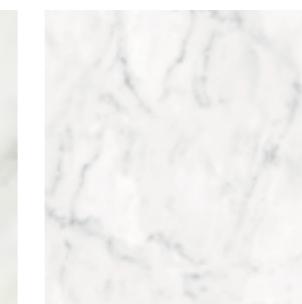
GLACIER



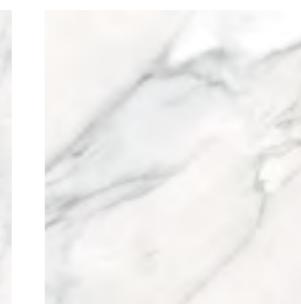
DEEP BLUE



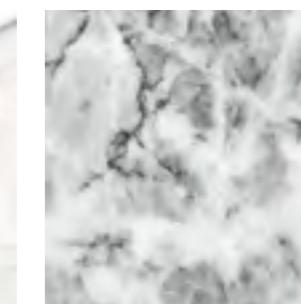
IMPERIAL



MIST



WHITE SATVARIO MARBLE



GREY MARBLE



AQUA ONYX



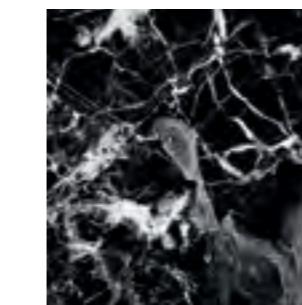
LONDON CREME



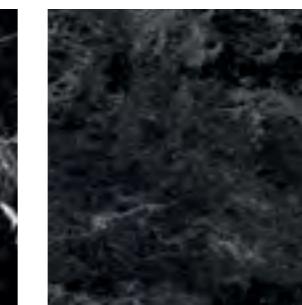
EARTHBED



BROOKLYN



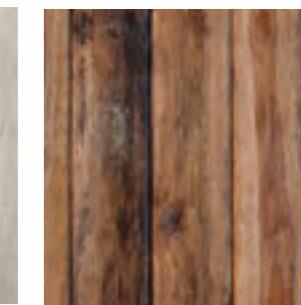
FRACTURED



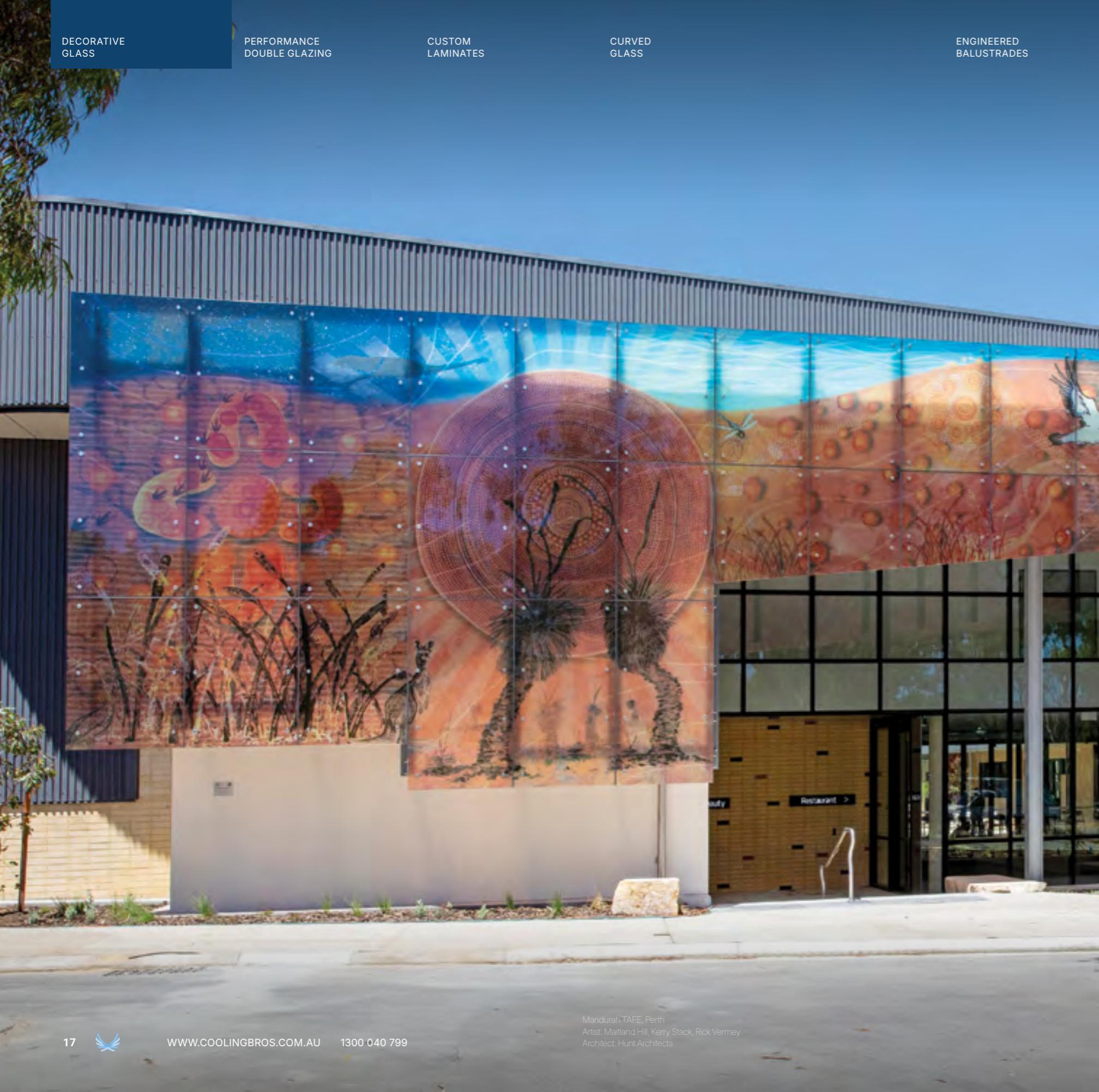
DEEP SPACE



LIGHT GRAIN



WOOD GRAIN




DIGIGLASS

DigiGlass printed interlayers offer unrivalled resolution and colour accuracy, perfect for reproducing artistic and photographic designs on glass.

DigiGlass™ is the perfect printing medium for artists and photographers where colour accuracy is critical. Using a CMYK colour process, DigiGlass is produced using a high resolution printed interlayer, laminated between two pieces of glass. This full colour process can reproduce any image in stunning detail at high resolutions.

FEATURES

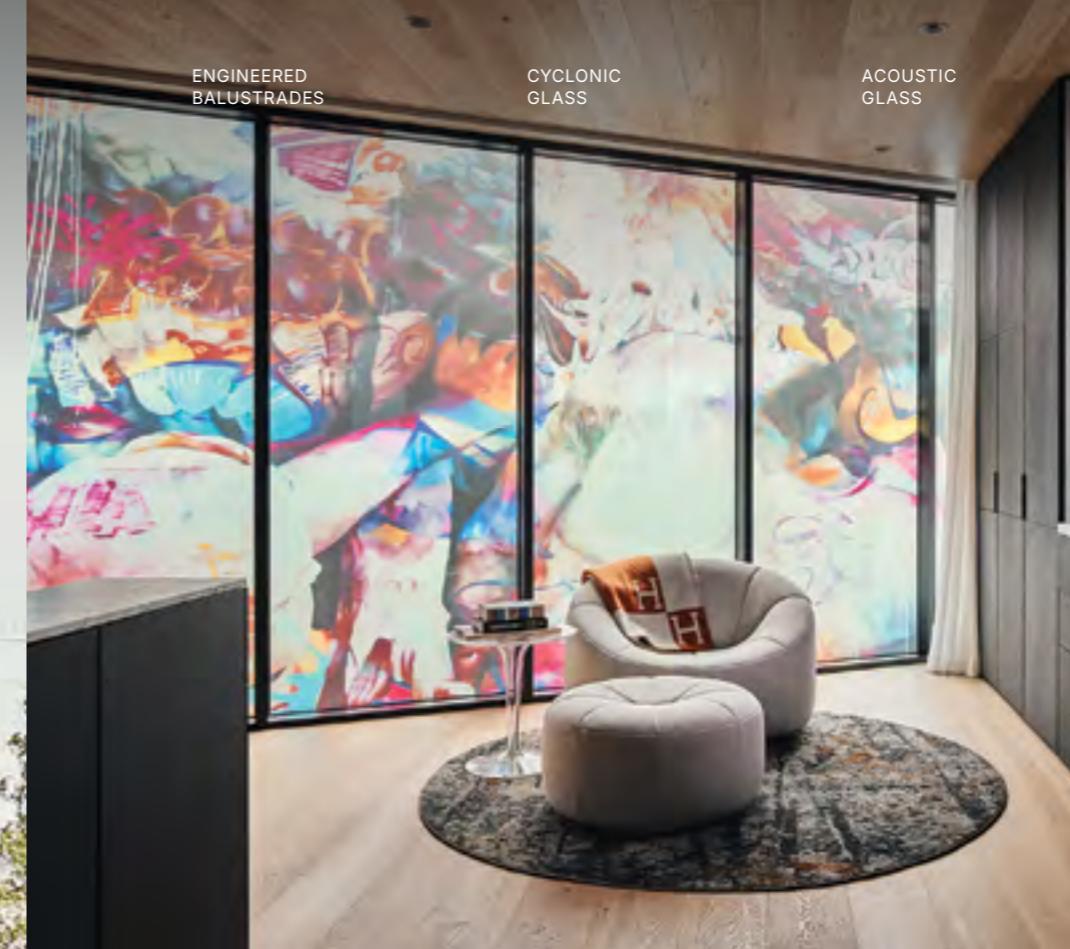
- + 1440 dpi printing resolution
- + Full colour gamut for exceptional colour accuracy
- + Three transparency options available
- + Grade A safety glass
- + 5 year warranty against fading and discolouration
- + Digital file formats - PSD, TIFF, JPEG, AI, EPS, PDF

APPLICATIONS

+ Facades	+ Partitioning
+ Balustrades	+ Shower Screens
+ Public Art	+ Canopies
+ Signage and Wayfinding	

SIZE (MM)		THICKNESS (MM)	CONFIGURATIONS
A MIN	240 x 400		CLEAR, TINTED, LOW IRON
A MAX	1600 x 5100		LOW-E
T MIN	240 x 400		IGU
T MAX	1600 x 5000	A wide range of glass thicknesses are available. Please contact us for more details.	CUSTOM LAMINATE IMAGINK VANCEVA

A Annealed T Toughened



Digiglass inks, colour space, and printing characteristics

DIGIGLASS COLOUR SPACE



CYAN, MAGENTA, YELLOW, BLACK

Digiglass uses a CMYK colour space, exactly the same as commercial printers. For more information on colour accuracy, please download the Digiglass Artist Guide.

DigiGlass can be produced to suit two transparency options and one fully obscured solution. The choice of transparency level varies depending on the desired light transmission and lighting condition requirements of the intended application. Double sided prints are also achievable. Please discuss your project with our design team to achieve the results you are after.

DIGIGLASS TRANSPARENCY OPTIONS



POLAR
WHITE

COOL WHITE

CLEAR



Vanceva® interlayers achieve thousands of transparent or translucent glass colours, giving architects and designers limitless freedom with colour and light.

A Vanceva panel is comprised of between 1 and 4 coloured interlayers, permanently laminated between two pieces of glass using a PVB interlayer. This achieves an extensive colour spectrum beyond what other coloured glass selections offer. Vanceva can be combined with any glass type including IGUs and custom laminated glass.

Vanceva interlayers can also be configured with ImagInk digital ceramic printing to achieve areas of opaque and translucent colour within the same glass panel.

FEATURES

- + Transparent, translucent and opaque colour options
- + Over 17,000 colour combinations
- + Increased Sound, Solar, UV performance
- + Combine with ImagInk for endless creative options
- + 5 year warranty against film failure

APPLICATIONS

+ Facades	+ Flooring
+ Overhead Glazing	+ Doors
+ Skylights	+ Windows

SIZE (MM)

THICKNESS (MM)

CONFIGURATIONS

A MIN	240 x 400	A wide range of glass thicknesses are available. Please contact us for more details.	CLEAR, TINTED, LOW IRON LOW-E IGU CUSTOM LAMINATE IMAGINK DIGIGLASS
A MAX	1600 x 5100		
T MIN	240 x 400		
T MAX	1600 x 5000		

A Annealed T Toughened



Gusto Gelato Kiosk, Perth
Photo: Robert Frith, Acorn Photography
Artist: Pamela Gaunt
Architect: Iredale Pederson Hook



IMAGINK™ ANTI-SLIP GLASS

Custom printed, laminated glass with a P5 rated, non-slip coating to give permanent grip to any glass panel.

Select from our standard non-slip patterns based off a 3mm dot pattern, or develop your own totally custom pattern. Custom patterns must be rated to correct requirements, a service we include with all custom patterns.

If a glass floor isn't eye catching enough, non slip prints can be combined with other decorative products to create a truly stunning feature floor while meeting safety standards.

PATTERN	COLOUR	SURFACE COVERAGE	SLIP RATING	APPLICATION
	3mm dot	White	40%	P4 Indoor
	3mm dot	White	50%	P4 Indoor
	3mm dot	White	60%	P5 Outdoor
	3mm dot inverted	White	40%	P5 Outdoor

SIZE (MM)		THICKNESS (MM)	CONFIGURATIONS
T MIN	240 x 400		CLEAR, TINTED, LOW IRON
T MAX	2480 x 4500; 2450 x 4800	A wide range of glass thicknesses are available. Please contact us for more details.	LOW-E IGU CUSTOM LAMINATE DIGIGLASS VANCEVA

A Annealed T Toughened

Performance Double Glazing Solutions



Customisable high performance double glazing solutions offering soft coat and hard coat Low-E performance options to suit all projects.

Insulcool offers designers and architects a completely customisable IGU solution to match exact project requirements. We achieve this by carrying an extensive range of glass options from global flat glass manufacturers, providing industry professionals with the ultimate choice in performance and colour options.

For projects where safety and performance are paramount, Insulcool is available in a custom laminated soft coat configuration. This technically complex specification involves laminating the soft coat panel to a second panel prior to assembling the IGU.

 Thermally broken spacer technology

 Permanent Argon gas tightness

 Residential and commercial use

 Configurable with custom laminated soft coats

	SIZE (MM)	SPACER THICKNESS (MM)	CONFIGURATIONS
MIN	250 x 400	6 TO 20	CLEAR, TINTED, LOW IRON
MAX	2480 x 4000		LOW-E
	2700 x 4100 ¹		CUSTOM LAMINATE
			IMAGINK
			DIGIGLASS
			VANCEVA

¹. For availability outside of VIC please contact us on 1300 040 799

PERFORMANCE DATA & CONFIGURATIONS LOCATED ON PAGES 56-57



InsulCool Ultra Series

Soft coat Low-E performance in glass makeup designed to achieve specific thermal outcomes for the broad range of Australian climates.

→  Soft Coat Low-E for ultimate performance

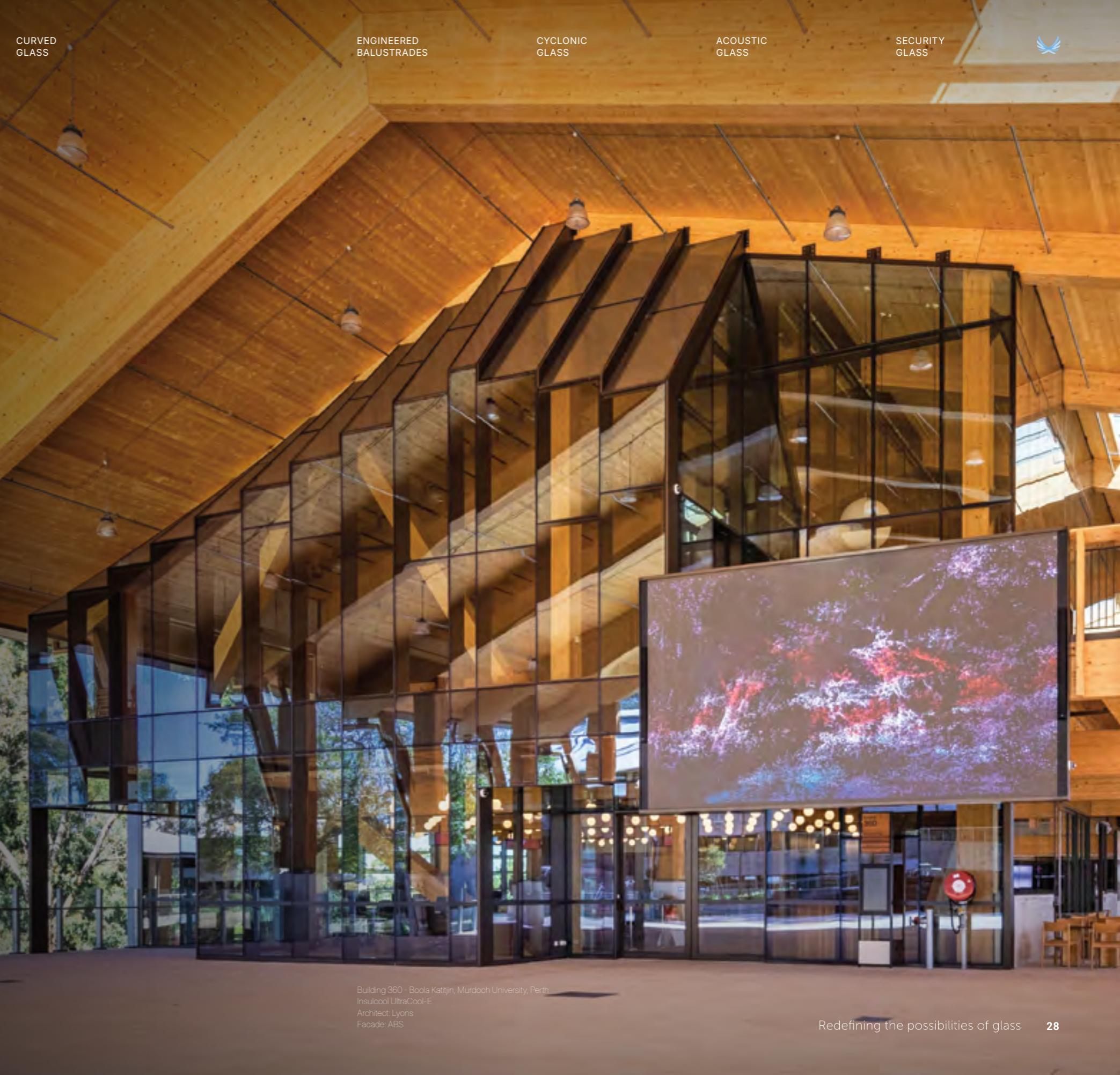
 Increase performance with decorative treatments

	SOFT COAT	TYPICAL PERFORMANCE*		
		SHGC*	VLT*	U VALUE*
 ULTRALIGHT-E	 Single Silver	.57	80	1.36
 ULTRACOOL-E	 Double Silver	.32	68	1.34
 ULTRAPLUS	 Triple Silver	.26	60	1.34

SIZE (MM)	SPACER THICKNESS (MM)	CONFIGURATIONS
MIN 250 x 400	6 TO 20	CLEAR, TINTED, LOW IRON
MAX 2480 x 4000		LOW-E
2700 x 4100 ¹		CUSTOM LAMINATE IMAGINK DIGIGLASS VANCEVA

PERFORMANCE DATA & CONFIGURATIONS LOCATED ON PAGES 56-57

* Typical values based on 6+12+6 clear glass makeup with argon gas. Further increases to performance values can be achieved with tinted glass. All performance values shown in this document represent NOMINAL VALUES. Please refer to our terms and conditions online for further details regarding stated performance values of insulated glazing units.



Building 360 - Boola Katjini, Murdoch University, Perth
Insulcool UltraCool-E
Architect: Lyons
Facade: ABS

CUSTOM LAMINATES

Custom Laminates open up limitless opportunities in glass for any application - swimming pool walls, stair treads, floors, ceilings and more.

Custom Laminates are exactly that - custom. Explore the possibilities offered by a myriad of interlayer options, including PVB, SentryGlas®, EVA, Polycarbonate. We provide a fully integrated service and manufacturing solution, from concept design right through to engineering certification. We routinely produce triple laminates for weight bearing applications.

Coloured interlayers such as Vanceva are also available, as well as the option to combine with ImagInk digital ceramic printing or DigiGlass printed interlayers.

FEATURES

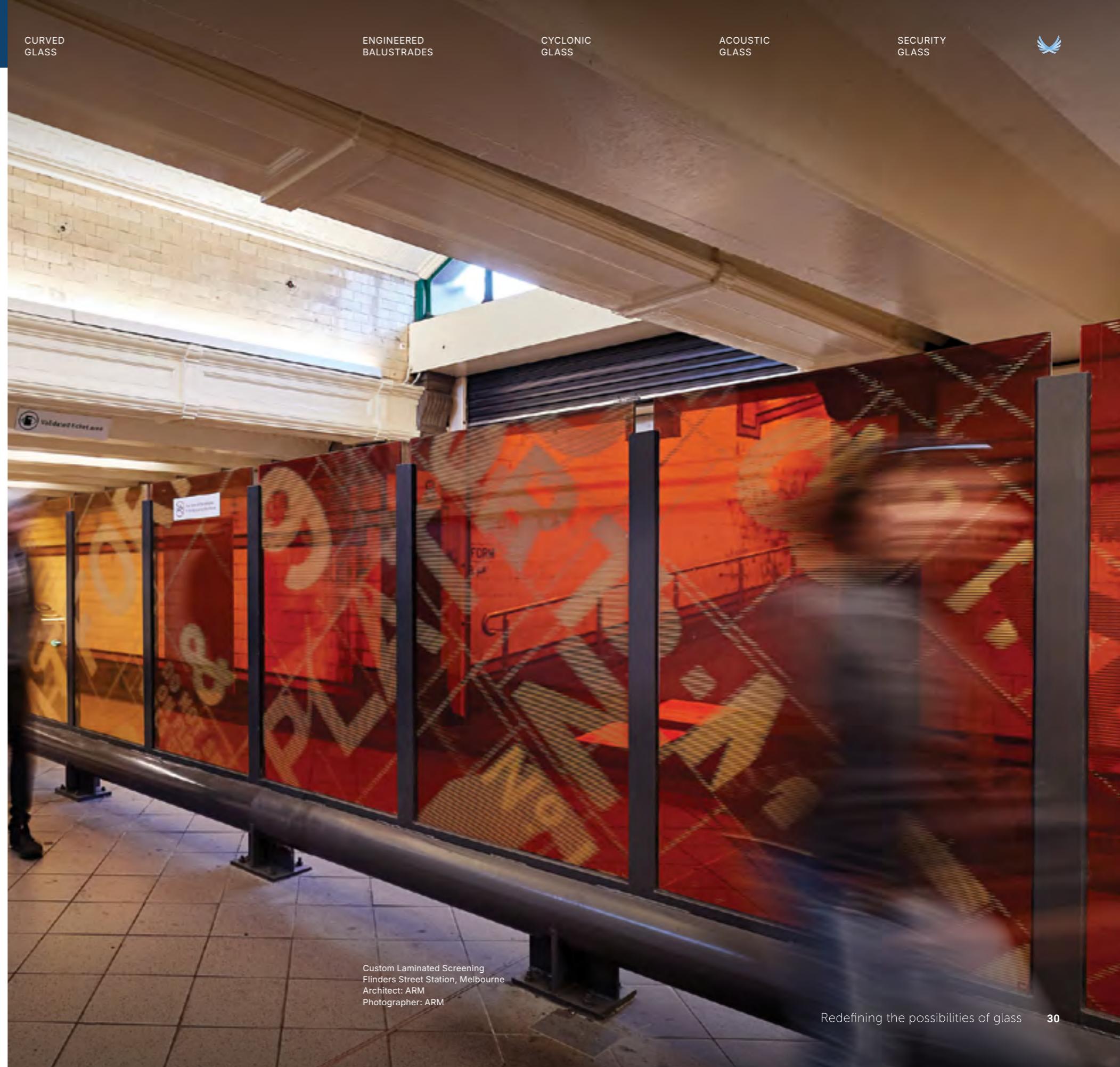
- + Custom makeups allow configuration for limitless options
- + PVB, SentryGlas®, EVA or Polycarbonate interlayer options
- + Engineering certification available
- + Combine with decorative glass options such as ImagInk ceramic printing and DigiGlass interlayers

APPLICATIONS

- + Architectural projects requiring custom, one-off glass design solutions
- + Any application where glass is specified: Balustrades, skylights, etc

SIZE (MM)	THICKNESS (MM)	CONFIGURATIONS
A MIN	240 x 400	A wide range of glass thicknesses are available. Please contact us for more details.
A MAX	2500 x 5100	CLEAR, TINTED, LOW IRON
T MIN	240 x 400	LOW-E
T MAX	2500 x 5000	IGU
		IMAGINK
		VANCEVA
		DIGIGLASS

A Annealed T Toughened



Custom Laminated Screening
Flinders Street Station, Melbourne
Architect: ARM
Photographer: ARM

Featherston House Unit 2, Ivanhoe, Victoria
Designer: Julian Featherston, Two Feathers
Photographer: John Gollings Photography



Swimming Pool Wall, Burswood Tower 2, Perth
30.28mm Custom Laminate



Irrational Geometrics, Kings Square, Perth
Glass: 35mm Custom Laminate
Photography: Pascal Dombis & Gil Percal
Artist: Pascal Dombis & Gil Percal



Curved Glass

Curved glass offers increased design freedom to achieve dynamic building envelopes while delivering structural, thermal, and acoustic benefits that can be difficult to achieve using flat glass.

Advanced bending processes achieve precise curvatures while maintaining optical quality and structural integrity. Curved glass is available in double glazed Low-E and tinted options for improved thermal and solar control performance. Curved glass can be manufactured in annealed, heat-strengthened, or toughened-laminated configurations.

FEATURES

- + Available in Curved Toughened and Curved Laminated specifications
- + Tight radius or tangent radius available across standard and Low-E glass
- + Configure with Digiglass Printed Interlayers and ImagInk ceramic printing
- + Configure with Acoustic Interlayers
- + Manufactured in Australia to meet AS 1288:2021 requirements

APPLICATIONS

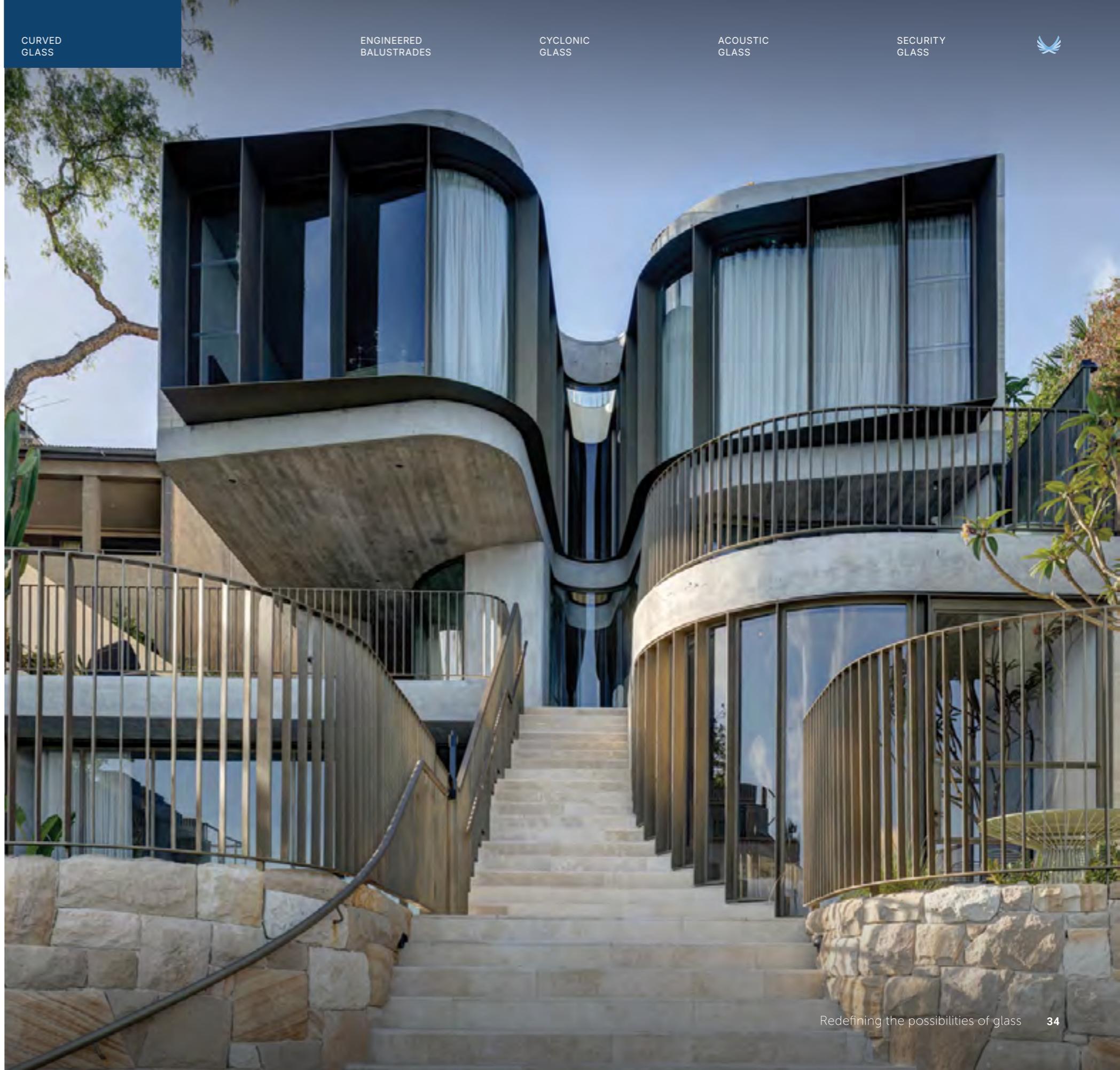
+ Facades	+ Sliding doors
+ Balustrades	+ Display cabinets
+ Public art projects	+ Canopies
+ Office partitions	+ Pool windows

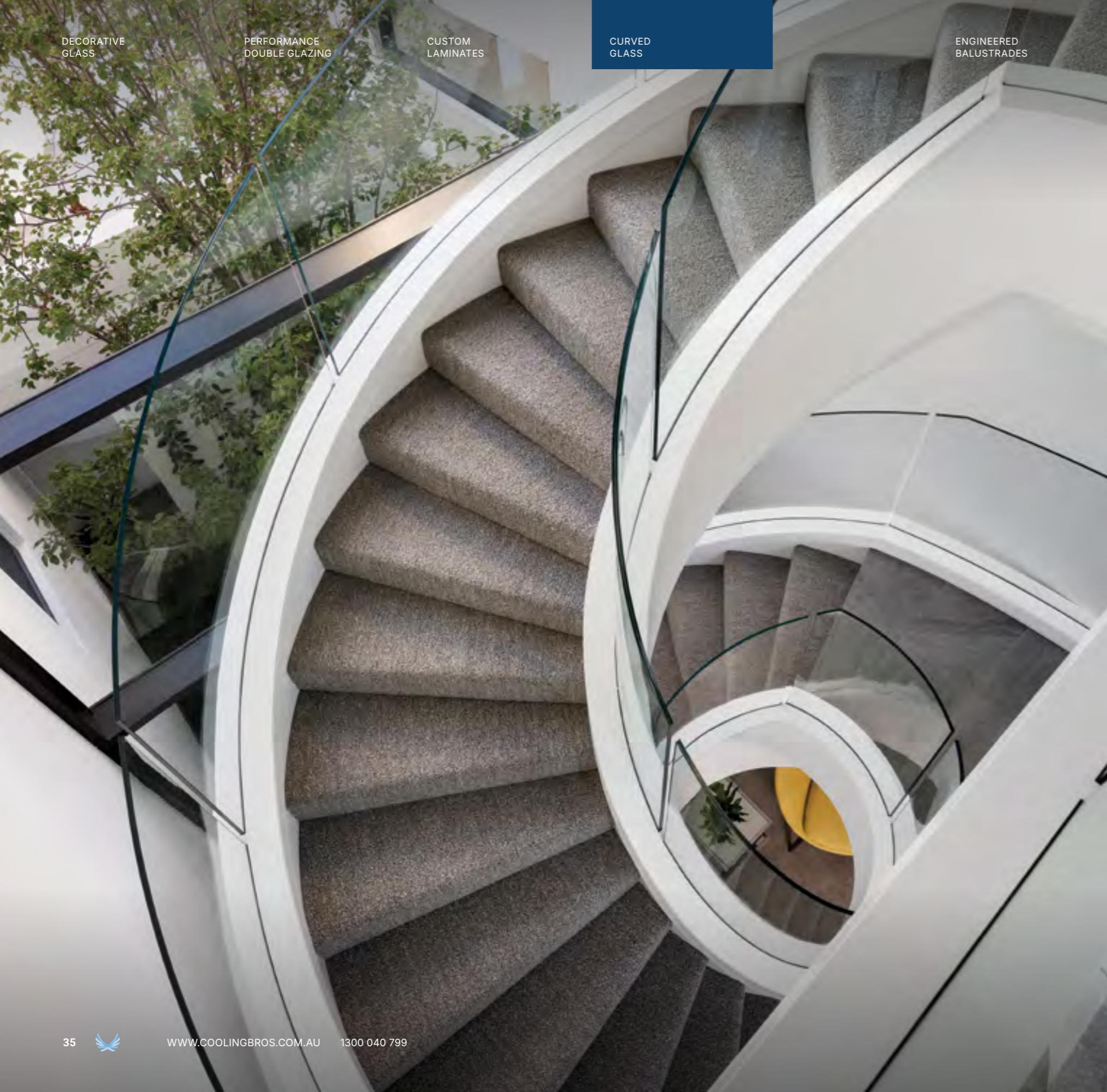
THICKNESS (MM)

CONFIGURATIONS

CUSTOM TO SUIT APPLICATION

CLEAR, TINTED, LOW IRON
LOW-E, IGU
CUSTOM LAMINATE
IMAGINK, DIGIGLASS, VANCEVA





DECORATIVE
GLASS

PERFORMANCE
DOUBLE GLAZING

CUSTOM
LAMINATES

CURVED
GLASS

ENGINEERED
BALUSTRADES

CYCLONIC
GLASS

ACOUSTIC
GLASS

SECURITY
GLASS



Designing with Curved Glass

As always we would remind you that there are many variables which will influence potential outcomes for individual projects. Sometimes this allows achieving better than indicated on certain parameters. We recommend consulting the experienced staff at Bent & Curved Glass to discuss the specific requirements of each project in order to determine the best glass options available.

Technical Guidelines

	TOUGHENED & TOUGHENED LAMINATED	ANNEALED & ANNEALED LAMINATED
MAX GLASS HEIGHT (MM)	< 1000 RADIUS: 2300 > 1000 RADIUS: 3300	3800 (2400)
MAX. GLASS GIRTH	< 1000 RADIUS 1450 > 1000 RADIUS 2500	2400 (3800)
MAX. ANGLE OF BENDING	< 1000 RADIUS 90° > 1000 ANY ANGLE UP TO MAX. 680MM DEPTH OF CURVE	PENDING GLASS THICKNESS + DEPTH OF CURVE
MIN. RADIUS (MM)	GLASS HEIGHT (MM) 400 - 2300 2500 - 3300	
5-6	550	1000
8	640	1200
10	700	1200
12	1000	1500
15	1650	1800*
TANGENT BENDING & COMPOSITE RADIUS BENDING	ON APPLICATION	NO SPECIFIC RESTRICTIONS OTHER THAN ABOVE

*Minimum radius will depend upon glass dimensions

BC Bent & Curved Glass
A COOLING BROTHERS GLASS COMPANY

WWW.BENTGLASS.COM.AU
+61 2 9773 1022
INFO@BENTGLASS.COM.AU



VISTAVIEW™

VistaView™ is a structural frameless glass balustrade system, engineered to eliminate handrails and remain intact in the event of impact.

VistaView is engineered around the Kuraray SentryGlas® interlayer. SentryGlas interlayers provide structural rigidity one hundred times stiffer than conventional laminating material and are highly resistant to de-lamination or clouding as a result of exposure to UV and moisture. A benchmark of expert workmanship, VistaView balustrade panels feature highly polished interlayer edges and CNC polished radius corners; a standard of quality that is unmatched on any other frameless glass balustrade system.

FEATURES

- + NCC compliant, truly frameless balustrade
- + Remains a permanent barrier even if shattered
- + CNC polished radius corners
- + Compatible with all standard balustrade fittings
- + 5 year warranty against de-lamination



BCA PARTS 3.9.1,
3.9.2, VOLUME 2
AS 1170.1

APPLICATIONS

+ Balconies	+ Areas where uninterrupted views are desired
+ Stairs	+ Areas where handrails are unable to be installed
+ Windbreaks	

FIXING SYSTEMS THICKNESS (MM) CONFIGURATIONS

STIRRUP CHANNEL PLANAR	VistaView thickness is determined by engineering on a per project basis. Please contact us for further details.	CLEAR TINTED LOW IRON IMAGINK
------------------------	---	--

To meet NCC compliance, all Vista View installation methods, panel sizes and thicknesses must be advised and signed off by a structural engineer prior to installation. Please contact us for more information prior to finalising designs to ensure panel sizes are achievable.



VistaView Balustrade
Peppermint Grove, Perth
Private Residence





VistaView channel fixed installation
Double Bay, Sydney
Private Residence



TEMPEST GUARD™

Tempest Guard™ provides cyclonic protection tested to NATA accredited standards for glass windows and doors located in Australia's most storm prone areas.

Tempest Guard™ incorporates specialised structural interlayers to achieve the extreme glass strength required for buildings located in cyclonic regions. Tempest Guard has been successfully tested at speeds of up to 44mps as detailed in AS 1170.2.

Tempest Guard must be installed in an approved cyclonic framing system to ensure full compliance with AS 1170.2. Please contact us for recommendations on approved framing systems for your project.

FEATURES

- + Tested to NATA accredited Cyclonic Glass standards for region D cyclonic areas
- + Wide range of configuration options available including decorative glass
- + 5 year warranty against de-lamination



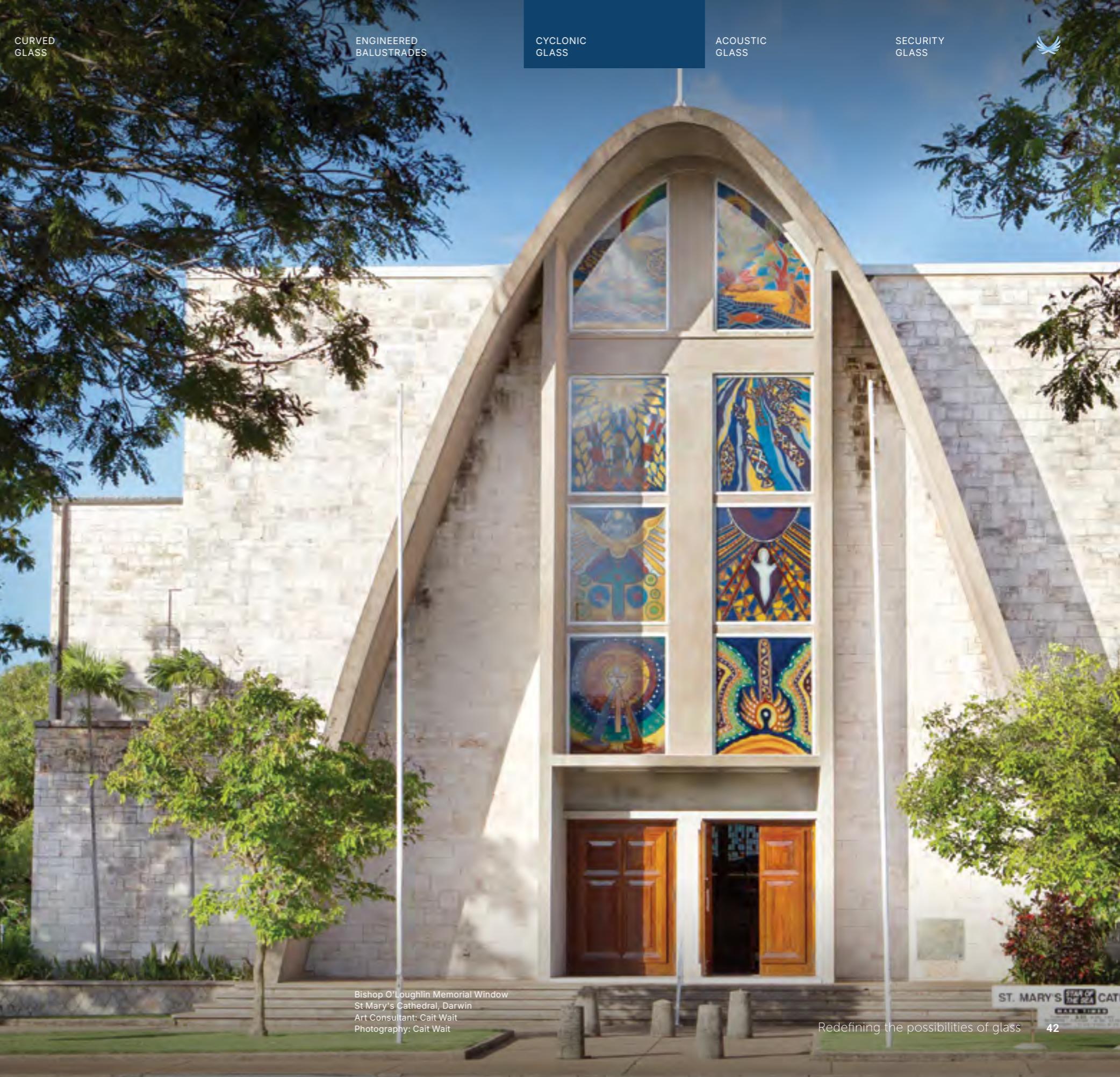
APPLICATIONS

- + Commercial glazing in cyclonic weather regions across Australia

SIZE (MM) THICKNESS (MM) CONFIGURATIONS

T MIN	240 x 400	12.5 TO 16.5	CLEAR
T MAX	2450 x 5000		TINTED
			LOW-E
			IGU
			FIRE RATED
			DECORATIVE

A Annealed T Toughened



Bishop O'Loughlin Memorial Window
St Mary's Cathedral, Darwin
Art Consultant: Cait Wait
Photography: Cait Wait



WHISPER

Whisper™ provides acoustic insulation for glass installed in high noise residential and commercial applications.

Whisper™ Acoustic Insulation reduces noise by using a unique acoustic PVB (Polyvinyl Butyral) interlayer, which incorporates a dampening core between the two panes of glass. This core acts to prevent vibration and eliminate the coincidence dip.

Like all acoustic glass solutions, Whisper should be installed within a framing system designed to reduce air leakage. Air leakage will significantly affect the acoustic performance of the glass.

FEATURES

- + Acoustic PVB Interlayer Technology
- + Grade A safety glass
- + Combine with Digiglass Printed Interlayers / ImagInk Printed Glass
- + Compatible with Low-E and performance glass

APPLICATIONS

+ Offices	+ Hotels
+ Airports	+ Hospitals
+ Houses / Apartments	

SIZE (MM) THICKNESS (MM) CONFIGURATIONS

A MIN	240 x 400	6.76	CLEAR
A MAX	1600 x 5100	10.76	TINTED
T MIN	240 x 400	12.76	LOW-E
T MAX	2450 x 5000	14.76	IGU CUSTOM LAMINATE DECORATIVE

A wide range of custom Whisper thicknesses are also available. Please contact us for more details.

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Whisper Acoustic Meeting Rooms
Woodside, Perth
Architect: Cox
Designer: Unispace
Photographer: Shannon McGrath



The coincidence dip: how Whisper reduces noise compared to regular glass

Regular monolithic glass, toughened or float, provides some acoustic insulation against noise, however it suffers from a 'coincidence dip' at higher frequencies. This dip causes the glass to vibrate at the same frequency as the noise, transmitting the noise through the glass. Our ears are more sensitive to these higher frequencies and as such we perceive them to be far more intrusive than lower frequencies.



Which Whisper solution best suits your environment?

Isolating noise problems to be targeted with acoustic glazing remains difficult. The process of designing for noise reduction requires measuring the intensity and nature of the target sound, as well as measuring the internal sound level of a building in order to achieve a desired decibel reduction. As this may not always be possible, the chart below provides a guide towards which whisper thickness is suitable for a range of common applications.

For high level external noise situations, Whisper should be combined in an IGU with a differing glass thickness to achieve high level reduction.

Recommended Whisper Specifications

	EXTERNAL NOISE SOURCE (dB)		
	LOW 65dB	MED 75dB	HIGH 85dB
OFFICE	6mm (Float)	6.76mm	6.76mm
LIVING ROOM	6.76mm	6.76mm	10.76mm
BEDROOM	6.76mm	10.76mm	10.76mm

Whisper Sound Reduction Index

DOUBLE GLAZED UNITS

MAKEUP	RW	C	CTR
3+12+6.76	38	-1	-5
3+12+8.76	38	-1	-5
6+12+6.76	41	-2	-5
6+12+8.76	41	-1	-5
6+12+10.76	42	-2	-5
8+12+6.76	42	-1	-4
8+12+8.76	44	-1	-4
6.76+12+6.76	43	-1	-5
12.76+12+6.76	49	-1	-5
12.76+20+8.76	50	-2	-5
14.76+20(Ar90)+10.76	51	-1	-5

SINGLE GLAZING

THICKNESS (MM)	RW	C	CTR
6.76	36	-1	-3
8.76	37	-1	-3
10.76	38	-1	-3
12.76	39	-1	-3
16.76	41	-1	-3
20.76	43	-1	-3
24.76	44	-1	-3

Security Glass Solutions

Laminated security glazing for all threat levels - from high risk health and correctional facilities, to ballistic glass capable of withstanding firearm attacks.

 Tested to NATA accredited standards

 Configure with decorative treatments

 Advanced security interlayer technology

 Configure with double glazing solutions

Security Glass Product Range

	USE	IMPACT TYPE
 BALLISTIC GUARD	High risk military, government and private facilities	
 MAX GUARD™	Medium to high risk prison facilities	
 ULTRA SECURE GUARD	High risk health facilities, medium risk detention facilities	
 SECURE GUARD	Domestic, low risk commercial	

SCHOTT





BALLISTIC GUARD

Ballistic Guard is designed for use anywhere where there may be a threat of high level violence or intimidation by firearm attack.

Specially constructed in combinations of glass, PVB laminate and clear polycarbonate, Ballistic Guard provides protection against armed attack. When fired at, Ballistic Guard is designed to slow the bullet down and trap it within the glass. Although composed of many layers, it maintains the normal appearance of glass and allows natural light to pass through.

Ballistic Guard comes in four makeup - G1, G2, R1 & R2. Each glass makeup has undergone stringent testing against various degrees of ammunition and meets resistance to a defined attack under AS/NZS 2343 standards.

MAKEUP	CALIBRE	AMMUNITION	VELOCITY < 2.5M TARGET	MIN. RANGE
G1	357 Magnum	10.2 g soft point; semi jacketed; flat nose	450 ± 15 m/s	3m
G2	44 Magnum	15.6 g soft point; semi jacketed; flat nose	480 ± 15 m/s	3m
R1	5.56 mm	M 193 5.56 mm 3.6 g; full metal case bullet	980 ± 15 m/s	10m
R2	7.62 mm	NATO standard 7.62 mm; 9.3 g full metal case bullet	850 ± 15 m/s	10m

* Position of strikes. Shot centres 100 (+10-0)mm apart forming an equilateral triangle within square of 200mm centrally located on panel.

APPLICATIONS

+ High risk military, government and private facilities

SIZE (MM)	THICKNESS (MM)	CONFIGURATIONS
MAX 1200 x 2400	Ballistic Guard thickness is determined on a per project basis. Please contact us for further details.	CLEAR TINTED DECORATIVE

SCHOTT



MEETS STANDARD
AS 2208
AS 3555.1-2003





High security glass for prisons and correctional facilities where longevity of strength to withstand prolonged attacks is paramount. Max Guard™ is tested to NATA accredited standards.

Meeting the glazing standard required in a prison environment or detention centre can be a challenging task. Prison designs are adopting a more open look and feel for the well-being of the occupants and to allow better vision through spaces. Specialist security glass will allow light through rooms as well as providing safety.

Designed with the highest quality security interlayers, Cooling Brothers Max Guard™ has been shown to withstand attack from tools such as axes, mallets, crow bars, mattocks and handsaws. Max Guard™ is available in 17mm or 22mm, or a 23mm Dual Attack Max thickness designed to resist attack from both sides. Max Guard™ can be combined with other glass types such as obscured, coloured or decorative.

INTEGRATED PROCESSING OPTION

 Configure with ImagInk Digital Ceramic Printing to achieve enhanced aesthetics & privacy options

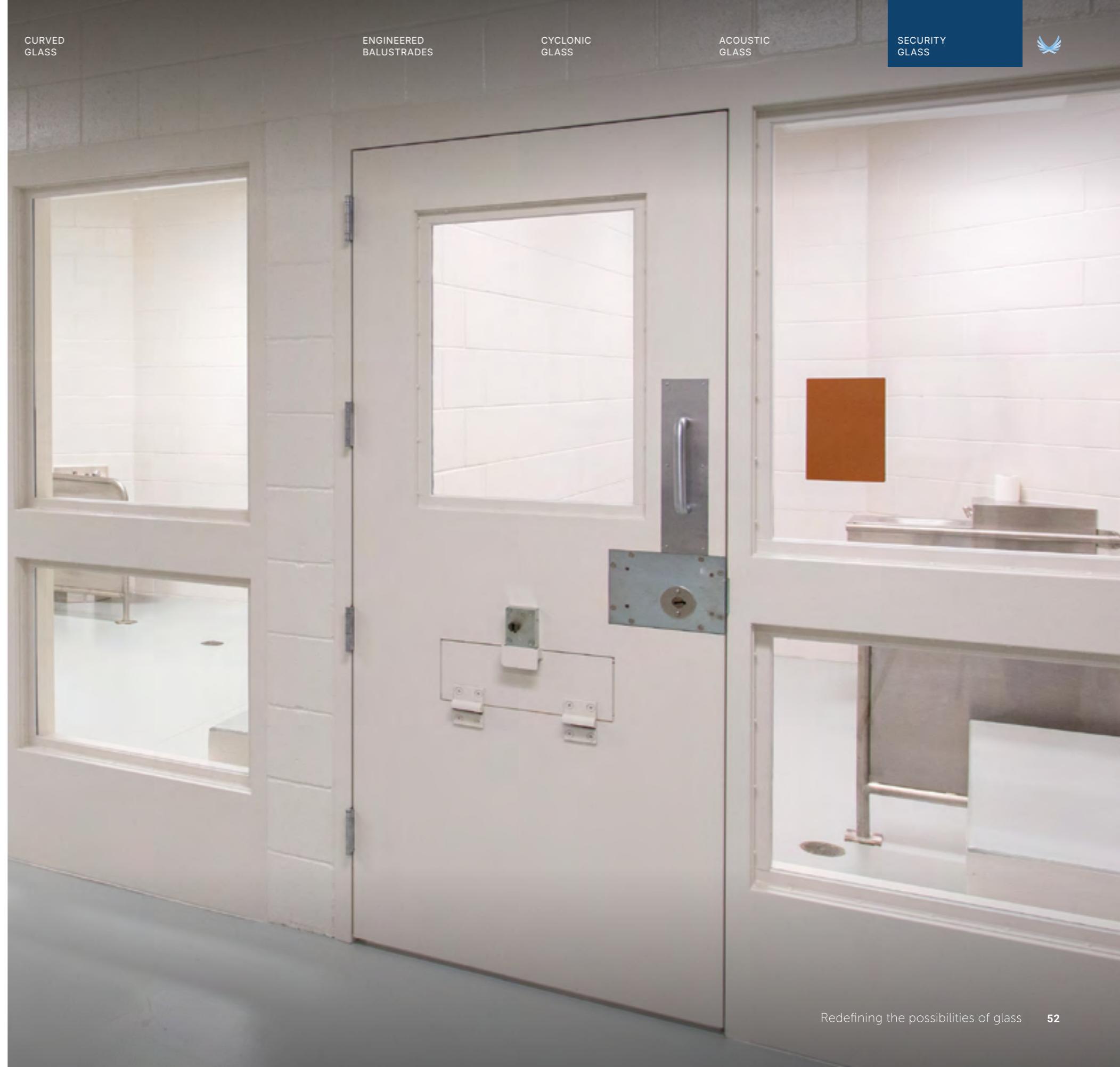
APPLICATIONS

+ High security prisons and correctional facilities

SIZE (MM)	THICKNESS (MM)	CONFIGURATIONS
T MIN 240 x 400	17	LOW-E
T MAX 2450 x 5000	22 23	IGU ONE-WAY VISION DECORATIVE

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ULTRA SECURE GUARD

Security glazing for health facilities with high security requirements. Ultra Secure Guard is tested to NATA accredited standards.

Certified at Level 2 with a five-minute attack time, Ultra Secure Guard is specifically designed for high-risk health and medium security detention facilities. It is the only security glass in Australia to hold certification of testing to NATA accredited standards.

Currently, all glass products must adhere to the broad-based standard of AS 1288. However, specialised laminated glass products in high-risk categories such as ballistic and cyclonic glass are subject to category specific AS standards. Despite being a high-risk category, security glazing for health projects does not currently require a category-specific standard, which increases the risk of non-compliance and potential product failure in worst-case scenarios.

Certification eliminates risk and provides architects and specifiers compliance and peace of mind when designing for health and security facilities.

INTEGRATED PROCESSING OPTION

 Configure with ImagInk Digital Ceramic Printing to achieve enhanced aesthetics & privacy options

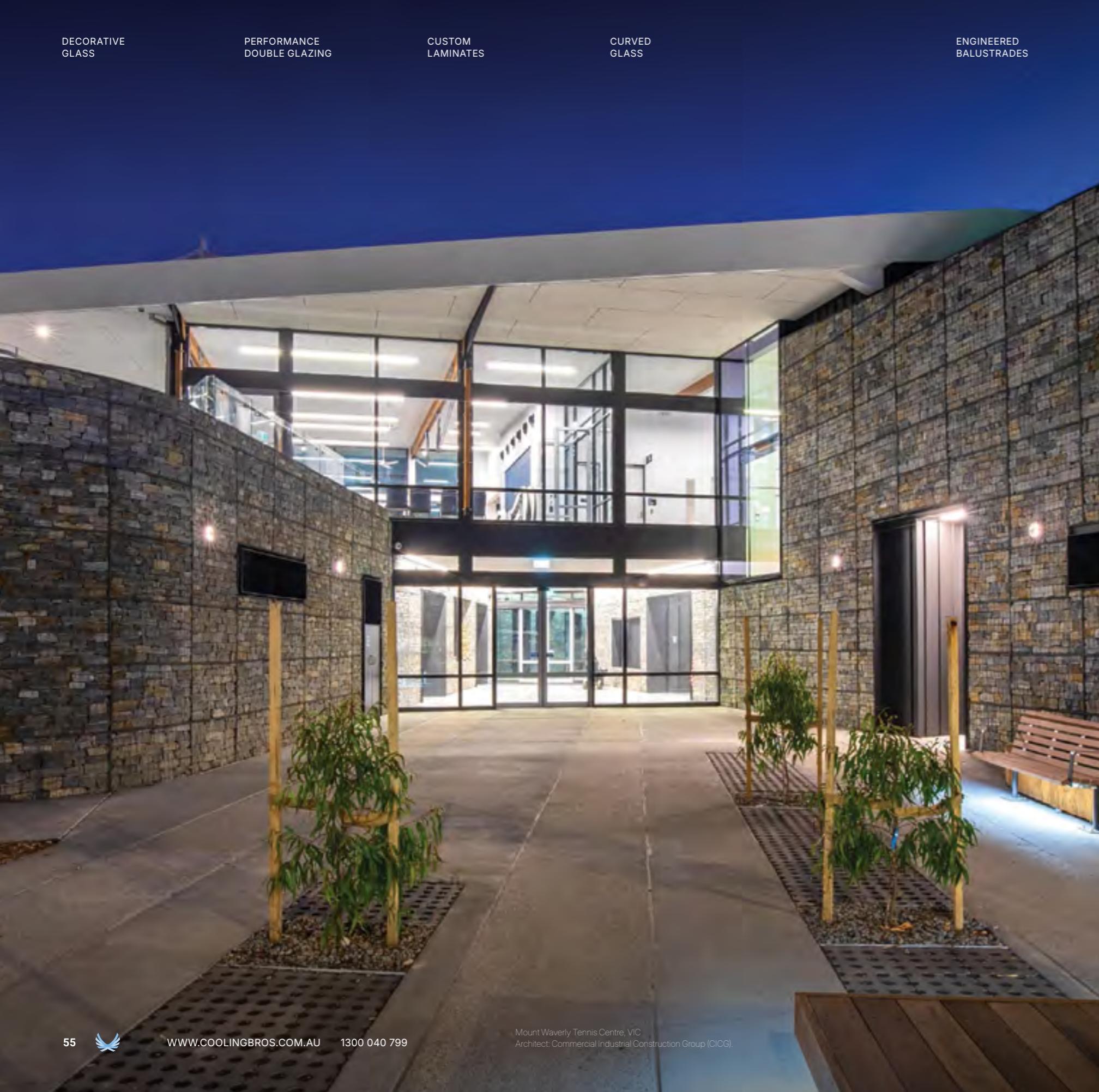
APPLICATIONS

+ Health facilities with requirements for high security areas

SIZE (MM)	THICKNESS (MM)	CONFIGURATIONS
T MIN	240 x 400	14
T MAX	2450 x 5000	CLEAR TINTED LOW-E IGU ONE-WAY VISION DECORATIVE

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SECURE GUARD

High strength laminated security glass for public facilities, commercial and residential properties where an additional level of security over standard glazing is required.

It can be a difficult task to design a home or building when security, natural light and seamless views are all equal priorities. Cooling Brothers Secure Guard range has been made with this issue in mind providing high strength laminate glass without the need for steel bars or wire mesh. Manufactured utilising specialised interlayers, Secure Guard laminated glass protects against heavy impacts by absorbing them and remaining a barrier.

Secure Guard also has the ability to be configured with Cooling Brothers Low-E coated glass giving a panel not only the security benefits, but excellent thermal properties.

APPLICATIONS

+ Sports Centres	+ Shop fronts
+ Residential properties	+ Office buildings
+ Hotels & Apartments	

SIZE (MM)	THICKNESS (MM)	CONFIGURATIONS
A MIN	240 x 400	CLEAR
A MAX	2500 x 5100	TINTED
T MIN	240 x 400	LOW-E
T MAX	2450 x 5000	IGU
	11.52	DECORATIVE
	13.52	

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Performance Data: InsulCool Ultra Series Soft Coats

ULTRALIGHT-E

GLASS MAKEUP	VISIBLE			SOLAR		U-VALUE (ARGON)	SHGC	SC
	TRANS.	REFL. OUT	REFL. IN	TRANS.	REFL.			
4mm Ultra Light E / 12mm / 4mm Clear	81	13	13	54	30	1.37	0.57	0.66
5mm Ultra Light E / 12mm / 5mm Clear	81	13	13	54	30	1.37	0.57	0.66
6mm Ultra Light E / 12mm / 6mm Clear	80	13	13	53	29	1.36	0.57	0.65
8mm Ultra Light E / 12mm / 8mm Clear	79	14	13	51	28	1.35	0.56	0.64

ULTRACOOL-E

GLASS MAKEUP	VISIBLE			SOLAR		U-VALUE (ARGON)	SHGC	SC
	TRANS.	REFL. OUT	REFL. IN	TRANS.	REFL.			
6mm Ultra Cool E / 12mm / 6mm Clear	68	14	15	29	45	1.34	0.32	0.37
8mm Ultra Cool E / 12mm / 8mm Clear	66	14	15	28	42	1.33	0.32	0.37

ULTRAPLUS

GLASS MAKEUP	VISIBLE			SOLAR		U-VALUE (ARGON)	SHGC	SC
	TRANS.	REFL. OUT	REFL. IN	TRANS.	REFL.			
6mm Ultra Plus 60 / 12mm / 6mm Clear	60	14	13	24	45	1.34	0.26	0.30
8mm Ultra Plus 60 / 12mm / 8mm Clear	59	14	14	23	42	1.33	0.26	0.30

ULTRAPRO

GLASS MAKEUP	VISIBLE			SOLAR		U-VALUE (ARGON)	SHGC	SC
	TRANS.	REFL. OUT	REFL. IN	TRANS.	REFL.			
6mm Ultra Pro 52 / 12mm / 6mm Clear	50	14	14	21	40	1.34	0.25	0.29
8mm Ultra Pro 52 / 12mm / 8mm Clear	49	14	14	21	40	1.33	0.25	0.29
6mm Ultra Pro 61 / 12mm / 6mm Clear*	60	13	13	26	38	1.35	0.30	0.35

Performance Data: Cool E Single Glazed Hard Coat

GLASS MAKEUP	VISIBLE			SOLAR		TRANS.	REFL.	U-VALUE	SHGC	SC
	TRANS.	REFL. OUT	REFL. IN	TRANS.	REFL.					
4mm Cool E Clear	83	10	11	70	11	3.65	0.73	0.84		
5mm Cool E Clear	82	10	11	68	11	3.62	0.72	0.82		
6mm Cool E Clear	82	10	11	67	10	3.61	0.70	0.81		
8mm Cool E Clear	82	11	11	66	10	3.61	0.70	0.80		
10mm Cool E Clear	79	9	10	58	8	3.59	0.64	0.74		
6mm Cool E Neutral	61	7	9	43	8	4.07	0.53	0.61		
6mm Cool E Grey	39	5	8	36	6	3.70	0.47	0.54		
6mm Cool E Solar Neutral	44	16	6	24	22	3.99	0.35	0.41		
6.38mm Cool E Clear	82	10	11	65	9	3.60	0.70	0.80		
10.38mm Cool E Clear	81	11	11	61	10	3.52	0.67	0.77		
12.38mm Cool E Clear	80	10	11	56	9	3.50	0.63	0.72		
6.38mm Cool E Neutral	60	8	10	40	8	3.98	0.52	0.60		
10.38mm Cool E Neutral	61	8	10	40	8	3.90	0.52	0.59		
12.38mm Cool E Neutral	59	7	9	37	7	3.88	0.50	0.57		

Performance Data: InsulCool Cool E Double Glazed Hard Coat

GLASS MAKEUP	VISIBLE			SOLAR		TRANS.	REFL.	U-VALUE AIR	U-VALUE ARGON	SHGC	SC
	TRANS.	REFL. OUT	REFL. IN	TRANS.	REFL.						
4mm Cool E Clear / 12mm / 4mm Clear	75	16	17	60	15	1.88	1.60	0.66	0.76		
5mm Cool E Clear / 12mm / 5mm Clear	75	16	17	57	14	1.87	1.59	0.64	0.74		
6mm Cool E Clear / 12mm / 6mm Clear	74	16	17	55	14	1.86	1.58	0.63	0.72		
8mm Cool E Clear / 12mm / 8mm Clear	73	16	17	53	14	1.87	1.59	0.62	0.71		
10mm Cool E Clear / 12mm / 10mm Clear	70	15	16	46	11	1.85	1.58	0.56	0.64		
6mm Cool E Neutral / 12mm / 6mm Clear	55	10	16	36	10	2.08	1.84	0.45	0.52		
6mm Cool E Grey / 12mm / 6mm Clear	35	7	15	29	7	1.91	1.64	0.39	0.44		
6mm Cool E Solar Neutral / 12mm / 6mm Clear	39	17	13	21	23	2.05	1.80	0.28	0.32		



How to specify

This guide serves as a high level starting point for information about our glass products, sizes, properties, behaviors and configurations.

As each project has its own unique environmental factors and design outcomes, there are nearly always additional considerations that must be addressed via further consultation before making a final selection. To streamline your specification process we offer two channels of engagement below.

Product Selection Tool

Visit www.coolingbros.com.au/product-selection

This is an online tool designed to match suitable product selections to your requirements. We recommend you identify any critical design requirements prior to using the tool. These can include:

General criteria: Maximum panel size, class colour, glass thickness

Performance Glazing: U Value, SHGC, VLT

Decorative Glass: Design type, colour reproduction accuracy, control of light transmission

Information & Quote Request

Visit www.coolingbros.com.au/specification or scan the QR code below.



If you already have a product selected, and require specific, detailed product specification and pricing information for a project, we recommend using our online information and quote request tool.

If you would prefer to speak directly with our technical sales team, please contact us on 1300 040 799, or by calling one of our office locations:

Cooling Brothers Perth
(08) 6104 1777

Cooling Brothers Melbourne
(03) 9408 3466

Bent and Curved Glass Sydney
(02) 9773 1022