Architectural

PRODUCT GUIDE

CoolingBrothers
GLASS COMPANY

Contents

CoolingBrothers GLASS COMPANY

This Page, Quest Apartments Hotel Fremantle
Artist: Lorenna Grant, Architect: Bollig Design Group, Installer: Supreme Windows
Cover Page, Ralph & Patricia Sarich Neuroscience Research Facility
Photo: Joel Barbitta, D-Max Photography, Architect: Bateman Architects, Installer: Supreme Windows

Australia's Leading Provider of Innovative Architectural Glass Solutions

Transform your glass vision into reality

CoolingBrothers
GLASS COMPANY

Australian owned and operated, we proudly manufacture all our products at our state of the art facility in Perth, Western Australia. Continual investment in new technology allows us to stay at the leading edge of the glass industry, defining and maintaining benchmarks of innovation and quality.

Centrally located, we offer a metro-wide glazing service, completing all projects large or small, promptly and efficiently. Our services extend beyond Perth and we have successfully applied our expertise to numerous projects throughout Australia.

We continue to be inspired by the unlimited possibilities of glass applications. Together with a genuine passion for glass and our industry, we are proud to provide the ultimate in service and expertise.

Perth

961 Abernethy Road, High Wycombe.
Western Australia, 6057 | (08) 6104 1777
info@coolingbros.com.au | coolingbros.com.au

Melbourne

Suite 5, Building 1, 1 Ricketts Road, Mount Waverley,
Victoria, 3149 | (03) 8540 1700

VANCEVA
COLOUR SYSTEM

Vanceva interlayers incorporate colour into laminated glass and glazing systems for creative freedom across a massive colour system.

We are the leading suppliers of the Vanceva® Colour System, coloured interlayers that are permanently laminated between two pieces of glass. Vanceva colours range from pale whites and browns to vibrant bright purples and pinks, and are available in transparent, translucent or opaque colour options. This allows designers, architects and engineers to create the perfect tone and intensity within glazing design.

Vanceva colours are comprised of light and heat stable pigments, rather than the dyes usually found in ink-based systems. These pigments are designed to provide extensive colour durability, even when exposed to direct sunlight.

Produced in our custom laminating facility in Perth, Vanceva coloured interlayers can be combined with clear or low iron glass types. Low-E glass also improves solar and UV protection, and once laminated Vanceva can even be combined into double glazed units.

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

The Wexford, Photo: Ron Tan, Artist: Rick Vermy

FEATURES

0.38mm PVB coloured interlayers

Transparent, Translucent and Opaque colour options with over 3000 colour combinations

5 year warranty against film failure

Increased Sound, Solar and UV performance

Combine with ImagInk Ceramic Printing for endless creative options

APPLICATIONS

Urban Façades, Overhead Glazing, Retail Shelving, Skylights, Flooring, Doors, Windows, Balustrades

MAXIMUM SIZE

Toughened	2400 x 4500mm
Annealed	2400 x 5100mm

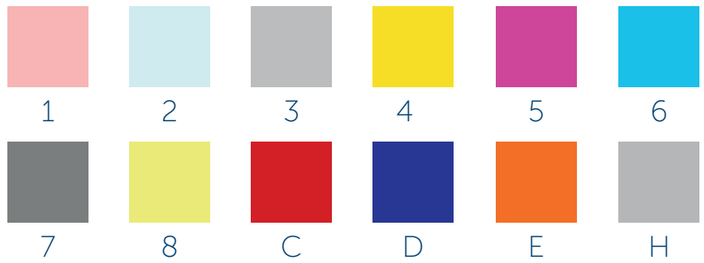
THICKNESS

6.38 to 21.52mm, Custom thickness available

GLASS TYPES

Clear Tinted Low E Low Iron

TRANSPARENT INTERLAYERS



TRANSLUCENT INTERLAYERS

OPAQUE INTERLAYERS

GLASS 5 7 8 9 GLASS = COLOUR CODE 5789

VANCEVA INTERLAYERS

With an almost endless selection of combinations, Vanceva offers a broad spectrum of more than 3000 colours in translucent, transparent or opaque finishes. If the eye popping colours offered aren't enough, clients looking for a truly unique approach should consider combining Vanceva with our ImagInk printed glass for stunning results!

The Vanceva base palette consists of 12 transparent, 2 translucent and 2 opaque colours. Up to 4 of these colours can be combined in one panel of glass to achieve a particular colour, and level of translucency or transparency.

HOW TO SPECIFY → SELECT PRODUCT
Cooling Brothers Vanceva → SELECT THICKNESS
6.38 to 21.52 mm Laminate
Custom Thickness Available → SELECT GLASS
Clear, Tinted, Low E, Low Iron

Vietnam Veterans Commemorative Walk, Photo: Mark Wilson

DigiGlass™ IN-GLASS IMAGING

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

DigiGlass™ is the ideal medium for artists and photographers who are looking to reproduce their artworks onto a glass canvas. DigiGlass is produced using a high resolution printed interlayer, laminated between two pieces of glass. This specialised interlayer is printed using a CMYK colour process and can reproduce any image in stunning detail at high resolutions.

DigiGlass™ is visually dramatic, beautiful and is also as strong as it is practical. The product meets AS2208 Grade A Safety Glass standards making it the ideal solution for any application.

FEATURES

1440 dpi printing resolution

Full colour gamut for exceptional colour accuracy

Three transparency options available

Grade A safety glass

10 year warranty against fading and discolouration

Digital File Formats - PSD, TIFF, JPEG | AI, EPS, PDF

APPLICATIONS

Public art projects, Office partitions, Bench tops, Balustrades, Façades, Canopies

THICKNESS

6.76mm to 40.28mm
Custom Thickness Available

MAXIMUM SIZE

Annealed, 5100 x 2400mm
Toughened, 4500 x 2400mm

GLASS TYPES

Clear Tinted Low E Low Iron

DIGIGLASS CROSS SECTION

TRANSPARENCY CONFIGURATIONS

Polar White

Cool White

Clear

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. Please discuss your project with our design team to achieve the results you are after.

HOW TO SPECIFY → SELECT PRODUCT Cooling Brothers DigiGlass → SELECT THICKNESS 6.76 to 40.28mm Laminate → SELECT GLASS Clear, Tinted, Low E, Low Iron

IMAGINK™ PRINTED GLASS

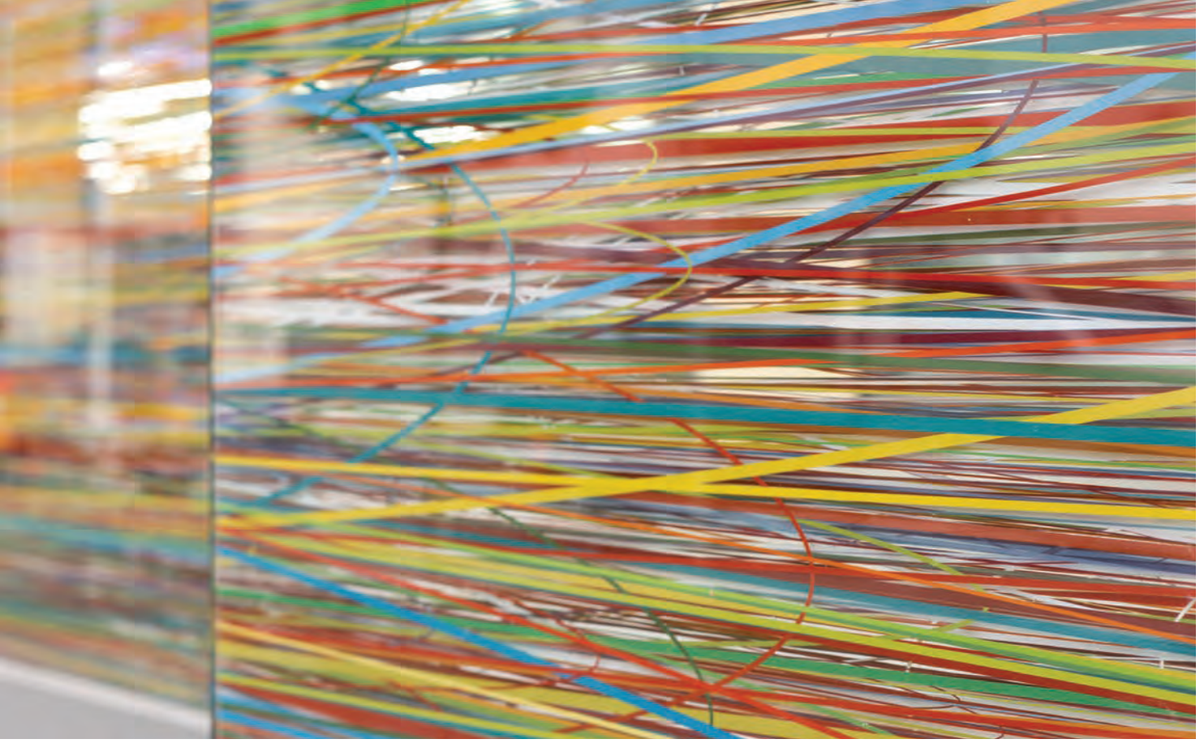
ImagInk™ is a super-durable glass printing process, utilising vibrant ceramic inks that are fired directly onto the surface of the glass.

Printing at a resolution of up to 720dpi, ImagInk™ can be used to reproduce full colour photos, vector graphics and even textures on glass with pinpoint accuracy.

With the ability for designs to be scaled for small scale speciality projects or large scale multi-pane developments, the scratch and fade resistant properties of the ceramic inks are perfect for external applications.

Detailed performance data is also available to assist architects and designers in design development of printed façades, turning what was once a purely aesthetic decorative surface into an integral performance component.

ImagInk: Green Square, Architect: SJB Architects, Photo: Ian Ten Seldam



Single Piece
Print on reverse surface

Laminated
Print between glass

Laminated
Print on external surface

DIRECT-TO-GLASS PRINTING FOR ULTIMATE FLEXIBILITY

ImagInk glass can be installed as a single monolithic piece or combined into a laminate makeup. The durability of the ceramic inks allows the printed surface to be installed exposed to reduce reflectivity, presenting further creative possibilities for artists, architects and designers.

FEATURES

UV, water, solvent, chemical and scratch resistant ceramic inks

Detailed performance data available for printed
U value surfaces including SHGC, LT and Solar Trans/Refl

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

Façades, Balustrades, Spandrel panels, Public art, Partitioning, Shower screens, Windows, Canopies

THICKNESS

Toughened, 4 to 19mm,
Tough. Laminate, 9.52 to 40.28mm

MAXIMUM SIZE

4300 x 2500mm

GLASS TYPES

Clear Tinted Low E Low Iron

HOW TO SPECIFY → SELECT PRODUCT
Cooling Brothers ImagInk → SELECT THICKNESS
4 to 19mm Toughened
9.52 to 40.28mm Custom Laminate → SELECT GLASS
Clear, Tinted, Low E, Low Iron

COOLING BROTHERS

DESIGN COLLECTION

Introducing our brand new versatile range of architectural patterns and textures, to customize your next project.

Select a pattern or texture from our comprehensive collection to provide shading, diffuse light, decrease glare or obscure debris. Applications include glass canopies, awnings, office partitions, splashbacks, balustrades and shower screens.

A completely digital work flow creates flexibility in design without the limitations of traditional screen printing, allowing patterns to be scaled, coloured and configured according to each application. Our in-house graphics team can customise these and many more to suit your needs. Samples of all our patterns are available on request, please contact us on (08) 6104 1777 for more information.

Double Back

Crystal Maze

Peloton

Solitaire

Barcode

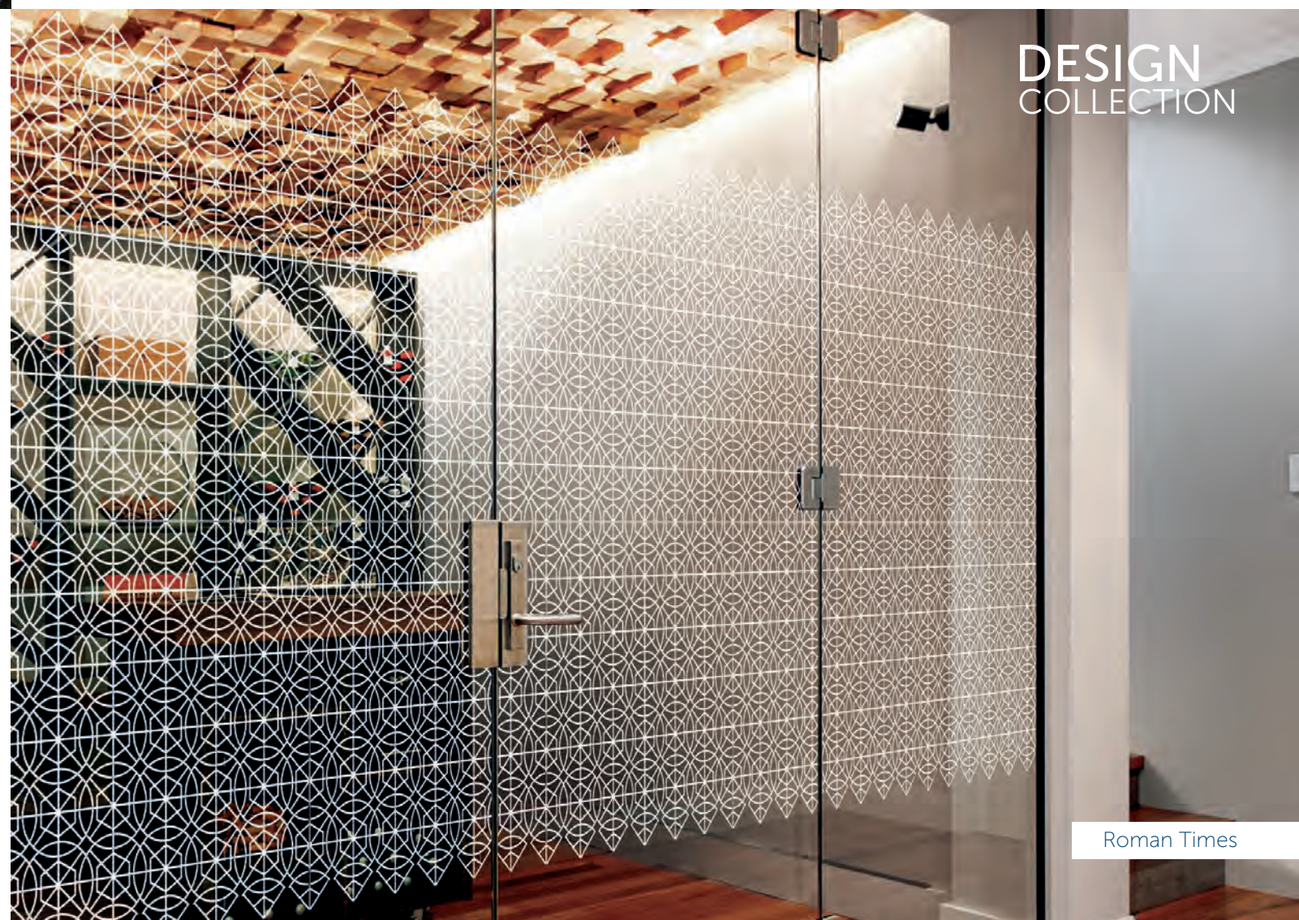
Victorian

Oriental

Roman Times

Abstract

Interlace



Roman Times

Ocean Break

Circumference

Grass Lands

Geometric

Organic

Peleton

DESIGN
COLLECTION

IMAGINK™

Cubic

Small Dots

Cubic

Medium Dots

Snow Flake

Large Dots

Dotted Gradient

Separating Gradient

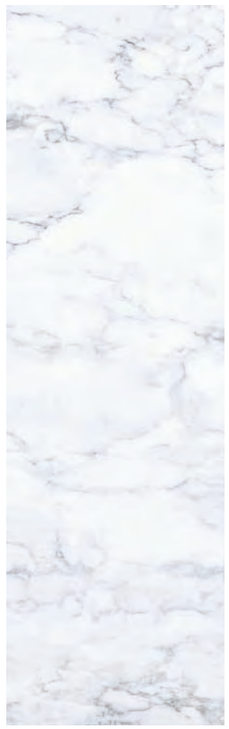
Lined Gradient

Rotating Gradient

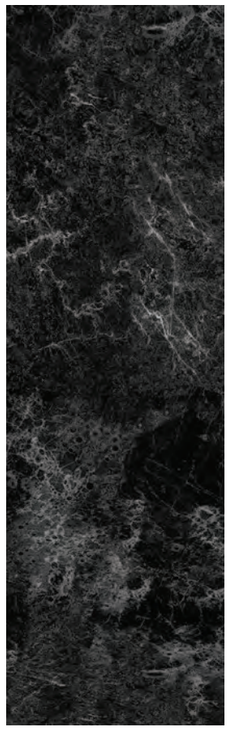
Angular Gradient

Sweeping Pearl

Cloud Break



Imperial



Deep Space

Glacier

COLOUREDGLASS™
SPLASHBACK RANGE

Glass splashbacks are ideal for both commercial and residential projects allowing seamless colour for entertaining spaces.

With applications including kitchens, bathrooms, and even walls and ceilings, Coloured Glass is the perfect way to add a splash of seamless colour to any space. Our range includes a variety of metallics and solids, carefully selected to suit any installations or colour scheme.

If you can't find the exact colour you are after, we also offer a custom colour matching service, allowing you to select the perfect colour to complement the rest of your installation.

Our full colour range can be downloaded at coolingbros.com.au/colouredglass however we recommend you visit our showroom where you can view our sample library under different lighting conditions to get a more accurate idea of how the colours will look.

FEATURES

6mm Toughened Safety Glass

Over 60 standard colours available including solids, metallics and pearls

Custom colour matching service available

Easily customised to accommodate powerpoints, rangehoods, and cut outs

APPLICATIONS

Commercial & Residential Kitchens, Bathrooms and Wet areas

MAXIMUM SIZE

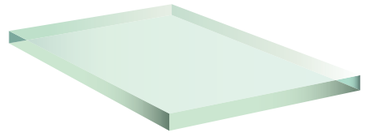
4500 x 2500 mm

GLASS TYPES

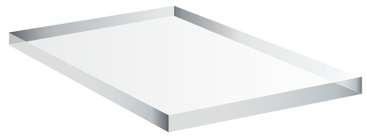
Clear Low Iron

COMPARING CLEAR & LOW IRON GLASS

Despite the name, clear glass naturally has a green tint to it. This is due to iron content in the glass. The darker colours in our colourback range are produced on clear glass as the green tint is not noticeable.



Low iron glass has a neutral tint due to a reduced iron content. We produce our lighter colourback colours in low iron to avoid the green tint associated with clear glass. We recommend low iron for custom colour matching, as it will achieve the most accurate colour



These two swatches demonstrate the difference when clear and low iron glass is colourbacked in white paint.

COLOUR RANGE

Cooling Brothers has an extensive range of coloured glass splashbacks separated into three different categories relating to their qualities. Mirror splashbacks also available in grey and bronze.

SOLIDS

METALLICS

PEARLS

HOW TO SPECIFY

SELECT PRODUCT
Cooling Brothers Coloured Glass

SELECT THICKNESS
Custom Thickness Available

SELECT GLASS
Clear, Low E, Mirror

INSULCOOL™ DOUBLE GLAZING

InsulCool™ provides architects and designers with the flexibility and high performance of double glazing to meet heating and cooling requirements in commercial and residential applications.

InsulCool™ Double Glazed units (also known as DGU's or IGU's) consist of two layers of glass separated by an air or argon filled gap.

The combination of multiple glass panels and airspace creates an additional barrier that decreases the air-to-air temperature transfer, while reducing direct and radiant temperature transfer from outside or inside the building.

InsulCool units are most effective when combined with Low-E performance glass and argon gas. Where applicable, larger spacer widths are encouraged as this increases the performance of the unit. Comprehensive performance data on available InsulCool glass types and makeups can be downloaded at www.coolingbros.com.au/downloads.

Hale House Premiers Office, Installer DGA Windows Australasia

FEATURES

Extensive range of options available using Viridian, Guardian, AGC and St Gobain glass types

Compatible with Low E and performance glass

Excellent solar and thermal control to reduce air-conditioning and heating costs

Air or argon filled which aids in reducing outside noise

APPLICATIONS

Residential and commercial applications where heating and cooling is a high priority

MAXIMUM SIZE

2500 x 4500mm

SPACER THICKNESS

6mm to 32mm

SPACER TYPE

Aluminium, black or silver colour options

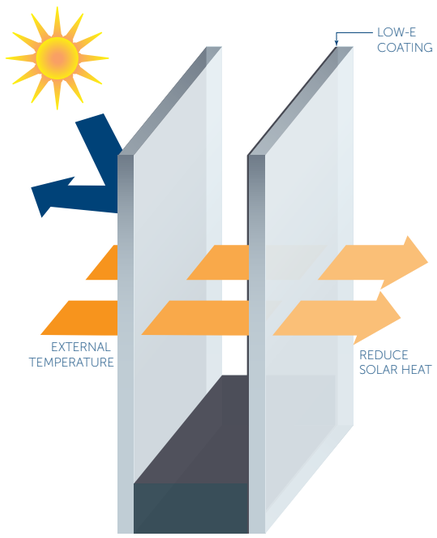
SECONDARY SEAL

Polysulphide or Structural Silicone

GLASS TYPES

Clear Tinted Low Iron Low E Acoustic

LOW-E DOUBLE GLAZING



The primary characteristic of a low-emissivity coating is to insulate, reducing heat loss or gain. This helps maintain indoor temperature and comfort.

A Low-Emissivity coating can save a considerable amount of energy. The hard coating is applied using high temperatures (almost 600 degrees celcius) and adheres to the surface of the glass becoming remarkably durable. It can be stored, manipulated, cut and assembled like ordinary glass. It has excellent light transmission and is highly resistant to chemicals and mechanical stress. It's real strength lies in its remarkable thermal properties as it is designed to insulate the building and can result in substantial reductions in cooling or heating costs.

To improve thermal insulation performance Low-E coated glass assembled into a double glazed unit will further improve energy loss. To increase its impact and resistance to thermal stress it can be heat strengthened or toughened. Lamination will further improve the safety and performance of the glass.

HOW TO SPECIFY →

InsulCool is available in various combinations of glass, thickness, colours and shapes. For a InsulCool solution tailored to suit your requirements, please call us on (08) 6104 1777, and ask to speak with a glass consultant.

TYPICAL INSULCOOL CONSTRUCTION

PRIMARY SEAL

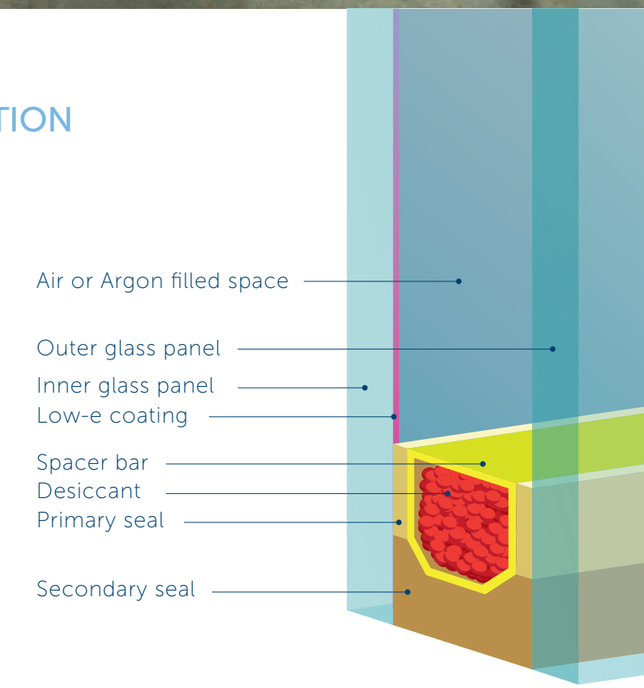
Consists of hot melt butyl or PIB. The primary seal creates the main barrier for preventing moisture penetration.

SPACER

Aluminium InsulCool spacers are filled with moisture absorbing desiccant to prevent condensation.

SECONDARY SEAL

Available in polysulphide or structural silicone, the secondary seal is the structural component of the unit, and holds the panes of glass together.



ULTRACOOL-E™

Thermal insulation performance is becoming more of a concern when designing for differences between internal and external temperatures.

As night becomes day and the seasons change around us, the process of heat travel between glass can be slowed down and controlled using a high performance double glazed unit (DGU).

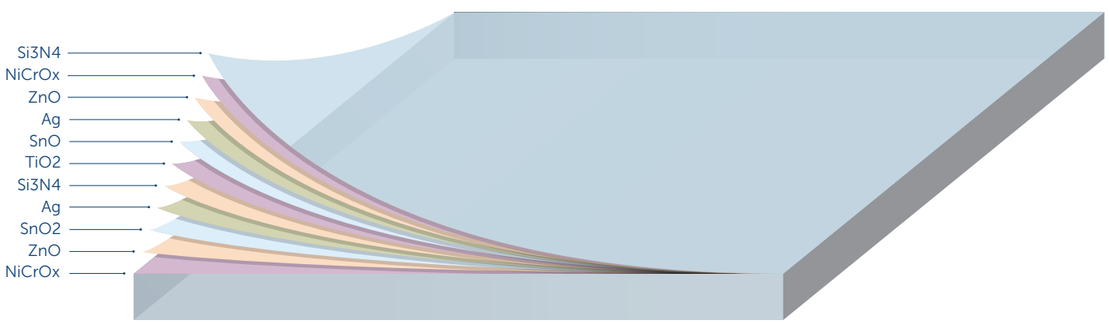
Cooling Brothers Ultra Cool-E is a soft coat DGU and will assist in maintaining a comfortable living environment by reducing the loss of warmth in cold temperatures and reduce heat gain in the summer months, without compromising your view.

In addition to the standard clear glass, Ultra Cool-E is also available in green, grey, bronze and dark grey offering lower reflectance, reduced glare and improved solar control.

SOFT COATED GLASS LAYERS

Soft coat (also known as sputter coat) consists of multiple layers of metal and oxides whose combined thickness is only 1/1000th the thickness of a human hair.

Ultra-Cool E offers the best available performance in regards to high VLT (Visible Light Transmittance) and low SHGC (Solar Heat Gain Coefficient). With a double silver coating the result is high neutral visible light, insulation and superior solar control. Additionally, Ultra Cool E will reduce sound transmission to further improve building comfort.



HOW TO SPECIFY → Ultra Cool-E is available in various combinations of glass, thickness, colours and shapes. For a Ultra Cool-E solution tailored to suit your requirements, please call us on (08) 6104 1777, and ask to speak with a glass consultant.

ULTRA COOL-E OPTIONS - DGU WITH AIR (NFRC)

Thickness	Outside Glass	Inside Glass	Visible			Solar		UValue	SHGC	Shading Co.
			Trans.	Refl. Out	Refl. In	Trans.	Refl. Out			
4+12+4	Ultra Cool-E #2	Clear	70	14	15	30	49	1.62	0.32	0.37
4+12+4	Grey	Ultra Cool-E #3	44	8	12	20	25	1.62	0.29	0.33
4+12+4	Bronze	Ultra Cool-E #3	48	9	12	21	28	1.62	0.3	0.35
6+12+6	Ultra Cool-E #2	Clear	69	14	15	29	46	1.61	0.32	0.37
6+12+6	Green	Ultra Cool-E #3	58	12	13	21	12	1.61	0.31	0.36
6+12+6	Grey	Ultra Cool-E #3	34	7	12	15	17	1.61	0.25	0.29
6+12+6	Bronze	Ultra Cool-E #3	35	7	12	15	19	1.61	0.25	0.29
6+12+6	Dark Grey	Ultra Cool-E #3	6	4	11	3	4	1.61	0.11	0.12
8+12+8	Ultra Cool-E #2	Clear	68	13	15	28	42	1.60	0.32	0.37
10+12+10	Ultra Cool-E #2	Clear	67	13	15	27	39	1.59	0.32	0.37

The performance values shown above represent NOMINAL VALUES for the centre of glass with no spacer system or framing. Slight variations may occur due to manufacturing tolerances, point of manufacture, and type of instrumentation used to measure the optical properties. For configurations which include ceramic frit coating, the actual values may vary significantly based upon the thickness and composition of the frit. For configurations with coatings laminated facing the PVB, there may be a noticeable colour change.

Cooling Brothers recommends a full size mock-up to be approved. Calculations in this report are based on NFRC 2010

Please note that the THERMAL STRESS GUIDELINE is only a rough reference to the thermal safety of a glazing. Other factors such as the size of glass areas, shapes and patterns, glass thickness, glass damaged during shipping, handling or installation, orientation of the building, exterior shading, overhangs/fins that reduce wind speed, and areas with high daily temperature fluctuations can all increase the probability of thermal breakage. The results shown are not for any specific glazing installation and do not constitute a warranty against glass breakage.

ULTRALIGHT-E®

Whether a new build or a renovation Cooling Brothers Ultra Light-E is the perfect double glazed option for any residential purpose.

A cost effective solution for any home Ultra Light-E provides superb energy efficiency to ensure the ideal temperature year round. Ultra Light-E is a soft coat double glazed unit available in a range of colours making it easy to find the outcome you are looking for.

HOW TO SPECIFY → Ultra Light-E is available in various combinations of glass, thickness, colours and shapes. For a Ultra Light-E solution tailored to suit your requirements, please call us on (08) 6104 1777, and ask to speak with a glass consultant.

ULTRA LIGHT-E OPTIONS - DGU WITH AIR (NFRC)

Thickness	Outside Glass	Inside Glass	Visible			Solar		U Value	SHGC	Shading Co.
			Trans.	Refl. Out	Refl. In	Trans.	Refl. Out			
4+12+4	Ultra Light-E #2	Clear	81	13	13	54	31	1.68	0.58	0.67
4+12+4	Grey	Ultra Light-E #3	51	7	11	36	17	1.68	0.43	0.49
4+12+4	Green	Ultra Light-E #3	72	11	13	37	12	1.68	0.44	0.50
4+12+4	Bronze	Ultra Light-E #3	55	8	11	39	19	1.68	0.45	0.52
5+12+5	Ultra Light-E #2	Clear	80	13	13	53	30	1.67	0.57	0.66
5+12+5	Grey	Ultra Light-E #3	45	7	11	32	14	1.67	0.39	0.45
5+12+5	Green	Ultra Light-E #3	69	11	13	34	11	1.67	0.41	0.47
5+12+5	Bronze	Ultra Light-E #3	49	7	11	35	16	1.67	0.42	0.48
6+12+5	Ultra Light-E #2	Clear	79	13	13	51	29	1.66	0.57	0.65
6+12+5	Grey	Ultra Light-E #3	39	6	11	28	12	1.66	0.36	0.41
6+12+5	Green	Ultra Light-E #3	67	10	12	31	9	1.66	0.39	0.44
6+12+5	Bronze	Ultra Light-E #3	44	7	11	31	14	1.66	0.39	0.44

The performance values shown above represent NOMINAL VALUES for the centre of glass with no spacer system or framing. Slight variations may occur due to manufacturing tolerances, point of manufacture, and type of instrumentation used to measure the optical properties. For configurations which include ceramic frit coating, the actual values may vary significantly based upon the thickness and composition of the frit. For configurations with coatings laminated facing the PVB, there may be a noticeable colour change.

Cooling Brothers recommends a full size mock-up to be approved. Calculations in this report are based on NFRC 2010

Please note that the THERMAL STRESS GUIDELINE is only a rough reference to the thermal safety of a glazing. Other factors such as the size of glass areas, shapes and patterns, glass thickness, glass damaged during shipping, handling or installation, orientation of the building, exterior shading, overhangs/fins that reduce wind speed, and areas with high daily temperature fluctuations can all increase the probability of thermal breakage. The results shown are not for any specific glazing installation and do not constitute a warranty against glass breakage.

CUSTOMLAMINATE

Custom Laminated Glass provides architectural design solutions for swimming pool walls, stair treads, floors, roof canopies and many other frameless applications.

Custom Laminates can be combined with a variety of interlayer options, including PVB, SGP, EVA and Polycarbonate. Coloured interlayers such as Vanceva Colours are also available, as well as the option to combine with ImagInk digital ceramic printing or DigiGlass In-glass Printing.

We are able to assist in all stages of the design process, from concepts through to installation, and we can provide engineering certification where required.

FEATURES

Custom makeups allow configuration for any job type and installation

PVB, SGP, EVA or Polycarbonate interlayer options

Engineering certification available

Combine with ImagInk ceramic printing and coloured interlayers

APPLICATIONS

Architectural projects which require custom, one off glass solutions

MAXIMUM SIZE

Toughened, 2500mm x 4500mm
Annealed, 2500mm x 5100mm

GLASS TYPES

Clear Tinted Low Iron

Manning Community Centre, Photo: Stephen Heath
Architect: Bollig Design Group, Installer: Denmac Industries

HOW TO SPECIFY → Our custom laminate solutions are available in almost endless makeups and sizes. To ensure correct specification details for your project, please call us on (08) 6104 1777, and ask to speak with a sales consultant for further information.

Peppermint Grove Residence, Photo: Joel Barbitta D-Max Photography

VISTAVIEW™
FRAMELESS BALUSTRADE

Vista View™ is structurally engineered frameless glass balustrade designed to eliminate handrails without compromising safety.

Vista View™ is a toughened laminated, glass balustrade system that is engineered around the Dupont™ SentryGlas®Plus (SGP) interlayer. The SGP provides structural rigidity one hundred times stiffer than conventional laminating material and is highly resistant to de-lamination or clouding as a result of exposure to UV and moisture.

Vista View™ is NCC compliant for installation without a handrail*, allowing unobstructed views in residential and commercial applications.

A benchmark of expert workmanship, Vista View™ 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

Truly frameless balustrade solution, NCC compliant

Remains a permanent barrier even if shattered

CNC polished radius corners

Compatible with all standard balustrade fittings

5 year warranty against delamination

Highly polished interlayer edges

APPLICATIONS

Balconies, Stairs, Windbreaks and areas where handrails are unable to be installed

MAXIMUM SIZE

2400 x 4500mm

THICKNESS

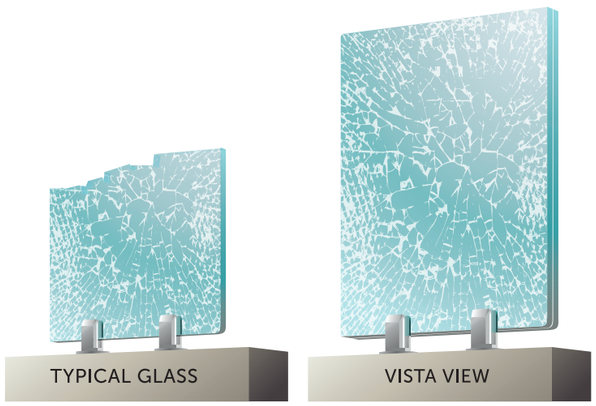
14.28mm to 22.28mm

GLASS TYPES

Clear Tinted Low Iron

FIXING SYSTEMS

Planar Stirrup Channel Fix



ENGINEERED FOR SAFETY

Utilising SGP interlayer, Vista View™ panels remain upright if broken, providing a permanent barrier and preventing a fall, without the need for a handrail. A comparison between a typical glass balustrade panel and Vista View™, after considerable impact.

*Vista View is a structurally engineered glass product. To meet NCC compliance, finished Vista View panel size and thickness must be advised and signed off by structural engineer prior to installation. Please contact us on (08) 6104 1777 for more information.

HOW TO SPECIFY → SELECT PRODUCT Cooling Brothers Vista View → SELECT THICKNESS 14.28 to 22.28mm Laminate → SELECT GLASS Clear, Tinted, Low Iron

BALLISTICGUARD R2

Ballistic Guard R2 is designed for use anywhere there may be a threat of possible theft, violence or intimidation by firearm attack.

Specially constructed of multiple layers of glass, PVB laminate and clear polycarbonate, you can feel safe that Ballistic Guard R2 will provide protection against armed attack.

When fired at, Ballistic Guard R2 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 the best of natural light to pass through.

Some applications for Ballistic Guard R2 may include – embassy buildings, hospitals, banks, government buildings, schools, jewellery stores or in defence marine and land vehicles.

Ballistic Guard R2 meets resistance to defined attack under AS/NZS 2343 standards.

NATA TEST DATA

Sample Details	
Sample ID	Coolbros5263/16
Manufacturer	Cooling Bros.
Material Type	Glass
Model	Ballistic Guard R2
Serial Number	Not Supplied
Batch Number	7073
Size	420x430mm
Avg. Thickness	47.47mm
Grade	Not Applicable
Heat Treatment No.	Not Applicable
Nominal Hardness	Not Applicable

Ballistic Threat	
Specification	AS/NZS 2343:1997
Protection Level	Class RS
Calibre	7.62x51 NATO
Obliquity	Zero Degrees
Projectile Weight	9.3 grams
Projectile Type	FMJ Ball
Cannister Markings	Lot 0007
Production Factory	ADI
Head Stamp Details	Not Applicable
Barrel Length	24 Inch
Barrel Serial No.	V08005
Requier	850 +/- 15m/s

Range	
Range used	Range 1
Muzzle to Target	15 m
No. of Screens	3
Screen Spacing	0.76 m
Midpoint to Target	2.0 m
Chronograph Target	Chrono 1
Chronograph No.	1002
Chronograph Model	Sabre Iris
Screen Type	Skyscreen 408
Screen Light Source	DC LED

Test	
Temperature	18.2 °C
Relative Humidity	56.7 %
Conditioning	Ambient

Witness Material	
Witness Material Used	110 GSM Paper
Distance to Target	450 mm
Visual Examination	60 Watt Bulb

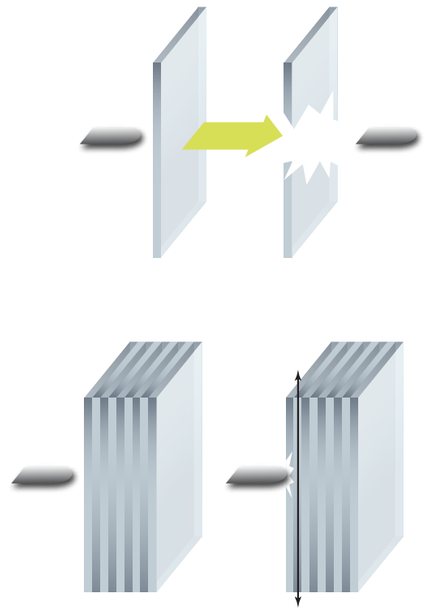
Test	
Data Recorded	James Sutherland
Gunner	James Sutherland
Witness	Nil

Sample Number	Sample Thickness	Impact Angle	Shot	Velocity Chrono 1	Velocity Chrono 2	Average Velocity	Panel Penet.	Spalling	Witness Card Pen.	Pass / Fail
COOLINGBROS 5263/16-1	47.53 mm	0 deg	1	856 mm	855 mm	855 mm	Nil	Nil	Nil	Pass
		0 deg	2	843 mm	842 mm	843 mm	Nil	Nil	Nil	Pass
		0 deg	3	850 mm	849 mm	850 mm	Nil	Nil	Nil	Pass
COOLINGBROS 5263/16-2	47.45 mm	0 deg	1	852 mm	850 mm	851 mm	Nil	Nil	Nil	Pass
		0 deg	2	841 mm	840 mm	840 mm	Nil	Nil	Nil	Pass
		0 deg	3	843 mm	842 mm	843 mm	Nil	Nil	Nil	Pass
COOLINGBROS 5263/16-3	47.44 mm	0 deg	1	855 mm	854 mm	854 mm	Nil	Nil	Nil	Pass
		0 deg	2	848 mm	847 mm	847 mm	Nil	Nil	Nil	Pass
		0 deg	3	847 mm	846 mm	846 mm	Nil	Nil	Nil	Pass

The glass is not elastic so all the energy from the moving bullet is taken by the glass which exceeds the fracture strength of the glass causing it to shatter.

The first layer of the glass will shatter when the bullet hits, however the next layers are more elastic so it moves when the bullet hits it, which dissipates the energy of the bullet horizontally. This takes the energy away from the bullet slowing it down. If enough energy is taken from the bullet it will eventually stop it from passing through.

Approx. weight 115kg sqm
Framing + Installation needs to be suitable for application
Refer to Warranty Documents



HOW TO SPECIFY → Ballistic Guard R2 units are available in various makeups and sizes. To ensure correct specification details for your project, please call us on (08) 6104 1777, and ask to speak with a sales consultant for further information.

WHISPER™
ACOUSTIC LAMINATE

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

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.

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.

It is strongly recommended that Whisper is installed with framing configurations designed to reduce air leakage, as air leakage will significantly effect the acoustic performance of the glass.

FEATURES

Acoustic PVB Interlayer Technology

Grade A safety glass

Combine with tinted interlayers

Compatible with Low-E and performance glass

APPLICATIONS

Offices, Airports, Apartments, Hotels, Hospitals, High Security Institutions

MAXIMUM SIZE

5100mm x 2600mm

THICKNESS

6.76mm or 24.76mm

GLASS TYPES

Clear Tinted Low Iron Low E

LAMINATED

Thickness	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

Weighted Sound Reduction Index, Rw (previously STC) is a rating system for the amount of sound that is blocked by the glass.

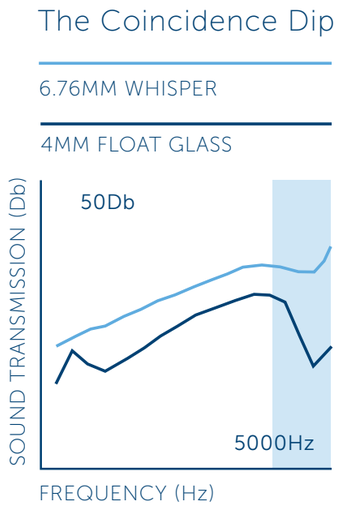
Two adjustment factors, C and Ctr, are created when finding the Rw value. These adjustment factors are used to account for different types of low frequency noise.

DOUBLE GLAZE 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	38	-1	-5
12.76+12+16.76	38	-1	-5
12.76+20+8.76	41	-2	-5
14.76+20(Ar90)+10.76	41	-1	-5

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.



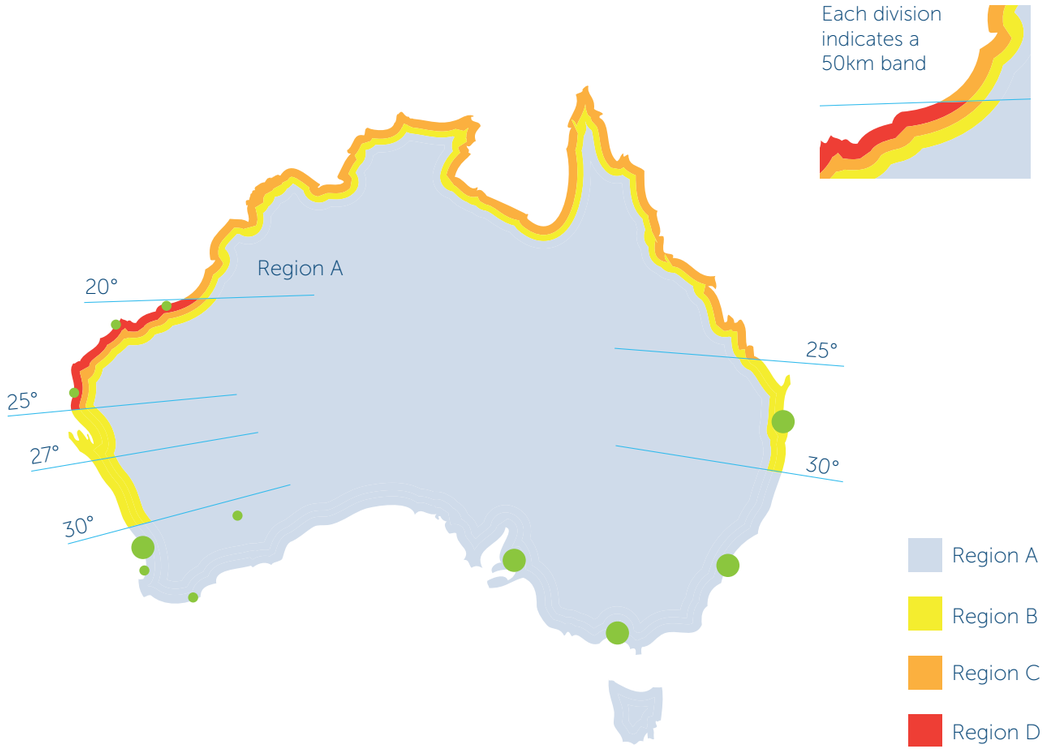
Use this chart to find your environment's optimum level of noise insulation.

Application	External Noise Source (Db)		
	65 (low)	75 (med)	85 (high)
Office	6mm Float	6.76mm Whisper	6.76mm Whisper
Living Room	6.76mm Whisper	6.76mm Whisper	10.76mm Whisper
Bedroom	6.76mm Whisper	10.76mm Whisper	10.76mm Whisper

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

HOW TO SPECIFY → SELECT PRODUCT Cooling Brothers Whisper → SELECT THICKNESS 6.76 to 24.76mm Laminate → SELECT GLASS Clear, Tinted, Low Iron

TEMPESTGUARD™
CYCLONIC GLASS



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

Tempest Guard™ Cyclonic Glass consists of a toughened laminate makeup, incorporating specialised structural interlayers to achieve the extreme glass strength that is required in cyclonic regions. Tempest Guard has been successfully tested at speeds of up to 40mps as detailed in AS/NZS1170.2. Testing includes the following:

a) The cyclonic impact test of a 4kg piece of timber; b) An 8mm steel ball, both travelling at 40mps.

Tempest Guard must be installed in an approved cyclonic framing system to ensure full compliance with AS/NZ1170.2. Tempest Guard is available in various combinations of glass, thickness, colours and shapes. For a Tempest Guard solution tailored to suit your requirements, please call us on (08) 6104 1777, and ask to speak with a glass consultant.

FEATURES

Tested and certified to AS1170.2 / 40 m/s

Remains a permanent barrier after impact

Eliminates the need for storm shutters

Provides additional UV, sound insulation and security

Available in Low E configurations

APPLICATIONS

Commercial and residential projects located in areas subject to frequent cyclones and storms

GLASS TYPES

Clear Tinted Low Iron Low E

HOW TO SPECIFY → Tempest Guard is available in various combinations of glass, thickness, colours and shapes. For a Tempest Guard solution tailored to suit your requirements, please call us on (08) 6104 1777, and ask to speak with a glass consultant.

VETROSTAX®
FRAMELESS STACKING DOORS

VetroStax Doors provide weather resistant glass walls, utilising a frameless glass configuration to maximise vision and space.

The VetroStax Door system is the perfect complement to the design of any commercial or residential project and sets a new benchmark for glass wall design. The elegant simplicity of this product delivers uninterrupted views and a sophisticated architectural style.

Providing a unique way of enjoying the outside lifestyle indoors, the VetroStax Door system is top supported with structural headwork. VetroStax are available in a variety of stacking arrangements, designed to maximise available space with a minimal footprint.

VetroStax, All Images Courtesy Of Hillaldam

FEATURES

Tapered look and distinctive, clean, sharp lines

90x40mm rail top and bottom, mechanically fixed to glass for strength and rigidity

Suitable for 10 to 15mm glass

Anodised or powder coated finishes

Maximum 150kg per leaf

MAXIMUM SIZE

Depending On Application

THICKNESS

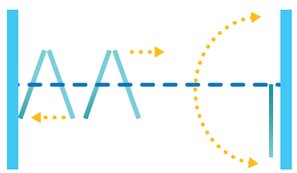
10mm to 15mm

GLASS TYPES

Clear Tinted Low E Low Iron Laminate

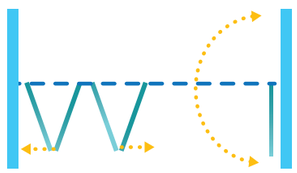
STACKING CONFIGURATIONS

A feature of VetroStax Doors is the design flexibility of track layout. Some typical layouts are shown below, however there are many others available.



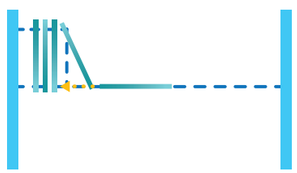
CENTRE STACK

- Single trolley suspension folding panels hinged in ‘floating pairs’
- Single track keeps overhead support simple
- Panels stack 50% inside and 50% outside
- Floor guide recommended
- Stack internally or externally
- Maximum 2 pairs hinged



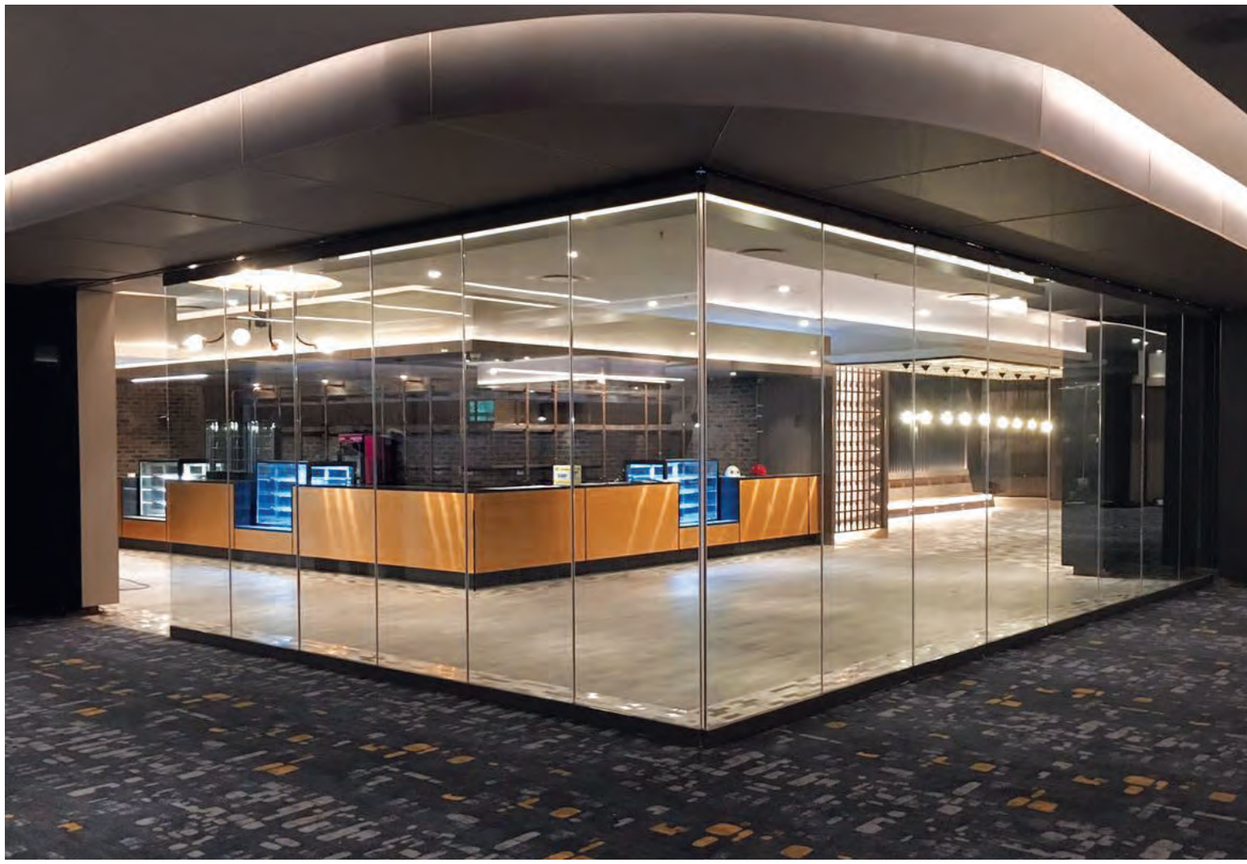
END FOLD

- Single trolley suspension with hinged folding panels.
- Single track keeps overhead support simple
- Panels stack perpendicular to the main track
- Floor guide is required
- Stack internally or externally
- Maximum 6 leaf hinged



SIDE STACK

- Dual trolley suspension with individual sliding panels
- High weight capability
- Stack internally or externally
- Panels stack perpendicular to the main track
- No floor guide is required



HOW TO SPECIFY → SELECT PRODUCT
Cooling Brothers VetroStax → SELECT THICKNESS
10 to 15mm Standard
Custom Thickness Available → SELECT GLASS
Clear, Tinted, Low E, Low Iron

Cooling**Brothers**
GLASS COMPANY

Perth

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Melbourne

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(03) 8540 1700

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