



## Security Glass Solutions

Complete certified glass solutions designed for your application

[www.glasshape.com](http://www.glasshape.com)

## Complete Security Glass Solutions

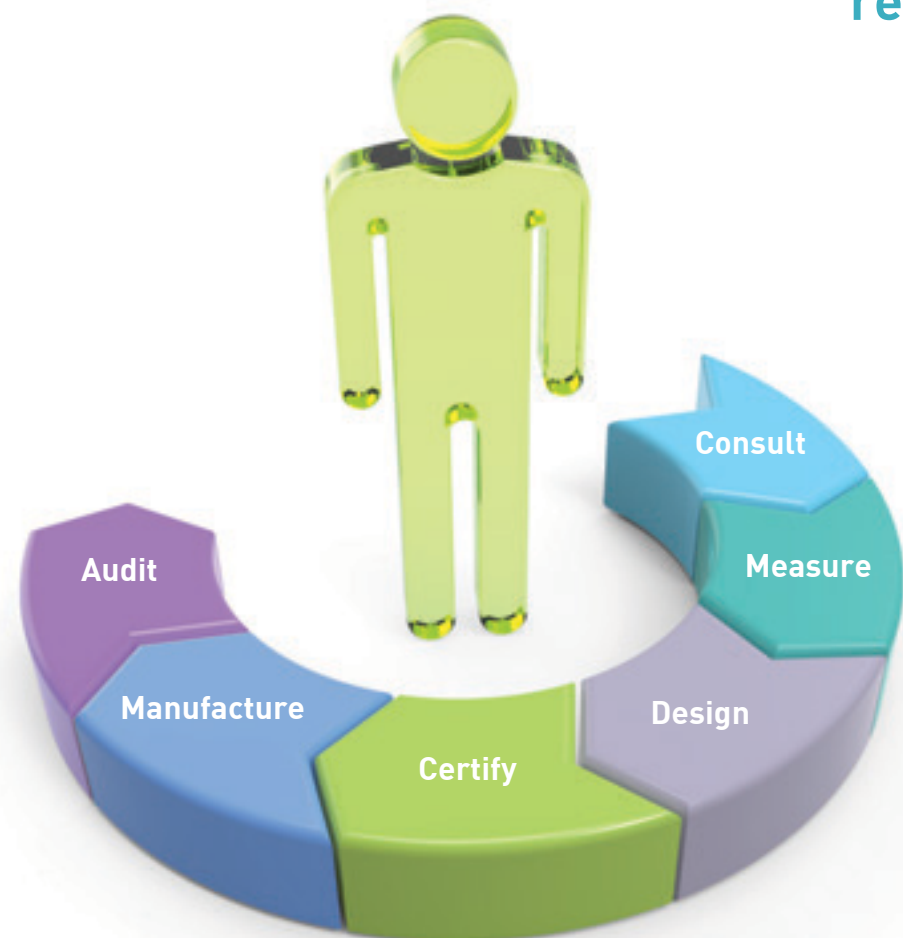
When it comes to security glass, Glasshape® understand that quality, performance, durability, safety standards and security ratings are paramount to achieving the best solution for Architects, Designers and Specifiers when creating safe and secure environments.

Combining nearly 30 years of industry knowledge and technical capability, Glasshape® have developed unique proprietary manufacturing processes in order to provide premium security glass solutions that address the specific needs of the security sector.

Glasshape® provide glass solutions that are specifically designed to protect embassies, residential properties, commercial buildings and retail outlets in the event of an attack from intruders; and provide a safe environment for staff and detainees in prisons, remand centres, police stations and courtrooms.

At Glasshape®, we take a customised approach. We work with clients to confirm their needs and establish the appropriate glass solutions. Our complete service includes consultation, digital measurement, CAD design, certification, manufacturing, and review audit. With Glasshape® tailored approach; clients are assured their glass solutions are fulfilled.

**“Providing a Client centric approach, ensures worry free results.”**



## Overview

With our large range of security glass products, Glasshape® can provide a solution to cover all threat levels from break-in and theft to firearms and explosives. Glasshape® can develop a custom glass solution to meet your particular requirements whether it is intruder, bullet, blast or fire resistance, or a combination of these properties, we are able to provide the level of protection you require.

### Flag Ship High Security Glass Projects:

- Australian Embassy : Jakarta, Indonesia : 3100m<sup>2</sup> of Bullet, Blast & Intruder Resistant glass
- High Security Prison : Wiri, New Zealand : 1000m<sup>2</sup> of Intruder Resistant Glass
- Medium Security Prison : Mt Eden, New Zealand : 600m<sup>2</sup> of Intruder Resistant Glass
- Special Intelligence Building : Wellington, New Zealand : 700m<sup>2</sup> of Intruder Resistant Glass
- USA Embassy : Fiji Islands : Bullet Resistant Glass
- Japanese Embassy : Samoa, Pacific Islands : Bullet Resistant Glass
- German Embassy : Wellington, New Zealand : Bullet Resistant Glass
- Australian High Commission : Tonga, Pacific Islands : Intruder Resistant Glass
- Sir Charles Gardiner Hospital : Perth, Australia : 400m<sup>2</sup> CareShield Mental Health Glass

### How this brochure can help you.

Selecting and specifying the correct security glass product to suit your requirements is important to ensure that the performance expectations of the glass are met.

The “Risk Analysis” on the following pages is a guide to help you select the correct security glass solution depending on the level of threat, area of use and resistance time required. The product tables at the end of this brochure provide a guide as to the performance and certification of our standard product range and more information is available online at [www.glasshape.com](http://www.glasshape.com)

Glasshape® can also provide customised solutions for specialised requirements such as mental health facilities and embassies. If you need assistance with these types of installations, then please contact Glasshape® where our product specialists will be available to design a solution for your unique requirements.



Mt Eden Corrections Facility - Photo supplied by Trends Media Group



## Risk Analysis of Security Areas

### Areas Of Use:

- Low Risk Smash & Grab
- Front of Store Displays
- High End Luxury Homes
- Liquor Store Windows
- Low Security Detention Centres
- Pharmacies



### Threat: Intrusion

Up to **2** Minutes Intruder Resistance

Rocks  
Screw Drivers  
Hammers

Crowbars  
Baseball Bats  
Small Hand Tools



Recommended Product:



Refer to pages 4-7

### Areas Of Use:

- Museums, Art Galleries
- Medium Risk Offenders Cell Vision Panels
- Court Houses
- Customs Detention Rooms
- High Risk Mental Health Wards
- Police Station Public Areas



### Threat: Planned Intrusion

Up to **15** Minutes Intruder Resistance

Hammers  
Axes  
Crowbars

Baseball Bats  
Chisels  
Bolt Cutters



Recommended Product:



Refer to pages 8-11

### Areas Of Use:

- Medium and Maximum Security Prisons
- Youth Detention Centres
- Government Intelligence Offices
- Police Station - Cell Windows, Bail Cells
- Court House - Cells
- Staff Attack Retreat Rooms



### Threat: Equipped with Heavy Tools

Up to **30** Minutes Intruder Resistance

Sledgehammers  
Axes  
Crowbars

Picks  
Chisels  
Bolt Cutters



Recommended Product:



Refer to pages 10-11

### Areas Of Use:

- Panic Room - Refuge Rooms
- Foreign Embassies
- Cash Handling - Banks, Foreign Exchange
- Courtrooms
- Armoured Vehicles
- VIP and Diplomat Housing

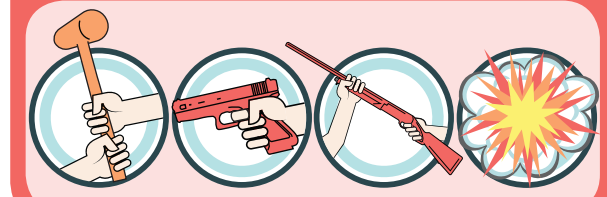


### Threat: Equipped with Firearms & Explosives

Up to **60** Minutes Intruder Resistance

Multiple Attackers  
Pistols  
Shotguns

Shotguns (slugs)  
Rifles  
Explosives



Recommended Product:



Refer to pages 12-15

## Anti-Bandit Glass Solutions

BanditShield® has been specifically developed to resist manual attack and delay access to protected areas such as jewellery stores where items of high value can be easily accessed. Unlike standard laminated glass, the BanditShield® Anti-Bandit Glass range does not fall away when broken, preventing access. With the BanditShield® range, the bonded glass and laminate make it challenging and time consuming to smash through. The laminate holds on to the broken layers of glass making separation a difficult process.

The extra time and noise generated whilst attempting to create a suitable opening usually attracts the attention of neighbours or inhabitants in the area, this serves as a deterrent and thwarts further attempts of would-be burglars or opportunist smash and grab criminals.

### Area Specific Requirements

#### Smash & Grab

Slowing or delaying an intruder who is attempting this will deter them from successfully taking any goods

#### Front of Store Display (Retail)

Preventing quick entry will deter criminal from successfully stealing goods

#### High Class Luxury Homes

Delaying or forcing the intruder to make more noise can deter them from ever entering and gives you more time to escape or alert authorities

#### Liquor Store

Preventing quick entry will deter criminal from successfully stealing liquor

#### Low Security Detention Centres

Slowing an attempt to break out can give staff the time needed to respond to the incident

#### Pharmacies

Protecting drugs from opportunist smash and grab burglars

## Attack Resistance

BanditShield® Anti-Bandit Glass has been specially designed and constructed from incredibly robust laminated glass to achieve a higher level of resistance to physical attack in low risk security situations.

Under attack with common hand tools such as hammers, pliers, screwdrivers, axes and bricks, BanditShield® will resist penetration for up to 1 minute. Where a greater level of security is required we would recommend using or specifying BanditShield Ultra® or ArmourShield®



**Intruder Resistance**

**1**  
Minute

### Benefits

- Provides improved resistance penetration when attacked
- Cost effective solution for low risk security areas
- Custom options for specific requirements are available
- Short lead times

### Features

- Available in a range of thicknesses to suit different window sizes and security requirements
- Clear and tinted options available
- Options for thermal and solar control are available
- Is a Grade A safety glass to AS/NZS2208
- Can be manufactured in stock sheets and cut to size when required
- Maximum size per panel is 2440mm x 3660mm

### BanditShield® Range

BanditShield® Anti-Bandit Glass is available in range of standard thicknesses from 7.9mm up to 16.7mm to suit specific security applications for all window sizes up to 2440mm x 3660mm. Special thicknesses and make-ups can be designed for specified applications using Glasshape's in-house testing laboratory.

The table on page 22 provides a guide to which thickness may best suit your requirements or you can contact our product specialists who will help you select the correct product for your application.

Glasshape® recommend that BanditShield® is installed in a suitable rigid aluminium or steel frame with at least 15mm edge cover to ensure the glass performs as required.

### Customise your glass to meet your unique requirements.

BanditShield® can be customised to meet your specific performance and aesthetic requirements. Contact our products specialists to discuss a solution for your application.

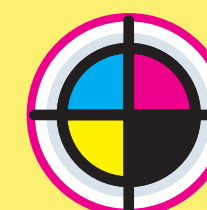
Solar or Thermal



Privacy



Decorative



Page 18-19

Intruder Resistant



## Low Risk Intruder Resistant Glass Solutions

BanditShield Ultra® has been specifically developed for when greater attack resistance over and above BanditShield® Anti-Bandit Glass is required.

Ideal for high end residential homes, luxury retail display windows and mental health facilities, BanditShield Ultra® is designed to resist an attack long enough for an opportunist attacker to give up their efforts after realizing BanditShield Ultra® is not standard glass.

### Area Specific Requirements

#### Smash & Grab

Slowing or delaying an intruder who is attempting this will deter them from successfully taking any goods

#### Front of Store Display (Retail)

Preventing quick entry will deter criminal from successfully stealing goods

#### High Class Luxury Homes

Delaying or forcing the intruder to make more noise can deter them from ever entering and give you more time to escape or alert authorities

#### Mental Health Units

Slowing an attempt to break out can give staff the time needed to respond to the incident

#### Low Security Police Detention Centres

Slowing an attempt to break out can give staff the time needed to respond to the incident

#### Pharmacies

Protecting drugs from opportunist smash and grab burglars

## Attack Resistance

BanditShield Ultra® is a specially designed triple laminated glass to achieve a higher level of resistance to physical attack in low risk security situations.

Under attack with common hand tools such as hammers, pliers, screwdrivers, axes and bricks, BanditShield Ultra® will resist penetration for up to 2 minutes. Where a greater level of security is required we would recommend using ArmourShield® which provides longer resistance times.



**Intruder Resistance**

**2**  
Minutes

### Benefits

- Provides superior resistance to penetration when attacked
- Cost effective solution for low risk security areas
- Custom options for specific requirements are available

### Features

- Available in a range of thicknesses to suit different window sizes and security requirements
- Clear and tinted options available
- Options for thermal and solar control are available
- Is a Grade A safety glass to AS/NZS2208
- Maximum size per panel is 1500mm x 3300mm

### BanditShield Ultra® Range

BanditShield Ultra® is available in range of standard thicknesses from 15.7mm up to 18.04mm to suit specific security applications for all window sizes up to 1500mm x 3300mm. Special thicknesses and make-ups can be designed for specified applications using Glasshape's in-house testing laboratory.

The table on page 22 provides a guide to which thickness may best suit your requirements or you can contact our product specialists who will help you select the correct product for your application.

Glasshape® recommend that BanditShield Ultra® is installed in a suitable rigid aluminium or steel frame with at least 20mm edge cover to ensure the glass performs as required.

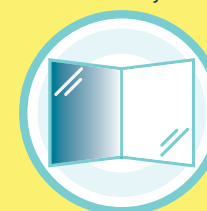
### Customise your glass to meet your unique requirements.

BanditShield Ultra® can be customised to meet your specific performance and aesthetic requirements. Contact our products specialists to discuss a solution for your application.

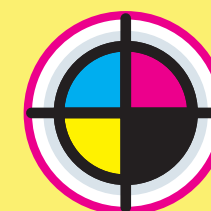
Solar or Thermal



Privacy



Decorative



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## Secure Healthcare Safety Glass Solutions

Specifically developed as one of the safest windows, CareShield® is the safe and reliable glass solution for use in mental health facilities to protect patients from self-harm and to help provide a safer working environment for staff.

CareShield®, removes the possibility of patients harming themselves with glass if a window is broken. Families are assured their loved ones are in a safe zone where self-harm from broken glass is all but eliminated.

### Area Specific Requirements

#### Mental Health Facilities

Reduce the risk of patients injuring themselves and providing protection for staff

#### Youth Detention Centres

Prevention of break-out and protecting staff from attack

#### Police Stations

Use in containment cells to reduce the risk of self-harm

#### Prison Psychiatric Assessment Units

Prevention of break-out and reduce the risk of self-harm

## Testing and Certification

Regarded by many as the safest glass, CareShield® is a poly-glass composite scientifically designed and rigorously tested in accordance with Australian and New Zealand safety standards.

CareShield® has been tested and certified to AS3555.1 Level 2 in an approved framing system.

Testing to AS3555.1 level 2 requires the glass to be attacked by two men using common hand tools such as chisels, punches, wedges, screwdrivers, pliers, bolt cutters, hammers, axes, sledgehammers, pry bars and ripping tools, none of which exceeds 1.5 m in length, nor 3.6 kg in mass.







**Intruder Resistance**

**5-20**  
Minutes

### Benefits

- Superior patient safety
- No need for secure mesh or grills
- Improved staff safety
- Transform patient rooms and areas into friendly and safe spaces
- Increased patient comfort with more home like environment
- Vastly improved lighting, clarity and visibility without compromising safety

### Features

- Ability to create larger window openings than previously possible
- Tested and proven in anti-ligature framing
- Maximum size per panel is 1800mm x 2400mm

### Unique Mental Health Facilities Requirements

The secret of CareShield® is the specifically designed risk free poly-composite inside face. Should the window be repetitively hit, beaten or bashed by a patient, CareShield® has no glass surface available to break, nor for patients to cut themselves or injure staff with.

Engineered with an exceptionally tough glass exterior for weathering (offering a 10 year warranty), CareShield® provides protection from the external elements or alternately glazing in a passage way provides an easy clean surface for staff to see through.

CareShield® is available in a range of thicknesses and make-ups to suit different window sizes and applications please refer to the table on page 24 to assist in selecting the correct product for your application.

Glasshape® recommend that CareShield® is installed into suitable anti-ligature steel or aluminium frames with a minimum edge cover of at least the thickness of the CareShield® panel.

For more information, please read our CareShield® brochure or talk to one of our specialists.

### Customise your glass to meet your unique requirements.

CareShield® can be customised to meet your specific performance and aesthetic requirements. Contact our products specialists to discuss a solution for your application.

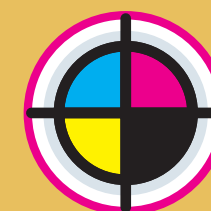
Solar or Thermal



Privacy



Decorative



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## High Risk Intruder Resistant Glass Solutions

ArmourShield® is specifically designed to provide additional safety for personnel and protect critical areas in buildings, safe houses, detention centres, prisons and marine vessels. ArmourShield® slows down and restricts intruder entry. Even when broken, the tough inner-core of poly-composite will lock the exterior glass layers to enable greater attack resistance. Ideal for doors and windows that maintain the appearance of normal glass, ArmourShield® is specially designed and constructed to remain resistant under attack. This attribute causes attack weapons to simply bounce off the ArmourShield® window, making penetration all but impossible.

### Area Specific Requirements

#### Medium and Maximum Prison Security

Prevention of break-out and protecting wardens from attack.

#### Youth Detention Centres

Prevention of escape and protecting staff from attack.

#### Intelligence Offices

To create a secure facility that can't be penetrated, protecting internal information and staff

#### Guard House

Provide protection against attack from assailants with hand weapons

#### Police Station

Used in external windows of facilities to protect police and in high risk containment cells to resist attempts to escape.

#### Courthouse

Prevention of attempted escape from commonly perceived lower security facility.

## Testing and Certification

ArmourShield® comes in a range of thicknesses to provide the required protection from physical attack for up to thirty minutes (as detailed under AS3555.1 level 2) when used in an approved framing system.

The table on page 23 provides a guide to which thickness may best suit your requirements or you can contact our product specialists who will help you select the correct product for your application.

Tested and certified in independent laboratories ArmourShield® has passed the requirements of AS3555.1 level 2 in a number of approved framing systems to provide specifiers with solutions that meet their requirements.



**Intruder Resistance**

**5-30**  
Minutes

### Benefits

- Superior attack resistance compared to Anti-bandit laminated glass. Resists intruder access for up to thirty minutes (as per AS3555.1 Level 2)
- Weapons simply bounce off due to its amazing elastic properties. Should the outer glass layer be broken the poly-composite panel maintains a level of structural integrity
- Customised Certified Intruder Resistant Glass tailored for your individual project

### Features

- Due to the glass poly-composite construction, ArmourShield® is lightweight when compared to other glass products of the same thickness
- Available in a range of thicknesses to suit different window sizes and security requirements
- Clear and tinted options available
- Options for thermal and solar control are available
- Is a Grade A safety glass to AS/NZS2208
- Maximum size per panel is 1800mm x 2400mm

### ArmourShield® Range

ArmourShield® comes in a range of thicknesses from 14mm to 26mm to provide the required protection from physical attack from five to thirty minutes (as detailed under AS3555.1 level 2) when used in an approved framing system.

ArmourShield® is available in three variants, annealed glass on both surfaces, toughened glass on both surfaces and toughened glass on the attack surface and annealed glass on the non attack surface. Each of these options has particular advantages.

If you have a specific requirement Glasshape® are able to customise an ArmourShield® solution for your specific requirements, please contact one of our product specialists who can help provide this solution.

Glasshape® recommend that ArmourShield® is installed in a tested and certified steel frame with edge cover at least equal to the thickness of the glass to ensure the glass performs to the required standard.

### Customise your glass to meet your unique requirements.

ArmourShield® can be customised to meet your specific performance and aesthetic requirements. Contact our products specialists to discuss a solution for your application.

Solar or Thermal



Privacy



Decorative



Page 18-19

Intruder Resistant

## Bullet Resistant Glass Solutions

AmmoShield® is specifically designed for use in areas of high risk or where the threat of fire-arms is prevalent. AmmoShield® bullet resistant glass encapsulates exceedingly high velocity projectiles without allowing penetration through the panel. AmmoShield® is a special glass poly-composite panel, custom-constructed to meet clients specified level of protection. Levels of protection include gun-fire, bomb-blast and physical attack with tools and equipment.

### Area Specific Requirements

#### Cash Handling - Banks, Foreign Exchange

Protect staff and assets from the threat of armed robbery.

#### Panic Room - Personal Protection, Refuge Rooms

Secure rooms in luxury homes or buildings in high risk areas to protect the occupants from armed attack.

#### Foreign Embassies

Protect staff and information in the event of a terrorist attack.

#### Courtrooms - Judges Chambers, Witness Boxes

Provide protection in the event of attack with firearms

#### VIP and Diplomat Housing

Protect VIPs from armed robbery or terrorist attack.

#### Armoured Vehicles (certified for road use)

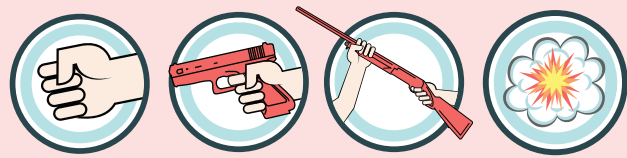
Protection of operators in cash handling, police or military operations.

## AmmoShield® Range

AmmoShield® is manufactured in a range of thicknesses and make-ups to meet the specified threat level and conditions required. Our range includes glass designed to stop bullets from hand guns through to high powered rifles and shotguns.

AmmoShield® has been tested in NATA accredited laboratories to cover all the requirements of AS/NZS2343:1997 and NIJ0108.01:1985 and we can test customised glass make-ups to these standards or other applicable standards if required.





**Intruder Resistance** 10-60  
Minutes

### Benefits

- Customised Certified Bullet Resistant Glass tailored for your project
- Tested and Certified to meet various levels of protection AS/NZS2343 ballistic to level G0, G1, G2, R1, R2 as well as S0 and S1
- Can be configured to provide protection from bullet, blast and physical attack

### Features

- Available in a range of thicknesses to suit different window sizes and security requirements
- Clear and tinted options available
- Options for thermal and solar control are available
- Is a Grade A safety glass to AS/NZS2208
- Maximum size per panel is 1800mm x 2400mm

### Design & Technology

Most AmmoShield® products are comprised of multi-laminated glass with a poly-composite spall panel on the non-attack side to stop glass fragments from being thrown from the back of the panel in the event of attack. Glasshape® has also designed all glass AmmoShield® make-ups with an anti-spall film on the non-attack face for situations such as oversize windows or in areas with hot, humid environments where the poly-composite option may not be suitable.

The table on page 23 provides a guide to which thickness may best suit your requirements or you can contact our product specialists who will help you select the correct product for your application.

Designed to function as a system, AmmoShield® must be fitted in an approved ballistic frame appropriately installed to meet standards and attack levels specified.

### FEBR

Forced Entry Bullet Resistance Glass is often required in high risk situations, such as Embassies. AmmoShield® can be configured to meet the bullet and intruder resistances specified in your project.

### Customise your glass to meet your unique requirements.

AmmoShield® can be customised to meet your specific performance and aesthetic requirements. Contact our products specialists to discuss a solution for your application.

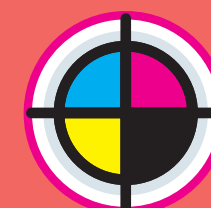
Solar or Thermal



Privacy



Decorative



Page 18-19



## Blast Resistant Glass Solutions

BlastShield® has been specifically designed to reduce the risk of injury in the event of a blast attack. BlastShield® blast resistant glass typically uses a multiple layered combination of incredibly robust laminated glass and poly-composites to reduce the risk of flying glass debris in the event of an explosion.

BlastShield's unique design allows the flexibility of the interlayer and the adhesion between layers of laminated glass to continue to resist blast after the glass layers fracture. This gives protection from significantly higher blast loads when compared to a monolithic pane of glass.

### Area Specific Requirements

#### Foreign Embassies

Protect staff and information in the event of a terrorist attack.

#### VIP and Diplomat Housing

Protect occupants from armed robbery or terrorist attack.

#### Military

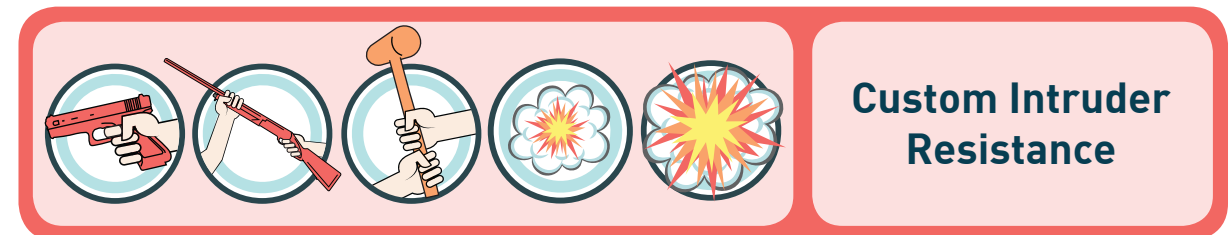
Protection of military facilities from attack.

#### Guard House

Provide protection against attack from terrorists.

## BlastShield® Range

BlastShield® thicknesses range from 22mm to over 65mm depending on the level of blast being protected against. Full-scale open-air blast tests are rarely performed these days so the use of latest technology in blast modelling is used to determine the performance of different make ups of BlastShield® being designed for specific projects.



### Custom Intruder Resistance

#### Benefits

- Customised Certified Blast Resistant Glass tailored for your project
- Tested and Certified to meet various levels of blast resistance
- Can be configured to provide protection from bullet, blast and physical attack

#### Features

- Available in a range of thicknesses to suit different window sizes and security requirements
- Clear and tinted options available
- Options for thermal and solar control are available
- Is a Grade A safety glass to AS/NZS2208

#### Design & Technology

BlastShield® needs to be custom designed as part of a complete system to ensure it performs as required in an explosion event. The glazing, frames, and anchorage must all be able to survive the blast loading in order for the overall system to provide adequate protection. If any one part of the system fails, then the entire system fails. Similarly, the supporting wall must be able to handle the loads imparted to it by the window system. If the window system has a higher capacity than the supporting wall, when the wall fails the entire window system may be blown into the facility.

Glasshape's technical team work with blast engineers on specific project designs to ensure that complete systems will withstand the required blast requirements.

If you have a project requiring blast resistant glass please contact our technical team who will design a solution to meet your specific requirements.

### Customise your glass to meet your unique requirements.

BlastShield® can be customised to meet your specific performance and aesthetic requirements. Contact our products specialists to discuss a solution for your application.

Solar or Thermal



Privacy



Decorative



Page 18-19



## Specialised Security Areas

### Military / VIP Solutions

Protecting military personnel or VIP's from risk of attack requires specific glass solutions which can resist the highest levels of threats or attacks from enemies or terrorists. Glasshape® can design custom glass solutions which incorporate both bullet and blast resistance if required. We are also able to provide glass which is certified for use in road vehicles an important consideration for use in military or VIP protection vehicles.



### Foreign Embassy Solutions

With buildings such as embassies and other government buildings there is often a requirement for the glass to be able to resist multiple threats such as intruder, bullet and blast which requires a specialised solution for each application.

Glasshape® have designed, tested and certified customised glass solutions which incorporate the unique properties of ArmourShield®, AmmoShield® and BlastShield® to provide an answer to these specific requirements. A fine example of our customised approach was the recently completed Australian Embassy in Jakarta, Indonesia.



### Corrections, Holding and Detention Facility Solutions

When designing correctional institutions and specifying security glass there are a large number of factors to consider to ensure that it meets the level of protection required. The weapons that may possibly be available to assailants, staff response times and risk to staff or others are all important factors in selecting glass which can resist attack for the time required to respond to the incident.

Other areas such as holding cells in police stations and courthouses are an area commonly overlooked and security can be compromised if the glass specification does not provide sufficient protection.

Glasshape® has extensive experience in working with architects, correction departments and security window manufacturers to provide solutions which meet the specific requirements of each area within correctional facilities.



### Mental Health Facilities Solutions

With CareShield®, gone is the possibility of patients harming themselves with glass if a window is broken. Families are assured their loved ones are in a safe zone where self-harm is all but eliminated. CareShield® has a glass exterior surface that is glazed to the staff side or the outside of the building to provide a tough glass exterior for weathering. If glazed in a passage way provides an easy clean surface. The interior surface is a hardened poly-composite providing a safe surface on the patient side, greatly reducing the risk of patients injuring themselves.





## Custom Solutions

### Custom Solutions – Designed specifically for your project

When considering security for a project there can be many influences that will need to be considered before an appropriate solution can be found. While Glasshape's range of security glass products has been designed to provide a solution for most security glass requirements we realise that your requirements may require a unique solution.

The specialist team at Glasshape® have designed custom solutions to meet specific requirements including intruder, bullet and blast protection as well as a solution for use in mental health facilities where self-harm is a concern.

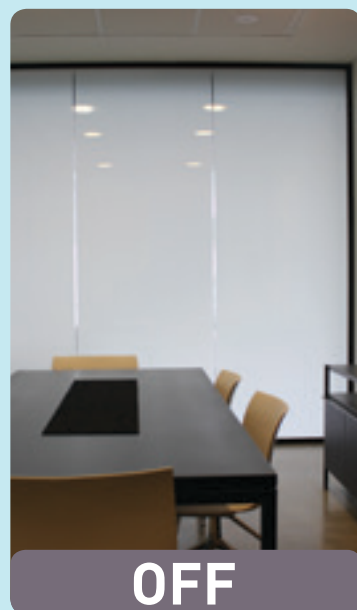
If you have a project with unique requirements whether it is the threat level, thermal performance, privacy or other specific demands, talk to Glasshape® and we will design and test a glass solution to meet your needs.



#### Privacy Requirements

In many security applications there is a requirement for privacy or one-way vision. At Glasshape® we're able to customise our security glass products to provide a solution for these requirements whether it is one-way vision for interview rooms or semi translucent glass for privacy.

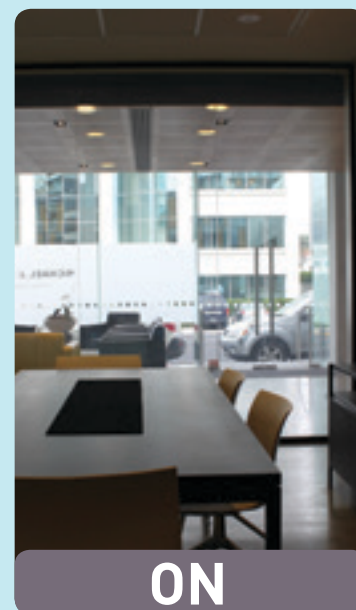
SwitchShield® provides an innovative and flexible solution to privacy requirements with the ability to change from clear to translucent at the flick of a switch. SwitchShield® can be incorporated in our security glass solutions to provide privacy on demand.



OFF

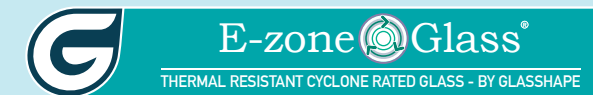


Variable



ON

Commercial Offices - Board Room



#### Thermal & Solar Requirements

With external security glass applications the thermal and solar performance of the glass can be a critical component of the building design. We can include tinted glass, tinted interlayers, double glazing or E-zone® low-e coatings to provide enhanced thermal and solar performance for your windows.

Glasshape® can calculate the thermal performance of any glass make-up to ensure it meets your specification.



#### Decorative Requirements

Enhance your design by adding digital ceramic printing to your security glass. Colours, gradients, patterns and even full colour pictures are all possible with the latest digital ceramic printing technology. Now your glass can add to your design aesthetics while providing the security and protection your project requires.



Knowledge Center at St Olavs Hospital - Printed by Glassbel

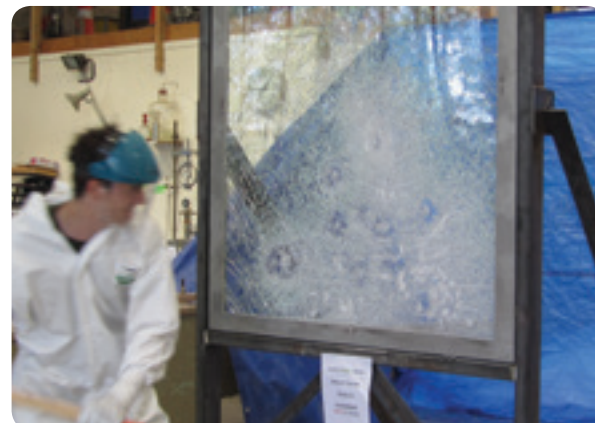
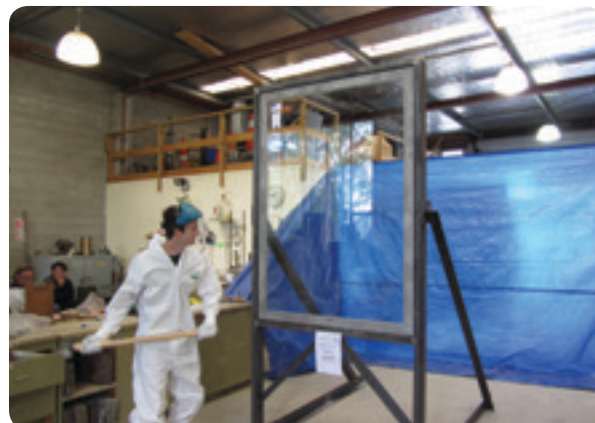
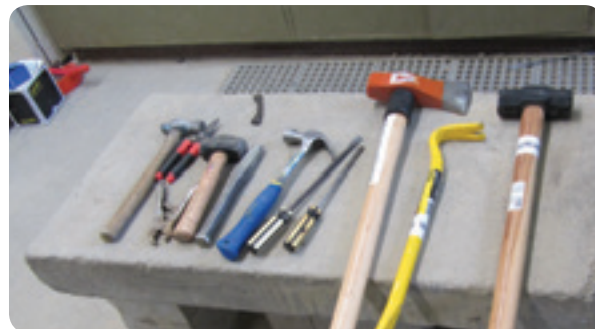
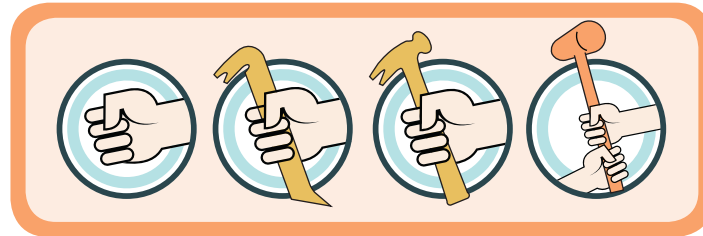


## Testing

### Intruder / Forced Entry Resistance Testing

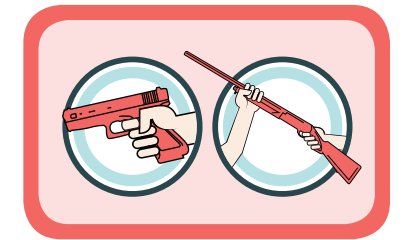
Glasshape® have carried out extensive testing of our intruder resistant glass to AS3555.1 Level 2 in independent laboratories in both New Zealand and Australia.

Testing to AS3555.1 level 2 requires the glass to be attacked by two men using common hand tools such as chisels, punches, wedges, screwdrivers, pliers, bolt cutters, hammers, axes, sledgehammers, pry bars and ripping tools, none of which exceeds 1.5 m in length, nor 3.6 kg in mass. The glass is then rated according to the time required to create an opening in it of no more than 620cm<sup>2</sup>.

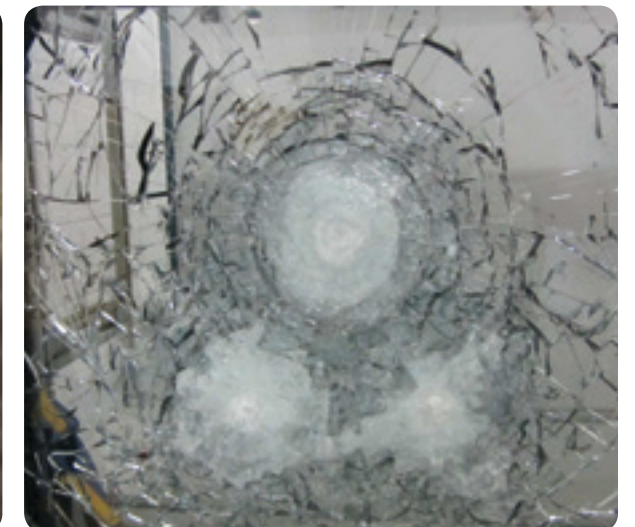


### Bullet Resistance Testing

Glasshape® has carried out extensive testing of our AmmoShield® glass to both the AS/NZS2343:1997 and NIJ0108.01:1985 standards.

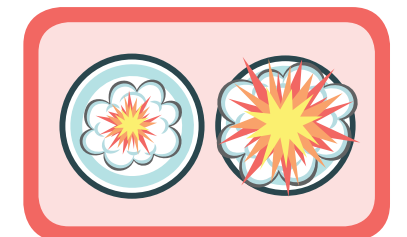


Testing to AS/NZS2343:1997 requires the test panel to be shot three times with the shot centres 100mm apart forming an equilateral triangle. A witness card is mounted 450mm from the rear of the glass and the glass panel is deemed to satisfy the ballistic classification if no projectile passes through and no particles from the panel or projectile perforate the witness card.

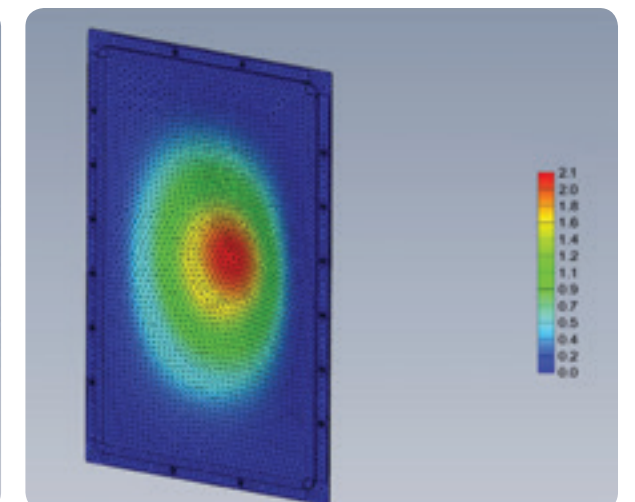
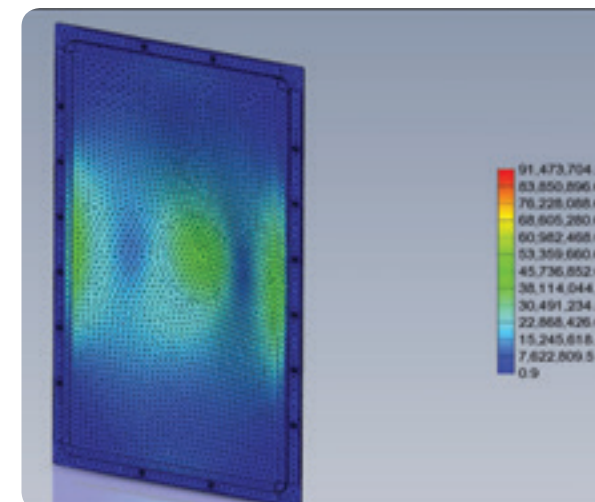


### Blast Resistance Testing

Full-scale open-air blast tests are rarely performed these days so the use of latest technology in blast modelling is used to determine the performance of different make ups of BlastShield® being designed for specific projects.



Glasshape's technical team work with blast engineers on specific project designs to ensure that complete systems will withstand the required blast requirements.





Product Name	Product Code	Description	Thickness	Weight/m2	Attack Rating* (Approx.)	Light Trans. %	Reflect Iout%	Reflect (in)%	Solar Trans%	SolarReflect%	SC	SHGC	U Value- Summer	U Value- Winter
					SECURITY	LIGHT			SOLAR	THERMAL				
BanditShield® Clear	AB752	Annealed	7.52mm	16kg	20 seconds	89	8	8	74	7	0.91	0.79	5.04	5.57
	AB952	Annealed	9.52mm	21kg	20 seconds	88	8	8	71	7	0.89	0.78	5	5.52
	BS7ABG	Annealed	7.9mm	17kg	30 seconds	89	8	8	73	7	0.91	0.79	4.99	5.52
	BS9ABG	Annealed	9.9mm	22kg	30 seconds	88	8	8	70	7	0.89	0.77	4.95	5.46
	AB1352	Annealed	13.52mm	31kg	50 seconds	87	8	8	66	7	0.86	0.74	4.9	5.41
	BS11ABG	Annealed	11.9mm	27kg	60 seconds	88	8	8	68	7	0.87	0.76	4.91	5.42
	BS14TABG	Toughened	13.9mm	32kg	60 seconds	87	8	8	66	7	0.86	0.74	4.89	5.40
BanditShield® Grey	AB7ABG	Annealed	7.9mm	17kg	30 seconds	43	5	5	47	5	0.71	0.62	4.99	5.52
	AB9ABG	Annealed	9.9mm	22kg	30 seconds	42	5	5	45	5	0.7	0.61	4.95	5.46
	BS13ABG	Annealed	13.9mm	32kg	60 seconds	87	8	8	65	7	0.85	0.74	4.86	5.36
BanditShield® Obscure	BS70B	Annealed	7.9mm	17kg	30 seconds	82	8	8	67	7	0.87	0.75	4.99	5.52
	BS90B	Annealed	9.9mm	22kg	30 seconds	82	8	8	65	7	0.85	0.74	4.95	5.46
	AB1152	Annealed	11.52mm	26kg	50 seconds	88	8	8	69	7	0.88	0.76	4.96	5.47

\* Attack rating is based on AS3555.1 level 1, attack conditions.  
Custom Options available on all products for tints or additional features or specifications.

Product Name	Product Code	Description	Thickness	Weight/m2	Attack Rating* (Approx.)	Light Trans %		Reflect. Iout%	Reflect. (in) %	Solar Trans %	Solar Reflect%	SC	SHGC	U Value- Summer	U Value- Winter
					SECURITY	LIGHT			SOLAR	THERMAL					
BanditShieldUltra® Clear	BS15AUltra	Annealed	15.7mm	33kg	60-120 seconds	87	8	8	63	7	0.84	0.73	4.72	5.2	
	BS15Ultra	Toughened	15.7mm	33kg	60-120 seconds	87	8	8	63	7	0.84	0.73	4.72	5.2	
	BS16Ultra	Toughened	16.7mm	36kg	60-120 seconds	86	8	8	62	6	0.83	0.73	4.7	5.17	
	BS18A Ultra	Annealed	18.04mm	41kg	90-120 seconds	86	8	8	61	6	0.82	0.71	4.67	5.13	
BanditShield Ultra® Grey	BS15GRUltra	Toughened	15.7mm	33kg	60-120 seconds	54	6	6	43	5	0.69	0.6	4.72	5.2	
	BS16GRUltra	Toughened	16.7mm	36kg	60-120 seconds	54	6	6	43	5	0.69	0.6	4.7	5.17	
BanditShield Ultra® Obscure	BS150BUltra	Toughened	15.7mm	33kg	60-120 seconds	80	8	8	59	6	0.81	0.7	4.72	5.2	
	BS160BUltra	Toughened	16.7mm	36kg	60-120 seconds	80	8	8	58	6	0.8	0.69	4.7	5.17	

\* Attack rating is based on AS3555.1 level 1, attack conditions.  
Custom Options available on all products for tints or additional features or specifications.

Product Name	Product Code	Description	Thickness	Weight/m2	Attack Rating * [Approx.]	AS 3555.1 Level 2 Pass	Light Trans %		Reflect [out] %	Reflect [in] %	Solar Trans %	Solar Reflect%	SC	SHGC	U Value- Summer	U Value- Winter
					SECURITY		LIGHT		SOLAR		THERMAL					
ArmourShield® Clear  (optional colour/tints on Custom Products)	AS14T	Toughened	14.8mm	28kg/m2	Upto 5 minutes	PASS 5 minutes	84	7	7	66	6	0.87	0.75	4.33	4.73	
	AS14AT	Annealed & Toughened	14.8mm	28kg/m2	Upto 6 minutes	PASS 5 minutes	84	7	7	66	6	0.87	0.75	4.33	4.73	
	AS14A	Annealed	14.8mm	28kg/m2	Upto 8 minutes	PASS 5 minutes	84	7	7	66	6	0.87	0.75	4.33	4.73	
	AS17T	Toughened	17.9mm	34kg/m2	Upto 10 minutes	PASS 10 minutes	83	8	8	60	6	0.83	0.72	4.16	4.54	
	AS17AT	Annealed & Toughened	17.6mm	32kg/m2	Upto 12 minutes	PASS 10 minutes	82	8	8	61	6	0.83	0.72	4.06	4.42	
	AS17A	Annealed	17.6mm	32kg/m2	Upto 17 minutes	PASS 10 minutes	82	8	8	61	6	0.83	0.72	4.06	4.42	
	AS22T	Toughened	22.6mm	44kg/m2	Upto 15 minutes	PASS 10 minutes	80	8	8	56	6	0.8	0.69	3.99	4.34	
	AS22AT	Annealed & Toughened	23.5mm	43kg/m2	Upto 18 minutes	PASS 10 minutes	81	8	8	56	6	0.8	0.7	3.85	4.18	
	AS22A	Annealed	23.5mm	43kg/m2	Upto 22 minutes	PASS 10 minutes	81	8	8	56	6	0.8	0.7	3.85	4.18	
	AS26T	Toughened	25.6mm	51kg/m2	Upto 20 minutes	PASS 10 minutes	79	8	8	53	6	0.78	0.68	3.94	4.29	
	AS26AT	Annealed & Toughened	27.5mm	53kg/m2	Upto 25 minutes	PASS 10 minutes	79	7	7	52	6	0.77	0.67	3.80	4.12	
	AS26A	Annealed	27.4mm	50kg/m2	Upto 30 minutes	PASS 10 minutes	80	8	8	53	6	0.78	0.68	3.69	3.99	

\* Attack rating is based on AS3555.1 level 2, attack conditions.  
Custom Options available on all products for tints or additional features or specifications.

Product Name	Product Code	Description	Thickness	Weight/m2	AS/NZS 2343:1997	Other Standards	Light Trans %	Reflect (out) %	Reflect (in) %	Solar Trans %	Solar Reflect%	SC	SHGC	U Value- Summer	U Value- Winter
					SECURITY		LIGHT		SOLAR		THERMAL				
ArmourShield® Clear (optional colour/tints on Custom Products)	AS20P	Glass, Polycomposite	20.4mm	40kg/m2	G0 9mm Handgun	NIJ 0108.01	80	7	7	57	6	0.81	0.7	4.1	4.45
	AS24P	Glass, Polycomposite	24.4mm	50kg/m2	G1 357 Magnum	-	78	7	7	53	6	0.78	0.68	4.04	4.38
	AS25P	Glass, Polycomposite	25.5mm	54kg/m2	G2 44 Magnum	-	81	7	7	52	6	0.77	0.67	3.95	4.28
	AS37	All Glass	37.0mm	84kg/m2	G2 44 Magnum	-	76	8	9	41	6	0.69	0.6	4.22	4.58
	AS44P	Glass, Polycomposite	44.5mm	97kg/m2	R1 5.56mm Rifle	NIJ 0108.01 Level 3	76	6	6	40	5	0.7	0.61	3.58	3.85
					R2 7.62mm Rifle										
					S1 12gauge Shotgun-slug										

Custom Options available on all products for tints or additional features or specifications.

Product Name	Product Code	Description	Thickness	Weight/m2	Attack Rating* (Approx.)	Light Trans %	Reflect (out) %	Reflect (in) %	Solar Trans %	Solar Reflect%	SC	SHGC	U Value- Summer	U Value- Winter
					SECURITY	LIGHT			SOLAR		THERMAL			
CareShield® Clear	CS10CL	Standard	10.5mm	17kg	15 minute	86	7	7	71	6	0.9	0.78	4.61	5.04
	CS12CL	Standard	12.5mm	22kg	17 minutes	85	7	7	68	6	0.88	0.77	4.57	4.99
	CS14CL	Standard	14.5mm	27kg	20 minutes	84	7	7	65	6	0.86	0.75	4.53	4.95
	CS24CLCP	Low-E DGU	24.5mm	27kg	15 minutes	73	16	15	55	15	0.77	0.67	1.96	1.89
	CS25CLCP	Low-E DGU	25.5mm	29kg	17 minutes	72	16	15	54	15	0.77	0.67	1.96	1.88
	CS26CLCP	Low-E DGU	26.5mm	32kg	20 minutes	72	15	15	53	15	0.76	0.66	1.95	1.88
CareShield® Grey	CS10GR	Standard	10.5mm	17kg	15 minutes	53	6	5	48	5	0.74	0.64	4.61	5.04
	CS12GR	Standard	11.5mm	22kg	17 minutes	43	5	4	39	5	0.67	0.58	4.57	4.99
	CS14GR	Standard	14.5mm	27kg	20 minute	34	5	4	30	5	0.61	53	4.52	4.95
	CS24GRCP	Low-E DGU	24.5mm	27kg	15 minute	45	14	9	38	14	0.72	0.63	1.96	1.89
	CS25GRCP	Low-E DGU	25.5mm	29kg	17 minutes	41	14	8	34	14	0.71	0.62	1.96	1.88
	CS26GRCP	Low-E DGU	26.5mm	32kg	20 minutes	37	14	8	30	14	0.7	0.61	1.95	1.88
CareShield® Acid Etch Obscure	CS240B	DGU	24.5mm	27kg	15 minutes	76	14	13	59	12	0.84	0.73	2.73	2.6
	CS250B	DGU	25.5mm	29kg	17 minutes	75	14	13	57	12	0.83	0.72	2.72	2.59
	CS260B	DGU	26.5mm	32kg	20 minutes	75	14	13	57	12	0.83	0.72	2.72	2.58
CareShield® Natural	CS24NCP	Low-E DGU	24.5mm	27kg	15 minutes	52	10	14	35	9	0.52	0.45	1.96	1.89
	CS25NCP	Low-E DGU	25.5mm	29kg	17 minutes	51	10	14	34	9	0.52	0.45	1.96	1.89
	CS26NCP	Low-E DGU	26.5mm	32kg	20 minutes	51	10	14	33	9	0.52	0.45	1.95	1.88

\*\* Attack rating is based on AS3555.1 level 2, attack conditions.  
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About Us

Glasshape® provide customised turnkey glass solutions offering a full range of certified specialist glass products. Our proven global success is backed by comprehensive warranties and validated by international accreditation.

Our service and specifically engineered glass solutions aim to exceed our clients design and performance requirements. We work with our clients to confirm their needs and establish the appropriate glass solutions. The Glasshape® turnkey package from consultation through to installation is available to help ensure a worry-free and successful project is delivered every time.

Our full range of specialist products are tailored to suit industries operating in demanding conditions and requiring high performance standards. Industries include architectural, marine, machinery, transportation, storm, security and ballistic.

Glasshape® have customers around the globe with Glasshape® locations in New Zealand, Australia and USA.

Our Vision:

To become a world leader in the manufacture and supply of innovative, certified glass solutions tailored to meet the demanding requirements of highly specialised industries by differentiating on product quality, customer service and distribution excellence.

Our Mission:

Offer our customers a uniquely specialised glass solution that works for them every time.

Our Values:

- Treat customers, suppliers, and the community like we would our own family
- Tirelessly focus on brand, process improvement and delivery excellence by having a culture of continuous improvement
- Invest in the development of a great team, producing great products that completely satisfy the needs and desires of our diverse range of customers

Founded in 1986, Glasshape® has mastered and refined the science of Curved and Bent Glass, Toughened Glass, Laminated Glass and Double Glazed Glass, with uncompromising quality and service. The Glasshape® Group is one of Australasia’s leading specialist processing, bending, toughening and laminating glass companies.

Glasshape® is a successful company with double digit growth. We are a 100% customer focused company. To meet the increasing demand from architects, designers and their respective, highly discerning clients, Glasshape® have a commitment to continuous innovation and technology investment. Our customers understand that with our expertise, their designs can be transformed into sensational glass realities.







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Version: SEC - 08.15