



Complete certified glass solutions designed for your application

Marine Glass Solutions

www.glasshape.com

Complete Marine Glass Solutions

When it comes to glass, Glasshape® understand that quality, performance, durability and safety standards are paramount to designers, builders and owners of superyachts and luxury launches.

Combining nearly 3 decades of industry knowledge and technical capability Glasshape® have developed unique proprietary manufacturing processes addressing the specific needs of the marine sector and provide premium turnkey glass solutions.

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

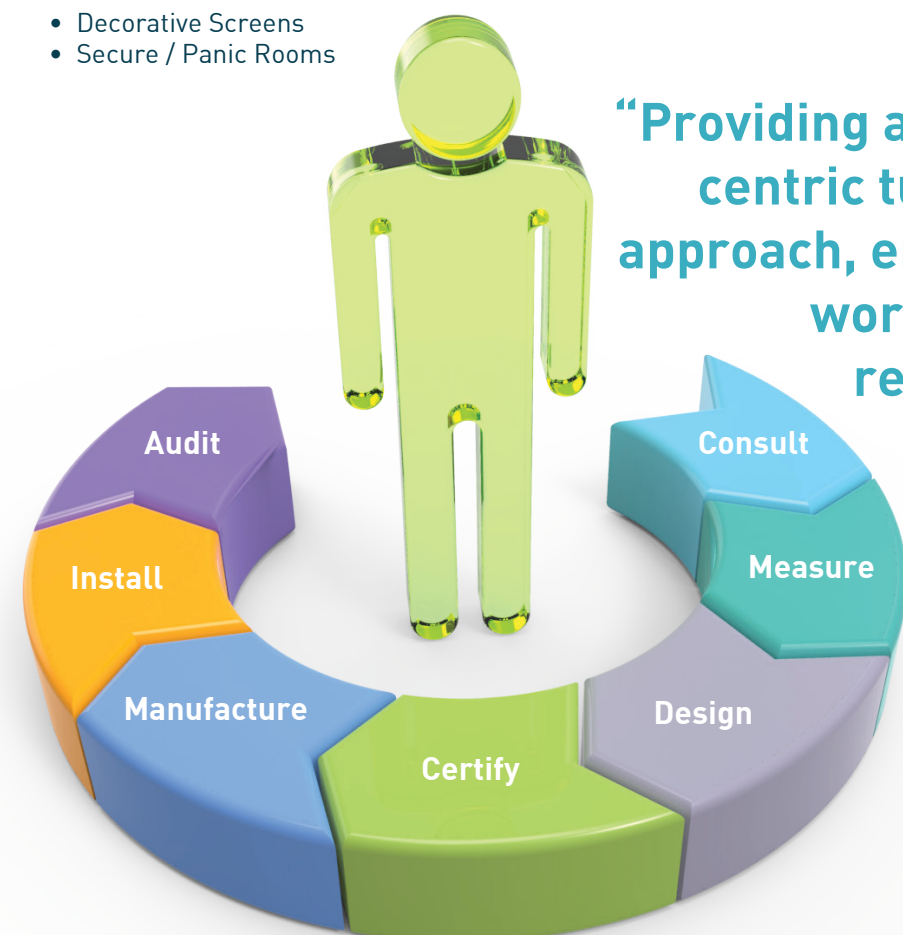
Typical Glasshape® Applications:

Interior

- Doors
- Balustrading
- Glass Floors
- Spiral Staircase Balustrades
- Lift Shafts
- Shower Screens
- Cabinets
- Decorative Screens
- Secure / Panic Rooms

Exterior

- Windows
- Windscreens
- Portholes
- Dead-lites
- Windbreaks
- Balustrades



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

We understand you will have a range of needs depending on the type of build and preferences. Our range of products are specifically engineered to meet a variety of needs.

Our customised solutions can address a single or combination of needs e.g. security, curved, fire-rated. The Glasshape® range of internal and external glass products are marine certified where applicable.

Backed by comprehensive warranties and validated by international accreditation, the Glasshape® specifically engineered glass solutions are used by leading boatbuilders around the world.

Addressing typical needs:

Requirement

- Exterior
- Thermal Resistant
- Heated
- Security
- Bullet Resistant
- Fire Rated
- Interior
- Privacy
- LED Glass

Brand

- DuraShield Marine®
- Ezone™ Marine
- DuraShield Heat-R™
- ArmourShield®
- AmmoShield®
- FireShield™
- TemperShield®
- SwitchShield®
- PowerGlass®

With Glasshape®, the options are endless.

“Turning impossible dreams into exciting realities.”



"D'Natalin IV" Christensen, Photography: Neil Rabinowitz

Need a solution for your Yacht Glass?

Specifically designed to meet the rigorous demands of exterior marine applications, DuraShield Marine® Superyacht Glass offers a range of superior certified glass systems. At Glasshape®, quality is mandatory and every manufactured item is fully engineered to meet minimum Class and Rule requirements, whether monolithic, laminated or multi-laminated glass configurations.

No more issues with delamination. The Glasshape® proprietary manufacturing process has been specifically designed to address delamination issues, yet delivers a product with exceptional strength and clarity. The secret is the unique high performance interlayer developed by Glasshape® which is cleverly incorporated in the manufacturing process.

Ideal for new build and refits in superyachts, megayachts, and luxury launches, DuraShield Marine® Superyacht Glass systems have an international reputation for quality, performance, durability and safety. Architects and designers are able to specify with absolute confidence, whereas owners can enjoy peace of mind knowing their vessel has glass products that enhance safety and performance.

The team at Glasshape® will work with the appropriate parties throughout the build process, starting from design through to the vessel's final acceptance and sign-off for client peace of mind.

Typical applications for DuraShield Marine® include: windows, windscreens, portholes, dead-lites, skylights and swimming pool walls.

Benefits:

- Overcomes delamination typically displayed in marine windows and windshields
- Retains clarity and high levels of light transmission
- Can eliminate the need for storm covers
- Customised solutions with certified Marine Glass tailored for your individual project
- Worry free result with turnkey package from consultation through to installation available

Features:

- Wide variety of tints, including low-iron and non-reflective glass types available
- Produced in variety of thicknesses, in countless shapes, curved and flat
- Can be guaranteed against impact breakage for *2 years when using high grade impact resistant coating option (*terms and conditions apply)
- Configured to meet IACS requirements

All DuraShield Marine® Superyacht Glass is manufactured to ISO 21005:2012 and is tested to ISO614:2012 standards. The product also meets and complies with MCA LY2, LY3, and BSMA25 and Class requirements. DuraShield Marine® Superyacht Glass is endorsed on builds classed to Lloyds Register, DNV-GL, ABS, RINA, BV, and many world-renowned Flag States.



"Bristolian" Yachting Developments

Need a solution for a hot Pilothouse?

Specifically developed for thermal performance and durability, Ezone™ Marine is engineered to perform in the most challenging marine environments.

Incorporating Ezone™ Marine with the unique DuraShield Marine® Superyacht glass interlayer provides exceptional thermal performance as well as the ultimate in strength and clarity. Ezone™ Marine is a quality alternative to double glazed units.

Ezone™ Marine is a special coated glass type and supplied either in a laminated form to avoid using storm covers, or monolithic form which may require the use of storm covers.

The pyrolytic process used in the manufacture of Ezone™ Marine embeds invisible heat-reflective materials to the glass. This allows light to enter, but reflects much of the inbound heat, increasing comfort. Conversely in cool climates we can configure Ezone™ Marine to maximize heat retention.

Benefits:

- Decreased solar heat gain providing a cooler environment for improved working conditions and comfort levels
- Retains high levels of visual light transmission
- Can reduce the vessels HVAC requirements with positive impact on systems size requirements for cooling and heating
- Dramatically reduces impact of structural flex on window performance providing an alternative to Double Glazed Units
- Reduced overall weight with likely positive effect on fuel consumption
- Customised solution with certified marine glass tailored for your individual project
- Worry free result with turnkey package from consultation through to installation available

Features:

- Can be produced in a variety of thicknesses
- Available in countless shapes, curved and flat
- All clear or tinted glasses available. Possible to incorporate with tinted glass in non-pilothouse applications
- Can be guaranteed against impact breakage for *2 years when using our high grade impact resistant coating option (*terms and conditions apply)
- Can be configured to meet IACS requirements



"Bigfish" McMullen & Wing - Aquos Yachts



Need a quality glass solution to manage fog or frost?

Specifically developed to achieve good visibility in extreme and low temperature ranges, DuraShield Heat-RTM prevents windows from freezing or steaming up. DuraShield Heat-RTM windows are custom built and typically used in Pilothouse windscreens or other window applications suffering from the impact of fog or frost.

No more wire in the glass. The Glasshape® technology allows the electrical heating of windows without the use of wires between the glass layers. A special metallic glass coating between the interlayer conducts power evenly over the glass surface to gently warm the window. When incorporated with DuraShield Marine® Superyacht glass interlayer, DuraShield Heat-RTM offers exceptional strength and clarity.

Electrically heated marine glass panes used on yachts are manufactured to internationally recognised standards and fitted with temperature controllers, allowing heating power to be adjusted depending on the operating conditions.

Benefits:

- Good visibility by preventing windows from freezing and steaming up
- No visible wires inside the interlayer, maximising clarity and visibility
- Eliminates the need for the use of warm-air blowers
- Customised solution with certified marine glass tailored for your individual project
- Worry free result with turnkey package from consultation through to installation available

Features:

- No wires in the visible area of the glass
- Heating power is adjusted depending on operating conditions
- Supplied in both flat and curved forms
- Can be produced as a laminated safety glass, and designed to eliminate the need for storm covers
- Can be guaranteed against impact breakage for *2 years when using our high grade impact resistant coating option (*terms and conditions apply)
- Can be configured to meet IACS requirements



"Bigfish" McMullen & Wing - Aquos Yachts



Need a quality glass solution for added security?

Specifically designed to protect critical operational areas of the yacht e.g. engine room, pilothouse, owners quarters, and provide additional safety for owners and crew, ArmourShield® slows down and restricts intruder entry.

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.

Even when broken, the tough inner-core of the thick poly-composite will lock the exterior glass layers to enable greater attack resistance.

ArmourShield® comes in a number of thicknesses geared to provide a variety of security levels, resulting in protection from physical attack from five to thirty minutes (as detailed under AS3555.1 level 2) when used in an approved framing system.

Benefits:

- Superior attack resistance compared to standard laminated glass. Resists intruder access from five to thirty minutes (as per AS 3555.1 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
- Worry free result with turnkey package from consultation through to installation available

Features:

- Because of its glass poly-composite construction, the product is lightweight when compared to other glass products of the same thickness
- Can be incorporated with tinted glass
- Enhanced design options available by combining DuraShield Marine®, Ezone™ Marine, DuraShield Heat-R™ or SwitchShield®
- Tested and Certified to meet AS 3555.1 Level 2
- Can be configured to meet IACS requirements
- Marine certified where applicable



"Invictus" Delta Marine

Need a quality glass solution for protection against attack with fire-arms?

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 and 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. Although AmmoShield® can be configured to meet ballistic and blast attack, not all configurations are designed to withstand physical intruder attack.

Ideal for areas deemed to be critical to the vessels operation and owners and crew's safety, AmmoShield® is typically used in windscreens, windows, doors and port-holes, hull windows, master state-rooms or even safe-room doors where personal and property protection is paramount.

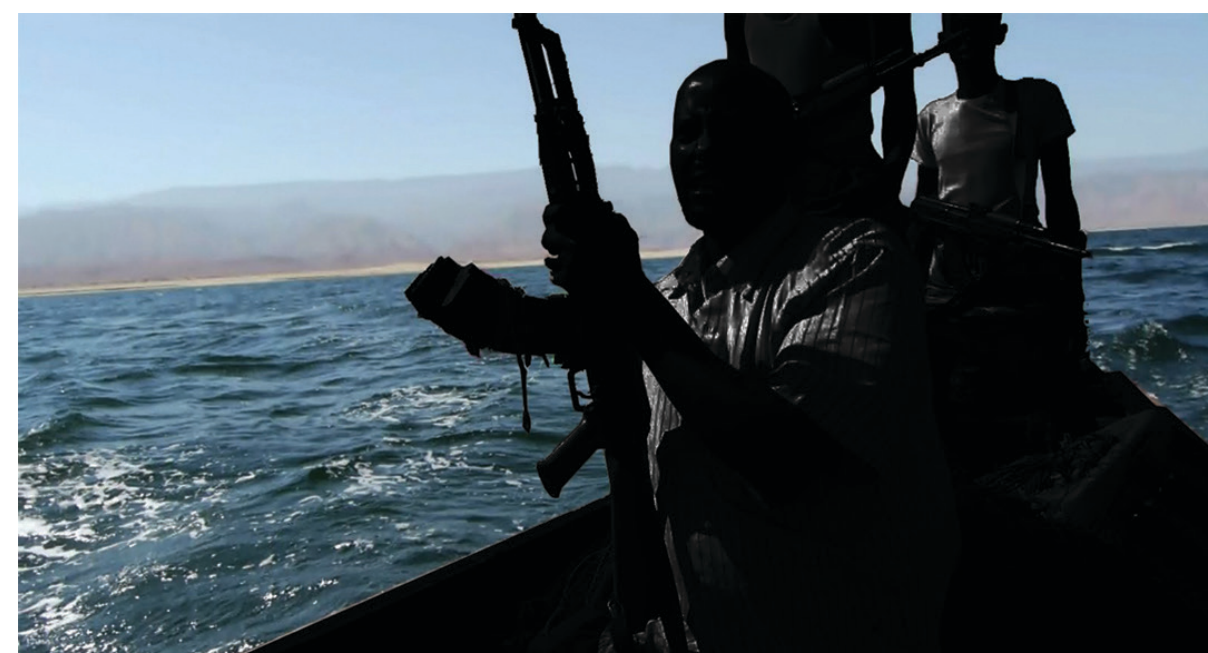
Designed to function as a system, AmmoShield® must be supplied and fitted in an approved ballistic frame appropriately installed to meet standards and attack levels stated requirements.

Benefits:

- Protected from blast and ballistic attacks depending on level (gun-fire, bomb-blast and physical attack with tools and equipment)
- Customised Certified Bullet Resistant Glass tailored for your project
- Lightweight in comparison to all similar glass type alternatives due to glass poly composition
- Enhanced design options available by combining DuraShield Marine®, Ezone™ Marine, DuraShield Heat-R™ or SwitchShield®
- Worry free result with turnkey package from consultation through to installation available

Features:

- Tested and Certified to meet various levels of protection AS/NZS 2343 ballistic to level G0, G1 and G2 as well as R1 and R2
- Can be incorporated with tinted glass
- Can be configured to meet IACS requirements
- Marine certified where applicable





Need a quality glass solution to reduce the risk of damage from fire?

Specifically developed to reduce the personal and collateral damage associated with fire, FireShield™ is a Glasshape® custom crafted borosilicate glass laminated product.

With FireShield™ architects and designers can meet the passive fire resistance requirements whilst achieving their design aspirations such as unobstructed open spaces with optical clarity and maximum light.

Ideal for areas requiring passive fire resistance such as the galley, engine room and control room, FireShield™ is a fully *certified fire rated glass with up to 120 minutes protection (fire & smoke) and up to 60 minutes (fire, smoke & heat transfer) *when glazed into certified fire rated framing systems.

Benefits:

- Confidence that passive fire resistance requirements are met, enables designers to focus on design aspirations such as unobstructed open spaces with optical clarity and maximum light
- Superior performance to withstand temperature differentials compared to normal safety glass
- Customised to suit individual requirements i.e. fire & smoke, fire, smoke & heat transfer
- Larger panel construction possible without the use of complex framing systems due to FireShield™ glass being largely self-supported (over thirty minutes in the event of a fire)

Features:

- Can be constructed to meet industry specific standard ratings for both fire resistance and heat transfer when glazed in an approved framing system (specific glazing instructions)
- Can be individually tested in selected framing system as required by Class, to ensure the system meets applicable Class and Society standards
- Available in range of tinted and clear glass types
- Marine certified where applicable



"Ohana" Fitzroy Yachts

Need an innovative glass solution to realize your design?

Specifically designed to maximise the use of space and light without compromising on design, quality or safety, TemperShield® Toughened Glass is perfect for superyacht architects and designers.

The secret is TemperShield's unique property, enabling custom curved toughened glass to be designed and manufactured to uneven radii, conical and even spherical shapes.

Ideal for flat and curved panels; interior and exterior safety glass for feature balustrading, glass floors, spiral staircases, lift shafts, shower screens, curved doors, decorative screens, cabinets and counter tops. Or perhaps it's railing glass to suit the subtle lines of the yacht's deck. With TemperShield®, the design possibilities are practically endless.

TemperShield's structural strength enables large areas to be spanned with the use of minimal framework. The Glasshape® manufacturing process means two and three dimensional custom glass shapes and curves can be produced to meet your design and performance requirements.

From design stage to completion, using our sophisticated laser measuring and CAD capabilities, Glasshape® will turn your designs into exceptional realities. TemperShield® Toughened Glass is tailored to suit your project and design.

Benefits:

- Opens up design possibilities
- Maximises the use of space and light without compromising on design, quality or safety
- Ideal for open and frameless mounting methods
- Customised shaped monolithic glass tailored for your individual project
- Available in large panels to enhance your project design whilst improving functionality
- Worry free turnkey package from consultation through to installation available

Features:

- Can be produced in variety of thicknesses, in countless shapes, curved and flat
- Two and three dimensional custom glass shapes and curved designs can be manufactured
- Ability to curve glass to uneven radii
- Marine certified where applicable



"Ohana" Fitzroy Yachts

Need an innovative glass solution for on-demand privacy?

Specifically developed so any window can be made opaque at the flick of a switch, SwitchShield® glass means you can choose to see clearly through the window or have privacy or security on demand.

This innovative product provides a world of possibilities to superyacht architects and designers. Ideal where privacy is required such as portlights, skylights, windows, vision panels in doors, interior partitioning or shower screens.

SwitchShield® features two panes of glass, an interlayer film, plus an additional PD-LCD (Polymer-Dispersed Liquid Crystal Display) film sandwiched between them.

This ground-breaking laminated structure makes SwitchShield® an aesthetically pleasing glass to look through and is a fully certified Grade A Safety Glass.

Benefits:

- Flexibility by instantly changing from clear to opaque, or any degree of translucency between with the use of a dimmer switch
- Protects furnishings and other items from UV damage
- Multiple uses such as projection screen (rear projection)
- Economical to run - operates on AC Voltage (110)
- Opens up design possibilities without compromising functionality
- Can be incorporated with tinted glass to further enhance the design aesthetic
- Worry free turnkey package from consultation through to installation available

Features:

- Can be used in both exterior and interior applications
- Customised decorative and privacy glass tailored for your individual project
- Aesthetically pleasing glass to look through and fully certified Grade A Safety Glass
- Can be configured to meet IACS requirements
- Marine certified where applicable



"Bigfish" McMullen & Wing - Aquos Yachts



Need an innovative glass solution with lighting?

Specifically developed to provide a new dimension to glass and light, PowerGlass® is embedded with bright and colourful LED lighting without compromising glass safety or quality.

PowerGlass® will do much more than 'brighten up your project'; it will bring it to life. Whether used internally in windows and walls, glass balustrades and walkways, or externally on skylights and nameplates, PowerGlass® delivers lighting that is both practical and visually stunning. The design possibilities for naval architects and designers are practically limitless.

The technology behind PowerGlass® is as striking as the product itself. Chip LEDs are embedded into laminated glass using a completely transparent conductive layer. This layer allows the glass to remain completely transparent whilst the low voltage power and LED operation signals pass through it. Practically any number and spacing of LEDs is possible. Using a connecting cable, power is inducted via contacting strips.

Benefits:

- Customised decorative and privacy glass tailored for your individual project
- Delivers lighting that is both practical and visually stunning
- New design possibilities
- Worry free turnkey package from consultation through to installation available

Features:

- Red, Green, Blue (RGB) and White LED's are available
- Can be programmed to control desired lighting pattern
- Laminated for additional safety
- Marine certified where applicable

"With PowerGlass® the possibilities are almost endless."



Digital Site Measurement Services:

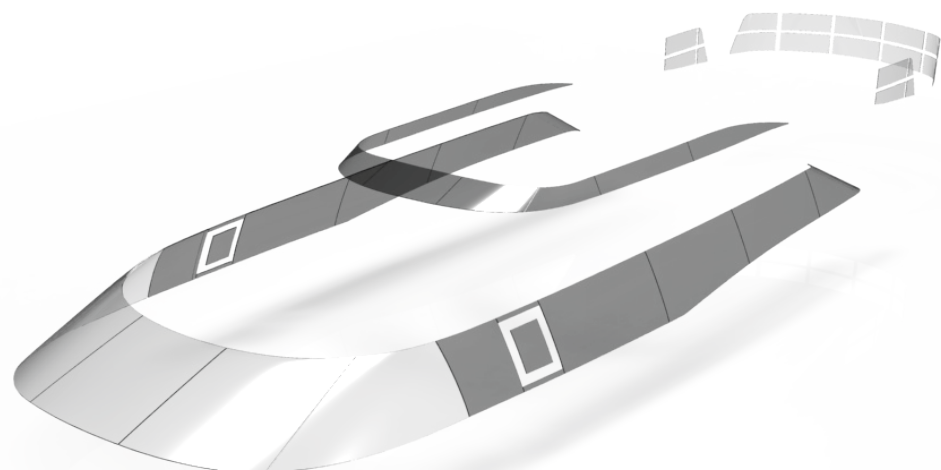
Measuring curved glass projects has just become a whole lot easier now with Glasshape's new onsite digital measuring service. No longer do you have to spend countless hours onsite cutting and fitting templates, with varying degrees of accuracy.

Now our specialist technicians can come to your site and use the latest digital, scanning hardware to produce electronic templates of exactly what is required.

No more making assumptions off plans, hoping for the best! Our scanning equipment produces templates with a high degree of accuracy. Our technicians are then able to process the data collected into finished projected glass drawings showing detail that the client can then sign off before glass production commences. Discrepancies within a project are often picked up at this stage and remedied before it is too late and the glass is made.

All project electronic template files are stored away for future use. In the event that at a later stage another piece of glass is required, we have an exact record of what was produced, so reproduction of the exact same shape is assured!

As an additional service, Glasshape® can provide scanned data to the builder for use in other areas of the construction for fitment of other non-glass related components.



"Ohana" 3D CAD Model



"Ohana" Fitzroy Yachts

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® has 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.





New Zealand (Head Office)

65-67 Woodcocks Road, Warkworth,
P.O.Box358, Warkworth 0910, Auckland

Freephone: 0800 883 336

Phone: +64 9 422 2565

Facsimile: +64 9 422 2566

info@glasshape.co.nz

www.glasshape.co.nz

Australia

1/300 Vahland Avenue, Willetton,
Perth, WA 6155

Freephone: 1800 042 716

Perth: +61 8 9468 2722

Sydney: +61 2 8011 1831

Melbourne: +61 3 9099 0200

Brisbane: +61 7 3175 0501

info@glasshape.com.au

www.glasshape.com.au

United States of America

3425 South 116th Street

Building 6, Suite 101

Seattle, WA 98168

Seattle: +1 206 538 5416

Fort Lauderdale: +1 954 703 2333

Facsimile: +1 206 735 7585

info@glasshape.com

www.glasshape.com



© 2014, Glasshape® Limited (New Zealand) Email: info@glasshape.com

ALL RIGHTS RESERVED. This book contains material protected under International and Federal Copyright Laws and Treaties. Any unauthorized reprint or use of this material is prohibited. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system without express written permission from the author / publisher.

This information is presented as a means of providing an introduction to the operations and products of Glasshape® Limited. The information is being continuously updated. It is not provided with the intention of arriving at a contractual relationship. It is not provided with the intention of giving a comprehensive understanding of the way in which our products perform or their suitability for use in any particular environment or circumstance - such an understanding should be based on our technical manuals which relate to the product at the time of manufacture and on the advice of those qualified to advise on such matters.