



REACHING FOR THE STARS WITH GLASS

As the introduction of 6-star energy standards for residential and commercial buildings draws nearer, building designers and owners must ensure their projects' compliance through the design of more energy efficient buildings. Passive design principles, including selection of appropriate building materials such as glass and windows, will become critical in ensuring a building's 6-star rating. The ideal glass solution will provide appropriate lighting levels while insulating against heat loss and shielding unwanted heat gain – performance characteristics that are vital for any residential or commercial development.

“Energy efficient glass provides a fast and cost effective solution to help design professionals and builders comply with the 6-star standard, and allows for maximising glazed areas and complete design freedom,” says Nigel Carpenter, Executive Director of the Australian Glass and Glazing Association (AGGA). “Major advances in the Australian glass industry over recent years mean there is now a range of glass solutions available, including Insulating Glass Units and high performance coatings, which can maximise control over energy efficiency.

Insulating Glass Units (IGUs) comprise two or more panes of glass, separated by an air (or gas) filled cavity that is completely sealed. By providing increased thermal insulation, IGUs can significantly improve

a building's energy efficiency by reducing usage of artificial cooling and heating.

Low E (Low Emissivity) coatings lower the amount of heat flow through windows and doors – the coating reflects radiant energy striking the coated surface while vastly reducing the amount of heat radiated off the (coated) surface of the glass itself. In practical terms, Low E coated glass acts to keep the building cooler in summer and warmer in winter.

“Different Low E products absorb and reject different amounts of solar heat, so it's imperative to choose a Low E product with a high Solar Heat Gain Coefficient (SHGC) for applications where you want to maximise free heating energy from the sun. In warmer climates, or in windows or facades facing west, it's generally preferable to use a low SHGC Low E, which intercepts the heat before it enters the building,” explains Nigel.

Other options include the use of reflective glasses. These incorporate metallic coatings applied during glass manufacture to significantly increase the amount of reflected visible and infra red heat while also reducing outside glare, UV transmission and solar heat gain.

“As well as helping to meet 6-star rating through improved energy efficiency, high performance glass can result in substantial financial savings, not only through heating and cooling energy cost savings, but also the ability to downsize cooling and heating plants reducing capital costs and subsequent maintenance. The initial HVAC savings alone more than cover the cost to upgrade to quality energy efficient glass, the financial gain and increased levels of comfort are for the life of the building,” says Nigel.

The AGGA is also keen to raise the importance of working with only accredited glazing professionals when awarding contracts, to both supply and install glazing systems and interior fit outs. “Working with glazing professionals in the early planning stages of a project to specify the right glass solution is critical. And it's equally important to verify that the U value and SHGC of the glass installed is as originally specified. We strongly recommend to the Australian construction industry to only work with accredited glaziers and reputable glass suppliers”, said Nigel.

The AGGA is a member-based association, representative of glass processors, wholesalers, importers, manufacturers and suppliers. The AGGA aims to heighten awareness of the benefits glass can provide, including increased energy efficiency, improved safety and outstanding design freedom. For further information 03 9941 3130 or visit www.agga.org.au

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GLASSHAPE LTD – SHAPING THE FUTURE OF GLASS

Since the birth of Glasshape in 1986, the reformation and technology in curving glass has placed Glasshape as one of Australasia's leading architectural glass bending, toughening and processing companies that provide their extensive expertise and services to a broad range of industries.

Specialising in the manufacture of curved toughened and high security glass, Glasshape with bases in both Australia and New Zealand, continue to incorporate the latest technological trends in order to meet the ever-increasing demand for work from architects and developers.

Glasshape are a unique company in the fact they deal with top-end projects that require the highest level of precision and perfection. With their ability to offer onsite measures anywhere in Australasia, Glasshape's experienced staff are able to produce certified glass for all types of applications.

Some of these include curved and toughened glass for balustrades, bay windows as well as flat laminated glass with acoustic, security and bullet resistant properties. In addition, they also produce SuperYacht Marine Glass and the world's thinnest cyclone and storm resistant glass at only 7mm thickness.

Given their prolific profile and reputation within the industry, it was no surprise Glasshape have recently been involved in the significant re-development of Wellington's Supreme Court Building, a project that has been heralded as one that will change the face of the city on completion.

Given their expertise producing fully certified curved glass, Glasshape have been responsible for manufacturing curved balustrades, doors and screens of the Supreme Court building.

Using the latest products that were all produced by CNC cutters and benders, installing their Certified Curved Toughened Safety Glass, Glasshape Ltd were able to meet the demands and requirements of the developers.

Given the stringent requirements of the project, one of the challenges they faced whilst working on the Supreme Court project was that very tight radius curves in 15mm thick toughened safety glass had to be achieved.

Despite this difficult obstacle, Glasshape's Director, Mr Forrest, said they were able to draw on their industry experience and quality

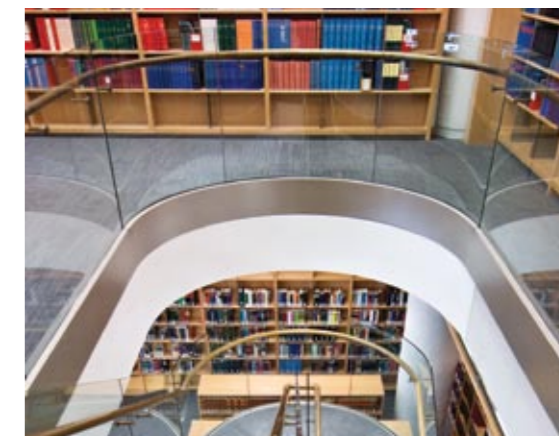
products in order to overcome this. "Despite these tight radius expectations, we're able to produce curved glass up to 3900mm in height and 2440mm in width, and radii as tight 450mm," Mr Forrest said.

"As a result, we were able to meet the needs of the developer and complete the job to the best of our ability," he said.

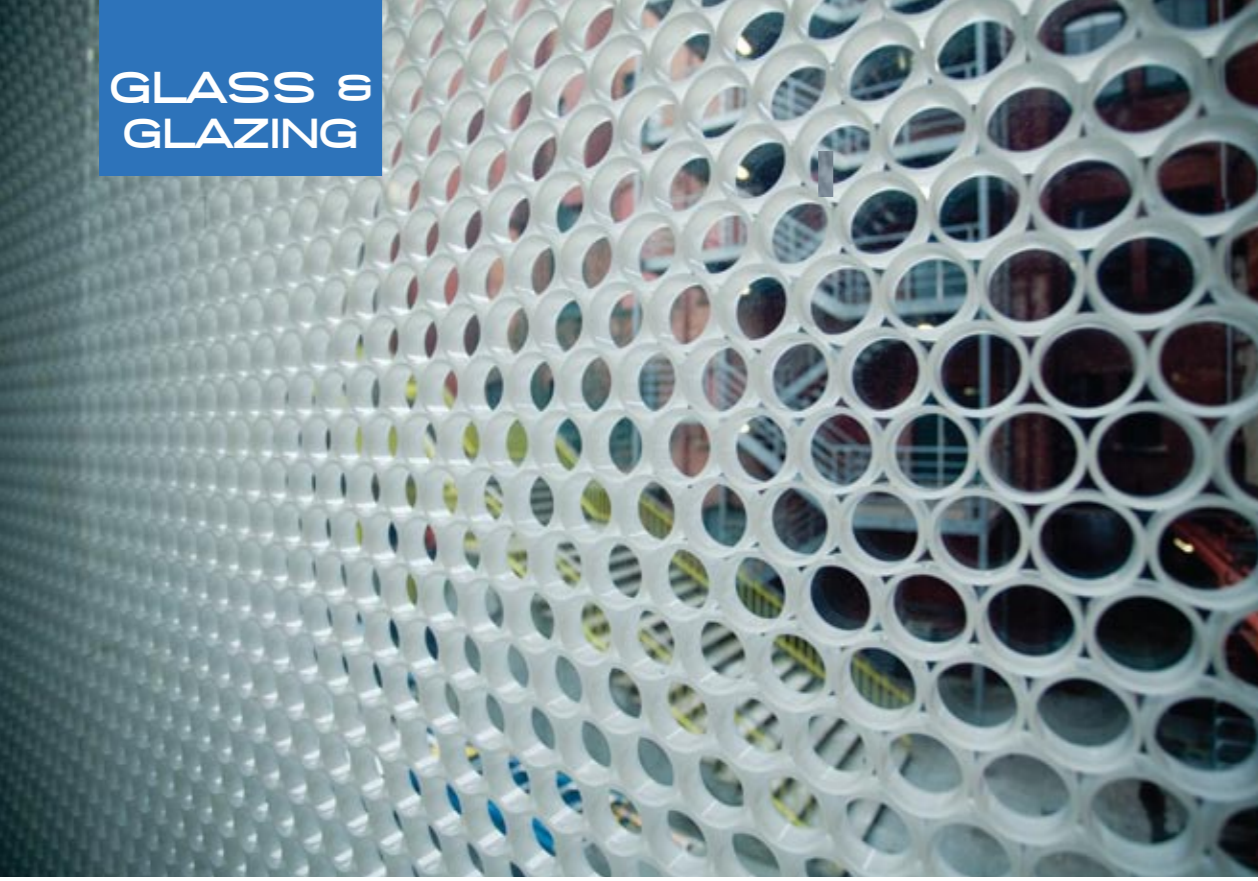
As they continue to develop improved products and enhance their levels of service and client support, Mr Forrest said one of Glasshape's major objectives was to turn architectural dreams into reality. "As our technological expertise continues to expand, architects will continue to be able to fulfil their dreams. Working together, we can turn the curves they draw on paper into actual elegant, curved glass realities.

"The work we have recently completed on the Supreme Court building is just one of successful example of this," he said.

With a number of projects anticipated for the near future, it is without a doubt that Glasshape will continue to lead the world of glass science, providing their unique services to architectural and construction industries throughout Australasia.



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AUSTRALIAN GLASS GROUP - A GLASS ACT

A crystal clear vision and liaison with one of Australia's premier glass manufacturers and suppliers is reflected in the dramatic finish to the refurbishment of RMIT's historic University Building 2.

Peter Elliott Architects was commissioned to design the state-of-the-art and sustainable refurbishment which has seen the 93-year-old building take on a new lease of life.

Part of the brief for the company was to install five levels of glass panels to the façade which would help not just in rejuvenating the historic building but add to the sustainability of the construction in terms of light and temperature control.

But the type of glass and the way in which it was manufactured had to be precise and Peter Elliott Architects knew Moen Glass was the best partner for the project.

Moen Glass is an Australian Glass Group company. The group consists of three companies located at four locations throughout the east coast of Australia: Moen Glass in Melbourne and Canberra, Bevelite Glass in Sydney and CL Glass in Brisbane. They are the leading suppliers to the glass industry providing exceptional delivery performance, a

great range of glass products from the world's best manufacturers, solutions for a wide range of residential, commercial and architectural applications, first class technical advice and know-how and outstanding customer service.

Responsible for the design and installation of all of the glass panels for the five storied Building 2, Peter Elliott Architects tested a number of different materials and techniques before developing the final clear, double glazed Low-E laminated glass product. Comprised of high performance Low-E laminate, the air space between the Building's glass panels was then filled with custom-made UV stable polycarbonate sun control rings.

Peter Elliott Architect, Rob Trinca said that during the ring development stages, they had been committed to designing not only aesthetically pleasing glass panels, but also panels that would provide thermal benefits for the building's occupants.

"The translucent shade rings incorporated between the glass panels work naturally with the angle of the sun to control the interior temperature of the building, without the need for an external sun shade," Mr Trinca said.

"Basically, the rings are designed so that their depth and diameter refract the hot and high summer sun, yet allow the low sun angles we get in winter to infiltrate the panels, thus increasing the temperature of the building's interior.

"In addition, as of the design of the rings, there is a constant moving pattern of light across the interior, giving the design of the panels a unique touch," he said.

The polycarbonate rings, which were custom designed by Peter Elliott Architects and manufactured by Moen Glass, have been a major feature of Building 2 and will be installed on every level of the new building.

Whilst working on the project, Mr Trinca said Peter Elliott Architects did face a number of challenges in installing the glass panels to the ground level, which are suspended 1700 mm above the ground.

The steel support frame for the IGU Glass panels was supported from the level 2 floor slab. This allowed us to have column free facade to the clear glass at the ground floor entry.

Following the success of the shade ring glazing we have recently installed the shade ring system to the north facade of RMIT building one.

Installing the rings within the insulated glass units was a challenge that excited Moen Glass staff. Rather than manufacturing a traditional IGU, it was nice to work on something outside the square and Moen Glass rose to the challenge. Time was taken to ensure a consistent pattern was formed determined by the window position, and the results were worth it.

As part of this significant redevelopment, four neighbouring buildings located in or near the busy Bowen Street thoroughfare on RMIT's City campus will be significantly refurbished. In addition, buildings 2,4,6 and 24 will be refurbished to accommodate the diverse requirements and collaborative teaching and learning needs of the university, as well as providing for the undergraduate and postgraduate programs within the School of Art.

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DESIGNING HIGH PERFORMANCE GLASS

Fethers Architectural is a dynamic organisation, with a wealth of industry experience, specialising in the supply of custom manufactured, high performance glass.

Given their team of experienced staff, Fethers Architectural have intimate knowledge of the glass manufacturing industry and as a result, work closely alongside architects and designers to meet their aesthetic, thermal and acoustic performance glass requirements.

With an impressive project portfolio, Fethers Architectural were selected by Bates Smart Architects and BG&E Facades as the key glass suppliers of the glazed curtainwall areas on Melbourne's Crown Metropol Hotel.

As a result of their extensive industry knowledge, Fethers Architectural was able to meet the challenging multiple design requirements of the project. One of these was that the owners wanted large, glazed areas that would offer outstanding thermal performance and occupant comfort whilst maintaining impressive views from every room.

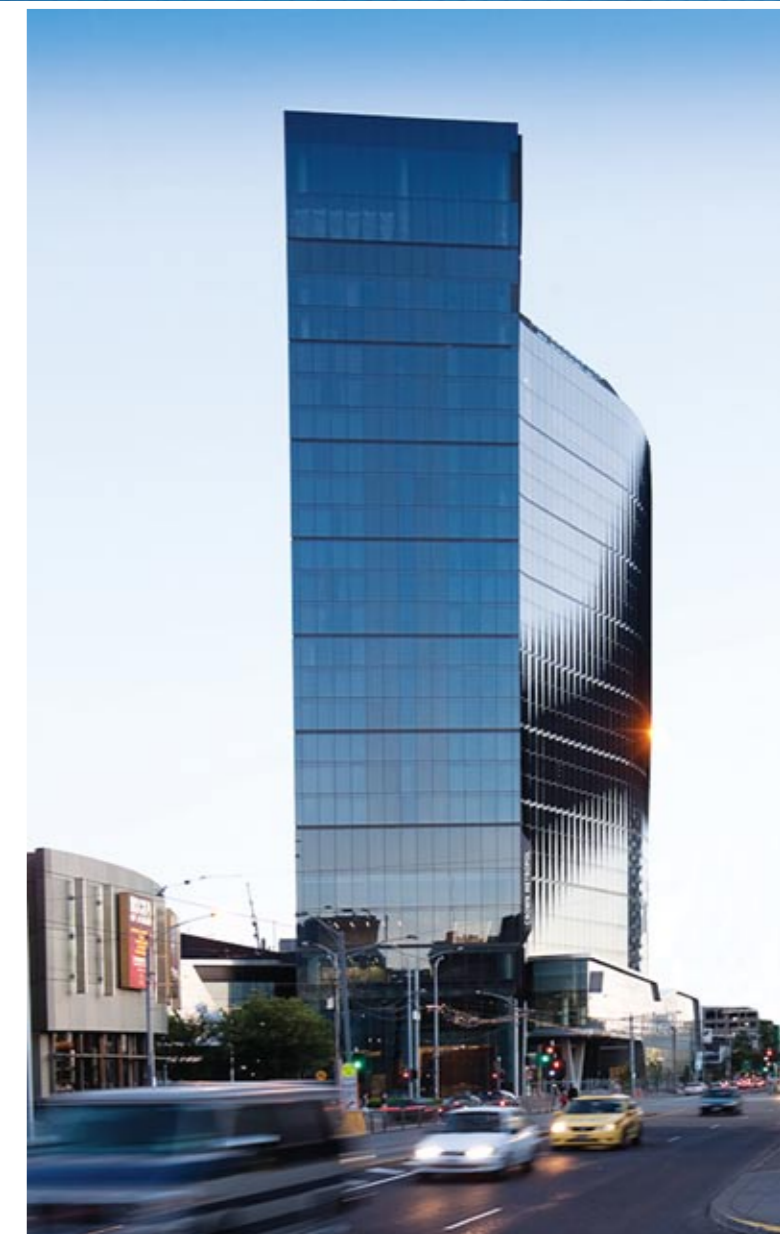
In addition, they wanted the monolithic design of the building's exciting serpentine exterior to be unique in appearance from others in the precinct. Fethers were able to provide a custom glass solution which not only met the design requirements, but was delivered on time and on budget to curtainwall sub-contractor G. James Glass and Aluminium.

Brian Perkins, at Fethers Architectural, said that by working closely with the contractors and consultants, they were able to custom manufacture suitable and unique glass for the Metropol Hotel.

"We were able to provide a custom Insulating glass construction comprising a coated clear external glass, with 12mm air, combined with a custom coated double silver low-e glass for the interior," Mr Perkins said.

"This particular design of glass is not only aesthetically pleasing and practical, it is actually the first of its' kind to be used on any Australian project. " As a result, the building has become an outstanding contributor to the Melbourne skyline and we were able to deliver the project on time, ensuring complete client satisfaction," he said.

With a strong commitment to the provision of custom glass solutions to a wide range of projects, it is without a doubt Fethers Architectural will remain at the forefront of providing custom manufactured glass solutions to the Architectural construction industry.



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