

MFB

FIRE YOUR IMAGINATION

The new Metropolitan Fire and Emergency Services Board (MFB) Training & Community Safety Complex in Burnley, Melbourne, features a range of highly efficient performance glass products – including more than 1,100 curved and flat double glazed windows...

By John Power

It is always refreshing when high-performance double glazed windows are chosen not only to conserve energy, but also to serve as architectural focal points of a building. The recently completed MFB Training & Community Safety Complex in the inner-Melbourne suburb of Burnley is a prime example of just how eye-catching curved and flat glass combinations can be.

All façade window installations in the \$33m complex are double glazed and constitute approximately 45% of the entire exterior surface.

DMS Glass supplied the flat double glazed installations (also known as ‘insulating glass units’, or ‘IGUs’) which make up the bulk of the glass façade.

DMS Glass Victorian Sales Manager John Witney says the company had approximately four months to manufacture and supply more than 1,100 top-of-the range IGUs. That may sound like a tight schedule, but by using the company’s latest precision manufacturing equipment at its Melbourne-based headquarters, the task was “comfortably achievable”. “We always take a great deal of personal pleasure when the client insists on the highest quality, and the IGUs used on this project are as good as you’ll get anywhere in the world,” John says.

“We created units comprising outer sheets of Pilkington 6mm Evergreen Eclipse Advantage™ Toughened, separated with a 12mm spacer to an inner layer of Pilkington 6mm Energy Advantage™ Toughened. Both are Low-E coated and the spacing is filled with Argon.”

John says these configurations are perfect for a broad range of Australian conditions, maximising heat retention in winter and preventing excessive heat penetration in summer.

The three-level building, according to Spowers Architects’ Senior Associate Andrew Rutt, is a 5 Star development that makes full use of the thermal characteristics of efficient double glazing.

Andrew says the building includes five ground-to-roof atria that link the three open-floorplan levels of the structure. These atria work like funnels to help direct airflow between levels and regulate temperature, maintaining optimal comfort levels by capitalising on the consistency that double glazing delivers.

“These five atria punctuate the full height of the northern façade and allow direct solar heat gain and light in winter while rejecting heat and light in summer,” Andrew explains. “The whole facade is very much designed for ‘mixed mode’ environmental performance and is intrinsically part of the air conditioning and return air function.”

The sloping upper glazed surfaces are positioned to maximise the preferred heat ingress or reflection characteristics of the façade, thereby optimizing the passive heating and cooling systems while diminishing greenhouse gas emissions.

Andrew says double glazed IGUs (insulated glazing units) are far more common nowadays than they were just 10–15 years ago. Indeed, he says they are now mainstream tools of sustainable development.

The average commercial building, Andrew estimates, consumes approximately 900MJ/m² per annum; by contrast, the MFB building uses about half as much power.

“We exceeded the 5 Star criteria comfortably,” he says.

One of the best ways to make glass installations ‘stand out from the crowd’ is to introduce some well-placed curved panels. Selective use of curved glass fixtures is surprisingly cost-effective, and certainly not as difficult to install as one might think.

The complex features curved glass on two horizontal planes: one midway up the façade and another towards the roofline.

According to Stephen Togher, Architectural Products Manager at Bent & Curved Glass Pty Ltd, which supplied the bent double glazed units for the project, the specifications for the installations varied according to their height and location.

“The high-level curved IGUs were deemed to be part of the roof and were therefore made with an external pane of 6mm Pilkington Evergreen Eclipse Advantage™ reflective coated Low-E Toughened curved glass, with a 12mm swiggle seal air space, and an internal pane of 13mm clear Toughened laminated curved glass,” Stephen says.

“The lower-level curved IGUs consist of an external pane of 6mm Pilkington Evergreen Eclipse Advantage™ reflective coated Low-E Toughened curved glass, with 12mm swiggle seal air space, and an internal pane of 6mm Pilkington Energy Advantage™ coated Low-E Toughened curved glass.”

MFB Training & Community Safety Complex

Architect	Spowers Architects www.spowers.com.au
Glazing contractor	Century Glass 03 9879 5933
Builder	ABI Group www.abigroup.com.au
Façade system fabricator	AGFS (Aluminium Glass Façade Systems) 03 9363 8266
DGU Manufacturer (Flat)	DMS Glass Pty Ltd www.dmsglass.com.au
DGU Manufacturer (Curved)	Bent and Curved Glass Pty Ltd www.bentglass.com.au (with glass supplied by Pilkington Australia) www.pilkington.com.au

According to DMS Glass National Sales and Marketing Manager Steve Ketzer, “We were acutely aware of the efficiency requirements of this project, and the crucial role that performance glazing had to play throughout the atrium-linked complex.

“As always, we worked extremely closely with the glazing structural engineers and other stakeholders to refine the final configurations and maximise the thermal efficiencies and comfort levels for every storey.

“It’s worth pointing out what a huge difference performance glazing makes to the comfort levels of this building, while energy cost savings are naturally of equal importance.”

Director of AGFS Chris Taylor says the project involved some challenging concepts, with the integration of profiled panels with IGUs as well as steel-framed atriums fully enclosed with IGUs.

“One of the difficult aspects we were faced with was incorporating steel tolerances in the atriums with final IGU sizes – a problem that was made more difficult with the curved areas and inclined raking steel,” Chris says.

“Apart from the 1,100 or so IGUs, we also made selective use of laminated and toughened monolithic safety glass.”