

Project Case Study



1960's Apartment Block
Mosman NSW 2088
Completed 2018

The Project

A 1960's Mosman apartment block underwent a much-needed upgrade to address deteriorating timber frames, air leaks, peeling paint, and single glaze glass.

Kinzel Industries, in partnership with Australian Glass Group, retrofitted the 18-unit building with German-made uPVC frames and hardware, featuring High Performing softcoat LowE double-glazed units. Insulglass LowE Prime™ was chosen for its ability to reduce energy waste and costs while enhancing resident comfort. The retrofit delivered a significant transformation, dramatic improvements and a quick return on investment for the property.

Solar Control

The original glass allowed 88% of direct heat inside, leading to uncomfortably hot summers, constant use of cooling systems, and closed curtains. Retrofitting with Insulglass LowE Prime™ halved this heat transfer, enhancing comfort and reducing cooling demands. The silver-based softcoat LowE coating blocked reradiated heat from external surfaces like roads and brickwork, preventing round-the-clock heat gain. This upgrade allowed for cooler, healthier interiors without relying on constant air conditioning, kept blinds open for natural light, and significantly lowered energy costs, creating a more sustainable and pleasant living environment.

uPVC Frames

A natural insulator, uPVC prevents heat transfer into the home on hot days and out on cold days. When combined with high performing double-glazed units, this insulating property results in extremely energy-efficient windows. uPVC frames also offer low maintenance and durability, further contributing to the overall energy efficiency and comfort of the living spaces, ensuring year-round climate control, reduced energy usage, and increased sustainability.

- No need for painting which significantly reduces any maintenance required over their lifetime and are also easy to clean.
- Reinforced with galvanized steel.
- Rot and corrosion resistant, suitable for coastal environments.
- Formulated, and rigorously evaluated by third-party accredited laboratories, to withstand the harsh Australian climate.
- Combined with double-glazed units to be used in Bushfire Attack Level 29kW/m² (BAL 29) with some windows tested to withstand BAL 40.
- Fusion-welded corners and unbroken lines providing simplicity and the strength of a 'one-piece design'.



Glare and Fading

The neutral tone of the new double-glazed units reduced glare from Sydney's intense sun by lowering the original Visible Light Transmittance (VLT) from 90% to a comfortable 70%, ensuring optimal sunlight levels without the dark appearance of tinted glass. The advanced metal-based coating provided effective protection against harmful UV rays, preventing fading of wooden floors, carpets, furniture, and wall art. This balance of natural light, glare reduction, and UV protection created a more enjoyable and sustainable living environment for the building's residents.

Vistas and Ventilation

Multiple, small, rotting, timber-framed single-glaze windows were replaced with larger uPVC units with hardware giving secured ventilation while the sliding doors maximised the open plan and outdoor flow to the balconies.

Acoustics

Upgrading from single glazing to double glazing delivered a dramatic improvement in acoustic performance across all noise ranges. The new windows significantly reduced low-frequency sounds like outside voices and light traffic while also blocking high-occurrence noises such as, loud music, aircraft, and heavy traffic. Decibel blocking improved by over 100% for lower frequencies and more than 50% for higher frequencies, transforming the living environment into a quieter and more peaceful space.

Insulation & Condensation

The high-performing double-glazed units delivered a remarkable 72% improvement in insulation, retaining indoor heat on cold days and nights while blocking external cold air, reducing heating demand by 20–30%. Residents noted more moderate and comfortable indoor temperature, confirmed by thermal imaging. The double-glazed units act like a thermos - keeping heat out and cool air in on hot days, and heat in and cold air out on cold days, giving enhanced air conditioning efficiency all year-round, lowering energy waste and costs, and delivering a sustainable and comfortable living environment with minimal reliance on heating or cooling systems.

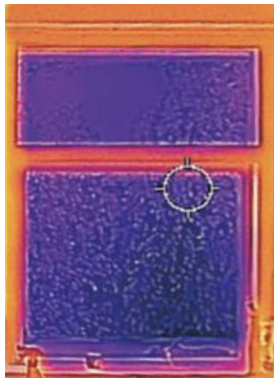
The new double-glazed units raised the temperature of the interior glass surface, effectively bypassing the dew point and virtually eliminating internal condensation, preventing moisture buildup and creating a healthy indoor environment. This advancement not only improved living conditions but also reduced the risks associated with dampness, such as mould and mildew, enhancing both comfort and health for occupants.

BEFORE: The original smaller windows saw significant heat loss through both the glazing and the deteriorating timber frames. The purple colour showing a colder glass and bottom frame as heat easily escapes through to the outside.

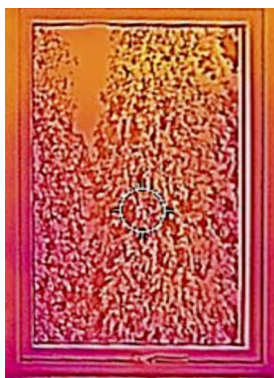
AFTER: Larger one-piece windows with significantly improved heat retention on the same cold day. The uPVC frames act as a thermal break, while the LowE coating reflecting heat back into the room indicated by the orange colours in the thermal image.



BEFORE ▲ AFTER ▼



BEFORE ▲ AFTER ▼



The End Result

Upgrading to high-performing double-glazed uPVC windows has transformed this 1960's building into the future of high energy efficiency and left tenants happier, healthier, and more comfortable. Energy waste has been significantly reduced, giving lower energy bills and creating a sustainable living environment. Owners benefit from a fast payback period through energy savings while increasing property value.