



BROOKFIELD MULTIPLEX  
SYDNEY NSW

# ONE SHELLEY STREET

## SPECTACULAR SIX STAR DESIGN



Sydney Harbour not only features some of the world's most remarked-upon structures, it now hosts one of the world's most outstanding combinations of green initiatives incorporated into a magnificent design – One Shelley Street, King Street Wharf.

This Brookfield Multiplex construction is visually stunning both inside and out, and has been awarded a Six Star Green Star design rating. It was not an easy project. For starters, while the striking external diagrid design makes for vast interior spaces free of support columns, it also imposed a complex and challenging construction process and used around 3,000 tonnes of steel.

Then there was the fact the team had to work around a change in use for the building from mixed residential and commercial to purely commercial, with a long term lease to Macquarie Group as occupant. "Trying to build on foundations and a five level carpark that were designed and constructed for something completely different, that was a very large challenge," said Project Manager, Andrew Steventon.

Achieving the Six Star Green Star design rating was also a challenge, one that Brookfield Multiplex well and truly rose to, achieving perfect

scores from the Green Building Council of Australia for ESD points such as water conservation, environmental management, integrated fitout, indoor environment quality, and PVC minimisation, in addition to substantial achievements in the area of energy efficiency. "Six Star Green Star took a lot of research, training and development of staff, subcontractors and suppliers," said Andrew. "This is one of the largest commercial projects to be awarded the rating, and only the third in New South Wales."

One Shelley Street has eleven floors and a combined A Grade floor space of 33,000 metres. One of the interior design features is the central atrium with a glass ceiling at level seven above a ground level promenade, which contains meeting rooms over nine levels which appear suspended and brings natural light welling down into the building. There are stairs and bridges connecting the first seven levels, which provide a variety of attractive spaces, all with a sight of the sky.

Level seven offers an outdoor terrace for staff and clients where the harbour view can be enjoyed in the open air. It also includes a very Australian feature – a BBQ area.

The basement car park includes a coach layover facility with room for 55 coaches, and on the ground floor a café, bar and restaurant which will be open to the public.

Meticulous attention to detail sets the project in a class of its own. There are bicycle racks, lockers and showers so staff are encouraged to commute without cars; the external decking, interior floor and ceiling timbers are recycled from sources including the Alexandria Woolsheds, roof supports from a WW2 Fuel Dump in Gladstone and telegraph poles; the chilled beam air conditioning system uses a unique harbour heat rejection system which utilises the sea water to assist in cooling the building; fritted and low 'e' coated glass panels in the façade eliminated the need for shading devices although the diagrid also provides some shading for the building which has been used in the building energy models; all artificial lights are dynamically adjusted in response to the level of natural light and dual pipework has been fitted to allow for full recycling of grey and black water.

Choosing an integrated fitout meant regular dialogue with Macquarie Group as work proceeded to ensure One Shelley Street is perfect for their needs.

It all took an enormous amount of talented and committed human energy working from April 2007 until June 2009. Andrew Steventon estimated almost 4,000 workers in total were inducted onto the project, with an average of 300 on site at any given time, over 400 during peak periods. Managing this project involved an average of 30 Brookfield Multiplex staff plus 20 of their own construction workers.

Certain to become an icon, this is the crowning achievement of Brookfield Multiplex's redevelopment of the King Street Wharf precinct.

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## FIT OUT IN THIN AIR

It's not only the diagrid façade of One Shelley Street which attracts attention; the interior with its soaring atrium featuring cantilevered meeting pods is quite spectacular. Cubic Interiors supplied and installed the apolic cladding and glazing for the 25 pods, which appear to float in the light and air of the atrium.

The sizes of the pods range from small intimate meeting spaces to boardroom sized eeries. The colour scheme of the cladding range from white, metallic and orange with clear anodised aluminium framing and toughened laminated glazing.

"The installation was everything but standard and special in every aspect, from design to manufacture and installation," said Cubic Interiors' Managing Director Robert Migliorino. "A new technique was required to achieve the curving of apolic cladding in to three dimensions."

Cubic also complied with all low-VOC elements and Green Star elements of the project. Apolic cladding has several green star point-scoring features where the finished product contains a post-consumer recycled content of over 18% and post-industrial recycled content of 13.5%, it is durable, recyclable and non-flammable. All of the paints, mastics

and sealants used for the project also had to comply. In terms of being applied to the pods, it's lightweight compared to standard aluminium sheets, so an ideal material for semi-suspended structure.

Multiplex followed an integrated fit out approach – another Green Star initiative – and this meant Cubic Interiors working in close concert with the overall construction schedule. Only 12 of Cubic Interiors' 150+ strong workforce delivered this complex project.

Cubic Interiors has grown over the years and their work encompass fit outs, refurbishments and construction management in government, commercial, health, sporting, entertainment and residential sectors. Cubic offers a complete service where they are involved in the project from pre-tender to post construction phases. They take pride in being able to meet unique and challenging projects without compromising on ESD.

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## HIGHLY SKILLED FIRE PROTECTION

Andec Fire Systems (Australia) Pty Ltd has a reputation for quality, innovation and successful completion of major Turn Key design and construct projects. Their highly skilled workforce covers all aspects of engineering design, project management and installations to meet or exceed statutory Australian regulations and international standards including FM & NFPA requirements.

Recently, they completed the fire protection services Design and Construct subcontract for One Shelley Street, their sixth project in the King Street Wharf precinct. Others included the KPMG building, the American Express building, and commercial / retail and residential / retail buildings on Lime Street and Erskine Street.

Mr John Ladec, co-founder and Managing Director of Andec Fire Systems, said "The intricacies of the unique fire safety strategy specifically engineered for One Shelley Street has made the design and programming of the Automatic Fire Detection and Alarm System one of the most challenging to date."

"The Smoke Detection System utilises Notifier/Inertia products, and consists of point detectors on each floor and VESDA™ LaserPLUS™ multipoint aspirated smoke detectors in the atrium.

The Smoke Control System shuts down and/or starts up key plant, including activating the stairwell pressurisation system, carpark ventilation

system, mechanical floor ventilation system and atrium smoke exhaust system, as well as opening the operable louvres to provide replacement air and closing the smoke curtains in the tower levels.

A Combined Fire Sprinkler / Fire Hydrant / Hose Reel System protects the entire building, including the atrium. The system's primary supply is a Town's Main connection boosted via an electric fire pump and a secondary supply from a 127,500 litre effective capacity Water Storage Tank boosted via a Diesel fire pump.

Andec Fire Systems also installed two Double Interlock Pre-action Sprinkler and VESDA™ LaserPLUS™ Aspirating Smoke Detection Systems in the Level 1 Main Communications Room, and in the Basement Level B3 UPS Rooms. Both are connected to individual Sub Fire Indicator Panels.

One Shelley Street's 6 Greenstar rating requires minimal water wastage. Thus, Zonecheck® flow switch testing devices in addition to a Town's Main by-pass arrangement, which allows water from the Water Storage Tank to be used for testing of the fire pumps and then recirculates it back into the tank for re-use, have been utilised to meet this performance requirement.

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