

# DARLING QUARTER

The \$500 million mixed use project includes a low rise campus style commercial development (Commonwealth Bank Place) and a family and leisure precinct with retail and dining options, a new public park and carpark.



# SYDNEY'S NEW DARLING

Sydney's newest urban regeneration project revitalises the southern end of Darling Harbour

DARLING QUARTER / **lend lease**

**Left** The stunning interior created at Darling Quarter



**Darling Quarter is a collaboration between Lend Lease and the Sydney Harbour Foreshore Authority** and according to Chief Executive Officer for Lend Lease's Australian business, Mark Menhinnitt is a great example of how Lend Lease can access all parts of its business from funds management through to development and construction to create an iconic project that sets global benchmarks.

The \$500 million precinct comprising an international standard commercial office known as 'Commonwealth Bank Place', and a family/leisure precinct with extensive public amenity, including a vibrant retail food precinct with a range of dining options; a world-class family playground, one of Sydney's largest covers more than 4,000 square metres; a community green; youth theatre; and 600 bay public carpark.

Darling Quarter reconnects the south end of Darling Harbour to the city, and Lend Lease has delivered an interactive work and play area for the local community, city workers and tourists.

The precinct has greatly improved public activation by bringing together commercial, retail and leisure all within the one area. A new pedestrian link, referred to as the Civic Connector, creates a gateway to Darling Harbour that connects to Town Hall station, Chinatown and the Darling Harbour waterfront.

It heralds the catalyst for the rejuvenation of Darling Harbour's southern gateway and after three-and-a-half years building has transformed the previously underutilised former Sega World site into a vibrant mixed-use destination that is a showcase for economic, social and environmental sustainability.

According Mark Menhinnitt, a key focus in the design and planning for Darling Quarter was to ensure the project delivered on the vision of Darling Harbour as a world class precinct that complements the city centre.

"In creating Darling Quarter it was important that we reactivate the area as a public space and encourage pedestrian flow," said Mr Menhinnitt.

We've done this by successfully using every square inch of what was a challenging site and ensuring all the different elements seamlessly integrate, not only with each other but also the existing built environment, from the rest of the Darling Harbour precinct to the west and the city to the east."

A new pedestrian link running between the two commercial buildings, referred to as the Civic Connector, creates a vital new gateway to Darling Harbour that connects to Sydney's CBD, Town Hall station, Chinatown and the Darling Harbour waterfront.

A major part of the project, Commonwealth Bank Place, which fronts Harbour Street, comprises two eight-storey campus-style commercial office buildings with around 58,000sqm of office space and 200 underground car spaces. The two buildings were designed in a campus-style to reactivate the precinct as a public space and encourage pedestrian flow into the area.

Commonwealth Bank Place has received a 6 Star Green Star – v2 Office Design certified rating after achieving 84 credit points - the highest score for a building of its size. A 6 Star Green Star rating recognises world class innovation.

The buildings' passive and active design features save 2,500 tonnes of carbon emissions per year and reduce main water consumption by 92 per cent. The sustainable initiatives include:

- Highly efficient building envelope which optimises the availability of natural daylight whilst controlling solar loads
- Chilled beam technology throughout office areas
- 100 per cent fresh air provided to office tenancy, avoiding the recirculation of stale air
- Trigeneration plant that generates electricity, heat and cooling which significantly reduces carbon emissions
- Blackwater treatment and supplies 166,000 litres of recycled water a day for WC flushing, irrigation and cooling tower water supplies. Local sewer is used as a reliable source of blackwater
- 320,000 litre rainwater harvesting tank. Recycled water is supplied to the public domain for irrigation and to the Civic Connector water feature.
- Use of low VOC materials improving the internal environment quality
- Motion sensor activated lighting to control unnecessary use of lighting systems and generate electricity savings
- About 80 per cent of on-site construction waste was recycled
- Photovoltaic (PV) solar array panels generating 10.2kW of renewable energy from sunlight.

The centrepiece of Darling Quarter is the spectacular world class 4,000sqm playground - the largest and most elaborate in Sydney. It is the largest illuminated playground in the country. The innovative playground design, created by ASPECT Studios, is one of the world's first large-scale play areas to integrate explorative play equipment and interactive water play in a landscaped environment.

At the centre of the development is the Community Green – a beautifully designed public space that encourages people to sit, relax and enjoy their food in a spectacular outdoor setting. Blankets and deck chairs will be available as well as permanent table tennis tables. After being awarded preferred proponent for the precinct through a design competition, Lend Lease undertook the development of the site.

Darling Quarter is another great example showcasing Lend Lease's integrated business model with the project being conceived, designed, developed and constructed by Lend Lease. In addition, the project was funded and has been acquired by the Lend Lease managed APPF Commercial in joint venture with one of its existing institutional investment partners.

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**Below** Horiso delivered three custom manufactured solar control systems for the two 8 storey buildings; interior timber venetian blinds for the western facades, atrium skylight tension blind systems and interior roller blinds

“Darling Quarter’s 6-Star Green credentials was an outcome achieved wholly by the team’s collaborative efforts; those involved in the architecture, engineering and construction of the twin buildings and Horiso,” enthuses Bruno Seguin, General Manager at Horiso.

The result of the final design involved Horiso delivering three custom manufactured solar control systems for the two 8 storey buildings; interior timber venetian blinds for the western facades, atrium skylight tension blind systems and interior roller blinds. In addition, Horiso developed an innovative motorised system to automatically control their operation, which was another crucial component of the project’s success.

Horiso focus is on research, development and manufacture and their advanced motorised control system automatically operates Darling Quarter’s three solar control systems to optimise the internal working conditions and aid in reducing the buildings’ environmental impact.

These systems are part of Darling Quarter’s unique design and the timber venetian blinds, skylight tension blind system and roller blinds integrate to control the daylight, glare and thermal heat gain in the office interiors. Viewing the buildings externally, the timber venetian blinds become an architectural feature that visually creates a warm, animated backdrop in the heart of Darling Harbour’s precinct.

“The three products we designed were an integral part of the energy efficiency of the building,” said Horiso’s General Manager, Bruno Seguin.

In detail, the timber venetian blinds, installed on the western side of the two facades, respond to the exact position of the sun throughout the day, by their tilting positions. Horiso’s control system for the timber venetian blinds is based on an intelligent motor controller pre-programmed with other building control requirements – including both the geographical location and physical orientation of the building’s curved design. It operates in conjunction with sun-tracking software that enables individual blinds to react to the variations of the sun’s angle of incidence throughout the year. This ensures the blinds’ tilt position is optimised to control internal daylight, glare and thermal heat gain for maximum energy efficiency and comfortable work conditions.

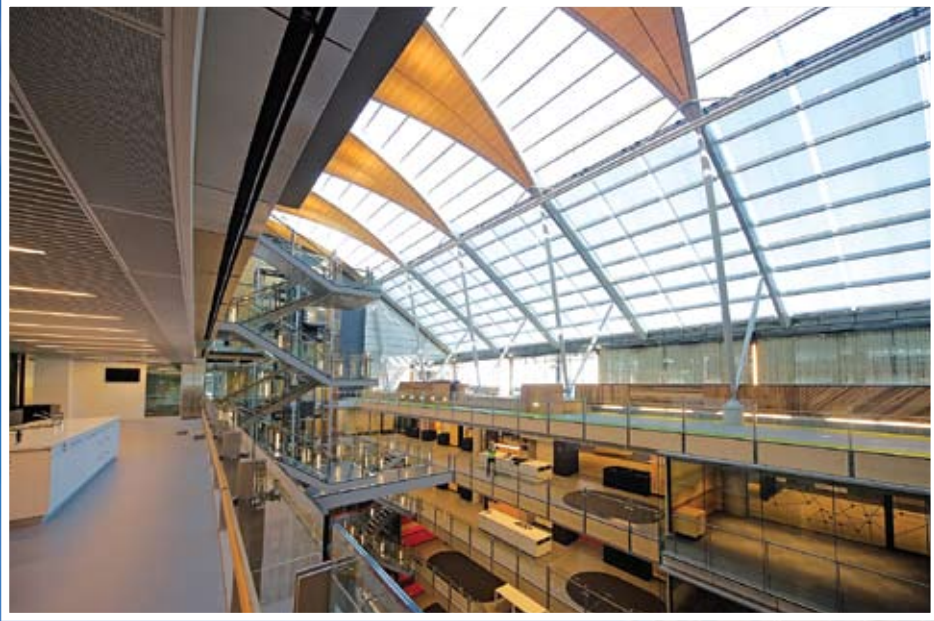
“The sourcing of the timber was a challenge for this project. We settled on Cottonwood, a plantation timber. The special feature involved an advanced lamination technique that increased its strength while still maintaining the desired weight, preventing any impact on the control of the venetian blinds across their wide spans. In addition, we could also stain the timber to achieve the colour required”, commented Bruno.

The dramatic triple-height atrium is one of the central design elements of the project and not only forms a breathtaking feature in Commonwealth Bank Place, it is also integral in the building’s lighting, heating and cooling system. The atrium’s curved ceiling design incorporating shaped glass panels required the solar control system to be carefully considered, designed and tested.

Horiso’s efforts culminated in a unique tension blind system, technically advanced to retract precisely, preventing any fabric sagging and operation difficulties. “Access for installation was difficult and the actual size of the system had never been done before, it is bigger and better than any other system of its kind”, said Bruno Seguin.

The Horiso Internal Roller Blinds on the office levels control the glare to enhance the working conditions in the buildings. “From a technical point of view, the integration of the different designs and technology, is a great achievement, and it was only possible with the collaboration of everyone involved. There was a lot of consultation, sharing of information and feedback which has been the key factor to Darling Quarter’s success.”

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**Left** Air Change delivered an energy efficient cooling system to the Darling Quarter project

**The \$560 million rejuvenation of the area will** fuse an energy efficient office space with a large public domain. World class environmental initiatives will transform the long dormant position into a refreshed Darling Harbour.

The project is expected to raise visitor and tourist numbers to the site and also represents a significant boost to the economy, with over 7,000 people being employed during construction.

#### **Commonwealth Bank Place**

Each element of Darling Walk illustrates significant thought processes and this is most obvious in the project centre piece – Commonwealth Bank Place, the name given to the two office buildings.

Commonwealth Bank will occupy these buildings for the next thirteen years. Rather than one high rise building, two low-lying, campus style structures were selected to encourage pedestrian flow through to the public precinct of Darling Quarter. The office design is targeting a 6 Star Green Star rating and delivering a number of new initiatives.

#### **Water treatment**

High up on the list of energy saving devices is the recycled water plant in the buildings, which utilise sewer mining for self sustaining water supply for non-potable uses in the building. This makes water use more energy efficient with less environmental impact. Rainwater harvesting is another initiative of Darling Walk, where a significant reduction of up to 90% of water usage will be achieved, as compared to standard commercial developments.

#### **Exterior**

The exterior of the building has been designed to utilise natural energy to maximise energy efficiency. Natural light flows into the building, simultaneously reducing lighting costs and inviting the outdoors in. A huge atrium in the middle of both buildings will also make use of this space and contribute to the open plan style of the offices. High performance glass is used to reduce excess heat accumulation, and automated timber blinds were installed to reduce glare and provide sun shading.

#### **Heat Recovery Systems**

Four Air Change Rooftop Packaged Units have been installed in Commonwealth Bank Place to supply 100% outdoor air to breakout areas in the building. In order to achieve the most efficient system of supplying fresh air, two different types of units were specified by Arup. The first was a 52 kilowatt displacement Rooftop Packaged Unit, which was chosen to de-humidify air and supply it to the building between 18 to 24 degrees Celsius, at low level.

The additional units chosen were multi mode Rooftop Packaged Units with VSD compressors. These units provide variable operation by using economy cycle, heat recovery and CO<sub>2</sub> sensors, automatically selecting the most efficient mode. The consultants for the project were Arup, with Optimus installing the four Air Change units specified above.

Air Change 100% outdoor air Rooftop Packaged and Air Handling Units have been used in many recent Green Star Rated buildings including Investa's ARK building in North Sydney and Grocon's Pixel building in Melbourne.

#### **Activity Based Working**

The new Commonwealth Bank offices will also be at the forefront of a new way to work in an office. Rather than the traditional way of each worker having their own permanent desk, after a successful trial in the bank's Martin Place branch, they will introduce 'hot-desking' or 'activity based working'. This places less pressure on the buildings' resources and works on the principle that the building is never really filled to capacity, due to out of office meetings; sicknesses; off site visits, etc. This requires each desk to be left clean at the end of each working day and allows each part of the building to be used. It is also useful for group or team exercises, as space is abundant. Lockers allow equipment and personal belongings to be kept at the premises long term.

#### **Darling Quarter**

The public precinct of the area will be renamed 'Darling Quarter', with its main attraction being the 4000m<sup>2</sup> playground. The central features include an active water play space as well as a youth theatre. Combined with a further 5000m<sup>2</sup> of ground level retail space, this will seek to populate the area and restore a sense of community. An underground car park will also be constructed, however the improved pedestrian links between the city and Darling Quarter will try to stamp out unnecessary use and encourage public transportation. Designated bicycle spaces echo the 'green' ethos of the new area and provide further energy saving measure.

Darling Quarter is an exemplary achievement on the path towards sustainability and energy efficient Design in the twenty first century. The high performance buildings in conjunction with the public area certainly set the standard for other new designs to follow suit.

*For more information contact Air Change Australia, 12 Parraweena Road, Caringbah NSW 2229, phone 02 9531 4699, fax 02 9531 5294, email: sales@airchange.com.au, website: www.airchange.com.au*





**Below** S&L Steel Fabrication removed, modified and supplied the new bridge girders.

**Below** KOMPAN designed and installed the giant Corocord climbing net structure which reaches 10.45m high and is the highest net structure in Australia.



**S&L Steel Fabrication specialises in complex steel fabrications, Rail and Road bridges, coal stackers and processing plants.** Our expertise in successfully delivering iconic structures in the past was one of the reasons why S&L was selected to work on the Darling Quarter project which links one end of Darling Harbour to the other. S&L Steel Fabrication's intricate fabrication on girders supports the faceted & glamorous cladding on the bridge linking the two ends, bringing the standout architectural feature to life. S&L Steel Fabrication built the original bridge, dismantled and modified part of it and supplied new bridge girder.

New support steelworks for side wing cladding and glazed roof were added to all girders involving complex fabrication and full trial assembly in our workshop, with cladding installed and surveyed to fit on site. Parts of cladding had to be removed after trial and refitted on site due to transport size restrictions posing a major challenge for all. S&L is now working on the Sandgate Bridge girders for Newcastle, and also supplied the two feature bridges for Top Ryde shopping centre

*For more information contact S&L Steel Fabrication, 59 Glendenning Road Rooty Hill NSW 2766, phone 02 9832 3488 ask for Luis or Rajesh. And visit [www.slsteel.com.au](http://www.slsteel.com.au) If you have a challenging design S&L has the right skills to meet your needs and deliver the goods.*



**KOMPAN is extremely proud to be associated with the Darling Quarter project, in partnership with ASPECT Studio, in particular Studio Director Kate Luckraft.** This has been a monumental project, going back some 4/5 years from the first inspiration.

KOMPAN has a rich history in the playground industry which spans over 40 years and operates in 58 countries. It is with this wealth of experience and the backing of KOMPAN's Play Institute that made this project what it is today, "Perhaps the most significant playground within the Sydney CBD" as explained by Sue Simpson, Managing Director KOMPAN. This destination park invites local families and tourists to relax in a beautiful landscaped environment in the heart of the city.

All aspects of play are to be found in the installation from the extreme challenge to conquer the colossal heights of COROCORD'S custom designed 10.45m Octa net – this is the tallest system of its type installed in Australia - through to the exhilarating cableway, swings of all dimensions to passive water play replicating systems of years gone by. Water play components such as Archimedes screw, water buckets and water

scoops are reproductions of actual working products used by our forefathers.

"The project involved overcoming many obstacles and challenges" Sue added, it was through persistent collaboration with the project management division of Bovis Lend Lease/ KOMPAN installation crew and Justin Hutchinson that ensured successful handover.

2011 has been a brilliant year for KOMPAN and to add to this recent major development, KOMPAN has recently taken out "Design Award of the Year" at the 2011 Australian International Design Awards for its new product ICON – which is a futuristic shift in play equipment which blends traditional play elements with new digital media.

*For more information contact exclusive KOMPAN sales agents Play By Design in NSW, Phone: 02 9436 4400 Fax: 02 9436 4499 [www.kompan.com.au](http://www.kompan.com.au)*



**Below** CVS Equipment manufactured and installed 10,000m plus of aluminium louvres which was crucial to the sustainability aspect of the design.



**Below** For the Darling Quarter project WT Partnership were contracted as the construction cost planners for Commonwealth Bank



**Meeting the strict environmental standards required on the Darling Quarter** project meant CVS Equipment Pty Ltd had to think outside the square a little. Although its aluminium louvres were already part of the architectural design to help reduce cooling costs in the 6 Star GreenStar rated development, the project managers wanted to take it even further and asked CVS Equipment to find the most environmentally friendly coating it could. That turned out to be a product called interpon 2015 – an environmentally rated powder coating which made the 10,000m plus of aluminium louvres CVS Equipment Pty Ltd manufactured and supplied to the Darling Quarter project even more crucial to the sustainability aspect of the design.

CVS Equipment Pty Ltd has been providing an extensive range of louvre systems, addressing the ventilation and sunscreening requirements of commercial and industrial buildings since 1984. The company started operations in Minto and after growing in reputation the business moved its manufacturing facilities to regional NSW in Goulburn around seven years ago. CVS Equipment Pty Ltd has a product range that includes fixed and operable systems, acoustic louvres, privacy screens, ellipsoid louvres, aluminium sunscreens, bar grilles and the unique air'n'ite louvre system. These louvre systems are installed in shopping centres, warehouses, high rise developments, clubs and hundreds of schools throughout NSW's, Queensland and Victoria.

On the Darling Quarter Project CVS Equipment Pty Ltd was contracted to supply aluminium louvres throughout the building, on the façade as well in the plant room, and equipment rooms, and anywhere where airflow inlets were required to help ventilate and cool the iconic building. It also manufactured and installed a narrow sunscreen on the ground floor west facing awning, which covers an area similar in size to a walk way and provides not only sunshade but also helps in maintaining a constant temperature in the building by providing natural ventilation along the project's most exposed façade. Although the company has more than 30 employees only four were involved in the Darling Quarter project which meant efficiency was a must to complete on time and in budget. CVS Equipment Pty Ltd had to install the various louvres and sunscreen in segments, and work in conjunction with other contractors when areas became available. In all it took around six months to complete.

CVS have completed renowned projects such as ANZ Stadium at Homebush, World Square in Sydney, Lucas Heights Reactor, Mater Hospital in Newcastle, Gosford Hospital, Tabitha for Bovis Lend Lease, Westfields Kotara, Ian Thorpe Swim Centre and Energy Australia Stadium at Newcastle.

**For more information contact CVS Equipment**, 9a Pembury Road Minto NSW 2566, phone 02 8796 3000, fax 02 8796 3030, email [info@cvsgroup.com.au](mailto:info@cvsgroup.com.au)

**The activity-based workspace that is one of the hallmarks of Commonwealth Bank Place** provided WT Partnership with some unique and interesting challenges, but the leading international consultancy practice showed just what years of experience working with the top end of town can do, providing its client Commonwealth Bank with an accurate and efficient cost management plan for the Darling Quarter project.

WT Partnership provides independent quantity surveying, cost management and other specialist advisory services to the property, construction and infrastructure industries and is one of Australia's most accomplished consultancies in the high-grade office tenancy work. As the only major international quantity surveying and cost management firm that owns and controls all of its separate offices they are able to offer a seamless operational approach between its offices both nationally and globally. The company operates throughout United Kingdom, Europe, South East Asia, Central America and Australasia and has provided advice to the building and civil infrastructure industries in Australia since 1950. For the Darling Quarter project WT Partnership were contracted as the construction cost planners for Commonwealth Bank.

"It's a unique fit out – which represents the next generation of activity-based work space of this type in Sydney, so the cost planning for the project

was a challenge," said WT Partnership director Phil Anseline. "The number of suppliers and detail work involved was quite a challenge and the decision to move from a static-based work system to an activity-based system was made part-way through the design process, so we had to recast and replan." Anseline said the system has been successfully implemented in Europe but Commonwealth Bank Place is the next generation ABW being used in Australia, which meant developing the cost plan was a complex process.

"It also means that WT Partnership now has the expertise to work with this type of system which I believe will become more and more popular in Australia. You need to have a detailed understanding of the scope and costs involved to develop this type of cost management system, and if you haven't already been through the process it is very difficult," Anseline said.

WT Partnership works on a majority of major eastern seaboard tenancy fit outs, including first tier law firms, major banks and accounting practices in Australia and is currently involved in over 250,000m<sup>2</sup> of tenancy fitout work around the country.

**For more information contact WT Partnership**, Level 24 Northpoint 100 Miller Street North Sydney NSW 2060, phone 02 9929 7422, fax 02 9957 3161, email: [panseline@wtpartnership.com.au](mailto:panseline@wtpartnership.com.au), website: [www.wtpartnership.com](http://www.wtpartnership.com)