

The concrete structures at Darling Quarter were thoroughly tested on site.

SYDNEY'S NEW 'DARLING'

Rejuvenating an iconic precinct

The city's face has acquired a more fun-loving look with the opening of Darling Quarter on the southern fringe of Darling Harbour. Under principal contractor Lend Lease the \$500 million mixed-use project took an inventive approach to the use of concrete as a key structural element. Mark Bowmer reports.

Sydney's Darling Harbour is one of the most popular domains in the Sydney city precinct. Darling Quarter, which opened recently at the south-eastern end of Darling Harbour, is a major remake of the 1.5 hectare site between Tumbalong Park and Harbour Street.

A collaboration between Lend Lease and the Sydney Harbour Foreshore Authority (SHFA), the \$500 million mixed-use project encompasses two low-rise "campus style" commercial buildings, separated by a new pedestrian extension of Day Street – known as the Civic Connector – that leads visitors down from Town Hall Station and through to the green heart of Darling Harbour, Tumbalong Park.

The public precinct overlooked by these new buildings has been transformed into an amazing open space that incorporates two community "greens" and a 4000sqm playground featuring a sculptured, interactive water-play area and custom play equipment.

More than three-years in the planning, Darling Quarter was officially unveiled by NSW Premier, Barry O'Farrell.

THE CONSTRUCTION CHALLENGE

The job of reinventing the public space adjoining the new Commonwealth Bank Place

development fell to award-winning landscape architects, ASPECT Studios.

The designers were acutely aware of the expectations of the clients and the general public for such a high-profile site. Their vision was to create something beautiful, sympathetic to the site and its history, yet durable and functional.

Concrete was chosen as the central

structural element. It has been used simply but purposefully to define the new precincts, provide a durable and timeless design and, on another level, reinforce the connection between the city and Darling Harbour.

The key structural elements of the children's water-play area include insitu off-form walls (Class 2 finish with a light shot blast finish),

ACHIEVING THE TARGETS

Sacha Coles is the National Studios Director of award-winning ASPECT Studios, and intimately involved with the Darling Quarter project.

What's the greatest success of this project?

"The site masterplan – all the thinking and strategic moves that went into designing the space so that people were drawn to it and through it. You can't design a public space like this in isolation – it has to be about making it accessible."

What was the greatest challenge?

"To our knowledge, nothing like this has been done before in

Australia. Because it's such a unique design, it threw up a lot of complex issues, both before and during construction. That's why the prototyping was so valuable."

How important were the concrete prototypes?

"Absolutely fundamental. In terms of the time and cost savings, it was the best thing we could have done."

How smoothly did the job go?

"We worked together very closely with the subcontractors. You have to on a project like this. We couldn't have been happier with the relationship and the outcome."

PROBLEM SOLVED

insitu concrete “streams” and “beaches”, precast “boulders” and seating, and paved areas.

In the surrounding public domain, concrete has been used for the fabrication of precast benches, water feature walls, and ground-based interpretation elements.

The play space component was a unique element of the project. It creates an adventurous, innovative and highly interactive play experience.

Members of the design team travelled widely to benchmark and research the best examples of play spaces and public domains around the world.

The major water-play elements were sourced from Germany. Many have never before been used in Australia, and include stainless steel sluice gates, hand pumps and an Archimedes screw that draws water up and channels it back into a myriad of sculptural concrete streams.

In developing its concept, the design team wanted to use materials – concrete, stainless steel, timber – and incorporate structural features (like the stream) that were interpreting the industrial history of the site.

At the same time, because they were essentially designing the space for children, they knew they had to get the finishes absolutely spot on.

“Getting a non-slip finish on the play surfaces was absolutely critical,” says ASPECT Studios National Studios Director, Sacha Coles.

The solution was on-site prototyping. And the key to getting the insitu concrete elements right was the use of on-site prototypes.

IMPORTANCE OF PROTOTYPING

Sacha Coles says the on-site prototyping of finishes and textures to the extent it was done on this project was somewhat unusual but fundamental to the success of the project.

“It saved us a lot of time, money and effort,” he says. “It enabled us to bring everyone together on site – the clients, the trades and subbies who were doing the work – and make informed decisions for the right reasons.”

Critical decisions made as a result of the on-site prototyping included the level of sand-blasting and the amount of aggregate to be seeded onto the concrete stream bed to ensure the correct slip coefficients.

“You can specify a finish back in the studio, but it’s not until you see it in the context of the actual application and the site that you can really make an informed decision,” Coles says. “It was



It may be playful, but planning the fixtures was a serious matter.

Image: Hamish Ta-me

an incredibly useful and successful exercise.”

Industry association Cement Concrete & Aggregates Australia (CCAA) is a great believer in the value of prototyping and the use of test panels.

It says they should be an essential component of projects that incorporate specific requirements such as special features and surface treatments, more stringent tolerances, higher quality finishes and colour control.

CCAA publishes a number of guides and briefing notes that deal with testing and prototyping, available as free downloads at www.ccaa.com.au

THE END RESULT

While the concrete mix for the streams incorporates a darker grey oxide, the rest of the concrete elements are a more natural grey or off-white, highlighting the robust, industrial nature of the material.

Precast concrete “boulders” are seemingly scattered at random in and around the streams. These feature cast-in motifs of cogs – a subtle reference to the industrial history of the Darling Harbour site.

The boulders are meant to be part of the play experience, but in practice they also act as a device to mediate between junctions, and provide seating for parents, carers and children alike.

Alongside the water-play area is a dry playground space that features a giant climbing



The new public precinct includes community “greens” and a 4000sqm playground.

Image: Florian Groehn

frame, custom designed slippery dip and flying fox.

The community greens are separated from the play areas by a paved pedestrian way, and are themselves divided by the Civic Connector (the extended Day Street pedestrian way).

A ribbon of concrete weaves across these greens, marking a transition in the grade and connecting the playground.

Another linear water feature is located on the Civic Connector adjacent to the southern-most of the two buildings. Bounded by precast concrete seating, this waterway is designed to work with

the logic of the existing urban stream that runs through Darling Harbour, acting as an orientating element that draws visitors along the Civic Connector back to Tumbalong Park.

Sustainability is entrenched in the overall design, with a vast supply of rainwater harvested in a 300,000 litre tank fed from the building roofs, and re-used for irrigation.

Low-energy lighting creates a vibrant nighttime precinct which has been designed as an inclusive, free, public space activated by the community day and night, seven days a week. ■

PROJECT OVERVIEW

Client: Lend Lease

Landscape Architect and Public Domain: ASPECT Studios

Architect: FJMT Architects

Principal Contractor: Lend Lease

Principal Engineering Consultants: Arup

Specialist Concrete Contractors – landscaping: British Paving and Christies Civil

The major concrete elements and specs were:

■ **Walls:** insitu concrete, Class 2 with light shot-blast finish

■ **Civic Connector:** precast furniture/ seating edges/signage fabricated by Waeger. Off-white with Class 2 off-form finish

■ **Pedestrian Boulevard:** precast

furniture (oversized bench seats) fabricated by Waeger. Off-white with Class 2 off-form finish

■ **Playground:** precast boulders and toddler water play table fabricated by Waeger. Three per cent black oxide with Class 2, light shot-blasted finish

■ **Paving:** insitu concrete paving shot-blasted (light to medium blast) to achieve slip resistance and aggregate (typically 10mm round Penrith gravel/ river quartz) exposure

■ **Stream beds:** one part Portland cement/two parts washed sand/ three per cent black oxide with hand seeded 50-120mm river pebbles

■ **Water jets area:** hand painted (over normal shot-blasted insitu concrete pavement) with Schofields deep blue concrete stain.

The newly opened Darling Quarter precinct is a haven for visitors and office workers alike.

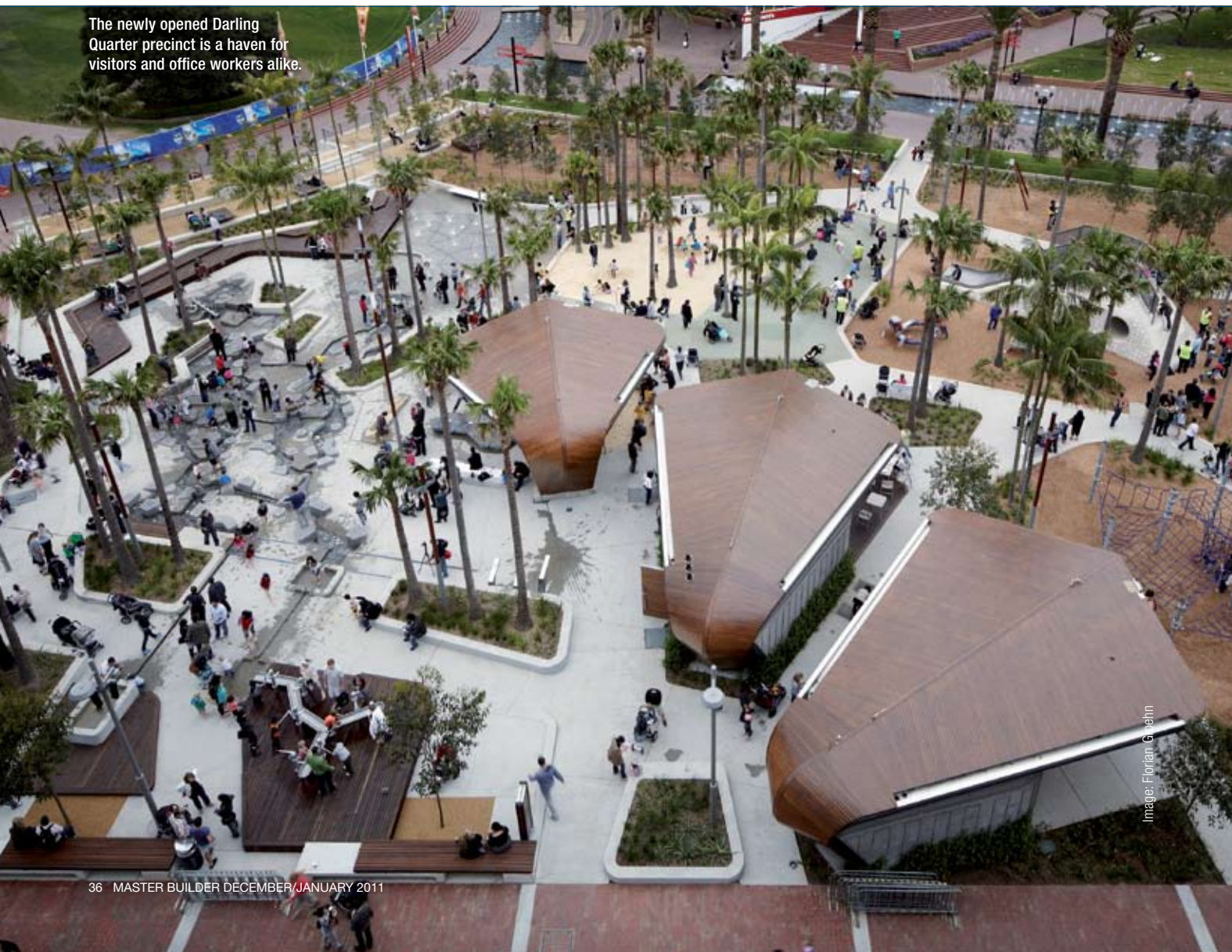


Image: Florian Groehn