



# BEAUTY BY THE BEACH

Boheme Bondi Project includes 3 Levels Underground Carpark, 2 Levels of Retail with thru site link between Hall & Obrien St, 2 Levels of 114 Serviced Adina Apartments and 5 Levels 45 Luxury Apartments, the residential tower is designed with natural flowing curves.

**Adding a new landmark to Bondi's urban fabric, Toga Constructions have crossed and overcome numerous construction challenges, starting from the ground itself, to arrive at a complete sensuous curvaceous built-form, home of the new mixed-use Boheme Bondi development.**

The seven story structure is situated on the site of the former Hakoah Club, which was removed by an engineered staged demolition process. Geotechnical investigations revealed subsurface water travelling across sandstone, and a retaining wall situated along the site boundary requiring shoring and a need for a sizable anchoring & piling system stabilising the retaining walls and ultimately supporting the Boheme structure. Whilst the basement was excavated to allow for three levels of basement carparking, totalling 202 spaces, continual dewatering and CSM soil anchoring works addressed by the specialist geotechnical engineering subcontractor, were essential to achieve requirements of a tanked basement.

Above ground, one of the main features of Boheme Bondi is the curved glazing, creating the facade and balcony balustrades and forming the external form for five levels of luxury residential apartments, rising above the two levels of retail tenancies and a 111 key Adina Apartment Hotel. To achieve the wave-like design, an innovative approach was employed both in terms of materials and methods, namely astute consideration to safety aspects whilst construction workers were working at heights.

Toga's in-house architectural team worked in conjunction with architects Bates Smart, to refine the design specifications, works methodologies ultimately assisting with design implementation and resolving buildability matters. The build is being carried out by the on site Toga team made up of the following disciplines; project management, contracts administration, site management, and construction labour.

The facade structure, predominantly constructed from curved in-situ concrete and precast elements, wrapped by approximately 2.5km of glass-and-steel balustrade was designed to work in conjunction with coloured pre-cast panels. Each design element was adopted for both aesthetic and functional value, functionally addressing some of the construction access requirements along the perimeter of the building.

The exposed in-situ concrete owns an off-form finish, through prefabricated metal forms, creating standardised building curves. Constructing this non-linear form posed safety & design challenges with regards to formwork stripping, edge finishing (i.e finish to the concrete curved slab edge), balcony tiling and balustrade installation.

All the above-mentioned activities required perimeter construction scaffolding and fall protection in order to construct the free-flowing curved perimeter. The standard rectangular shape scaffolding posed an interesting challenge, juxtaposed with the curved external form which was addressed by setting out rectangular scaffold sections on CAD.

Scaled concrete structure floor plans were utilised, allowing successful execution of the building curves & scaffold by way of detailed scaffold plans, and matching engineering techniques.

The formwork contractor utilized a combination of conventional and system formwork techniques allowing for minimized edge exposure, decreasing the safety risk during installation. 'Catch-decks' and perimeter screening also controlled potential falls from heights and falling objects.

The original design of the curved balustrade and full perimeter curved glazing was the subject of a feasibility study carried out by Toga, revealing there could have been potential detailing issues unless the initial concept design was modified slightly. The revised design, features faceted glass sections, gives the appearance of curves when viewed from street level. All the materials used for Boheme Bondi were required to be resistant to the effects of the salt-laden beachside air. Hence, all stainless steel that was used on the project has been coated with an extra corrosion-proof clear coating, whilst material of all windows installed at Boheme, were Anodized Aluminum. Numerous Environmentally Sustainable Development (ESD) features have been incorporated into the design and the built form of the project. These include solar/gas heating; extensive use of LED lighting; and full height glazing in the bedroom and living areas of the apartments maximising natural light. The structure and façade have also been designed for thermal massing with practical measures including double-glazed windows and extra thermal insulation. The mechanical system is also energy-efficient, with the VRV system design enabling individual unit-based power usage only.

Working in conjunction with Waverly Council, public art elements were selected through a public art competition and are being integrated into the project in common areas, walls, hotel lobby and the canopy garden. This mix of permanent, semi-permanent and short-term artworks adds an important element for recognized community contribution.

The Toga Group was established in 1963 as a property development and investment management group focusing on medium sized residential and commercial developments. Toga's previous developments include (not limited to), the Darwin Waterfront with ABN Amro, for which they were awarded Best Mixed-Use Development at the 2008 Urban Taskforce Development Excellence Awards; and Jones Bay Wharf, winner of the 2007 Property Council of Australia Innovation & Excellence Award for Heritage & Adaptive Reuse. Other current Toga projects include \$1Billion worth of developments across multiple stages in Darwin, multiple South Australian projects, and other prestige Sydney projects currently under construction, including Macquarie Central, a joint venture with LaSalle Investment Management, which is a project comprising over 600 apartments across five buildings; and Manor, a mixed-use redevelopment of Mansions Hotel at Potts Point.

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## ENSURING THE ELEMENTS KEEP OUT



It's not only the waterproofing products used on the external areas at Boheme Bondi which needed a degree of flexibility, so did the subcontractor who supplied and applied them. Geoseal provided a fast-response service to the project, providing a crew of up to five skilled workers to undertake all the waterproofing when required.

Geoseal's scope included all the rooftops, the level two, three and seven plant rooms, all external planter boxes, O'Brien Street and Grid Four facades, the car park plenum, level one courtyard canopy, level three slabs and the lift overrun. The majority of products used were low VOC Tremco polyurethane membranes, which provided an excellent barrier to water and moisture build up.

"There were quite a few variations on the job," said Geoseal Manager, Stephen Ninos. "Time management was crucial, as we needed to provide a rapid response to Toga at Boheme Bondi when the program required us on site, while also servicing our other projects.

"We also installed insulation on the roof, using Tremboard, geotextile fabric and spreading pebbles over the top. For this there was an extra safety consideration, so our workers were harnessed on which adds an extra time element to the task. All our workers are harness-trained. We take great pride in our safety record, and ensure all employees have appropriate PPE and are aware of safety.

"This has been a good project and one of the largest we have completed." Geoseal have been in operation for three years, and are specialists in waterproofing, concrete grinding, epoxy floor coatings, concrete polishing, floor toppings and remedial works. Founder George Ninos has 15 years of experience in waterproofing and concrete coatings. Manager Stephen Ninos holds qualifications including an Honours Degree in Construction Management.

The company has invested in high quality plant and equipment including diamond blade grinders up to 700mm dia, floor scrubbers, commercial vacuums, and equipment for installing torch-on membranes, in which their workforce have been trained and are certified as applicators.

Other recent projects include Toga Manor at Potts Point; the battery recycling plant at Mount Druitt; Macquarie park residential development also for Toga; and the data centre at Macquarie Park for FDC.

Geoseal's commitment to clients is founded on professional service, excellent workmanship and a complete focus on meeting the needs and requirements of the program efficiently, safely and to the highest standards.

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## ENSURING A BEAUTIFULLY FINISHED FIT-OUT

Achieving high standards in a short time is a balancing act which takes skill and experience – both of which Crown Projects possess in abundance. On the Boheme Bondi project, their scope of works included supply and installation of all the partition walls, including framing, plasterboard, FC sheeting and insulation; plasterboard ceilings and feature ceilings.

The complication was the weather, which caused rain delays to the program. Through their site management and logistical skills, Crown Projects still ensured an exceptionally high standard of workmanship and finish was achieved, and that their works for 111 self-contained Hotel rooms and 45 Luxury Residential Apartments and ground floor retail areas completed in a timely manner.

Crown Projects provide complete construction fit-out services. The company's core capabilities include supply and install of internal partitions, suspended ceilings, wall cladding, glazed partitions, doors and frames, feature ceilings, joinery fit-out and painting.

In order to expand their services to include supply and installation of large scale external cladding panels, the company recently purchased a

commercial CNC routing machine. This enables them to produce the panels in-house, offering a real benefit for time-sensitive construction projects, as Crown Group will be able to guarantee supply to site precisely when they are required for installation.

Other recent projects include a demonstration of their external cladding talents, at Panorama Apartments in Crows Nest for Probuild. They have also recently completed internal partitions, suspended ceilings and cladding for the Naval Air Station HMAS Albatross at Nowra.

With approximately 40 staff including qualified plasterboard installers and carpenters and a 15 year track record to their credit, Crown Projects offer their clients a thoroughly professional, price-competitive and quality fit-out service. Their team of experienced tradesmen work to high standards of safety and efficiency, meeting project milestones on time, every time.

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## THE SECRET TO BUILDING SAFELY ON SAND

Poor geotechnical conditions bring out the best in a company like CF Group, giving them an opportunity to demonstrate new techniques and technology for giving a project like Boheme Bondi solid foundations.

The challenges included the need to underpin and anchor the existing club building in order to prevent the road falling in, and replacing a sheet pile wall installed in the 1960s. CF Group contributed a whole new design concept to resolve the problem.

“We had to go in while the demolition phase was happening with a CSM rig to chop through the concrete slab and make new walls down to the bedrock,” explained CF Group Managing Director, Tony Derham.

“This was the most technically difficult part of the whole job, and needed to be done on the eastern, southern and northern boundaries of the Boheme site. We had to develop special grouting systems, because ground water flows across the subsurface rock. “Cutter Soil Mixing (CSM) was used for the wall system. This was the best solution, and resulted in a good looking wall system.”

CSM is a specialist foundation construction process for constructing cut-off walls and structural load-bearing retaining walls. CF Group are the first Australian piling and foundations company to pioneer the technique, which involves a specialised German-engineered carrier rig to combine the site’s own soil with self-hardening binders, and delivers cost-effective and precisely engineered results.

For the new Boheme building, CF Group constructed a tanked basement three levels below ground, and also provided underpinning and temporary shoring support, using a grouted anchor system. Over 200 ground anchors, 25m long and with a 70 tonne working load were installed, together holding up 12m of watercharged sand, the building and the road.

CF Group had a crew of 20 on the job, comprising CSM trained operators and piling specialists who were directly trained by the rig manufacturers in Germany and France. The site Manager, Tony Page, has 30 years of piling experience and an extremely thorough knowledge of Sydney’s geotechnical ground conditions.

Other projects CF Group has worked on recently include Meriton Apartments in Zetland, projects for TOGA Group, Becton, Crown International, PAYCE Properties, Toplace Developments and Great Tang Brothers.

“We specialise in projects where the basement is going into waterlogged sand,” said Tony Derham.

“In Botany, we dealt with a site with a plume of contaminants, where the DA specified a tanked basement. So we have constructed a tanked wall system which works independently of the dewatering system. “As geotechnical engineers, we work with the structural engineers to refine the structural design, and look for the safest option for the building.”

CF Group has six qualified geotechnical engineers on staff, including one with structural engineering expertise also. Specialised software is used to create a sound geotechnical design, which integrates with the architectural and structural plans.

CF Group offers a complete design and construct foundations service, including the civil construction component, to projects Australia-wide. Having this integrated capability means CF Group can deliver rock-solid results, putting every project on the soundest possible footing.

*For more information contact CF Group, 26 Cranbrook Street, Botany NSW 2019, phone 02 9316 4012, fax 02 9316 4062, website [www.cfgroup.net.au](http://www.cfgroup.net.au)*

## STUNNING FORMWORK PERFORMANCE

Every project has its challenges, which creates opportunities for a company like Calcono to demonstrate excellence in innovation and delivery of formwork solutions. At Boheme Bondi, the complexities included rounded slab edges, a distinctive off-form finish for a very public area, and sequencing issues.

The project consisted of three separate pours, and Calcono’s site crew of up to 50 personnel was divided into separate teams specific to each pour, each headed by a site foreman. Two foremans were in charge of teams working on each pour forming decks, columns and walls. One foreman was in charge of the operation of the PERI jump form systems that were being used to form the two main cores located in pours one and three.

“Due to excavation issues early in the project construction, pours one and two for the majority of the project were several levels ahead of pour three, therefore breaking the project up into two separate stages,” explained Calcono Director, Stefano Calautti.

“This meant that the sequence of the project needed to be changed, and caused several issues. Extra material was needed, as often key material would be trapped on certain levels, creating problems with material movement. Extra labour was also needed once pour three commenced to enable it to catch up to the rest of the project, and more craneage was needed to service separate stages.

“One of the main visible features of Boheme Apartments is the wavy, curved perimeters of the building. We formed these edges by using prefabricated steel edge boards which were manufactured in pieces at the correct radiuses. These were reused all the way up the building. Not

only did this give a high quality finish, it was also very cost-effective and time-effective.

“In the Through Link Corridor, which connects Hall Street to O’Brien Street, a special off-form finish was created using rough sawn Oregon timber for both straight and curved upstands located right throughout the Through Link. The timber was cut into different sizes to achieve the specified pattern, and the resulting textured grain effect looks really special.”

Safety was managed meticulously, with a fulltime Calcono Safety Administrator attending all site safety talks and toolbox meetings, and ensuring that all works were completed in accordance with the safety management plan, relevant codes of practice and WHS legislation. Other projects Calcono is currently at work on include Belvedere Apartments, North Sydney for Ganellen Pty Ltd; Broadway Plaza, Punchbowl for DeiCorp Constructions; and URBA Apartments, Redfern, also for DeiCorp Constructions.

Since 1989, Calcono has been providing specialised formwork services, across the commercial, industrial, residential, educational and recreational sectors. By combing decades of skilled experience with the world’s best, most innovative formwork systems, Calcono delivers the safe, timely and cost-effective solutions which turn design challenges into concrete achievements.

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## RAISING THE BAR FOR CLASS

A stunning exterior like Toga's Boheme Hotel and Adina Serviced Apartments at Bondi needs to be matched with a stylish interior. Long-time Toga collaborator IJF Australia Pty Ltd ensured an outstanding level of chic was achieved, with the impeccable quality of their bespoke joinery for the project.

IJF manufactured and installed all the Built-in and FF&E Joinery including front-of-house Kitchens with Island Bench, Bathrooms, Ensuites and Bedrooms, Desks and Mirror Units, as well as Laundries, Linens and Storage. FF&E items included Bedside Tables, Bedheads, Buffet Units, Sofa Arms, Lobby Coffee Tables and Chairs, Reception Counter and a magnificent Lobby Computer Table.

IJF has a longstanding reputation for delivering beautiful results for large scale projects. Now smaller and boutique high-end projects can also benefit from IJF's expertise and attention to detail, with the establishment of IJF Living, a division which fills a market niche for complete renovation and interior design solutions from concept to installation under the quality IJF Australia brand.

For more information contact IJF Australia Pty Ltd, 41-43 Cormack Road, Wingfield SA 5013, phone 08 8349 7400, Tender Enquiries: davidm@ijf.com.au, website www.ijf.com.au



## THE GROUNDED APPROACH ENSURES EFFICIENT RESULTS

Excavation is a dirty job by nature, and someone's to do it. That's where Turbo Charlie Plant Hire come in for a client like Toga Group, completing bulk excavation works for the wall site between the rock anchors at the Boheme Bondi site efficiently, accurately and safely.

Turbo Charlie provided a Bobcat, Track Machine, excavators and a saw, with experienced and fully-ticketed operators, and completed the works quickly.

"It was a good project – Toga are great to work with," said Turbo Charlie Plant Hire Spokesperson, Mary Spiteri.

"Turbo Charlie Plant Hire is committed to occupational health and safety, and safe work environment policies. We supply all plant, equipment and trucks with RTA registration, Log books, Service History, Amber Flashing Lights, and Fire Extinguishers; and our certified and experienced operators all have OHS green cards, full insurances and OHSE training."

For over 40 years, this family owned company has been providing Sydney and surrounds with an on-call resource base of machinery and hands-on expertise, for projects across the commercial, industrial and residential sector.

Some of the company's other regular clients include Mirvac, Frasers Property, Deicorp, Watpac, Parkview, Delta Group, Western Earthmoving, Next Constructions and Probuild. Other recent projects have included Rouse Hill Town Centre, Brookvale Oval, Magenta Shores (The Entrance), Central Park Broadway, Clemton Park Village,

Westmead Children's Hospital (Backyard Blitz Charity Event), and Belmore Sports Ground.

Turbo Charlie's capabilities in the civil contracting arena are extensive, and include bulk and detailed excavation; trenching, drainage and footings; saw cutting; spoil removal; haulage; vibration free excavation in rocks; plumbing pipeline and electrical pipeline site preparation; and slab and driveway preparation. The company are also licensed for bonded and friable asbestos removal; contaminated waste removal; minor demolition and site remediation.

The company's inventory of plant and equipment available for wet or dry hire includes all sizes of excavators, Bobcats, Case 85 XT (Unloader), JCB 520-40 Telehandlers, CAT Multi Terrain Loader, Water Cart, Tipper Trucks, Rollers, Truck & Dog Services, and Hammer/Auger/Broom/Saw/Sweepers/Forks. The company can also obtain other machines if required, at competitive prices. And when projects require extra manpower for civil construction tasks, Turbo Charlie can provide experienced, trained and ticketed civil plant operators, drivers and general labour.



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Boheme Bondi, NSW

