

DARWIN WATERFRONT

MACMAHON CONTRACTORS
DARWIN NT



ON THE WATERFRONT

Macmahon teams have worked on the largest pipeline projects, the biggest dams and the longest railways in Australia. Projects which have taken them to the most inhospitable, outback locations and inner city urban areas, won the company numerous awards and significantly influenced the lifestyle and culture of many regions in Australia.

One the latest projects, the Darwin Waterfront, is also set to enhance lives and business, by transforming Darwin and boosting tourism and business in the top end and has already been awarded the Urban Taskforce Australia's 2008 Development Excellence Award for Mixed Use Development.

Macmahon is a partner in the Darwin Cove Consortium, the developer of the Darwin Waterfront project, which includes the development of a 4,000 sq metre wave lagoon, a breakwater sea wall and protected water area for water sports, as well as a lock which will create a marina.

The Waterfront is part of a master redevelopment of a 25 hectare site on Darwin Harbour, which also includes the Darwin Convention Centre, hotels, restaurants and apartment complexes.

Macmahon specialises in the marine construction of breakwaters and groynes, wharves, jetties, land reclamation, services and installation. Its

other major recent marine projects include the Dampier Port Upgrade, Jervoise Bay Marine Development and the Kingston Foreshore.

For the Darwin Waterfront project, Macmahon was responsible for the dredging and construction of the marine works including the sea wall, earthworks for the Darwin Convention Centre, civil works for the public domain including landscaping, roads and drainage, beach areas, construction of the Smith Street Bridge and reclamation and earthworks for the residential basement car park and has been involved since the project commenced in 2005.

Due to the diversity and complexity of the \$94.6 million project, Macmahon was required to prepare five separate project plans – Construction Environmental Management Plan, Traffic Management Plan, Environmental Management Plan Framework, Dredge Plan and Pond K Construction Environmental Management Plan.

With Macmahon renowned for its innovative approach to developing solutions, the company was well-equipped when presented with a number of unique challenges on this project.

Construction of the breakwater had to be precisely scheduled and planned to work within the tidal changes, which can peak as high as

8m in Darwin Harbour. Additional challenges were presented with the depth of the dredging required, which was up to 15m to 16m below the seabed in some sections.

The complexity and success of the breakwater project has been acknowledged throughout the industry following the presentation an engineering institute award.

Macmahon is one of Australia's leading construction and contract mining companies with the capability to provide a complete range of civil engineering, civil construction and mining services.

The construction business undertakes key infrastructure projects including roads, bridges, railroads, ports and dams. In addition to the Darwin Waterfront, Macmahon has just completed the Mitchell Freeway extension in Western Australia and is currently working on the Jilalan Rail Yard Upgrade in Queensland.

Projects which significantly enhanced the company's reputation in its earlier years included work on the Stuart Highway in the Northern Territory, National Highway One in South Australia, construction of the Alice Springs to Tarcoola railway in 1978, civil works on the 1,500 kilometre Dampier to Perth natural gas pipeline, the North Dandalup

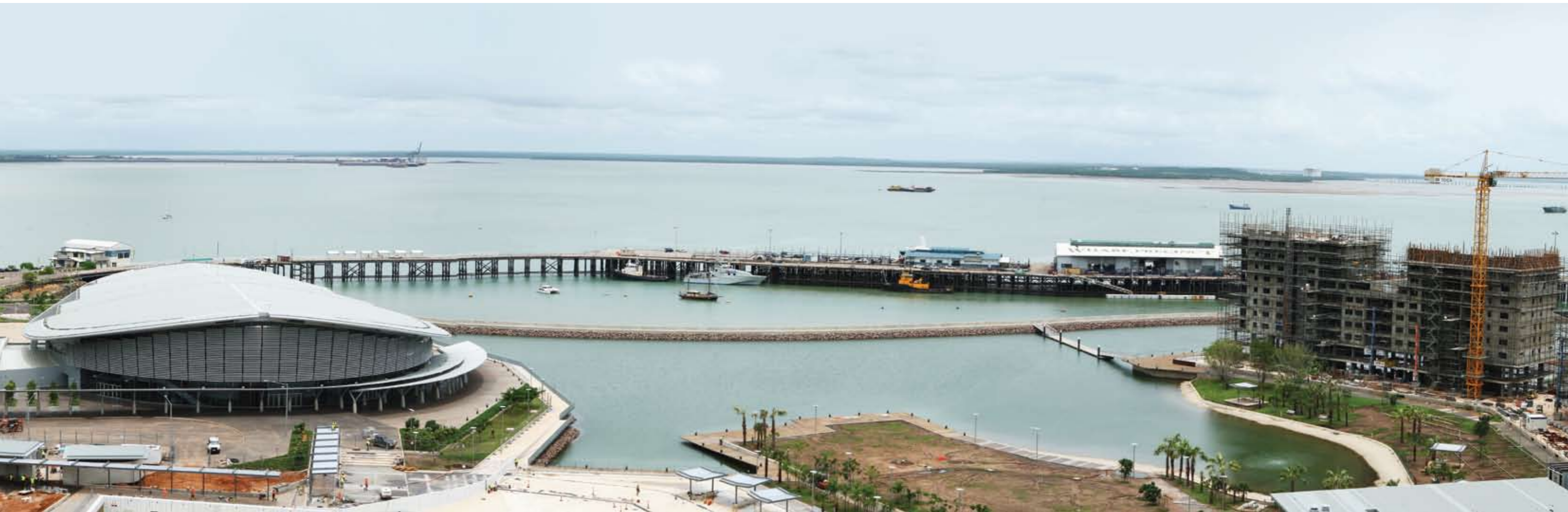
Dam in Western Australia and in 2003, the completion of the Alice Springs to Darwin railway.

Since its beginnings in 1963, Macmahon has grown to become major player in its sector and now employees more than 3,700 people. It has offices in Perth, Brisbane, Darwin, Sydney and Kuala Lumpur, with projects underway throughout Australia, New Zealand and Asia.

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COST MANAGING DARWIN'S MAKEOVER

International Property and Development Consultants, Rider Levett Bucknall has been intimately involved with the Darwin City Waterfront project since its inception in 2003 when it was invited to assist the Darwin Cove Consortium headed by ABN Amro in cost planning the facilities. The project is multi faceted with the Darwin Convention Centre as its centerpiece along with major civil infrastructure and open public space which includes a wave pool, and major hospitality and residential development.

Rider Levett Bucknall worked with the design consultants to cost model and plan innovative design solutions to an area that was then an industrial contaminated wasteland and which was set to become a prime waterfront precinct. The site also had the unenviable reputation of being home to a number of unexploded ordnance, a legacy of the second world war when Darwin was bombed by enemy forces. These unusual site characteristics presented a challenge in cost planning the facilities to arrive at a total outturn cost that would be acceptable to all parties without undue financial risk.

Rider Levett Bucknall participated in and contributed to a number of value management sessions at which a number of scenarios were assessed in a bid to come up with the ultimate outcome for the design form, the delivery strategy, the final cost and the project risk profile.

Rider Levett Bucknall drew from its extensive experience across its national and international network of offices to assist the project team

in its task. Achieving financial close on the project was a major milestone setting the project team on its task.

During construction, Rider Levett Bucknall played a pivotal part in its role as the Independent Certifier for the Project Consortium and the Northern Territory Government. Rider Levett Bucknall worked closely with the main civil contractor, Macmahon in delivering the major site infrastructure works. These included the removal and remediation of contaminated land, substantial marine infrastructure works including rock breakwater wall, the provision of a public beach, roadworks, boardwalks, extensive landscaping and an elevated walkway linking the Darwin City Waterfront precinct to Smith Street and the Darwin CBD along with the necessary infrastructure to service the precinct. Some aspects of the project were still of conceptual nature at financial close and Rider Levett Bucknall successfully worked with all stakeholders to ensure these facilities were brought within the established budgets and project cost constraints.

Rider Levett Bucknall was also the Independent Certifier for the Darwin Convention Centre working with the Sitzler Laing O'Rourke JV, the contractor delivering that facility.

Rider Levett Bucknall is currently working with the Toga Group and its financier in delivering the Hospitality and Residential components of the project, the first stage of which is nearing completion with further residential stages on the drawing board; Rider Levett Bucknall is also



assisting Toga in cost planning these further stages of the residential component.

The services that Rider Levett Bucknall has offered on this project range from cost planning the original concept with the degree of accuracy required to minimize the financial risk to the stakeholders and achieve financial close, cost monitoring throughout the project duration with regular cost reporting to the stakeholders, the assessment of monthly progress claims to be paid to contractors, the independent determination of contractors' claims for changes in the scope of the works, extensions of time including delay costs and the certification of practical completion. Rider Levett Bucknall is also providing taxation depreciation services on these major assets that have been and are still being provided. All these services have been and will continue to be rendered by dedicated personnel in the Darwin office of Rider Levett



Bucknall which has been a very strong and proud contributor to the NT building industry having been associated with most landmark buildings and developments in Darwin and Alice Springs as well as remote and island communities throughout the NT.

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SURVEYING THE SCENE

From its beginnings as a small consultancy in 1980, survey and planning consultancy Earl James and Associates (EJA) has grown into the largest survey office in the Northern Territory, playing a major role in the Northern Territory’s key infrastructure projects including the landmark Darwin Waterfront.

(EJA) carried out the initial topographic survey for the Waterfront project and established the site coordinate system subsequently utilised by all consultants on the project. Ongoing work has included additional topographic surveys, as-constructed surveys, engineering set-out, establishment of site control, Development Applications for subdivisions required for the various components, building set-out, subdivision surveys and provision of titling services. This has included advising on titling options available under the Land Title and Unit Title Acts.

The company employs over 25 local personnel including Licensed Surveyors, Engineering Surveyors, Survey Graduates, Survey Assistants, Drafters, Computer Operators and Administration Personnel and has the resources to mobilise at least 8 field parties using the latest technology including Trimble RTK GPS equipment, Robotic Total Stations and digital levels.

These field parties are supported by computing and administration staff utilising a range of software including Terramodel, AutoCad, Mapinfo and Trimble Geomatics.

EJA provides a range of services including Construction and Engineering set-out, Urban Planning, Real Property subdivisions, unit tile surveys and GPS surveys and has worked on many major top end projects including Cullen Bay Marina Estate, Bayview Marina Estate, the Pandanas and Evolution complexes and the Alice Springs to Darwin Railway.

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WATERFRONT REAPS AWARDS FOR AURECON

Aurecon (formally Connell Wagner) and its wholly owned subsidiary, CW-DC, played a significant role in all facets of the Darwin Waterfront project. A role, which has not only reaped awards but has created benefits to the wider engineering fraternity.

The company’s involvement in the project included various engineering services for the design and construction of the Breakwater, the Convention Centre, the Hospitality Buildings, the Multi-storey Carpark, the Residential Building, the Cruise Ship Terminal, and the Public Domain infrastructure including the lagoon and beach.

One of the more significant aspect of the project was the unique design for the breakwater.

The breakwater had to double as an earth dam to create the static body of water (the lagoon), whilst being high enough to cope with '1 in 100 year storms' and low enough not to compromise visitors’ views and as such meet the architects’ vision.

To meet these requirements, the breakwater was designed as an overtopping structure with its crest at the lowest possible level. To protect the leeward side, an innovative capping design was used. This capping design allowed the rock protection to be reduced from 2.5 tonne to 0.5 tonne which afforded savings in the vicinity of \$1.2m to the project.

The design is ‘unique in Australia’ and as a result of extensive model testing, this state of the art design can now be confidently used in other similar scenarios.

The Breakwater won the 2007 Engineers Excellence Award (NT) and the Convention Centre won the 2008 Engineers Excellence Award (NT)

This high profile development is testament to Aurecon’s claims to provide ‘world class engineering and management’ and proof the company continues to be a leader in the field.

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TOUGHING IT OUT IN THE TERRITORY

With a tough background and history to back up the claim, Fawcett Contracting is known for taking on the tough jobs in the Territory. None tougher than a project with the massive objective of transforming Darwin by boosting business and tourism – the Darwin Waterfront redevelopment.

Fawcett Contracting has been involved in this large-scale project, a development of the Darwin Cove Consortium, since it commenced in 2005. Specifically with the role of hauling materials, 24 hours a day at the East Arm Port Section for a divider wall across one of the ponds that would be dredged into. This was done well ahead of time so dredging could commence.

The entire project covers 25 hectares and the waterfront segment of the site involves a full scale dredging and construction operation to develop a wave pool, breakwater and safe water sport area and a marina. For a relatively small company, the waterfront represents a large scale project for Fawcett, but nothing this resilient family business can't handle.

Fawcett Contracting started business in 1979 in remote Adelaide River area of the Northern Territory, as the Fawcett Cattle Company and were acknowledged as one of the best buffalo and cattle catching operations in the Territory. When the Northern Territory Government introduced the BTEC program in the early 1980's the decision effectively eradicated the family business, but not their initiative.

The resilient Fawcett family expanded their fleet of trucks and began long distance livestock haulage prior to the natural progression into earthmoving and haulage for the construction industry with the boost in infrastructure development in the top end.

The company now operates a top level transport and earthmoving service to the civil construction and mining industries mainly in northern Australia and with a team of locally-based employees, their experience in the region is invaluable.

Fawcett were responsible for bulk haulage of all dirt, gravel and materials on the Darwin Waterfront project and utilised their impressive fleet of

trucks and specialised vehicles. The company specialises in side tippers, loaders, excavators, floats, flat tops, double decker livestock units and are constantly investing in additional equipment to tackle the specific requirements of each project.

In addition to work on the Darwin project, at the same time the company is operating a number of double side tippers hauling material on the large-scale Eyre Highway project in Western Australia for Macmahon Contractors.

Other recent large projects include the rail link from Adelaide to Darwin, work for Newmont Woodcutters, the Darwin Port Authority, Millstream Link in Karratha, Union Reef GBS for Gulf Transport and Pine Creek for Territory Iron in addition to other smaller work.

Operating in remote regions can be a challenge, but Fawcett has proven that their team of livestock and earthmoving operators, diesel fitters, boilermakers and labourers are experienced and reliable and tough enough to handle the challenges of the Territory.

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STEEL THE SHOW

The success of a landmark project such as the Darwin Waterfront requires strong performance and quality in every element and at every stage of the complex process. The strength of Steel-Line.

Established in 1979, Steel-Line is an Australian owned and operated company and the market leader in the design, manufacture, distribution and installation of an extensive range of steel, aluminium and timber garage doors, shutters and automatic door and gate operators for residential, commercial, industrial and specialised applications.

Since being acquired by the private equity firm, Crescent Capital, in 2007, Steel-Line has grown significantly with the acquisition of Accent Doors, All West, Ross Doors, Territory Roller Doors and Shutters, Jeff Lauga Doors, Doorland Wollongong, Mirage Doors and Perth Windsor Doors.

The company’s strength and innovative approach to product development were certainly significant factors leading to their contract on the Darwin Waterfront project. A massive development, which will create a unique business, tourism and recreational hub for Darwin.

Steel-Line supplied and installed three Mirage Roller Shutters, powder coated Colorbond® Surfmist: 1 x 2400mm (h) x 1600mm(w) & 2 x 3010mm (h) x 6010mm (w) and a Steel-Line B Series Roller Door, also powder coated Colorbond® Surfmist: 750mm (h) x 1130mm (w).

The Steel-Line and Mirage partnership produces high quality roller shutter and security grille products for the shop fitting and construction industries.

Steel-Line has introduced many innovative products to the market, such as the unique Decro® Sectional Overhead Door range that affords home provides the stylish look of timber but with the strength of steel and at almost half the cost of true timber products.

Another innovative Steel-Line product offered to the market is the “finger proof” sectional door which negates the risk of pinched fingers and provides added safety for homeowners. Special custom made doors are also available allowing our customers to incorporate their own design, colours and materials.

As part of the company’s quality policy, Steel-Line rigorously control the supply, installation and completion to program for all projects and all staff are trained to take responsibility for the quality within the company and for maintaining the high standards.

In addition to the waterfront project, Steel-Line is working on several other large projects in the NT, which involve the supply and install of Mirage Roller Shutters. Projects such as 9 shutters for Sunbuild that measure 4800mm x 5000mm (h), 7 shutters of 4500mm x 5000mm (h) for Drecon builders and 3 large shutters up to 8m wide for Mondaelphous Engineering to be installed at the remote Black Tip in Port Keats.

Steel-Line offers the construction industry the advantage of being able to deal with the same company, no matter what area the project is located, as the company has genuine national representation with branches and a distributor network throughout all regions of Australia.



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LOCKER GROUP IN DARWIN TRANSIT

Locker Group provided their trademark innovative and stylish, yet practical finish to the Transit Area of the Cruise Ship Terminal on the Darwin Waterfront redevelopment, ensuring a positive first impression of the city for visitors.

The company specialises in Expanded Metal, Perforated Metal and Woven Wire Mesh, offering an architectural range of materials in a vast array of innovative styles which are suitable for balustrades, facades, sunscreens as well as design feature components to a structure and other creative applications.

For the Darwin Waterfront project, they produced perforated screens which are incorporated into the walkway between the ship and customs areas. Working closely with the builder, the Locker Group provided an economical solution which met the budget without compromising the design requirements. Ultimately, a 3mm thick mild steel plate was used with hot dip galvanised finish.

Locker Group was faced with a number of safety and environmental issues, which were crucial to the panel specifications. A small enough hole was required to limit the opportunity of climbing the structure, without restricting airflow to the walkway. This was achieved with a 12.7mm diameter hole and an open area of 49%, which also allowed the panels to be galvanised.

Locker Group’s service is unique as one of the few companies that can offer products across such a wide price point, from minimal budgets to premium installations while providing numerous fixing systems to suit various applications. They not only provide the mesh, but can provide the whole ‘kit’ ready for installation

Locker Group was established in Australia in 1956 and has recently grown through acquisition to now include Expamet, Richardson Pacific and Melwire/Mounts Wire Industries with offices across Australia, New Zealand and Asia.

Under the mantra, “Materials for Your Imagination” Locker Group provides the total solution, mesh and fixing system, in a wide range of materials, with thousands of options as well as custom-made designs.

It is, after all, only limited by your imagination.

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LANDSCAPING THE WATERFRONT

In the top end a ‘category 4’ usually means trouble, but in the case of the Darwin Waterfront project, Category 4 Landscaping is shaping a new and exciting landscape.

Owned and operated by experienced local, Phill Hatty, this Darwin-based landscape company has been contracted to complete extensive landscaping works involving the planting of the streetscapes and the open spaces and public access areas between the hotel, wave pool and apartment/restaurant complex as well as assisting with the repair and maintenance of the new irrigation system.

The works involved mass plantings of tropical ground cover varieties, mass plantings of low growing shrubs, laying turf and the intricate task of transplanting large mature trees.

The successful transplanting of mature trees requires specialist skills. Skills which Category 4 has already proven on a number of large projects.

The mature trees were carefully transported to the site and manoeuvred into a prepared excavated pit with specialist machinery. As a cyclone control measure, once the trees were positioned, the roots were anchored down with a cable ratchet system.

Category 4 faced a number of challenges on this project, especially working around multiple trades, dealing with the top end wet season and

the ongoing management of environmental issues, especially in relation to water runoff during the wet season.

For a relatively young business, established only 3 years ago, Category 4 is quickly establishing itself as a reliable provider of high quality landscaping services.

Phill Hatty credits much of this success to his passion for each project he works on and the benefits the developers receive by dealing directly with the owner-operator on every job. He also recognises the value of having good reliable staff, which is sometimes a challenge in itself in the Northern Territory.

Category 4 Landscaping is also working on Stage 1 development of the Sky City Casino and is developing a scaffolding division to complement the landscaping area of the business. The company is also complimenting its landscaping with new synthetic turf products.

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BLUESCOPE CONTINUE HIGH STANDARD

BlueScope Distribution, a division of BlueScope Steel, has continued its involvement with large scale building and construction projects nationwide, with the supply of quality steel plate and structural steel products into parts of the Darwin Waterfront development.

Bluescope supplied product for the construction of the residential units, the convention centre and to a number of the construction companies involved in this landmark project, thus allowing the company to play a significant role in the Darwin community: its history, progress and its future.

BlueScope has its own long-standing and proud history within the construction and building markets in Australia. Its highly experienced and knowledgeable staff, who have the expertise to provide steel solutions to suit customer requirements, is one of the company’s greatest assets.

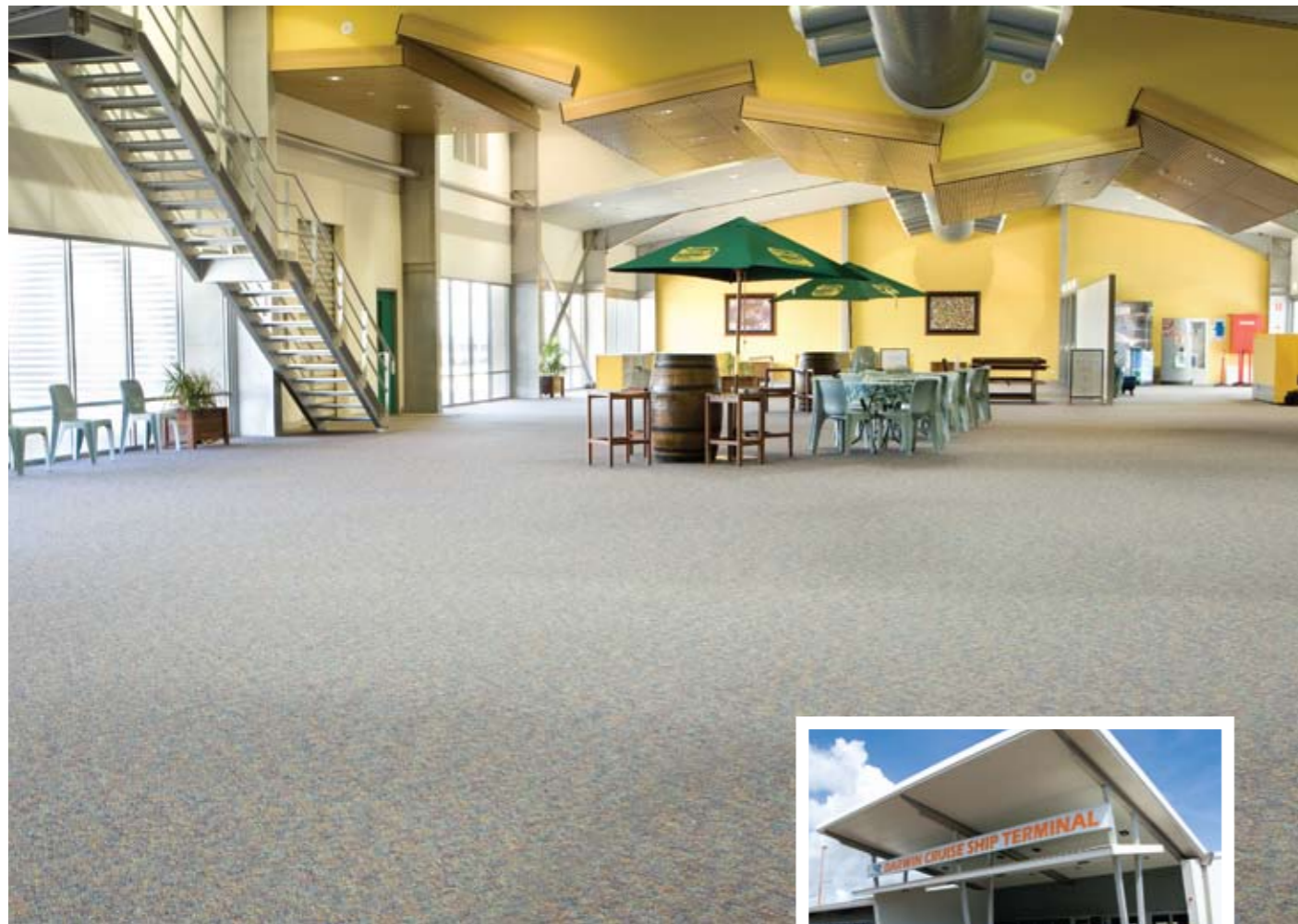
This expertise and personalised service, combined with a comprehensive product range and high quality processing capability, has allowed BlueScope Distribution to form lasting and mutually beneficial partnerships with its customers and develop as an industry leader.

BlueScope Distribution is a trusted supplier to all levels of construction and building markets, with more than 50 processing and distribution sites around Australia supplying products including steel plate, sheet and coil,

reinforcing fabric, bar and building products, merchant bar, structural steel, tubular, engineering steel and aluminium products. Customers appreciate the advantage of having a single source of products backed by the highest levels of service and support, combined with the technical resources and reputation of BlueScope Steel.

Whatever your steel needs are, BlueScope’s Distribution and Solutions businesses provide strength, expertise and market coverage.

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FOCUS ON FLOORING

The focus on floors in large, public-use buildings has two distinctly different viewpoints. When the area is crowded with patrons the floors are the unseen hero, coping with heavy traffic but seen by few. But at quieter usage times, the floors of these wide open areas are the star attraction, creating style and ambience and adding a distinct design element to the building.

With over 20 years experience in the field, specialising in carpet and vinyl floor coverings, Corporate Design Floors NT (CDFNT) fully understand what is required for even the largest project and have recently completed work on the Darwin Convention Centre and Darwin Ship Terminal in the exciting new Darwin Waterfront precinct.

In the Darwin Convention Centre, CDFNT supplied and installed Ontera and Interface Carpet Tiles to the auditorium, offices and general public areas, Altro Safety Vinyl to the kitchen, Forbo Marmoleum sheet vinyl to the administration areas, Birrus Aluminium Alloy Tactile indicators to the auditorium and public areas and Tredsafe to stair nosings to the theatre and general public steps.

In the Darwin Ship Terminal CDFNT supplied and installed Tarkett Carpet Tiles and Tarkett Sheet Vinyl.

While this was a large-scale job for CDFNT, except for dealing with the issues of working through the wet season and a near miss with a cyclone, matters which locals and business owners Greg and Marie McArthur are familiar with, the project was successfully completed with the CDFNT team of subcontractors working well with the Sitzler Laing O'Rourke and Macmahon team.

CDFNT is geared to handle any size project especially in indoor/outdoor carpets, moisture proofing concrete sub-floors, marmoluem sheeting, artificial turf, sub-floor preparation, latham expansion joints, sport floors, acoustic linings, stair nosings, rubber floors, birrus entrance mats, vinyl and carpet tiles, tactile indicators and of course carpets.

Corporate Design Floors is accredited on the Northern Territory Government Accreditation Scheme and is currently working on the Kormilda College upgrade, Ben Hammond PAWA complex, Casuarina Library refurbishment, Desert Peoples Centre in Alice Springs and the new Boroloolo School.

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CONSTRUCTION RECRUITMENT



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