



A STAR IS BORN

200 George Street is a state-of-the-art warm and organic landmark office tower and is one of Australia's most environmentally sustainable buildings. It refines the city skyline through its innovative, triple layer façade of automated timber louvres and clear glass.

Developed by Mirvac, 200 George Street is a new breed of office building. Rejecting the traditional cold metallic box in favour of a warm, more human form, 200 George will be one of Australia's most environmentally advanced and sustainable buildings. It represents 'World Leadership' in environmental sustainability practices having achieved a 6 Star Green Star in V3 Office Design rating and a 5 Star NABERS excellence energy rating.

200 George Street is owned jointly by Mirvac Property Trust and AMP Capital Wholesale Office Fund and is being developed and constructed by Mirvac's in-house development and construction divisions.

Mirvac Group is an ASX listed, integrated, diversified property group comprising an investment portfolio and development business. The company's investment division, Mirvac Property Trust, invests in and manages office, retail and industrial assets and the development business has exposure to both residential and commercial projects.

The AMP Capital Wholesale Office Fund provides investors with exposure to a portfolio of prime office assets predominantly in the largest Australian markets of Sydney and Melbourne. The fund strategy focuses on well-located assets with active asset management maximising the operating income and ultimately distributions to investors, while also capturing capital growth.

"Redefining the CBD office Tower was foremost in 200 George Street's conception," said Mirvac's General Manager for Commercial Development, Simon Healy. "From the micro climate at the ground level to the public space that responds to the blurring of workplace and life."

This new premium grade landmark building, designed by architects Francis-Jones Morehen Thorp, embraces innovation and leading technology to produce a tower form that is organic and responsive.

"Automated timber blinds, combined with vertical timber shading elements and three layers of performance glazing, combine to create an advanced environmental skin," informs Simon.

"This unique system is the first of its type in Australia and it adjusts to external factors and occupant preference."

Internal spaces at 200 George Street reflect contemporary thinking for a flexible workplace creating an advanced urban environment in which to work and spectacular views to Sydney's most recognised icons — the Opera House and Harbour Bridge.

The Circular Quay precinct combines history, character and the distinction of being in the financial and decision-making heart of the City.

"Located in the heart of Sydney's financial district, overlooking the harbour and its most famous cultural icons, this world-class

commercial tower will be a striking addition to the city skyline. It will be a natural focal point of Circular Quay."

"The elegant lines of 200 George place it in good company with its eminent neighbours the Sydney Opera House and Harbour Bridge. The location alone, alongside Australia's most recognised structures, offers prestige on a global scale."

Since 1972 Mirvac's vision has been to set the standard as a world-class Australian property group that attracts the best. With more than 40 years experience in the Australian development and construction industry, they create, own, and manage a diverse portfolio of assets. Mirvac's point of difference is their integrated business model.

"It enables us to bring a diverse range of skills to a development or acquisition opportunity. These skills span across: Development and Project Management, Leasing, Design, Construction and Asset Management. We're focused on maximising these skillsets and leveraging our competitive advantage in the sectors we operate in — office, retail, industrial and residential," informs Simon.

"By maintaining a core capability across these sectors, Mirvac is able to manage an appropriate balance of passive and active assets and can also unlock complex urban multi-use opportunities."

In 2013, Mirvac launched an ambitious sustainability strategy across the group called "This changes everything."

"We recognised that while there was great substance behind our sustainability work, we needed to unify our initiatives, clarify our approach and set some clear goals. The strategy we've developed and implemented since has done just that. 200 George Street is proof," said Paul Edwards, Group General Manager of Sustainability and HSE.

For more information contact Mirvac Group, L26, 60 Margaret Street, Sydney NSW 2000, phone 02 9080 8000, fax 02 9080 8111, website www.mirvac.com

JOINT OWNERS : Mirvac & AMP Capital
 DEVELOPER : Mirvac Projects Pty Ltd
 MAIN CONSTRUCTION COMPANY : Mirvac Construction Pty Ltd
 ARCHITECT : FJMT
 STRUCTURAL & CIVIL ENGINEER : BG&E
 MECHANICAL, ELECTRICAL, VERTICAL TRANSPORT,
 HYDRAULIC & FIRE ENGINEER : ARUP
 ACOUSTIC CONSULTANT : Renzo Tonin
 TRAFFIC CONSULTANT : Colston Budd Hunt & Kafes
 FACADE ENGINEER : Surface Design
 FIRE SERVICES ENGINEER : DP Consulting
 ESD : ARUP
 SURVEYOR : Rygates
 CONSTRUCTION VALUE : Estimated \$245 Million



Below Permasteelisa Group provided the mfree-S^{CCF} System to 200 George Street.

Permasteelisa Group is a worldwide leading contractor in the engineering, project management, manufacturing and installation of architectural envelopes and interior systems, that focuses on environmental sustainability themes. Their expertise in dealing with 'special features buildings' was a perfect match for Australia's most environmentally advanced and sustainable building—200 George Street, Sydney.

At 200 George Street the Permasteelisa Group introduced the highly innovative mfree-S^{CCF} (Maintenance Free, Sustainable, Closed Cavity Façade) into the Australian architectural landscape.

"The building envelope contains approximately 16,000m² of the mfree-S^{CCF} system and coupled with the use of timber shading devices represents one of the largest applications of the technology in the world," stated Andrew Vatiliotis, Permasteelisa Pty Ltd Australia's General Manager. "The key to the system integration and the project's execution success has been the initial high level commitment made by Mirvac Development, Mirvac Construction and Francis-Jones Morehen Thorp (fjmt) to embrace and engage the mfree-S^{CCF} technology."

Originally known as ISA in Italy, Permasteelisa was established in 1973. Expanding internationally in the mid-eighties; today Permasteelisa's architectural projects implement new energy saving strategies, custom made intelligent façades that filter light, abate acoustic pollution and save heat from the sun for winter heating, or summer ventilation. Their building designs are capable of generating power through photovoltaic cells and resisting the strongest seismic events or explosions. It's no wonder then that 200 George Street already represents 'World Leadership' in environmental sustainability practices with a 6-star Green Star in Office Design rating and a 5-star NABERS excellence energy rating.

"At 200 George the system is a unitised, compact highly transparent double skin façade with the integration of an automated natural timber shading device," added Andrew. "The external skin of the façade system consists of a monolithic glass with the internal skin an insulating glass unit. It's configured in such a way that the internal cavity of the façade cannot be contaminated by dust or condensation, regardless of the internal and external environmental conditions."

Research and development within the Permasteelisa Group has primarily focused

on sustainable design of buildings and the development of façade components and systems to achieve protection, energy saving and comfort and efficient design and materials.

"The high transparency of the glass accentuates the natural timber lamellas, which promotes warmth inwards to the occupants and outwards toward Sydney's more traditional masonry and metal cladding fabric. The dynamic shading device also plays a key role in the management of the heat and light transfer, whereby glare and solar radiation can be controlled depending on the location of the sun relative to the building whilst dynamically maximising the view."

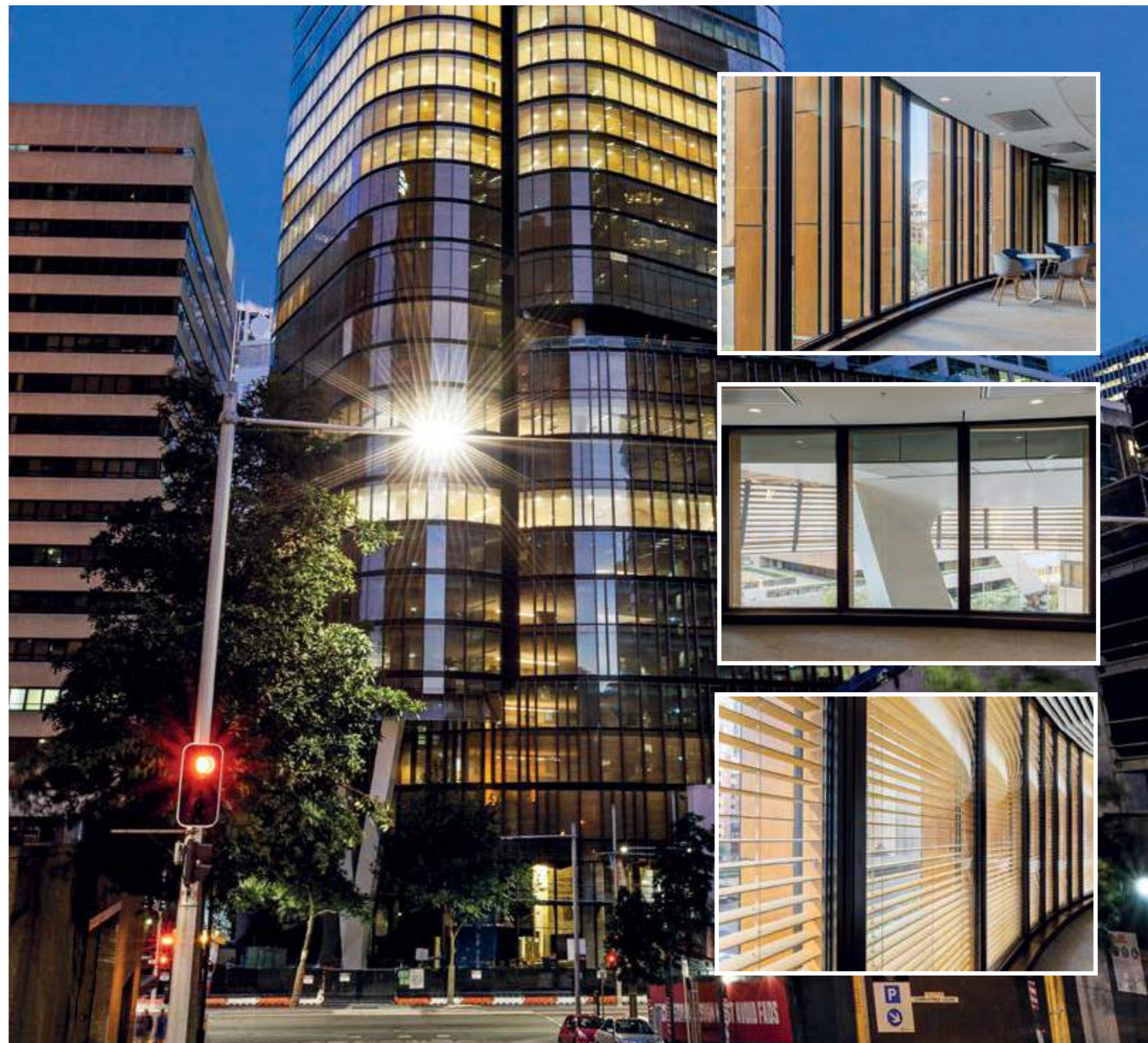
In addition to the enhanced light and heat transfer properties of the system the external/internal skin configuration also carries an inherent additional acoustic insulation, resulting in a high acoustic performance system suitable for a CBD area.

"The end product is a façade system that promotes high level thermal, visual and acoustic comfort for its end-users. The thermal performance of the system during summer and winter allows building owners to reduce mechanical equipment capacity, which results in opportunities to lower initial cost and long-term maintenance cost," said Dennis Battistella, Permasteelisa's Project Manager. Ultimately, the mfree-S^{CCF} system used in the 200 George Street façade attains similar performance to a double skin system, but without the associated complexity in production, loss of net-lettable-area and the high maintenance cost of a traditional double skin façade system.

Permasteelisa has led the industry in the development of free and fluid form structures with the successful completion of numerous prestigious projects worldwide. Their research has focused on providing technology that can be extended and applied to various project standards and specifications, not simply one-off ad-hoc products.

Recent projects include: The Old Treasury Building (Perth), 567 Collins Street (Melbourne), VCCC Melbourne, 180 Ann Street (Brisbane), Hobart Parliament Square (Hobart).

For more information contact Permasteelisa Pty Ltd, 13-15 Governor Macquarie Drive, Chipping Norton NSW 2170, phone 02 9755 1788, fax 02 9755 1418, info.sydney@permasteelisagroup.com, website www.permasteelisagroup.com





CRANE PLACE HERITAGE DISPLAY BOXES

14 steel boxes showcase a selection of significant artefacts unearthed during archaeological investigation of the site. Neatly embedded within the stepped stone cladding, each box is backlit, ventilated and sealed in a traditional aged bronze frame. Screen printed text and 'Quick Response Code' complete the experience.

DALLEY STREET HERITAGE DISPLAY CASES

An impressive array of display cases along Underwood Street recount the history of the locale from pre-settlement to recent site excavation. Multiple interlayers within the digi-glass laminate convey the story to stunning effect.



EY STAIR VOID

Cantilevered low-Iron glass and steel fascias

INTERGRATED FAÇADE BALUSTRADES

Crowd loaded stainless steel, 3m spans

11 STOREY ATRIUM GLAZED SCREEN

6m² 250kg panels



An integrated network of manufacturing companies with a national footprint in Australia and overseas providing building & infrastructure, engineering, transport, mining and capital equipment solutions.



www.nepean.com



Below NEPEAN provided complete structural steel solutions to the 200 George Street project.



NEPEAN is Australia's leading privately owned engineering, mining services and industrial manufacturing organisation offering unique capabilities to deliver high value, innovative and sustainable solutions spanning various industries. These quality attributes were the perfect fit for what was required by Mirvac on the \$245 million 200 George Street development. NEPEAN has four divisions: Engineering & Innovation, Mining, Building & Infrastructure, and Transport. "Each division has the experience, facilities and resources to deliver superior outcomes and when combined, seamlessly deliver large-scale fully integrated solutions," informs Dushyant Sangar, General Manager of NEPEAN Engineering & Innovation. "Continuous investment in equipment, facilities, people, research and development irrespective of market conditions has strengthened our capabilities."

"At the first stage of the 200 George Street project, NEPEAN manufactured distinctively and aesthetically shaped Y-Columns design with a total weight of around 400 tonnes of steel. The Y-Columns provide a large high-rise open area straddling from level one to level four of the 37-storey building. The site conditions were very challenging because of restricted space and the busy working environment of Sydney's CBD," explains Dushyant. "Portable sections of the Y-Columns were transported from NEPEAN manufacturing facilities to the site so it could be fabricated and welded

together there to produce the desired structure, shape and finish. It took around nine months to fabricate, join, weld, re-enforce and complete this massive steel structure. NEPEAN spent a further 18 months manufacturing, painting and installing many other steel columns and structures equivalent to another 400 tonnes of steelwork within the building, which included: the entry awning, roof feature, plant room and fire stairs" says Dushyant.

NEPEAN provides a full engineering service to the construction, mining, manufacturing, infrastructure, scientific, automotive and agricultural sectors. "Our operations are supported by extensive design facilities with state-of-the-art machinery and include custom design and construction of special purpose machinery, complex machining and precision tool making, laser cutting, heavy and light metal fabrication, sheet metal, shot blasting, painting and powder coat finishing. Our 150 employees can deliver nearly three-quarters of a million productive hours per annum," concluded Dushyant. NEPEAN has the depth, diversity, capability and experience to successfully deliver on the largest and most complex engineering projects.

For more information contact NEPEAN Engineering & Innovation Pty Ltd, 23 Graham Hill Road, Narellan NSW 2567, phone 02 4646 1511, fax 02 4648 2505, email dushyant.sangar@nepean.com, email ci@nepean.com, website www.nepean.com



Below McPherson Plumbing installed the plumbing, gas and hydraulic systems for the base building at 200 George.

Below Alkon Constructions provided the internal fitout for the 200 George Street project.



For more than 45 years McPherson Plumbing has been providing plumbing services in the commercial, residential and industrial areas of the ever growing and changing construction industry. Some 30 years ago they completed their first major project and has since become a highly regarded industry name. Today they're a leading hydraulic services contractor that specialises in the design, construction and fitout of major projects for all types of construction including apartment complexes, hospitals, commercial office space, shopping centres, resorts and large international hotels.

Operating from Erina on the NSW Central Coast, they primarily service all of Sydney, as well as the Hunter, Newcastle and the Central Coast and work alongside large construction companies including Mirvac, Westfield, Baulderstone, Hutchinson Builders, Icon, Laing O'Rourke, Multiplex and John Holland. With McPherson Plumbing's extensive portfolio in high-rise residential and commercial developments it wasn't surprising to see them working with Mirvac on 200 George Street, Sydney.

"We installed the plumbing, gas and hydraulic services systems for the base building infrastructure at 200 George," informed Paul Anderson, McPherson's Construction Manager. "In addition we did

the tenancy fitout for Ernst and Young, the major tenant, as well as Mirvac's 3-level tenancy."

200 George Street will be one of Australia's most environmentally advanced and sustainable buildings. Attaining 6-Star Green Star rating it represents 'World Leadership' in environmental sustainability practices. Sustainability features will include the use of a triple glazed façade design allowing high levels of natural light, high volume fresh air intake, a combination of active chilled beams and V.A.V. systems, improved air quality via use of low VOC materials, cyclist facilities, two sockets for Electric Vehicle charging and water recycling in addition to the latest building energy and water efficient designs and intelligent monitoring and control systems.

McPherson's team of dedicated, loyal and extremely competent employees, many who joined the company as apprentices, are currently working on a variety of other projects including a number of residential developments and a major extension of the Warringah Mall.

For more information contact McPherson Plumbing Pty Ltd, 11-13 Barralong Road, Erina NSW 2250, phone 02 4365 3940, fax 02 4365 3928, email admin@mcplumbing.com.au, website www.mcplumbing.com.au

Situated in Australia's leading business and cultural precinct in the heart of Sydney is 200 George Street. Set to become Australia's most environmentally advanced and sustainable building it is inextricably linked to the quality of the working environment.

Premier tenant Ernest and Young on this \$245 million development have engaged the renowned expertise and experience of Alkon Constructions to provide their internal fitout. "Company performance and staff satisfaction are paramount considerations in internal fitouts," says Alkon's Anthony Maiuri. "The natural warmth of the materials and responsiveness of the environmental systems at 200 George Street reinforce the human focused qualities and provide us a platform for the long-term success of its tenants."

The form of 200 George is derived from the overlapping intersection of two carefully proportioned rounded rectangles and a simple rectilinear core. The buildings form captures the unique primary view corridors with each corner offering a primary point of generation or 'centre point'.

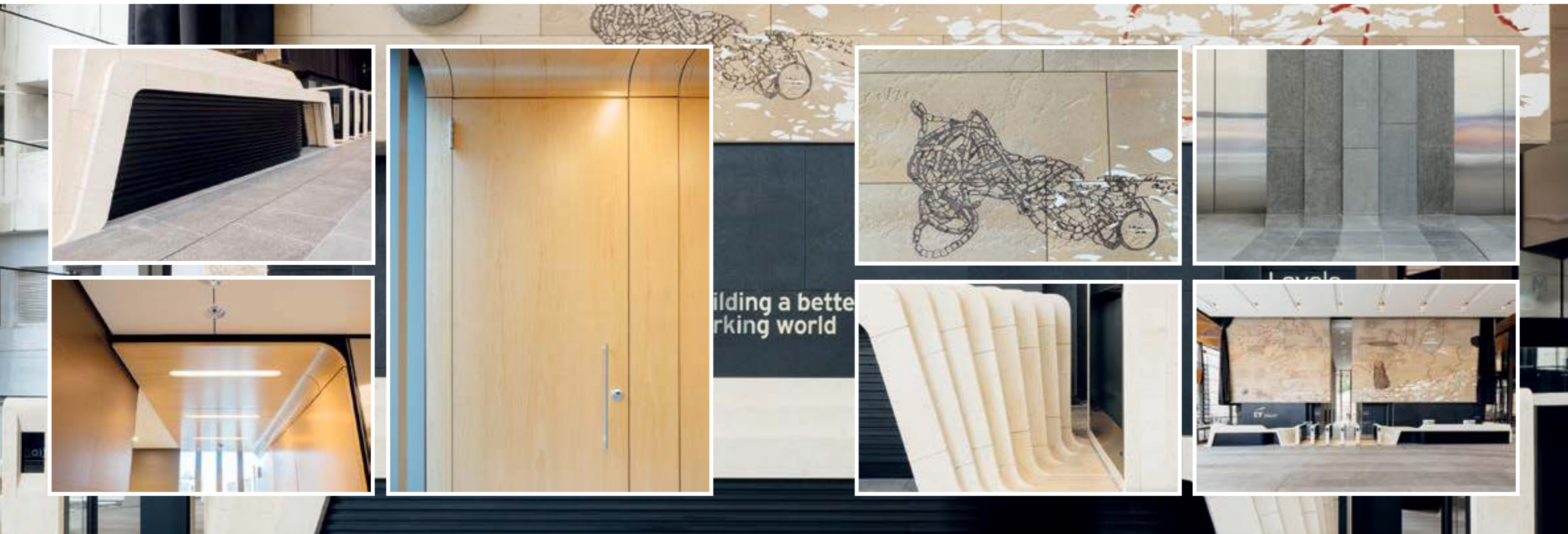
The northern corners centre points are directly related to the significant views of the Harbour Bridge and Opera House. This

creates an interior space and architectural form that orientates directly towards these important and world-renowned Sydney views. The second corner is set at right angles to the first presenting western views of Darling Harbour and Port Jackson.

"We've created floor plans that support agile activity driven work spaces, yet can equally be configured for traditional offices and open workspace," said Anthony.

"Efficient industry based modules and a rectilinear ceiling grid layout also allows flexibility. Even the design of 200 George Street's public and work spaces acknowledges the way in which business conduct has evolved, offering active uses and amenities conducive to the interaction and exchange of ideas."

For more information contact Alkon Constructions Pty Ltd, Unit 37/65 Marigold Street, Revesby NSW 2212, phone 02 9772 3922, email anthony@alkonconstructions.com.au



More of Australia's leading Architects and Builders are turning to H Dallas when they require some of the most advanced joinery for many of Australia's landmark buildings. Since 1979 H Dallas has been producing joinery on projects of up to \$25 million from their 6,000m² production facility located in Revesby. The H Dallas name has become synonymous as one of the most trusted names in providing commercial joinery solutions, some of their works can be seen from the Perth Children's Hospital, to the T2 Qantas terminal in Sydney, to the Utzon Room of the award winning Sydney Opera House and more recently 200 George Street for Mirvac Construction.

H Dallas employs over 115 staff and boasts a staff retention rate in excess of 40% of all fulltime having served in excess of 10 years, to over 25% 20 years and beyond. H Dallas also adopts an Apprenticeship induction program to develop young Australians into becoming top craftsmen ensuring the "passion for excellence" continues within the H Dallas brand. In 1992 the staff of Laurie Casalini, Alan Swarbrick and Loriano Casalini had a vision to develop inroads into the larger commercial joinery sector throughout the Sydney and Canberra regions, informed Phil Cant, H Dallas Business Development Manager. "Our current projects will see H Dallas grow throughout the current financial year and beyond as we see record amounts of commercial construction throughout the greater Sydney region."

H Dallas commenced working on the 200 George Street project in July 2014 producing a variety of joinery from the concierge and reception desks, 35-levels of custom veneered washroom partitions, kitchenettes and custom made veneered acoustic bi-fold doors. The work on the washroom joinery was unique as it involved the use of veneered plywood that had to be shaped into ceiling panels running down to form the face of the washroom doors and partitions whilst it all had to be suspended without the use of legs to support the structure. The veneer used was a solid rock maple of which had to be matched and stitched into sections to be shipped to Melbourne for the laying up process of each individual panel. "There was also a process of joining the solid timber edges with the veneer within the specific timeframe to avoid any gapping in the joins," stated Phil.

"The 200 George Street project is one from which our design, production and installation teams can be proud of in overcoming some of the challenges involved within such a scope of works. Despite this, the team managed to work through the obstacles to deliver yet another great project that the H Dallas name can add to its ever growing portfolio."

For more information contact H Dallas Commercial Joinery, 47 Marigold Street, Revesby NSW 2212, phone 02 9771 4200, email sales@hdallas.com.au, website www.hdallas.com.au

In the heart of the city and overlooking Sydney Harbour, the 37-storey commercial tower at 200 George Street will not only be a natural focal point of Circular Quay, but the most environmentally constructed building of its time.

As part of the site development, archaeological excavations in the northern part of the George Street basement uncovered natural sandstone shelf bedrock below the basement floor. Australia's stone specialists, Shellbay Stones International has been retained on the \$245 million project and will use much of this excavated sandstone to clad the lobby walls and floors including solids and radials to lobby and external staircases. Most of all this showcases the French solid limestone clad concierge desk, and tenant desk including all 11 turnstyles.

Since 2001 Shellbay Stones has built its foundations on excellent service and quality products, specialising in technical design, high quality custom made stone products, stone cladding, paving and tiling and large scale construction installation. "Features of this project include solid stone façades externally and sandstone and granite for all internal lobby walls. It's a very unique façade and complicated stone floor design, especially the stair cases," informs Director Paul Saikali. "Once routed the sandstone will also be embellished by an artist and become part of a public art initiative on the

site." Through using natural timber, sandstone and clear glass 200 George Street will contrast the surrounding greyness of existing towers.

Shellbay Stone's team of 28 professional stone masons are amongst the most experienced in NSW and their work can be seen in projects throughout NSW and the ACT, including:

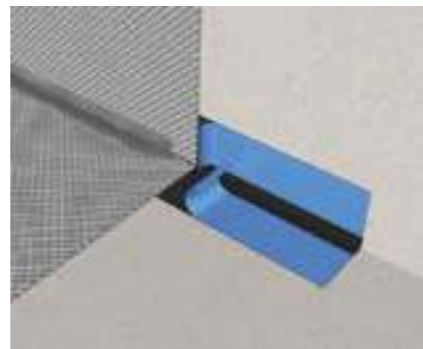
- Extensive marble and tiling throughout the award winning re-design of Westfields Sydney and the Sydney Court House;
- Large amounts of granite and travertine – 15,000 square metres to be exact – in the Westpac Building, Sydney;
- A mix of limestone, ceramic and marble stone in twelve stories of tiled wet areas and the main entry foyer of the City West Offices in Canberra.
- ANZ Tower, Castlereagh Street in Sydney

Shellbay Stone's highly qualified craftsmen work directly with architects and engineers to achieve the perfect outcome. Their experience in construction tendering and large-scale project management is unparalleled.

For more information contact Shellbay Stones International Pty Ltd, 1 Henty Close, Prestons NSW 2170, phone 02 9822 4285, fax 02 9602 2005, Paul 0411 185 407, website www.shellbaystones.com.au

PROOFEX ENGAGE

Below Engineering Commissioning Services undertook the commissioning management and also achieved the Green Star requirement on 200 George Street.



Innovative anti-tracking, pre-applied waterproofing system for below-ground waterproofing

The Proofex Engage waterproofing system has successfully waterproofed millions of square metres of below-ground structures. It can be found in projects in many countries around the world and is quite simply one of the best performing cost-effective below-ground waterproofing solutions available today. Parchem have introduced the innovative Proofex Engage system, which incorporates a unique cell mesh that mechanically bonds to freshly placed concrete giving a tenacious waterproof seal, preventing water migration even if ground settlement occurs. It is installed rapidly with no need for blinding concrete, priming or protection and can be trafficked immediately after application. It is also gas resistant and highly durable and is unaffected by contaminants within the ground. Quality is assured through BBA and EN13967:2004 and the system is suitable for use in accordance with BS8102:2009 Grades 1, 2 and 3.

PROOFEX ENGAGE - SAVES TIME AND MONEY !!!

NON WATER-TRACKING

In the unlikely event of damage to the membrane during installation, the smart anti-tracking mesh design of Proofex Engage will prevent water tracking between the membrane and the concrete. Proofex Engage has been tested to ASTM D5383 and shows no lateral water migration when tested at 70m hydrostatic water pressure.

STRONG MECHANICAL BOND

The unique mesh design of Proofex Engage gives a permanent tenacious mechanical bond to freshly placed concrete. This bond is not dependent on any chemical reaction and can be assured each time concrete is cast. The heavy-duty mesh design and properties result in a robust, proven membrane which is ideally suitable for project conditions.

PERMANENTLY BONDS TO STRUCTURAL CONCRETE

PVC membranes, self-adhesive and torch-on membranes can collapse where ground settlement takes place. This can lead to stretching and tearing of the membrane and can result in leakages. Proofex Engage however, will remain in place fully bonded to the structural concrete assuring complete waterproof integrity even if ground settlement occurs.

NO BLINDING CONCRETE REQUIRED

Blinding concrete is preferred, however Proofex Engage can be placed directly on top of a well compacted smooth granular fill substrate. A broadcast of damp sand on top of the granular material is useful.

Removal of the blinding concrete means less concrete and less labour time but also means less concrete truck movements which not only saves time and money but is more environmentally friendly.

NO MEMBRANE PROTECTION REQUIRED

Proofex Engage is a robust, heavy duty membrane with millions of square metres in projects throughout the world. The structural steel reinforcement is laid directly on top of the membrane ready for the structural concrete placement. There is no requirement for screed protection which saves valuable time and money.

BENEFITS TO OWNERS / DESIGNERS

An ever increasing level of importance is being placed by owners and designers with regards to structural integrity, cost-effectiveness and durability. Parchem recognise this, and Proofex Engage with its proven history, excellent holistic cost benefits and independent certification offers an unparalleled system solution for below-ground structures to combat these demands. It provides owners, clients and designers with a high performance system backed by excellent customer/technical service delivered through a comprehensive international network.

BENEFITS TO CONTRACTORS / INSTALLERS

Proofex Engage is designed for typical site conditions. It is heavy duty, robust and can be rapidly installed with easy to apply jointing ancillaries which are system-compatible. The system has a long track record; however Parchem can offer on-site training assistance for specific projects, delivered through teams of local experts. Contact your local Parchem office for more details.

Parchem offers the most comprehensive range of below-ground waterproofing product systems, manufactured to the highest quality standards backed by independent test certificates. Our wealth of experienced technical experts and specification managers will help you find the best system solution for your project.



www.parchem.com.au 1300 737 787



With the increasing number of environmentally advanced and sustainable buildings being constructed, the commissioning of building services is now more important than ever. One of the best in this field is Engineering Commissioning Services (ECS). Their unique depth of experience on global commissioning management projects and delivering buildings that perform as intended, has led to award-winning results.

As an independent commissioning management organisation, ECS is the vital ingredient that binds together the services design, construction and operation through a collaborative approach. "We manage the gap between client expectations, services design intent and the finished product: delivering a fully functional and energy efficient building is our business," stated ECS Business Manager, Nic Mills. "We don't just tick boxes, we think outside the square."

ECS has been working on Mirvac's 200 George Street since October 2013, undertaking the commissioning management for the project and also achieving the Green Star requirement for commissioning. "ECS ensure that the commissioning process and procedures are performed in a structured and well defined way; to review, inspect and test operational components and prove the building services," informed Nic.

"Commissioning is applicable to all phases of a project. It starts with conceptual design and extends through detailed design, procurement, construction, and final handover. It also extends to maintenance throughout the operation of the asset."

The main objective of commissioning is the safe and orderly handover of the building from the constructor to the owner, ensuring its operability in terms of performance, reliability, safety, information traceability, energy consumption and maintainability, meet required standards. It ensures the facilities provide optimal occupant comfort, low energy consumption and the resultant low carbon footprint.

Operating from offices in Sydney, Brisbane, Melbourne and Perth, ECS managers are registered with the Commissioning Specialist Association (CSA) and have been responsible for the delivery of many prestigious projects, from highly technical mission critical facilities to multi-use sustainable projects. ECS were winners of the most recent CIBSE Building Performance Award for Commissioning, and were a finalist in the CSA Best Project and Best Commissioning Provider categories.

For more information contact Engineering Commissioning Services (ECS), on phone 02 9928 6960 or visit www.engcommservices.com