EMBRACING DESIGN

DEVELOPER : Investa and Gwynvill Group
MAIN CONSTRUCTION COMPANY : Lendlease
ARCHITECT : HASSELL
PROJECT MANAGER: Savills Project Management
STRUCTURAL ENGINEER : Enstruct
CONSTRUCTION VALUE : $285 million

Sixty Martin Place is an architecturally inspired premium grade 33-storey commercial tower located in the financial and law district of Sydney's CBD. The new development comprises of a spectacular, 5-storey 22m high atrium, known as the 'Civic Room', premium retail offerings, flexible working spaces, concierge services for tenants and visitors, outdoor green terraces, and superior end-of-trip facilities. Sixty Martin Place is targeting several prestigious environmental performance ratings such as 6 Star Green Star Rating, NABERS 5 Star Energy Rating and has recently been awarded the WELL Core & Shell Pre-certification at the Platinum level.

In February 2015, Hassell were announced the winners of Investa's international design excellence competition for a commercial tower to be built in Martin Place, replacing the building previously known as the Westpac building. In early 2016, demolition commenced and Lendlease Building were awarded the D&C contract to construct the PCA Premium grade 33-storey commercial tower recently completed in September 2019.

"We created a building with 40,000m^2 NLA replacing the previous 1960's 28,000m^2 NLA building," said Mark Tait, Group Executive and Head of Commercial Development. "The change in building size has occurred due to a challenging planning process in which we amended the Local Environmental Planning Controls and looked for innovative ways to create tenant amenity and larger floor plate sizes."

When the structure of the building reaches Level 11 it begins to progressively cantilever over its adjoining building, the historic St Stephens Church until the graceful curve, reflecting the spire in the façade, reaches Level 24. "Our journey with St Stephens Church has created a positive outcome for all stakeholders – in return for the additional airspace which has been acquired by cantilevering over the Church, St Stephens have received a monetary contribution to put towards maintaining the important heritage building and in return Sydney has a world class development that honors and incorporates colonial Sydney architecture within a unique and contemporary civic space," said Mark.

The 4-storey sandstone podium is reflective of the surrounding sandstone and brickwork façades that lend Martin Place it's character and is reflective of Sydney architecture. The interior of the $285 million skyscraper has the potential for interconnected workspaces and floor to ceiling windows to maximise views and an abundance of natural light. Large areas of high performance glazing minimise the use of artificial lighting and automatic window shading reduces the need for air conditioning as well as modern ventilation technology producing exceptionally clean indoor air environment.

On the Level 18 plantroom level, there are more than 150 tonnes of steel trusses for the cantilever structure and over 23,000m^3 of concrete that was been poured in about 4,000 trips by concrete trucks.

The building is contributing to the revitalisation of Martin Place and making a positive contribution to the reinstatement as Sydney's Civic Heart with nearby transport connections, including the upcoming Sydney Metro development due for completion in 2024, integrating the development into Sydney commercial core.

"Sixty Martin Place has not just been about a single building and its tenants; significant developments like this are placemaking opportunities affecting the whole of the community and Sixty Martin Place is about the whole of Martin Place precinct. With other like minded commercial office neighbours, Investa and Gwynvill (the owners) formed the Martin Place Owners Group committee early on in the development process with the aim of ensuring the future relevance and vibrancy of Martin Place, this committee includes 14 neighboring businesses and landowners," said Mark.

This placemaking development contribution is a strategic focus of Investa demonstrated on other projects. A recent development by Investa, Barrack Place at 151 Clarence Street Sydney, was recently awarded the Urban Land Institute (ULI) Asia Pacific 2019 Award for Excellence. A key criteria for the award was that the development demonstrate relevance to the contemporary and future needs of the community in which it is located.

For more information Investa, Level 30, 420 George Street, Sydney NSW 2000, phone 02 8226 9300, website www.investa.com.au

Below NEPEAN Engineering & Innovation manufactured and installed the structural steel elements including the trusses and mullions.

NEPEAN is Australia's largest privately owned engineering, industrial manufacturing and mining service company. NEPEAN operates globally and is made up of four divisions; Mining, Transport, Building and Infrastructure as well as the Engineering and Innovation division that supplied engineering services for Sixty Martin Place.

In mid-2017, NEPEAN Engineering & Innovation started designing and engineering the large-scale structural steel elements, as per the architect's and engineer's specifications. Shop drawings were created prior to the manufacture of each element, which typically took 2-8 weeks to fabricate, weld, blast and paint in NEPEAN's huge 50,000m² facility. Onsite work began in November 2017.

NEPEAN manufactured, erected and assembled three 43 tonne steel transfer trusses. The three 4.5m high by 21m long trusses are installed in the plantroom on Level 18. At podium level, they fabricated and installed steel mullions or blades and steel framing for the stone cladding and decorative stainless-steel trim for the sandstone features. Steel awnings were installed across Levels 1, 2, 5 and 31.

"We had some tricky work beginning at podium level where we installed some very tall, 16m long mullions that were machined from a solid block of steel. They were not only difficult to manufacture, but also to install, especially as they went in after the glass above. We completed a successful job and they are a beautiful feature," said Johan Dreyer, Manager of the structural steel division. "The trusses allow the building to cantilever out over the top of St Stephens Church. The trusses also support the hanging load of the four floors beneath, to maximise cantilever. They support weight above and below, a good piece of design by the engineers. Fabricating the trusses was a lot of hard work as they were so large and required special welding and machined mating surfaces. There were engineered fittings for some intricate bolting to enable installation."

NEPEAN made full penetration butt welds of the plates, 100mm for the flange and 80mm for the web, to make the I-beams, using 120 passes to complete the weld. To achieve the required precision at the bearing connection, eight joints for each truss, they machined the surfaces and drilled holes for 140 bolt connections with a maximum 0.6mm gap allowed between each bearing connection. Such a heavy structure required a special installation method that they erected using a 40-tonne overhead crane and test bolted prior to delivery onsite.

The challenges also included the development of customised connection details for installations by other trades such as stone cladding and glass. This involved high level of detailing and coordination, in addition to complexity in fabrication given high level of efficiency of the entire building structure.

"Cast-in elements were used throughout the building to anchor the steel elements and transfer the loads. We spent time reassessing the position of the elements, and updating the shop drawings, after the concrete pours. Manufacture of the steel elements was therefore done just in time on a tight schedule. As a fast-tracked project, one of the big challenges was the time frame required to fabricate and to execute the works on site. NEPEAN and the builder worked together to develop a customised site solution for items that needed further design development and changes throughout the project. We successfully met the challenging target dates with professionalism and a high level of quality despite the complexity of fabrication," said Johan.

NEPEAN also fabricated and installed the staircase in the foyer, another feature element at Martin Place. The staircase is an elegant design, a 5-level steel frame clad with timber and glass hanging from cables. The design, manufacture and installation were extremely challenging.

NEPEAN Engineering & Innovation was established in 1974 and currently employs 110 staff at their Narellan site, one of Australia's largest fabrication shops. They are expert in procurement, materials handling, manufacture, building methodology and programming.

"We prefer large, complex projects that are usually for the large commercial and industrial sectors," said Johan.

For more information contact NEPEAN Engineering & Innovation, 23 Graham Hill Road, Narellan NSW 2567, phone 02 4646 1511, email nepean@nepean.com, website www.nepean.com

Below Shellbay Stones supplied and installed all the sandstone cladding, marble, porcelain and terrazzo flooring for the project.

Shellbay Stones is a leading stone cladding specialist and an expert at the design, supply and installation of stone cladding for commercial applications. They provide stone façades, travertine, porcelain and marble walls and floors as well as paving for large developments.

The contract for internal and façade linings for Sixty Martin Place was awarded to Shellbay Stones in mid-2015. Director, Paul Saikali worked with two others in their design team for five months creating shop drawings.

Paul went to the Savoy Quarry in France, with Lendlease, their architects and clients to choose a grey coloured marble that suited the architect's specifications. The blocks were then shipped to a facility in Italy and cut to slabs, then cut to required size. "We manufacture our marble products in France and Italy," said Paul. "The sandstone comes from Gosford."

Onsite installation began in September 2018 with the supply and installation of a range of stone products including 3,500m² of sandstone for the façade cladding at podium level. The reception desk, staircase and lining of the lobby required 2,000m² of marble and 1,500m² of porcelain was used for terrace floors. In the large basement level end-of-trip facility, 500m² of terrazzo flooring and 500m² of porcelain walls were installed across the showers and washrooms. Shellbay Stones also supplied and installed terrazzo walls and floors to the bathrooms and amenities throughout the commercial floors from Level 1-31.

"The challenge of the job was the sheer size of the panels and modules," said Paul. "A large amount of material was needed and most of the sandstone and marble pieces were extremely large."

The podium façade and the interior of Sixty Martin Place has been beautifully clad by Shellbay Stones, with their high quality custom made stone products. The company provides quality stone materials as well as ceramic tiling, paving and cladding for any large construction job involving stone.

Shellbay Stones provide expert craftsmanship along with a complete service from tendering, budget estimates, preliminary design sketches and project management.

Established in 2000, Shellbay Stones works across the Sydney region and the Australian Capital Territory specialising in large scale constructions, offering project management services and professional delivery of large projects. "We've just finished a large scale job at Harbord Diggers Club for Genellan," said Paul. "We supplied and fit the sandstone façades, the granite floors and paving around entryways to all six buildings of the development."

Shellbay Stones have completed some impressive commercial projects such as the supply and install contract for the extensive marble cladding and tiling throughout the Westfield Centrepoint Tower, as well as the stylish lobby of 200 George Street, completed in August 2017.

In June 2013, Shellbay Stones installed the internal lining for the Westpac Place, using 15,000m² of travertine for the lobby floors and walls and over 5,000m² of black granite on a staircase and throughout the food court.

At the City West Offices in Canberra, Shellbay Stones used a mix of limestone, ceramic and marble stone in the wet areas and the main entry foyer of the contemporary 12-storey building.

Other large developments include stone and marble fitouts, including grand staircases bathroom vanities and counters, for luxury residences, restaurants, hotels.

For more information contact Shellbay Stones International Pty Ltd, mobile (Paul) 0411 185 407, email psaikali@bigpond.net.au, website www.shellbaystones.com.au

Below RFI Technology Solutions and installed the In Building Coverage network solution for Sixty Martin Place.

RFI Technology Solutions (RFI) is a global technology solutions company specialising in wireless coverage providing mobile phone and data transmission as well as radio coverage inside a building. They are Australia's largest In Building Coverage (IBC) network provider supplying technology solutions for networks installed in new commercial developments.

For Sixty Martin Place, RFI designed, installed and commissioned 10 mobile phone IBC solutions covering 40,000m^2 of floor space over 33-levels including the multi-level underground car park. The solution provides IBC for all seven telecommunications bands and is designed to be shared with all carriers.

"The design required multiple iterations with input from all stakeholders and took approximately six weeks to complete," said Stuart Joyner, Technical Services Manager. "The solution has resulted in optimum coverage for mobile voice and high speed 4G data applications within the office building. The result is high speed mobile data connectivity for all tenants, employees and visitors within Sixty Martin Place."

RFI faced tight delivery schedules including the later requirement to deliver MIMO. "MIMO means multiple input and multiple output, giving the network increased capacity and therefore a better user experience for mobile phone users at Sixty Martin Place," said Stuart. "Adding MIMO required additional design iterations as well as additional equipment to be installed to facilitate the technology. We worked extensively with all of the required stakeholders to resolve and overcome any site challenges. This collaborative approach has resulted in a best in class high speed mobile data installation."

The sophistication of contemporary technology and the expectations of modern business translates to the need for reliable IBC in new commercial buildings. RFI also designs and builds many Distributed Antennae System (DAS) for hospitals and shopping centres.

"We are a leader in IBC and DAS installations in Australia and have many high rise projects currently in progress in Sydney, Brisbane and Melbourne. We are also at work on tunnel radio rebroadcast work for major road infrastructure projects in Sydney. RFI has previously delivered wireless coverage in tunnels around the Asia Pacific region," said Stuart.

Established in 1979, RFI started as a small company manufacturing component they now employ 250, manufacturing 10,000 production lines and exports to over 80 countries. The company has three manufacturing facilities in Victoria and an R&D facility in South Australia for design, development, manufacture and testing of high performance antennas, components and repeater / rebroadcast systems.

Their services include site interference analysis and remediation, lightning protection, the installation of cables and connectors, batteries and industrial energy products. RFI designs, installs and supplies their products so they have control of the supply chain enabling them to implement design changes quickly and can manufacturer very high volume, low cost product when necessary.

RFI is also Australia's largest solar energy distributors and design, supply and install solar power systems and equipment. They have a team of experienced renewable energy project managers who have worked on both large scale solar and energy storage projects in Australia. The company installed a 100kW solar system on their largest manufacturing facility, 4,000m^2, at Bayswater, with 540 solar modules, a bank of SolarEdge inverters and a 40kW battery storage system to offset electricity usage and reduce power bills. They carried out the design and supply of this battery on grid PV system, coordinated with the network provider, obtained grid connection approval and managed delivery of the whole project.

RFI supply integrated network systems across a range of sectors including the mining, oil and gas industries, transport, utilities and infrastructure as well as the agriculture, commercial and broadcast industries.

For more information contact RFI Technology Solutions, 99 Station Road, Seven Hills NSW 2147, phone 02 8814 2300, email enquiry@rfi.com.au, website www.rfi.com.au

Below Siemens designed the Integrated Services Platform and automated tools for the project.

Siemens is a global company focusing **on electrification, automation and digitalisation to produce energy efficient,** resource saving technologies. Siemens is a leading provider of smart infrastructure solutions and services for commercial and industrial buildings, contributing to cities that are more sustainable, resilient and accessible.

In early 2017, the team started design work on an Integrated Services Platform (ISP), a set of automated tools for connecting software applications. The ISP chosen for Sixty Martin Place was a Siemens Desigo CC Building Management System (BMS).

"The design approach was formulated as a result of interfacing workshops with both the end users and trades to confirm the availability of the selected technologies, and to confirm the functionality available to the ISP through the use of industry standard open protocols," said Siemens NSW Regional General Manager for Smart Infrastructure, Stephen Connell. "This then progressed into an offsite lab being setup to carry out integration and functionality testing prior to deployment within the building. This ensured that the project execution itself was as smooth as possible."

The Desigo CC Building Management System surpasses a traditional BMS by integrating all building requirements into one comprehensive interface. It allows all data to be viewed in one place, on screen, for a real time snapshot – a snapshot of the whole building functioning as a system of controllable subsystems. The subsystems include building automation, utility consumption, HVAC, electrical systems, lighting, blinds, lifts, hydraulics, the communications network, fire safety and security.

"The key focus of bringing all the subsystems together is to give the building operator full situational awareness, in order to be able to react in real time. The Desigo CC BMS platform provides a workflow for the most appropriate action," said Shane Perkins from Siemens. "Each subsystem is independent of other subsystems and can therefore be upgraded or replaced without impacting other subsystems. All subsystems are connected to the ISP via the Integrated Communications Network (ICN) using industry standard open protocols. This ensures the flexibility and longevity of the system by allowing future subsystems to be added as the building's requirements evolve."

Siemens also engineered and installed the Energy Management System which includes electrical, water, thermal and diesel monitoring.

All of this data is captured by the ISP and leveraged by Siemens Navigator, the cloud-based data management platform designed to optimise the performance of buildings. Built with powerful reporting and analytic capabilities, Navigator collects and analyses building performance data, identifying performance optimisation and energy savings measures on a continuous basis.

"A challenging aspect of the design was that it involved a large number of different trade suppliers and internal and external stakeholders. There was a lot of input to take into consideration as we moved into design finalisation," said Shane.

From concept through design, engineering, integration, installation and commissioning, a fluid team of up to 20 worked across the entire project. Installation of the hardware across all 32 floors, three basement floors and the roof level plant room began in May 2018 and was completed by September 2019. "At Sixty Martin Place, Siemens has installed one of the most comprehensive and automatic systems in the Sydney CBD," said Shane.

In Australia, Siemens has offices in Melbourne, Sydney, Perth and Brisbane to provide comprehensive building solutions and services perfectly tailored to any individual situation.

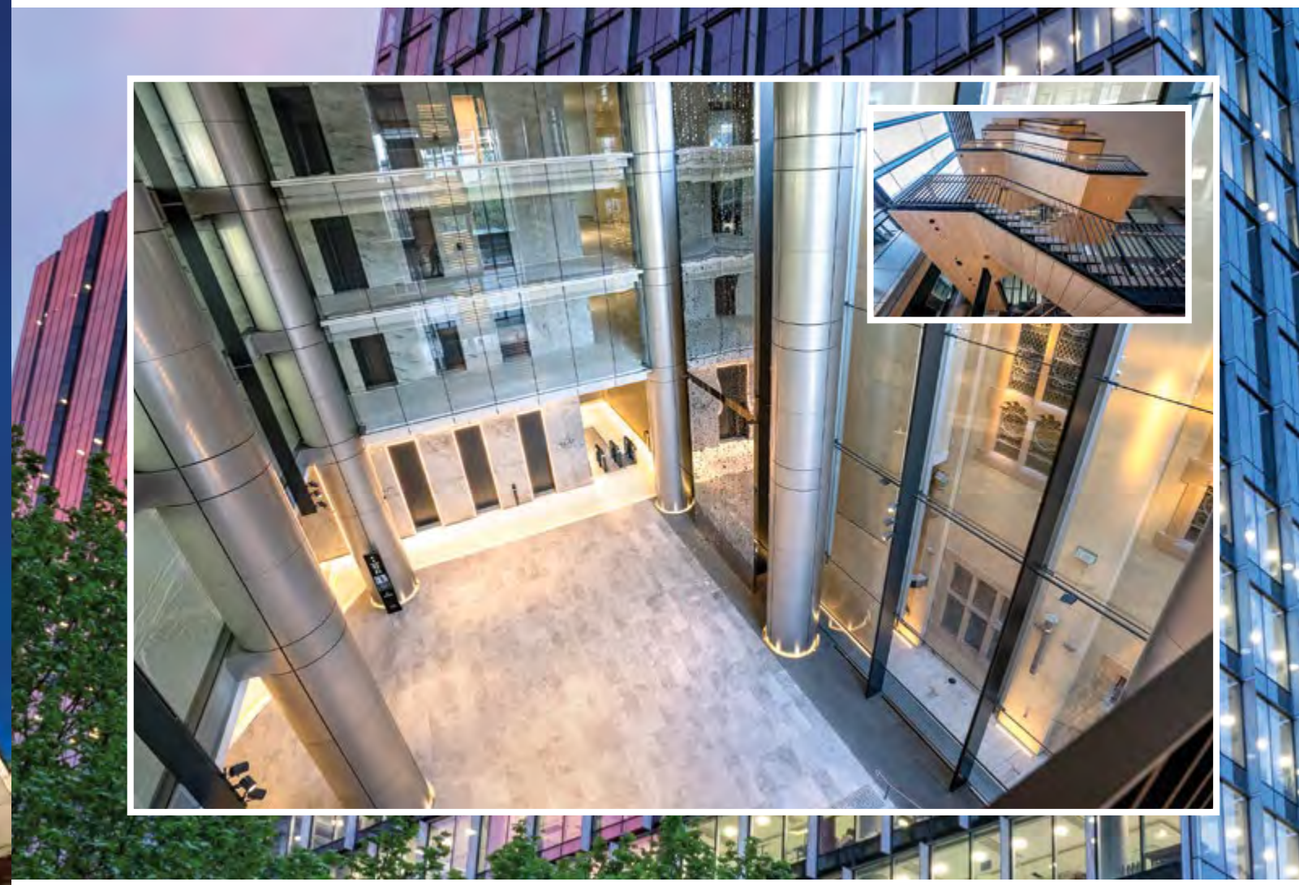
Siemens is currently at work on multiple sites throughout Australia including premium commercial developments, universities and hospitals as well as projects in the security, infrastructure and transport industries.

"The future for Siemens is promising. There is an appetite in Australia for smart buildings and Siemens is at the forefront of this technology," said Stephen. "At Siemens we aim to create sustainable urban environments which promote flexibility, sustainability and productivity. Smart buildings are a powerful source of this competitive advantage and can interact with its people, systems and external elements. The end goal is to make the building an active contributor to the organisation's success – so that it is more than just four walls."

For more information contact Siemens, email sbtnsw.sales.au@siemens.com, website www.siemens.com.au

Sixty Martin Place, New South Wales

Below De Martin & Gasparini pumped 35,000m³ of concrete which involved over 4,000 truck deliveries to Sixty Martin Place.



De Martin & Gasparini (DMG) is a concrete supply and placement company with years of experience working within busy city sites.

Starting on Sixty Martin Place in early 2018, DMG supplied, pumped and placed 35,000m³ of concrete which involved 4,000 concrete truck deliveries, a pump and two tower booms. "We had one tower boom servicing the jump forms and another for the suspended floor slabs," said Project Manager, Joel Di Biasi. "With up to 20 men onsite we completed the job in July 2019."

As a subsidiary of Boral Limited, DMG are able to draw on the resources, skills and knowledge of a large company for innovative projects like Sixty Martin Place.

"Whilst for the most part it was a relatively straightforward project, there was significant complexity with engineering challenges of the cantilevers at the upper storeys," said Joel. "Large trusses were used to transfer the loads and we strengthened the concrete elements, such as the columns, to take these loads. We supplied super high strength Boral 120Mpa concrete, achieving a complementary solution for the complex engineering."

DMG was established in 1947 and is now one of largest concrete supply and placement companies in the country. With offices in Sydney and Newcastle, DMG services New South Wales and the Australian Capital Territory and they are currently expanding into Southern Queensland.

"Over the years DMG has supplied and placed concrete for between 70% to 80% of the high rise structures in the Sydney CBD," said National General Manager, Greg Miller.

Their previous work for Lendlease includes concreting services for three towers and smaller residential and retail buildings at Barangaroo where an onsite batching plant was constructed to supply 300,000m³ of concrete, eliminating the need for deliveries. The large scale project required a broad range of plant and equipment and DMG made a substantial investment in modern trailer pumps and tower booms to ensure the demands of the project were met.

For more information contact De Martin & Gasparini, Unit 4B, 7 Worth Street, Chullora NSW 2190, phone 02 9748 5100, email graziano.barbaro@boral.com.au, website www.demartinandgasparini.com.au