

THE INTRICATE BUSINESS OF REBIRTHING AN ICON

MAIN CONSTRUCTION COMPANY : Grocon
PROJECT END VALUE : \$1.16 billion
COMPLETION : March 2014
STRUCTURAL & CIVIL ENGINEERS : Robert Bird Group
CONSULTING ENGINEERS : Norman Disney & Young
ARCHITECTS : Buchan Group

The \$1.16B Emporium Melbourne comprises more than 230 tenancies over 46,000 square metres, contains an exciting blend of heritage and new design, and will be one of the most impressive retail complexes ever built in the Southern Hemisphere.

Redeveloping an icon of Melbourne's retail heritage is no easy task, especially when the complexities of the construction task include needing to bridge over and tunnel under a key CBD thoroughfare. On the Emporium Melbourne project, Grocon needed to use a high degree of innovation and extreme care to complete the process of transforming an ageing Myer building into an up-market centre with the highest levels of finish and detailing while still retaining the art deco charm of the original.

The scope included redevelopment of two levels of basement, and a complete interior rebuild resulting in more than 230 retail tenancies including fashion boutiques, specialty retailers, restaurant and other food

and beverage outlets as well as high end public mall spaces. Two heritage facades were restored comprising 10 storeys on Lonsdale Street and 5 storeys on Little Bourke Street.

The project commenced in 2010, with the carefully staged demolition of 6 existing buildings located on the site including the multi-storey Myer Lonsdale St building. This had to be done in a manner which preserved the heritage facade elements and specific internal items. Significant excavation then followed which saw all material leave site through a single set of gates.

Grocon were required to safely remove a number of artefacts, including timber and metal staircases, cornicing and Lamson

tubes (the early 20th century system used for transferring money and paperwork between departments). These have now been restored, which was a challenge in itself, and placed on display in the new Emporium.

The new building's footings comprise bored piles with anchors and capping beams for retention. Raft slabs were used at basement level, including areas beneath the lift cores, with pad footings.

While the structure is a typical concrete structure, there were key points of difference in how it was built. The columns were all precast, and innovative precast shell beams typically 90mm thick were used as sacrificial formwork in lieu of conventional beam formwork.

Approximately 1200 shell beams up to 10m long were used for both band beam and edge beams, with splicing steel used across joins where required. The shell beams enabled a faster method of building as it reduced the tasks of formwork building and stripping, and improved safety mechanisms during construction.

Where it really got complex was the facade, which comprises the heritage elements and new sections including Glass reinforced concrete (GRC), glass, aluminium, steel, insulated sandwich panels and composite metal cladding, as well as a massive LED screen which wraps around one corner of the building. The new facade panels, up to 12m long, were curtain hung to save on crane lifts and site labour time.

"The connection of the heritage facade to the new structure was a difficult process. The design was for the new concrete slabs to be tied into the existing structure via the new steel reinforcing bars. The challenge was slab

shrinkage movements that had the potential to pull on the existing facade," explained Grocon's Site Coordinator, Jeremy Newland.

"This was overcome by tying the new slabs to the heritage facade by using dowels in sleeves to enable movement of the new structure, and these sleeves were later grouted. Above level 5 where there was no concrete structure, we used a structural steel birdcage. Here, horizontal facade through bolts were originally designed as a clamp detail. The impact of this on the face of the facade was going to be significant, so Grocon redesigned this aspect to rationalise the connection details above Level 5 on the Lonsdale St facade, to use drill and epoxy connections instead of through bolts."

The facade works were also complicated by the two bridge links which connect Myer and David Jones to the Emporium. For the Myer bridge link, the slab edge was redesigned to incorporate cast in place connections. The

David Jones bridge was somewhat more complex, as the existing facade of David Jones was not designed to be demolished, making the removal of the required parts of the facade a very intricate process. These bridges were particularly complex given the requirement for David Jones and Myer to continue to trade throughout.

Both bridges were constructed during night shifts so as to enable Little Bourke Street to remain uninterrupted throughout the day. The David Jones Bridge needed to be split into two due to weight restrictions with the crane, and a high level of precision was required for the final installation due to the exacting tolerances involved. In terms of engineering design, the level 1 bridge link is suspended from levels 2 and 3.

Two tunnels between Myer and David Jones and the Emporium were constructed under Little Bourke Street, using a top down methodology. This required open cut construction with non destructive digging around a high services area, followed by the pouring of a slab with edge beams and backfilling. This slab ultimately formed the top half of the tunnel. Following backfilling, horizontal excavation was carried out under the slab, which enabled staged construction for the lower half of the tunnel.

The high end internal finishes also posed some challenges, with elements including complex ceiling systems in the public mall space featuring a diversity of architectural designs and materials including imported laminated stone, waved louvres, suspended chains and curved balustrade glass. In addition, the sheer number of tenancies, each with specific fitout needs, added complexity to the program.

"Particularly challenging in this respect was the service requirements and even retrofitting of lift shaft and escalator voids, created in post tensioned and reinforced slabs, to suit the different retailer's needs," commented Jeremy.

With all its challenges and intricacies, the Emporium project gave Grocon and their trade subcontractors an opportunity to showcase both the best of modern construction methods and many of the old-school skills which were used on the original Myer building – including high levels of craftsmanship and impeccable attention to detail. The result is a stunning addition to Melbourne's retail landscape and another major milestone added to Grocon's substantial track record for outstanding Melbourne projects.

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Emporium Melbourne, VIC



SURVEYING THE PAST AND PLANNING THE FUTURE FOR EMPORIUM

Bosco Jonson were well and truly delving into Melbourne's retail and urban planning past as they undertook surveys for the Emporium Melbourne project. Initially engaged by Colonial First State as the Land Surveyors, Bosco Jonson was required to confirm and assess the boundaries and encumbrances of the 40-odd Certificates of Title that comprised the Emporium Site. This Title Boundary Re-establishment Survey was required both for the due diligence when the site was acquired and for formal confirmation of the developable area.

To achieve a consolidated site given Emporium's historic central CBD location, intensive investigation, examination and survey was required to confirm land status, boundaries, assess easements and interests. There were other complexities too due to the location, including the need to deal with excess land, remains of Council roads, caveats, merged easements and encroachments.

Ross Nicholson, Senior Licensed Surveyor and Associate, Bosco Jonson, led the team and provided expert advice. His 25 years experience in Title Re-establishment and Subdivision enabled Ross to guide the client and assist them to achieve a site configuration which could then be transformed into a revitalised Emporium retail precinct. Darren O'Shea, Licensed Surveyor, also assisted on the project and performed a range of surveys.

Given a site to work with, the architects and designers were assisted by Bosco Jonson's skills in heritage, structural and dilapidation surveys. The team performed a variety of detail and feature surveys of the existing Myer store, surrounding buildings and roads. These included full internal measures of the walls and structures of the Lonsdale Street Building; and a full survey of the historic facades of the building's Little Bourke Street and Lonsdale Street frontages.

Additionally, Bosco Jonson carried out surveys for the Tunnels under Little Bourke Street for confirmation and extension to Crown leases, and a Full Feature Survey of existing conditions along Little Bourke Street, Lonsdale Street and Caledonian Lane including dilapidation survey and underground services.

"Of course, working in hectic CBD conditions can be quite daunting as constant pedestrian movement interferes with survey measurement. So, to avoid this, early and late starts were often the solution when we were surveying along the abutting roads and internally, in the still operational Myer Lonsdale Street Store," said Bosco Jonson Director, Frank Bosco.

"Our specialised staff have undertaken many internal building surveys for the purpose of refurbishment or conversion for clients in the CBD. We understand the needs of designers and so tailor our service specifically to their needs."

A range of state-of-the-art technology assisted with gathering measurements of elements and features which could not be reached manually or were located in extremely tight conditions. This included reflectorless and robotic electronic survey instruments, and the use of laser scanning, which captures features as highly intense digital data which is able to be treated as a 3D model.

In the planned development, the air bridges and tunnels across Little Bourke Street were represented as Crown Land, which meant Bosco Jonson needed to prepare Crown leases for government approval before they could be constructed.

In the final stages of the project, Bosco Jonson also provided construction setout services for the first Australian store of major international retailer, Uniqlo.

Major projects like Emporium are familiar territory for Bosco Jonson, with the company providing surveying expertise, urban design, planning and development consulting services to numerous projects across the broad development and construction sector. The keynote to their approach is creativity founded in a sound understanding of the market and the development process, informed by precise, reliable information.

"With any proposed development, it is important that a client understands the land entitlement issues as early as possible so that our surveys and advice can form a framework for design considerations. When subdivision

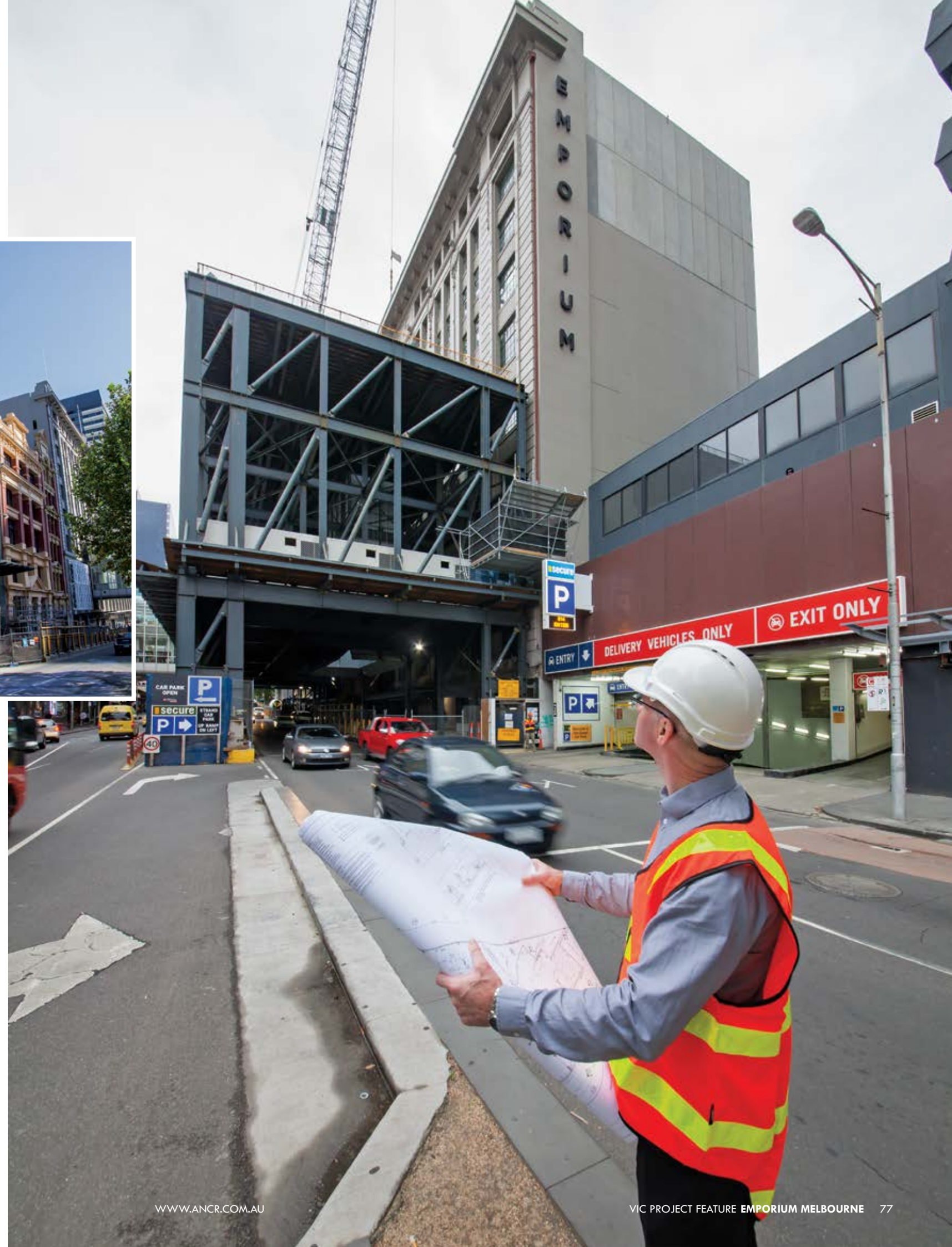


is involved, it is also critical that issues such as planning, easement or owners corporation structures are considered at the pre-design stage to avoid hurdles at a later stage," said Frank Bosco.

Since commencing operations in 1997, Bosco Jonson has grown to employ 80 staff working on projects including apartment subdivisions, large residential broadhectare communities, and industrial, aged care and commercial sector developments.

Their focus on quality both in how they perform their work and in the outcomes for their clients has been recognized by numerous UDIA Awards, including in 2012, Environmental Excellence for The George by Evolve Development and Master Planned Development for Stocklands Highland, and in 2013 for Places Victoria and Melbourne Water's Dandenong Logis Eco-Industrial Business Park.

For more information contact Bosco Jonson, Frank Bosco or Ross Nicholson, phone 03 9699 1400, website www.bosjon.com.au





ABSOLUTE FOCUS ON QUALITY, SAFETY AND PERFORMANCE

For 20 years Speedpro have been providing an integrated, safety-focused range of concreting services and skilled labour hire for major construction projects. Their scope on Emporium Melbourne included the placing, finishing and patching of all concrete slabs, beams, stairs, wall, columns and other elements – a total of over 130,000m³ of concrete works.

This massive volume of work needed to be completed in a very short 18 month timeframe, so Speedpro assigned a crew of up to 20 experienced concreting staff to the task, which included pouring large concrete slabs in excess of 1,600m² per day. Their commitment also included supplying all the plant and equipment needed to complete concrete works, such as concrete trowel machines, ride-on trowel machines and vibrators.

“The ground floor was very challenging, with every pour requiring all areas to have dual grade falls with no flat areas,” said Speedpro Director, Paul Pacella.

“Speedpro’s Quality Management Plan was followed through with every pour, which included an as-built of each slab prior to the slab being tensioned.

“We feel great satisfaction at completing over 130,000m³ of concrete works without any major issues.”

Speedpro’s Concrete division has an expert team capable of tackling both large demanding projects and small, challenging and complex jobs. Their ability to project manage concrete works, place and finish concrete to the Australian Standard, and expertise in resolving problems and working through issues has been demonstrated on a number of substantial, high profile projects.

In addition to Emporium, Speedpro have recently completed concrete works for FCAD for Grocon, Eden and Haven Apartments for LU Simon, Melbourne Start and Melbourne Sky Apartments for Brady,

Wyndham Harbour Apartments for Hutchinson Builders and IKON Apartments for Hutchinson Builders. Currently their crews are placing and finishing the concrete at the Australian Taxation Office in Box Hill.

Speedpro’s Labour Hire division assists projects with appropriately trained and ticketed short-term and long-term builders labourers, Alimak and lift drivers, traffic management staff, first aiders, form-workers, spotters, carpenters, patchers and self-levellers.

“We are a family business with the second generation now beginning to work in the business,” said Paul Pacella.

“We have a diverse range of skills in our business, which range from strong on-the-job experience from our on-site and operations people, to administration people with skills in business, project management and design.”

All of Speedpro’s 120 staff are committed to the strong values which underpin the company’s operations. The company strives to be a leader in providing a quality, cost-effective service and works to develop sound relationships with clients, other trades and suppliers to ensure sustainable future growth in the business.

By working with clients to develop tailored solutions, Speedpro can ensure the best value for the project and the project team. The community aspect is also important, with Speedpro conscious of the importance of delivering sustainable growth and ongoing opportunities in the community.

Safety is a non-negotiable priority, and has an accredited team and a strong safety culture. A systematic approach is taken to safety measures, with responsibilities and performance objectives detailed in a comprehensive OH&S plan. Their ongoing safety management includes rigorous injury prevention initiatives and a safety performance review of every project. Their core goal is to have every worker heading home safely at the end of every day. Speedpro Industries has a commitment to quality which is embedded across every aspect of the company’s operations. Coupled with the strong work ethic and culture of peak performance, this focus on high standards is integral to the company’s method of achieving excellence for every project they undertake.

For more information contact Speedpro Pty Ltd, 627 Nicholson Street, North Carlton, VIC 3054, phone 03 9388 2511, email enquires@speedproindustries.com.au website www.speedproindustries.com.au



SECOM - PROTECTION FOR PEOPLE AND PROPERTY

Architecture is a key ingredient in the Emporium Melbourne retail mix, even to the extent that security subcontractor SECOM Technical Services (SECOM) had to ensure the security cameras in the ceilings were colour-coordinated with the interior design. It's a level of detail that speaks volumes about the company's client-focused approach to keeping people and property safe and secure through leading edge technological solutions and astute service provision.

SECOM provided the entire security package for the base building, and for the two leading tenants Myer and Uniqlo. The security services scope included intruder alarm, access control and closed circuit television systems as well as security lighting controls and state of the art transport and loading dock management systems.

The innovative loading dock system enables staff to keep track of all truck movements and more effectively manage logistics in the inner city location. Hydraulic truck lifts enable movement from ground level to basement loading docks eliminating congestion and providing significant time and space savings. Drivers are directed to the appropriate dock via large LED signs that identify the vehicle number and its path.

The CCTV system for the building provides general surveillance and assists the centre management team in identifying and managing work health and safety hazards for staff and the general public.

"We worked closely with Grocon to deliver the system," said Ray. "There needed to be considerable level of cooperation to ensure correct integration of lighting control, BMS and Fire systems was achieved. We also worked closely with the IT contractors, who provided the communications network for our security systems."

The SECOM system has network connectivity, enabling remote checking of camera outputs, alarms and other system diagnostics, in addition to local monitoring facilities available to security staff.

The design, procurement and installation of the security package took over a year, with up to 20 SECOM staff working to deliver the various elements, including in-house engineers and a project manager who ensured the design intent was achieved. Beyond the installation, SECOM will provide maintenance and support services.

The SECOM Group of Companies provides security services nationally and the company's capabilities include electronic security services, remote alarm monitoring, and security guarding and manpower. SECOM Technical Services are licensed Security Contractors, and hold a range of police and government security clearances. In addition, all services are provided under SAI Global certified Safety, Quality and Environmental Management systems.

For more information contact SECOM Technical Services, phone 02 6297 4670, email sales@secomts.com, website www.secomts.com

AWARD-WINNING MASONRY TALENTS PRODUCE SOLID RESULTS

An eye for detail and a performance-oriented approach ensured Deca Constructions produced excellent workmanship for the masonry of the Emporium Melbourne project. Their scope comprised both heritage restoration and new building, with a total of 250,000 blocks laid in 20,000 man hours.

The works spanned all levels from basement one through to level six, comprising approximately 20,000m² of block work over the eight levels, and included the setout of all the masonry walls. A synthetic lime which has high environmental credentials was used to deliver a greener result.

Deca also achieved cost savings for the builder, Grocon, by structurally utilising a strongband reinforcement system and providing fire rated blocks where necessary.

The key challenges related to working in cohesively with other trades and coordinating deliveries of the 2,500 pallets of blocks and other materials to the busy central CBD site. Deca also had to safely supply, erect and dismantle scaffold over the eight levels.

Works were completed to a high standard of quality and without any major safety incidents, with Deca's highly experienced site foreman Shano Biram coordinating Deca's hard-working and experienced crew.

Deca has 31 years of experience in the industry and well-established supplier networks who can meet their requirement of timely provision

of materials. For Emporium, Deca relied on National Masonry as the block supplier, Westside Sealants for the approximately 15,000m² of caulking used and One Steel for steel reinforcing.

"This has been one of the most competently run sites we have worked on. Grocon expect a high level of expertise, competence and compliance, and we provided this on all counts," said Director, Tim Mangan.

Other major projects Deca have provided masonry services for include the Catholic Leadership Centre, East Melbourne, which won APM Builders Master Builder of the Year 2013; the Nigel Peck Centre for Leadership & Learning, Melbourne Grammar, for which Deca won Specialist Contractor of the Year 2008; and Scotch College Administration Building, a winner of Excellence in Construction in 2000. Currently Deca are working on the Tip Top Development in East Brunswick for Icon Constructions, Swinburne University and Costco Ringwood.

Deca Constructions are a member of the Master Builders Association and take pride in providing the highest standards of both masonry work and project management. Their capabilities include quality commercial blockwork and bricklaying for projects across Melbourne from Heritage restorations through to architecturally challenging new constructions.

For more information contact Deca Constructions, Unit 21, 125 – 127 Highbury Rd, Burwood, VIC 3125, phone 03 9888 7063, fax 03 9830 6081