







THE KENS DEVELOPMENT is the second largest single commercial building (by area) in Sydney's CBD. Bordered by four streets from which it derived its name, Kent, Erskine, Napoleon and Sussex. Leighton Properties acquired the site in 2000 and after extensive negotiations with Sydney City Council, Leighton Properties received approval for their proposed development in 2003. With construction and office fit out (74,000 sqm) by Leighton Contractors complete for Westpac, the project is now known as "Westpac Place".

Leighton Contractors undertook the design and construct contract for this major project. They had the resources, extensive local knowledge and the local know how, which ensured the application of the professional and efficient approach for which Leighton Contractors have become well known.

Westpac Place was designed to provide a commercial hub and reference point for Sydney's western CBD, as well as a connection with the other developments that are now revitalising the area bordering on Darling Harbour's eastern edge, including the Kings Street Wharf. The project has also maintained some of the architectural anchor points to its historical past. Heritage listed terraces on Erskine Street have been revitalized and refurbished, incorporating double frontage to generate increased 'people space'. The original wharf and harbour edge, that were once located on the site, have been incorporated into the design of the 'pocket park' urban landscape that now provides a green retreat for the 5000 Westpac staff and for workers in the surrounding buildings.

The archaeological significance of the site was always known and this investigation identified vital evidence on the wharfs and occupation from 1790 to 1913. The archaeological dig unearthed many artefacts and details about the sites history. It was described by the Hon Craig Knowles – Minister for

Infrastructure, Planning and Natural Resources, as one of "the most significant Archaeological investigations ever undertaken in Australia" A separate team delved beneath the evidence of European settlement discovering artefacts of the original indigenous inhabitants of the area before the arrival of the first fleet.

The delay and disruption due to the extended archaeological investigation, although lengthy (around 5 months), did not affect the overall completion of the project, as this lost time was recovered by significantly improving the structural cycle times and by maximizing the concurrency of follow on activities, in particular the fit out works. The pro-active, cooperative approach of Leighton Contractors in this regard was a key factor in the project being completed ahead of time. In fact the office levels were handed over to Westpac five months early.

Westpac Place has an overall net lettable area of 74,000sqm, with 2500sqm of retail areas and parking for 864 cars. The massing of the two towers (Kent tower and Sussex tower) forms a composition of slipped planes to emphasise the northerly orientation. The two tower composition is interlocked by the central core structure, which appears to rise from the top of the tower as a landmark feature. The building mass, materials and details reduce the impact of the building on the western city edge and proportions of the towers are slim, providing an elegant gateway building when approaching the city from the north. The large floor plates at each level of the building easily accommodate Westpac's fit out. The floor plates vary from approximately 3500m² on the podium levels (L1 to L3), to 2600m² (L5 to 21) and over 1800m² for levels 22 to 32.

Building services are state of the art and tailored to suit Westpac's exacting requirements, including the extensive security features throughout. These were accommodated through the intelligent use of innovative technology that creates a central point of control for all building services from security, to CCTV, to elevators, HVAC and lighting. The services infrastructure is integral to this system and forms part of the IP network of communication for the system. The advantages of this approach provide the ability to control all aspects of operations, security and safety, immediately without delays or confusion in communication or monitoring. In effect, it is vastly more efficient.

The environmentally sustainable development initiatives (ESDI) that were integrated into the building design and construction are on track to produce a SEDA 4 star rating. Extensive use of passive energy saving features were employed, from the façade and shading, in particular the design of the ventilated façade, consisting of high performance glass to the façade in conjunction with a system which utilises an automated internal roller blind as the inner layer of a double skin, creating a dynamic air cavity that serves to filter the external climate. The design allows conditioned air to be exhausted through the cavity at sill level, extracting heated air from within the cavity space, which is then captured by a dedicated extraction system within the ceiling void. This extracted warm air is then expelled from the building.

The advanced building management system also allows for increased ESDI. Through its monitoring of occupancy levels, air conditioning and lighting, all these facilities can be adjusted from the one point to take into account the requirements and usage of the tenants, again producing significant savings on emissions and power.

Leighton Contractors was responsible for the integrated fit out of all office floors for Westpac, which is probably the largest integrated fit out ever carried out in Australia. The fit out was completed within 12 months but more

importantly it was carried out concurrently with the base building works, enabling it to be tailored to Westpac's specific requirements without the need for further redesign or rework upon completion. The 'integrated fit out' generated significant savings and added value for Westpac and enabled Leighton Contractors to liaise with Westpac as the project proceeded, completely eliminating the normal costly 'post construction' work.

Leighton Contractors' completion of Westpac Place is a clear indication of their ability to work co-operatively and overcome challenges that arise during both design and construction. The significant archaeological aspects of the development have been addressed. The development is now complete and fully operational as the Architects intended, forming a point of interest or landmark in Sydney's Western CBD. The project has provided Westpac with a unique workspace that fosters teamwork, collaboration and achievement but also provides flexibility for future changes. It has set new standards in innovative design and construction. These factors are testament to Leighton Contractors' ability to deliver 'innovative solutions for a changing world'.

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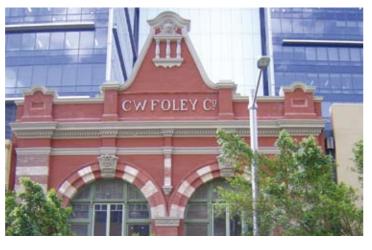
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IN GENERAL, architecture has a signature, each architect is able to generate something that is unique and individual to them, and consequently each architectural firm also has a signature, often encapsulated in a mission statement or philosophy, which is unique to that firm. Noel Bell Ridley Smith & Partners (NBRS&P) have been operating since 1968 and during this time they have developed their own philosophy which focuses on, quality of design, close liaison with their clients, teamwork, commitment to time and cost constraints, and on going development of skills and standards and performance.

Interestingly, the company's involvement with the KENS project was in the capacity of protecting someone else's architectural design, or signature. That is, the heritage listed aspects of the development including the terraces on Erskine Street and the reconfiguration of Sussex Lane. Their previous experience in conservation works and the application of their company philosophy meant they were well suited to this task.

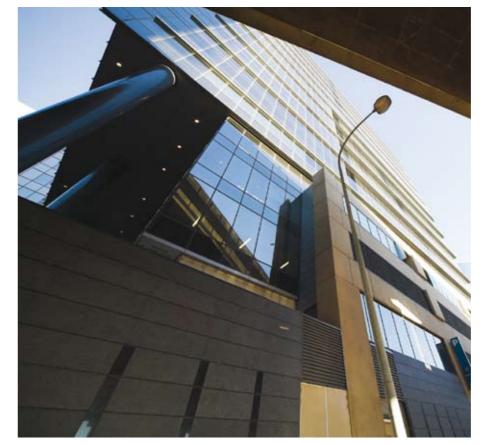
This fascinating area of Sydney (western CBD, bordering darling Harbour) is full of references and reminders to the sites historic past. The old harbour wharf used to run right through the site, and the extensive archaeological finds discovered during excavation (Some of which pre-dated European settlement) included storehouses and walls and residences and many artefacts.

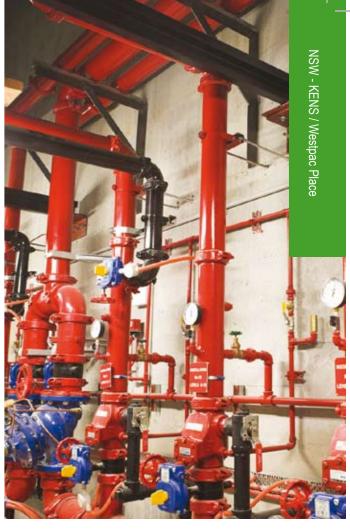
NBRS&P provided full design documentation for the entire project conservation works. The two main areas of interest were the historical terraces on Erskine Street, and the transformation of Sussex Lane into a walkway passing through the site. The terraces fell into three distinct groups, separated by age and the resulting architectural design. The buildings dated from as early as 1890 right through to 1910. Margaret Desgrand from NBRS&P explained. "It was our intention to maintain the integrity of each of the architectural styles, to make a clear point of differentiation between the buildings..."

Full BCA compliance in the renovation and redesign of the terraces was not required as in effect, no change of use was occurring (the terraces were already used commercially) and the renovation and documentation both internally and externally was able to continue smoothly. The rear of the terraces was redesigned to provide an alternative 'rear front' increasing the usage of space on both sides of the buildings, and enhancing the people areas available.

Once again, due to the historical nature of the sight, whilst the redesign process was underway, NBRS&P unearthed an early stone wall that ran between numbers 44 and 50 in the terrace. Keen to maintain the integrity of the conservation works, and having been deemed by a structural engineer to be unsound, the wall behind number 50 was carefully taken apart, stone by stone, and then rebuilt using the original shell grit mortar remixed as pointing. This recreation of the early wall is a clear glimpse of the past for everyone to see, the wall now forms part of the courtyard. The remainder of the wall still runs underground along the terrace.

NBRS&P involvement in the KENS project has enhanced the site. The conservation of the historical aspects of the project is clearly of great importance to future development and the careful recapturing of the past only adds to distinct feel of the new environment created by the KENS development. The concepts encapsulated in the company philosophy have been faithfully adhered to and the result is a stunning success of collaboration and cooperation between all the parties involved.





Connell Wagner Pty Ltd

CONNELL WAGNER (CW) was engaged by the developers of the kens project, Leighton Properties, to undertake the design and documentation of the buildings hydraulics, fire services and the façade.

The site was previously home to a council carpark, workshop and petrol station plus a few other small buildings with limited connections to sewerage and storm water systems. This created a significant challenge to upgrade these services to accommodate the needs of a modern multi-storey high rise.

One of the biggest challenges experienced by CW was provided by the age of the area in the city bounded by Kent, Erskine, Napoleon and Sussex streets (from which the project derives its name). Not only did the developers uncover archaeological remains of the old wharfs and surrounding buildings (that had to be excavated and catalogued by archaeologists), they also discovered how time and history have a way of complicating things in an entirely different way.

Above ground, the project was clear, but once Leighton's and CW went underground, beneath the streets. They discovered a relatively unmapped, tangled maze filled with old piping, cabling and railway lines some of which were still live. To overcome this difficulty and ensure that all the services for the development were connected seamlessly, CW were involved in the extensive consultation process and meetings with council, local authorities, Leighton Contractors and sub-contractors on site.

One of the more innovative hydraulic design solutions incorporated into the project was a 600kl stormwater harvesting tank contained in the basement. Water from this tank will be treated and used as make-up water for the airconditioning cooling towers, saving significant quantities of town water.

CW were also involved with the delivery of the façade systems. Architects in Europe have long recognised the ventilated façade as a means of creating buildings, which combine both high-tech aesthetics and energy efficiency, while providing a more comfortable and satisfying space for occupants. This technology has been used to a lesser extent outside of Europe, but as CW innovation with the KENS project demonstrates, adaptation to other regions is a viable proposition

The traditional Australian office building consumes a significant level of energy in an attempt to eliminate heat gains and radiation during peak periods, with reliance typically placed on the use of high performance glazing products to minimise these loads, and internal blinds to shield the occupants from the effects of direct solar radiation and glare.

In response to this issue, a system was developed for the KENS project in conjunction with the mechanical engineers, which comprises high performance glass in combination with a modified take on the 'Ventilated' façade. The system developed incorporates an automated internal roller blind as the inner layer of a double skin system, creating an active air cavity that serves to filter the external climate, and provide a more comfortable perimeter space. The design allows for internal conditioned air to be flushed through the cavity at sill level, extracting heated air from within the cavity space, which is then captured by a dedicated extraction system within the ceiling void. This extracted warm air is then expelled from the building at either end of the floorplate.

The involvement of CW in the KENS development has given the company an ideal opportunity to display their skills and expertise. Their management of some interesting and unusual aspects of the development demonstrates enthusiasm and ability. Justifiably they are proud of what has been achieved, not only by themselves but also by Leighton Contractors and the sub-contractors they worked with.

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THE KENS PROJECT ENCOMPASSES just under 74,000sqm of office space and another 3000sqm of service and retail areas. ASP Access Floors were engaged by the developers Leighton Properties to undertake the sizable task of providing the flooring base for the entire development.

Established in mid 2000, ASP Access Flooring was formed to meet the demands of the commercial market for high quality and innovative solutions to flooring bases. Access floors provide a rigid and durable floor whilst also creating the space beneath necessary for communications, electrical services and mechanical services. Along with their parent company Peter Zlater Partitions, they employ over 150 staff and operate throughout Australia, providing design, manufacture and installation of a range of different flooring bases and structure types to suit almost every situation, from medium grade panels, right through to heavy-duty panels with the ability to carry substantial loads. Their products are also exported to New Zealand, the South Pacific and South East Asia.

The size of the works undertaken on the KENS project was considerable, and the logistics involved in shipping 180 container loads, or 3600 tonnes, of product from their manufacturing base in China required some serious and effective planning. ASP were able to run this aspect of their operations smoothly and without delay to the project by maintaining a buffer stock

on site that ensured any obstructions in shipping could be accommodated without hold-ups to the project. In fact, they were so successful, that their speedy installation of the base panels was one factor that assisted the project in getting back on track after the earlier delays due to archaeological excavations.

In total, ASP provided approximately 205,000, 600ml by 600ml base panels for the project. Their commitment was made up of 187,000 medium grade panels, for general wear flooring, 12,000 heavy grade panels for areas such as plant and generator rooms, and 6000 high-pressure laminate (HPL) panels for control room and other areas that required easy cleaning cost effective flooring. The heavy grade panels for the generator rooms were designed with a load capacity of 2000lb to accommodate the heavy plant and ensure that the generators could be moved without damage to the floor structure. In the control rooms, ASP provided HPL anti static and anti wear panels. These panels ensure that there is no static build up which might potentially cause harm to sensitive computer systems, they are also extremely easy to clean and resistant to dust because of their anti static nature.

ASP are able to install bare panel floors and lower the actual floor level without damage to the integrity of the grid. This is a significant advantage they have over their competitors because it enables future adjustments or

redesign of flooring type and hight without major disruption. The floor can be pulled up simply by removal of the spacers and bolts. They are also involved in the design and patenting of an innovative new system that allows for heat expansion of steel floor plates. This will resolve a common problem that occurs when metal floor plates expand due to heat, and become tight as a result creating excessive noise when walked on. ASP's new system will allow for expansion, without the associated problems.

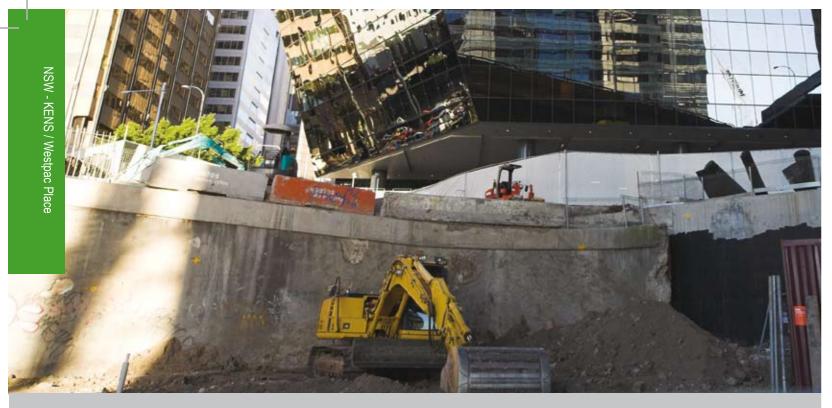
Asp used their UP800 base floor panels and T3 pedestals throughout the project. Their products are independently tested to Australian Standard Design codes and have been proven on many successful projects throughout Australia and the world. They have recently completed work for the CSIRO in Newcastle, Work cover in Gosford, and extensive works in the WA, on the Woodside Project where they supplied and installed over 30,000sqm of floor product.

The involvement of ASP on the KENS project provided advantages to the developer not only in the speedy expedition of their work, but also in the quality of the product supplied and installed. As Neville Thorogood of ASP explained, "The on site work was to be commended, it is the largest venture we have undertaken and the work of ASP tradesmen and staff who were

involved in the project was a significant aspect of its success..." ASP are extremely happy with the results they were able to achieve on this prestigious development and it has been a terrific opportunity for them to showcase, not only their product and its adaptability but also their skilled coordination of the complicated logistics the project involved.

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Golder Associates – Ten Years on the KENS Project

'GLOBAL PROBLEMS, LOCAL SOLU-TIONS' aptly describes the philosophy of the

Golder Associates group of companies. With a strong global footprint, their 4500 staff operate as engineering and environmental science consultants, providing services out of over 100 offices worldwide to projects in more than 140 countries

Golder first became involved in the KENS Project in 1996 when they carried out geotechnical and environmental surveys for the site's previous owners. Once Leighton Properties obtained

ownership in 2001 they chose to continue the relationship with Golder, who became novated to Leighton Contractors when they were awarded the contract for development in 2003.

Golder carried out further geotechnical and environmental investigations on the site and made a number of recommendations regarding aspects of the development. A key recommendation was an

amendment to the basement layout due to a layer of shale on site 7 to 10 meters below ground. These recommendations meant that in most cases, shallow footings supporting heavy loads could be founded on the stronger sandstone under the Established in 1960, Golder Associates is an emshale laver.

Their environmental investigation also revealed significant contamination on the site from what had once been a petrol station. To prevent contamination leaking off-site and to contain the area Golder suggested using a secant pile wall, which was adopted successfully.

Golder was also involved in the monitoring of the Western Distributor that runs in close proximity to the site during excavation. This required the development of an intensive risk management strategy, which included a high-resolution survey of the Western Distributor piers and visual observation of the rock mass structure as the excavation progressed. The movement detected during and after excavation was within the ranges predicted by Golder, so there was no need to implement contingency plans developed in case of unusual or excessive movement.



viding services and advice as required, and their involvement has been integral to the successful completion of the innovative design project.

ployee-owned company, driven by the philosophy of developing close relationships with their clients. They seek to gain an in-depth understanding of the specific requirements of each project in order to provide sound, accurate, and cost-effective services. This has made them one of the most trusted names in their field around the world.

The company specialises in a wide range of consultative areas including: geotechnical services, environmental auditing, waste assessment and due diligence, environmental monitoring, planning and permitting, impact assessments, waste management, environmental management systems, landfill design and rehabilitation, contamination assessment and remediation, risk management and solid waste management.



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Honeywell

IN A MODERN commercial high-rise development, the heart of the building is the building management system. These complex systems control the essential services for the building including security, air conditioning, heating, lighting, ventilation and a host of other functions. A good system can reduce greenhouse gas emissions, provide security and safety for workers, create a comfortable and productive environment, and assist in the seamless operation of the building.

Honeywell Limited has delivered solutions to business, industry and consumers in the Pacific region since 1962, employing 1200 staff across 28 offices. Honeywell Building Solutions, a business unit of this company was chosen to design, install and service a building management and security system suitable for Westpac Place.

Operating within an 18-month time frame, Honeywell has installed its flagship award winning products, Honeywell Enterprise Buildings IntegratorTM (EBI) and Honeywell Digital Video ManagerTM (DVM). EBI is a state of the art integrated building management system which connects to DVM, a scalable, digital closed-circuit television surveillance solution. Both products are developed in Sydney at Honeywell's Software Centre and are exported to Honeywell customers worldwide. EBI is designed to integrate all aspects of building automation and control into a single entity, connecting and linking all the building sub-systems via an IP network into a single graphical management system. Utilising the building's network infrastructure as a communications backbone, EBI controls all of Westpac Place's mechanical plant and equipment. The system integrates everything from environmental controls, open systems interfaces such as Lon-Works, Modbus, OPC, and BACnet to security functions such as access control, intrusion detection, lift control, occupancy reporting, advanced alarm management, alarm paging and network based video surveillance. When used in conjunction with DVM, the solution is able to intelligently capture before and after video footage of an incident. The advantage of the EBI system is that all building functions

are controlled from and report to a central point, which facilitates exceptional speed and coordination between integrated functions. This reduces response times, improves information management and means that services such as air conditioning can be linked to occupancy which provides cost, energy and environmental savings.

The beauty of the Honeywell solution is that it will evolve as requirements change or as new technology becomes available, ensuring that the building remains at the forefront of smart buildings around the world. For example, surveillance cameras can be easily moved around the building and plugged directly into the network, allowing them to monitor plant and equipment or security issues as necessary. Honeywell prides itself on its ability to provide clients with appropriate technology that create enterprise-wide solutions. Project management, system design, commissioning, long-term maintenance and cost minimization are all part of their holistic approach. The involvement of Honeywell on Westpac Place is testament to their ability to manage large complex projects coupled with a comprehensive portfolio of ongoing services. The Honeywell solution at Westpac Place is at the core of this successful, safe and productive facility. As such, Westpac Place will become a showcase of Australian developed

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SHELLBAY STONES won the tender to provide the kens project with their expertise in stonework in dec 2004. A relatively small company they make up for what they lack in size through personalised, hands on expertise. Working with stone is a craft, as well as a trade and requires not only a sharp eye for detail and colour but also a keen understanding of how differing type's stone can behave and affect the final outcome of a development.

On the KENS project, Shellbay collaborated closely with the architects and lcpl inhouse engineers as well as shellbays own designer to ensure that the results were precisely what had been envisaged in the early concept stages of the project.

The twenty tradesmen from Shellbay that are still involved with the KENS development are all highly skilled and passionate about their work. Keen to ensure the quality of their work reflects the quality that has been instilled in the two towers of the development. This desire to produce the perfect finish is demonstrated in work that Shellbay have previously undertaken, on the Bullecourt devel-

opment in Ultimo (NSW) and their work on 70 William Street in Sydney, where they were engaged to provide their expertise on the stonework for a high-rise apartment development

"We only take on one project at a time," Says the owner and director of Shellbay Stones, Mr. Paul Saikali, "This ensures that the full resources of the company are entirely focused on the job at hand. After 19 years of experience in the industry, the way we do business and have run Shellbay for the last 4 years has been more successful due to planning/programming/executing one project at a time..."

The KENS Project required Shellbay to provide granite panels for the cladding of all the external walls and facades. For the interior areas of the building, both granite and Travatine Marble (light beige in colour) were used in 3 different finishes, exfoliated, honed and polished, providing surfaces for the lobby, the retail areas, staircases, the urban park level and the Kent Street level. In addition, work was carried out on a number of terraces and balconies as well as the lift cars and retail/food court and planter boxes. Shellbay also completed work on levels, 15, 17, 21, 22, and they provided their services

for the Westpac fit out. In all over 10,000sqm of marble and granite was required for the project.

Careful preparation and planning are one of Shallbay's core concepts, taking only one job at a time they are able to dedicate resources to providing their clients with exceptional quality and cost effective solutions.

The granite work for the KENS project was designed and planned by Shellbay Stones in Australia. Shop drawn in Sydney, cutting sheets where sent to factories in china and Italy where the material was quarried, slabbed and cut to size then sent back to Sydney. In total 42 containers or 992 tonnes of stone was shipped and installed. One of Shellbay's 'men on the ground' in China was able to ensure quality and accuracy were maintained to their exacting standards, before the cut and finished stone was shipped back. The same process was adopted for the Travatine Marble from Italy.

One of the challenges of the project was the use of exposed joints

for the stonework as opposed to filling and grouting. The stone was fixed in place with a unique system of stainless steel pins and epoxy bonding. Exceptional care had to be taken to ensure even spacing and the required colour match between pieces.

The end result of Shellbay's involvement on the KENS project is something that thousands upon thousands of people will see as they enter or leave the completed development or simply stop to admire the urban park or buy a coffee. The clean lines of the granite and elegance of the Travatine marble will certainly enhance their experience of the site and in doing so enhance the reputation that Shellbay Stones has already developed for exceptional quality and dedication



Hugh Meagher and Associates

BACKED BY 28-YEARS of industry knowledge, Hugh Meagher and Associates (HM&A) specialises in the supply and installation of all types of blinds, curtains, drapery tracks and soft furnishings.

HM&A undertakes a wide range of projects – from single residence to major fit-outs and refurbishments.

"Our skills have been honed in a diverse range of fields, including hospitality, corporate, aged care, hospitals and institutions. As a result, our flexibility and vision in resolving business challenges are regarded as major assets," said HM&A's managing director Carl Warnes.

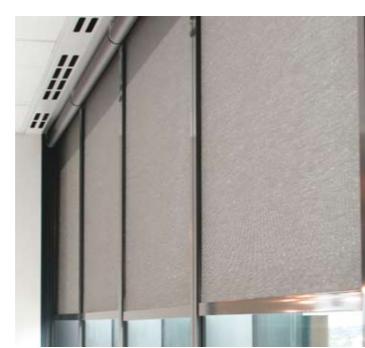
The company works closely with architects, builders and project managers to ensure each project is delivered on time, within budget and to the customer's satisfaction.

"HM&A's 28-years of industry knowledge is backed by professional and personal service, competitive prices, reliability and extensive product knowledge, which combines to ensure a successful outcome on every occasion," said Mr Warnes.

HM&A is proud to be associated with Westpac (KENS) Project and Leighton Contractors.

Other projects undertaken by HM&A include Medibank Private and PricewaterhouseCoopers, Melbourne, Shangrai La Hotel in Cairns, and the Hilton, Customs House, Mirvac Darling Island, Microsoft, and Allens Arthur Robinson in Sydney.

For more information, telephone HM&A on 1800 707 119 or visit www. hughmeagher.com.au.



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