

WESTFIELD SYDNEY

WESTFIELD
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MAIN CONSTRUCTION COMPANY : Westfield Design & Construction Pty Ltd
COMMERCIAL/RETAIL SIZE : 103,000 m²
DEVELOPER : Westfield Group
PROJECT END VALUE : \$1.2 Billion
COMPLETION : Early 2012
ARCHITECTS : Westfield Design and Construction in conjunction with John Wardle Architects

AN ICONIC DEVELOPMENT

Sydney Tower has been the most recognisable landmark in the Sydney CBD for decades. Now, with Westfield's \$1.2 billion investment in substantial redevelopment of the retail precinct, and the development of two Six Star Green Star commercial office towers on the site, the tower becomes the crowning icon of an outstanding 21st century development.

The Westfield Sydney redevelopment site is bound by Pitt Street Mall and Market and Castlereagh Streets in the heart of Sydney's bustling CBD. The redevelopment will integrate Westfield Centrepoint and the Centrepoint Convention Centre, Imperial Arcade and Skygarden, provide a new office tower at 85 Castlereagh Street and an extensively modified and refurbished tower at 100 Market Street.

The project is being built by Westfield Design and Construct Pty Ltd, in a staged process which began in late 2008 with site preparation works, including facade removal and complete internal stripping of the former Australian Taxation Office building at 100 Market Street and demolition of the existing Imperial Arcade and Centrepoint Convention Centre buildings.

The former Centrepoint under Sydney Tower, and Skygarden, have both been extensively modified, allowing for the construction of a new retail precinct over several levels occupying the entire site. The design for the spectacular, light-filled spaces which will host approximately 250 retail, hospitality and personal service tenants over approximately 40,000 m² of floor space, was created by Westfield Design & Construction in conjunction with John Wardle Architects.

The facades facing Castlereagh Street, Pitt Street and Market Street will have shop fronts over two levels from street level and a glazed façade above on the remaining upper levels of retail, which creates a stunning visual impression from street level.

As the original Centrepoint was constructed in the 1970s, a complete overhaul of mechanical, hydraulic and electrical services have been undertaken not only to meet the updated BCA codes but also to ensure Sydney Tower's spaces and services are more energy efficient and environmentally sustainable.

Part of bringing the Tower into the 21st century also included refurbishment of the interior finishes for floors and ceilings, and reconfiguration of existing voids and open space to better serve the new expectations of shoppers. A new system of escalators has also been installed.

At 100 Market Street, the previous 10 storey pre-cast concrete facade is being replaced with a new glass facade. The new interior fit out meets all the requirements for Six Star Green Star Office by Design, including grey water re-use, low VOC finishes and energy efficient lighting. The original floorplates have been modified, with new light wells cut in to provide increased natural light, further improving energy efficiency of the 30,000m² of office space.

Rising above the retail podium of Sydney Tower at 85 Castlereagh Street, a new commercial 25-storey tower with a glass facade offering 33,000m² of premium office space is being constructed. The tower offices will be accessed by new lifts from the Sky Lobby at the top of the retail precinct. The Sky Lobby will also act as a transition area for access to Castlereagh Street itself and the retail area.

Construction staging has had to consider the continued operation of both David Jones and Myer flagship stores, and the continued operation of the Sydney Tower, Skywalk and Tower facilities. As a key destination for tourism, maintaining safety and scrupulous site management has been vital, and it is a testament to the organisational abilities of Westfield's Construction team that the project has achieved an excellent safety record.

The first stages of the retail precinct were opened in late 2010, and the final stages of the entire project are due to be completed in 2012, when handover of the 85 Castlereagh Street commercial tower is complete. Pitt Street Mall is remaining open to the public throughout the redevelopment, as are many of the retailers along the Mall. During the final stages of the project, new paving and upgrade works will be carried out, to bring this open space into harmony with the rest of this spectacular revitalisation of Sydney's retail heart.







PLAN, DEVELOP AND DELIVER

Successfully delivering the distinctive visual elements of rebranding for Westfield Sydney is something of a sky-high crowning achievement for Diadem. Their masterplan for the signage strategy for the redeveloped Centrepont site included delivering a change of identity for the CBD's most unique visual landmark, a task with extremely challenging parameters.

Over the last decade, Diadem has been working with Westfield Group to plan, develop and deliver a wide range of environmental graphic, micro architectural, interior and signage projects across Westfield centres in Australia and New Zealand. These have included large-scale projection images in Auckland, environmental graphics for the express escalators at Chatswood, concierge desk designs for national rollout, car park wayfinding in Canberra and most recently the development wide signage strategy for Westfield Sydney.

Diadem was initially engaged on the Westfield Sydney project in 2009 by Westfield Design and Construct division. There were two critical imperatives: maximising the brand equity of Westfield across the development, while also meeting The City of Sydney's environmental and planning requirements. The task of providing the right planning, design and implementation solutions was spearheaded by Tom Kind, from Diadem's Sydney office.

Working collaboratively with Westfield project architects, Diadem's multi-disciplinary team provided strategic input into the placement, scale, construction, materials and illumination of all external signage proposed for the development. The final masterplan report was compiled in great detail with plans, elevations and sections of the entire development including low level, podium and high level sign applications. Diadem also reviewed all planning controls, and provided the Statement of Environmental Effects. The excellence and comprehensiveness of this background work resulted in full approval for all the proposed signage from the City of Sydney Council.

"Two of the most significant external signage applications that were detailed and approved in the masterplan were the placement of two new Westfield illuminated signs onto the turret of Sydney Tower to replace the old AMP signs and the placement of two new J.P.Morgan signs on the top of the new 85 Castlereagh Street component of the development," said Diadem spokesman, Kelvin Taylor.

"Both of these high-level signage applications have been approached by Diadem in a highly strategic manner with viewing distance analysis, site positioning, construction and project budgets all receiving professional attention.

"The project challenges for the new Westfield signs to be placed on top of Sydney Tower were certainly centred around the height and unique shape of the turret style building as well as access restrictions. The two Westfield signs that feature a 'W' height of 6.7 metres will be lifted on to the site using helicopters, and the old AMP signs will be removed from the site also using helicopters, with all activity occurring in a single day."

Engaging Diadem as a strategic advisor has delivered maximum and consistent brand impact for Westfield, while also successfully covering pragmatic aspects such as installation and ongoing maintenance over the long term lifecycle of each element.

The Westfield Sydney project is one of numerous high profile retail and commercial development projects undertaken by Diadem across Australia and New Zealand. Recent award-winning construction projects for which the company has provided planning, development and delivery services include the Melbourne Convention and Exhibition Centre, Hilton South Wharf and ANZ Centre.

Diadem's recent brand rollout for ANZ across 32 countries, involving a two year program and 4,000 individual sites including retail branches, FOREX, corporate and commercial offices, ATMs, high-level sky signs and multilingual applications, recently won the best Brand Implementation

in the seventh annual REBRAND 100 @ Global Awards, the highest recognition world-wide for excellence of brand repositioning.

Current major projects include Auckland and Perth Airports, University of South Australia and Melbourne and Brisbane City Councils, as well, the New Zealand office are currently working with the Auckland City Council and Auckland Regional Transport Authority in preparation for September's 2011 Rugby World Cup. Diadem is also managing multi-site brand implementation programs for clients including Stockland, CFSGAM, Goodman Group, UGL, K-Mart, Woolworths Petrol division and Queensland Rail.

Diadem offers the property management and development sector a unique combination of planning, design, documentation and project implementation services with a focus on maximising brand equity, protecting quality and controlling time and cost imperatives. With 70 staff stationed across their five offices, Diadem is well placed to work locally, nationally or on international projects.

DIADEM
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As mechanical services enter the Green Star era, the comprehensive skills and engineering knowledge of Allstaff Airconditioning NSW can provide the energy-efficient solutions major projects such as the Westfield Sydney redevelopment require.

Allstaff's team delivered a design, construct and install package for all the mechanical services throughout the newly revitalised retail areas of the iconic Sydney landmark. With the overall engineering design by NDY specifying high ESD values for the project, Allstaff applied their engineering skills, and brought together the best technology available in order to provide indoor climactic environment and high air quality, without high energy use and water consumption.

As members of the Green Building Council of Australia, Allstaff are committed to sustainable solutions. The company's team of Project Managers, Engineers, Draftsman and Technicians have designed and delivered mechanical services for a wide range of major projects, including hospitals, residential apartment complexes, laboratories, Government buildings, retail outlets, industrial facilities, manufacturing operations, data centres, commercial offices and close tolerance environmental systems.

The head of company operations is located in Gladesville, where a team of professionally-qualified, experienced and client-focused building engineers apply their skills to providing best-practice solutions for project needs. With an extensive supplier network to draw on, and the Allstaff ductwork manufacturing facilities in Melbourne and Albury/Wodonga, customised solutions can be provided on time, and in a cost-effective manner. Allstaff's fabrication process uses the latest CNC plasma cutting and fully automated modular duct manufacturing system, ensuring a fast and efficient delivery of products for their projects across New South Wales.

Systems such as that installed for Westfield Sydney are designed by Allstaff's highly experienced team of draftspersons, who use the latest digital technology to resolve complex and challenging briefs. 3D BIM design or 3D detailed pipework and ductwork workshop drawings are developed at state of the art cad work stations and in conjunction with AutoCAD Revit MEP suite and the customized MAP CadDUCT duct and pipework incorporating Navisworks programs.

Allstaff can design and install mechanical ventilation, air conditioning, mechanical services, computer based control systems, industrial dust control systems, industrial ventilation, Ferrous and non-ferrous piping, Co-generation and thermal storage, cleanrooms and medical gases systems. They can also provide services in CFC Management, balancing and commissioning, indoor air quality studies, essential services reviews, mechanical smoke hazard management systems testing and reporting, existing system assessments and performance evaluations and sheetmetal and steel fabrication.

Allstaff has been in business for over 30 years, and has developed a comprehensive set of capabilities, including total project management; a special projects division which specialises in retrofits and refurbishments; estimating and tendering services; 24 hour maintenance and repair; and energy-efficiency analysis.

With qualified NEBB (National Environmental Balancing Bureau) Supervisors and a team of highly trained technicians trained in accordance with NEBB Procedural Standards for Testing and Balancing of Environmental Systems, Allstaff can ensure buildings are functioning at their best, by providing services including air and hydronic balancing; existing system surveys; duct air leakage testing; essential services testing;

ENGINEERING & INSTALLING A GREENER INDOOR ENVIRONMENT

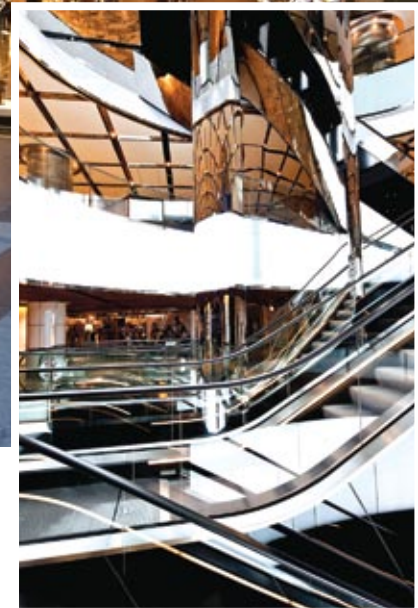


room pressure testing; laboratory testing; capture hoods and make-up air system commissioning; and Building Automation System (BAS) commissioning. Following testing, comprehensive and accurate reporting identifies any issues, and provides options for the rapid rectification of any problem areas identified.

Members of Allstaff's team are Registered Building Practitioners under the Victorian Building Commission, Building Practitioners Board requirements. The company also has an active involvement in the relevant industry bodies, including Engineers Australia, AIRAH (Australian Institute of Refrigeration, Air Conditioning and Heating), ASHRAE (American Society of Heating, Refrigeration and Air-conditioning Engineers), CIBSE (Chartered Institute of Building Services Engineers), NEBB (National Environmental Balancing Bureau) and the GBCA (Green Building Council of Australia).

Other current major projects include the UNSW Tyree Energy Technologies Building Project for Brookfield Multiplex, where Allstaff is providing a design and construct package including Mechanical Services, Medical Gases and Fume Cupboards; and the Liverpool Hospital Project being constructed by Bovis Lend Lease, for which Allstaff is designing and constructing the mechanical services.

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A GLEAMING SUCCESS FOR TOWNSEND GROUP

For Sydney's most iconic retail development, Westfield Sydney, Townsend Group delivered the highest possible finish on the specialist steel and glass products they designed, fabricated and installed, using in the process Australia's only milling and folding CNC machine to obtain the precisely shaped folded edge for some of the architectural elements. Townsend's contribution to this stunning project included the ceilings for levels 1, 3 and 4. Level one involved an open baffle aluminium ceiling system of some 3500m², and levels three and four involved a feature ceiling of mirror finish stainless steel troughs and particle board infills of some 8500m². Townsend Group also did the supply and installation of stainless steel composite panel cladding for the escalators on all levels, black glass and mirror stainless steel to the escalator soffits on void 4, in addition to supply and installation of stainless steel hairline composite panel for cladding voids 1 to 10, and cladding in mirror finish stainless steel of the elliptical column in void 1 from level 1 to 5. Other works included the supply and installation of sandstone for the columns and colonnade on level 2 Pitt St mall.

"To meet the client's design intent together with the requirements of obtaining a very high quality finish, yet working with small tolerances, meant that Townsends had to place from the outset particular design and engineering emphasis and apply a stringent quality assurance regime for all aspects of the works. Townsend's project site team, in executing the works, were set a programme that required highly skilled trade persons that were prepared to provide that extra effort to bring about a world class result," said Townsend Group CEO Russ Hill.

Since 1945, the Townsend Group has been designing, supplying and installing high quality, custom made metal and glass products. With over 50 employees including fabrication trades, engineering expertise and installation crews, and a 7,000m² workshop at Mortdale in Sydney, Townsend Group has the experience, skills and technology to turn design goals into solid reality.

Other recent noteworthy projects include the design fabrication and installation of cavern ceilings for the four Epping -Chatswood Rail Line stations and the above ground ceilings for the Epping station concourse; stainless steel and glass fitout for the Apple stores including George St Sydney flagship store; supplying and installing ceilings for Canberra Airport; and supply and installation of perforated facades for Sydney International Airport, Wollongong, Canberra Hospital and Revesby carpark facilities.

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GIVING WESTFIELD AN AMAZING FACE

Some of the world's most exciting facades are being produced by Yuanda – Federation Tower in Moscow, Mode Gakuen' Cocoon in Tokyo, China's National Aquatic Centre in Beijing, and now, the Westfield Sydney City Re-Development. Yuanda Australia, like their parent company, Shenyang Yuanda Aluminium Engineering, China, brings together visionary design and engineering, with state of the art materials to deliver ground breaking facade works.

For the Westfield Sydney City re-development, Yuanda Australia has designed and delivered unitised glazed facade systems for the 100 Market Street refurbishment, a new commercial tower at 85 Castlereagh Street and the structural glass envelope to bridge links. The work has been ongoing for the past three years, with 100 Market Street and the bridge links complete, and 85 Castlereagh Street due to be complete within the next twelve months.

Yuanda have dedicated project management, engineering, logistics and supervision staff for the project, managing a specialist sub-contract installation workforce.

One of the outstanding and unique features of the facade systems designed and delivered for 85 Castlereagh Street is believed to be the first commercial use in Australia of a thermally enhanced curtain wall framing system with hermetically sealed high performance triple glazed vision glass. The system provides enhanced thermal transmittance performance when compared with a conventional double glazed and non-thermally enhanced system.

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The chamfered roof of the building will be a fully glazed ellipse to provide full views to the East for the upper floors. The facade system for the roof has been designed as a fully drained system, and has been successfully tested to onerous commercial glazing requirements.

There were multiple challenges to the actual implementation of the design, including site coordination with the other construction works on site and operating tenancies, management of multiple workfaces, and the use of 24 hour shifts when required in order to accelerate works to achieve early handover of the building.

Yuanda engages closely with clients in order to provide the most cost-effective and innovative facade, developing design solutions which are technically focused with the benefit of extensive industry knowledge. Their approach is flexible and pro-active and is targeted at converting architectural intent into a successful, technically superior and aesthetically distinctive reality. Yuanda Australia has been in operation since 2007, and parent company, Shenyang Yuanda Aluminium Engineering, has been trading for almost two decades.

Yuanda Australia has 45 personnel nationwide, including Project management, Façade engineering, Site management and Administrative staff. Globally, Yuanda China has developed into a world leading facade contractor, with a strong position in the global facade market



CHALLENGING PRINTING GOES TO PLAN



Efficiency and breadth of experience are critical when producing the vast quantities of tender documentation that was required for a project as lengthy and complex as the Westfield Sydney redevelopment. With their Ultimo Print Shop, DES Pty Ltd was able to offer quick turnaround plan and document printing services throughout the duration of this project.

Four DES staff worked on producing high quality documentation as required by Westfield's construction team, over a period of many months, with a short turnaround.

With almost 25 years of experience in print technologies, DES offers a total wide format printing service solution at Ultimo, specialising in the construction market. DES provides document management skills and years of experience in meeting customers' expectations.

The complimentary DES Project Centre, a web based document and construction management provides the backbone for project communication, and document management to the construction market. This software provided Westfield with the tools to complete their projects on time and in budget.

Working in an industry which is traditionally paper-intensive, DES are committed to reducing the environmental footprint of both their prod-

ucts and their production process, by assessing all suppliers on the basis of the sustainability of their resource use and management of pollution. The suppliers and manufacturers they use incorporate a resource recycling loop system, where the input of new resources is gradually reduced by repeatedly reusing and recycling resources used in earlier products.

DES is a recognised market leader for proofing and printing solutions in design, pre-press, packaging, display, packaging graphics and photographic markets, and specialise in scanning and printing technology for the architecture, engineering and commercial building industry. Their services are in high demand across the Sydney Metropolitan area, and there are also offices in Brisbane, Melbourne, Adelaide and New Zealand, in addition to an online customer portal.

In addition to printing services, DES are a leading supplier of printing and image reproduction technology, retailing the world's leading brands of equipment, consumables and related software. DES also have an in house colour management division, Chromaticity Australia, which specialises in training, development and consulting in colour management, digital printing and imaging technology.

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Büro North's evidence based wayfinding and signage for Westfield Sydney is based on detailed research into the way people interact with the Centre's retail spaces. Given the site is predicted to handle over 21 Million shoppers annually, the signage is critical to the visitor experience.

The wayfinding strategy not only examined pedestrian and vehicular traffic around and through the site, it examined underground and above ground linkages and connections within the greater CBD context and the public transport links and pedestrian loadings with relevance to the Westfield entrances.

Büro North's challenge was to develop a strategy that predicted the complex internal shopper movements created by seven levels of retail, with bridge and tunnel connections to adjacent buildings and the impact of the surrounding pedestrian traffic on activity at entrances.

"Once the strategy was approved we moved into Concept Design and progressed through the process to conclude with full construction documentation, which was awarded to several different contractors. We then assisted Westfield Design and Construct in the administration of installation works."

The design solution creates a dialogue between the Wardle Architects facade and the Wondervall Japan interiors. A neutral, minimalist and

sophisticated palette of white on white was adopted, referencing materials from the rest of the project and integrating with the interior environment seamlessly. The facade signs, directional signs and interactive kiosks are impossibly thin and delicate, featuring bright white LED illumination on minimalist white backdrops, with the text illuminated to give the required contrast ratio.

A multidisciplinary Büro North team was involved in the project, including Wayfinding Director Finn Butler, Design Director Soren Luckins, Jess Caffin as Senior Design Manager assisted by Shane Loorham, Giovanni Mendini, Jules Zaccak and David Williamson.

Büro North are currently completing the wayfinding strategy for the Royal Children's Hospital. Their unique talents were recently recognized with the AGDA award for environmental graphic design for their Falls Creek wayfinding signage project.

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MESH & BAR DELIVERS THEIR BEST

Delivering truckloads of reinforcing steel, sometimes at short notice, to a worksite located in Australia's busiest CBD is a job requiring extremely skilled management. Mesh & Bar demonstrated the organisational skills which have made them one of the country's leading independent concrete reinforcing steel suppliers, meeting the needs of the Westfield Sydney project.

Mesh & Bar supplied over 2,800 tonnes of steel reinforcing bar and steel reinforcing mesh cut and bent to meet the exact concrete reinforcing needs of the project. With the supply timetable dictated by the demanding works programme, a quick response to client needs and flexibility in scheduling were required.

With over 100 years of reinforcing industry experience on staff, Mesh & Bar are able to provide an expert estimating and scheduling service. They can prepare a take-off from the project's technical drawings and deliver clients a written estimate, and if required, a detailed set of schedules to assist with manufacture of both the reinforcing steel and associated products, and the ideal placement of materials on site. On a congested site such as Westfield Sydney, with shoppers, commuters and tourists complicating the surroundings, this accuracy is a real plus for site safety, and minimises stockpiling.

In addition to the standard cutting and bending of Reinforcing Bar, Mesh & Bar can also fabricate and supply welded or prefabricated cages for pier, pile and footing reinforcement; complex bending, including three dimensional bending, antiburst spirals, top hats, circular rings and radius bars; and saw cutting of bar.



Having an extensive and reliable fleet including semi trailers, rigid body tray trucks and B doubles gives clients a range of delivery options. Fixed cranes on many of the semi trailer and tray truck vehicles makes for efficient unloading.

Another major project currently being undertaken by Mesh & Bar in the CBD is Parkview's Inmark Tower on George Street, Sydney where over 1,600 tonnes of reinforcing bar and mesh have been supplied to date.

Since their founding in 1999, Mesh & Bar have achieved a significant presence in all the Eastern States, with operations in Sydney, Newcastle, Wollongong, Brisbane, Sunshine Coast and Melbourne. With the combination of excellence in meeting project needs, and dedication to delivering the precise goods required, at the precise time they are needed, the future growth prospects for their business around the country have extremely solid foundations.

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SIGNS AHEAD OF THEIR TIMES

What's on, where to go, what's next and who's who are all easy questions for people to answer at Westfield Sydney, thanks largely to the skills of Adherettes. They manufactured the internal, free-standing and suspended Way Finder signage and interactive information displays for the redeveloped retail mecca, combining creative skill with leading edge technology to deliver custom-made products.

For this showcase project, Adherettes developed a new innovative hi-tech slim line design and construction solution for the project's digital freestanding and suspended signs. A fast-tracked design and fabrication process of three months was achieved for the prototypes, and the final supplied products have proven to be visually compelling and totally serviceable.

A range of new materials were used, to meet the specific challenges of the design brief. A slim-line glass clad sign was specified, which required custom laser cut framing and specialist vinyl to the glass. Fitting all of the many electrical components and elements into the very restrictive space of the ultra slim-fit design also required extremely intelligent manufacturing solutions.

New energy-efficient technology used in the signage included LED LCD Commercial touch screens, Mini Macs and slim-line LED lighting. Also, a new vinyl laminator was used in production of the graphic vinyl elements. Above all, the signage had to work, meeting highly detailed functional specifications, as well as aesthetic considerations. Multiple contractors needed to be coordinated on site, including electrical, data and installation technicians for over 150 of the signs to be successfully

installed in just four working weeks. There was invaluable assistance from their suppliers and the design teams of Bureau North and Abuzz Solutions in achieving the outstanding result.

Adherettes is a family owned company which has become a leader in the field of innovative signage, and capable of meeting even the most unlikely deadlines. Their talents in the field of design and manufacture of signage for all kinds of projects, from nation-wide branding rollouts of thousands of signs for clients such as ANZ Bank and Medibank Private through to sky signs such as Melbourne's largest CBD sky sign, has gained them an enviable track record of completed projects across the commercial, retail and recreational sectors. Adherettes have also undertaken projects such as supplying and installing all the fleet livery for the Metropolitan Ambulance Service, displays and signage for major events, and the design, manufacture and installation of architectural pylons, such as the one installed at Avalon Airport.

With 30 years of solid experience in the industry, Adherettes have the know-how to supply end-to-end solutions for clients, engaging in close communication to ensure each individual assignment is given the very best in ideas, manufacturing technology and product installation.

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MAKERS OF MASTERPIECES

Whether they are working in steel, timber or stone, N&J Joinery deliver stunning fitout results for exacting projects such as Westfield Sydney. The company's integrated abilities in design engineering, fabrication and onsite installation are supported by the latest technology and completed by highly experienced tradesmen.

Gerry Murphy of N&J Joinery stated that the Westfield Sydney project presented a range of challenges to be resolved. The complexity of the job, tight time frames, many other trades on site, together with difficulty of machining and fabrication the selected stainless steel, all demanded strict quality control on a "just in time" basis.

The Stainless Steel cladding of the columns, void edges and ceilings were initially fabricated off site with the final fitting on site. The MDF substrate for the stainless steel panels were machined to exacting sizes on the latest computerised machine tools in N&J's Ingleburn workshop.

Workshop drawings using CAD 3D software, were produced during June and July 2010 with the manufacture and installation of the total works being completed by the end of October 2010.

N&J take pride on working to extremely high standards of OHS and trade based Codes of Practice, and are BCA code compliant. Where applicable, they also meet relevant Australian Standards for Quality, safety and performance. The company can also meet the needs of Green Star Certified projects, with access to FSC certified timber.

In the 24 years the company have been meeting the needs of the commercial fitout sector, N&J have embraced the latest in technology to give them an edge in delivering the best result. They have several divisions including stainless steel fabrication, engineering, stone masonry, joinery and glass decorating. These are all located in



close proximity, and use technology including AutoCAD 2d/3d, Cabinetvision package for design/CNC manufacture, and Biesse editor for CNC programming.

Their skills are held in high regard around Australia, with projects undertaken to date in all states by the N&J installation crew of 18 qualified tradesmen. The 3,000m² combined workshop space is staffed by 21 trade qualified cabinetmakers and joinery engineering tradesmen.

Other major projects undertaken by N&J include Rhodes shopping centre; Westfield Belconnen; Westfield Bondi; numerous Woolworths stores around Australia; Terry Hills Golf Club; Camden Valley Golf Club; and Ibis Hotels.

For further information contact Gerry Murphy 0418 476 390 – email gerry@njjoinery.com.au

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MADE BRILLIANT FOR WESTFIELD

For the crowning glory of their long-term client Westfield, Made Contracting have designed and delivered their finest work yet for the Westfield Sydney redevelopment. Made fabricated and installed the custom-designed and highly distinctive awning which wraps around the Pitt St, Market St and Castlereagh St sides of the retail project. Made also fabricated and installed the internal balustrades for level 5 and level 6 of Westfield Sydney and for the spiral staircase in the fine dining area on level R06.

Made uses state of the art CAD design software to enable them to produce the finest possible results. For Westfield Sydney, some of the finer details they produced included cast stainless steel eyelets for the awning, which also incorporates alpolic as one of the key materials. For the balustrades, a new product Sentry Glass, was used to deliver a combination of brilliant appearance and an extremely high safety rating.

Quite aside from the design challenge of the complex awning itself, the other major issue Made needed to resolve on this project was site access, with the Pitt Street access especially restricted. The result of their excellent efforts speaks for itself, with the top quality awning now a unique aesthetic and functional element of this showcase development.

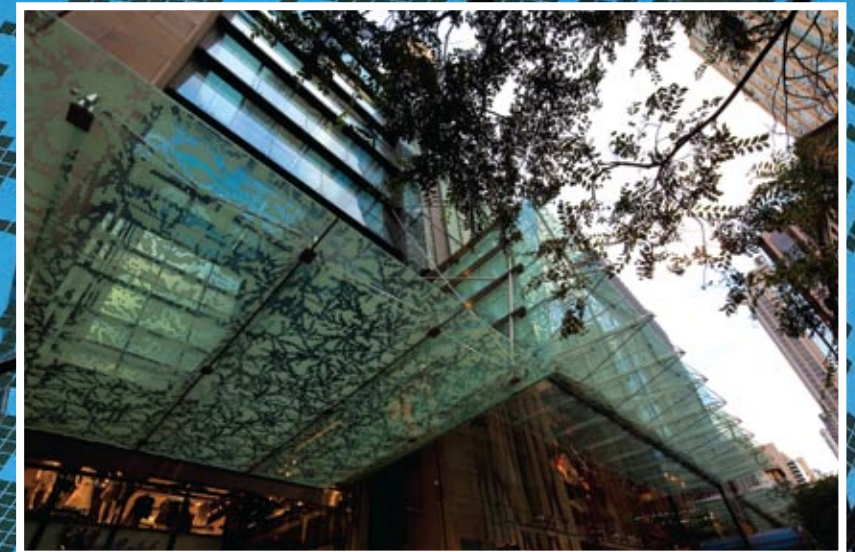
With over 20 years of experience in the construction industry, Made Contracting are leaders in the field of designing, fabricating and installing architectural metalwork, glass and specialised structural and fitout components. Starting from the earliest design stages, Made focus on having every detail right, and certified by their engineers, before fabrication commenced in their workshop.

Understanding the time pressures projects operate within, Made are focused on meeting program needs reliably, resourced by an extensive network of suppliers for materials including glass, stainless steel, steel, timber, plastics, fixings and consumables. CNC machining ensures an efficient and highly accurate production process.

All the skills, energy and experience of this company are dedicated to the goal of ensuring that outstanding design ideas are brilliantly Made.

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RIGHT ROYAL PROTECTION FOR WESTFIELD

To be called on to provide key aspects of the overall fire safety measures at the redeveloped Westfield Sydney is a sure sign Coopers Fire have well and truly made a mark on the Australian marketplace. Coopers Fire supplied all the Fire Curtains which will, in event of a fire, protect people evacuating the retail areas and the commercial office spaces via the fire escape stairs.

The curtains included both multiple roller concealed Fire Curtains and a new product, a 9 metre drop single roller concealed Fire Curtain. The challenge was to ensure during the commissioning process that such a long drop curtain works reliably and successfully – lives may rely on it! Six Coopers Fire staff worked on the project to deliver the successful result. All the fire engineering and Brigade challenges were met, which included the successful use of multiple roller Fire Curtains which will protect the Mall entrance and retail shopfronts.

Coopers has been established in the UK for over 25 years and are the inventor and patentee of the Gravity Fail Safe (GFS) Smoke and Fire Curtain. The Australian subsidiary has been operating for four years, with other recent projects including Star City Casino and Hotel and Westfield's Headquarters.

The GFS system pioneered by Coopers Fire has become the benchmark for Smoke and Fire Curtain systems installed throughout the world, and the Australian subsidiary is the only specialist Smoke and Fire Curtain company servicing the Australian market. Coopers Fire has been

heavily involved in the introduction of British and European Standards, including the very latest BS PAS 121, the only definitive specification for Fire Curtains in the world.

Coopers Fire products include the FireMaster® Fire Curtain range, which focuses on project specific fire separating requirements. The SmokeStop™ Smoke Curtain range provides project specific smoke channelling or smoke baffle solutions with numerous integration options. The largest install to date is in excess of 200m long - one continuous Smoke Curtain at the Dubai International Airport. The Vii® Fire range is designed to provide fire and smoke protection for smaller openings up to 3m X 3m.

All Coopers Fire products are precision engineered to reliably operate for over 100,000 cycles, and certified to ISO 9001: 2008.

The Queen of England herself is protected by Coopers Fire's Curtains, as Buckingham palace is among the world landmark buildings where they are installed. Others include Chek Lap Kok airport - Hong Kong, Wembley Stadium and the Sydney Opera House.

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PERFECT FINISHES FOR AN ICON

With their vast knowledge and dedication to impeccable finishes, HPS NSW produced outstanding results across both the retail and commercial elements of the Westfield Sydney Development.

HPS NSW started conducting painting and decorating works at the Westfield's Sydney City Store in late 2009 beginning with a 14 storey building which was the repaint of existing offices, then onto the 10 storey ASIC building and continued on to the newly redeveloped retail areas.

Next HPS commenced work on the 36 storey commercial building within the Pitt Street mall, which includes painting and decorating within the Westfield's Tower for the J.P. Morgan fit-out, and has also been awarded the Allen & Overy fit out within the Westfield's tower.

To complete all these stages, HPS maintained close liaison with all the other trades to ensure efficient and safe completion of each stage. Our team of trades persons is dedicated to safety, and the Westfield's project added another dimension to this, with HPS required to consider the safety of their work force, all other trades, and the general public who were in close proximity to many of the work sites as the retail areas continued to trade during stages of these works.

All of the HPS management team have extensive industry experience, and are trade qualified in the Painting and Decorating Trade. With their accumulated vast industry knowledge, the HPS team can succeed with the most complex and demanding of projects even under demanding time frames and milestones. This has been reflected on the sometimes demanding milestones and grand openings which have been achieved on the Westfield site, to include many other projects over the years, which is why many have chosen to finish their land mark projects with the help of HPS NSW team of trades persons.

HPS NSW is committed to leading the way in the environmentally friendly painting and decorating, and applies this to every project they undertake. HPS NSW was the contractor of choice when the Greenstar Council of

Australia up graded their Sydney office, and has delivered similar standards to the Westfield Sydney project, with low VOC paints used through the 6 star greenstar development.

HPS is also a certified lead based contractor, and has conduct many lead encapsulation and lead removal projects for both private and government developments with exceptional results.

HPS also install fire intumescent coatings and has completed fire intumescent Painting at the Westfield site and for various other companies throughout N.S.W. HPS NSW has completed many large construction projects including state rail infrastructure projects, and finely finished homes throughout N.S.W.

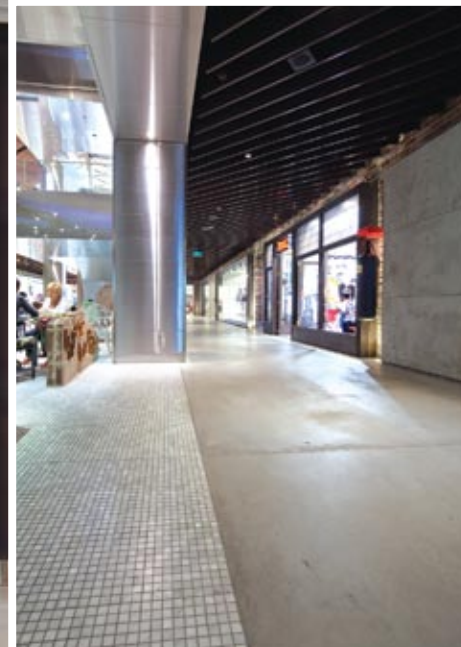
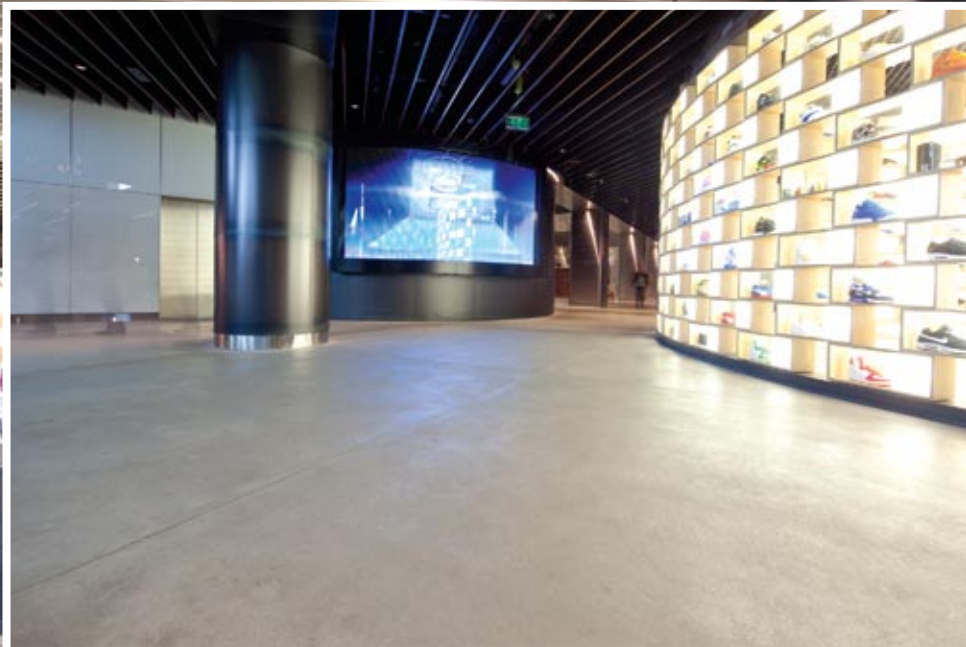
Specific recent projects in addition to the Westfield's project include the University of Sydney Campus for Wapac Constructions; YHA Accommodation at The Rocks for Built Constructions, state rail infrastructure projects for Arenco Pty.

When highly specialised coatings are required, HPS can deliver, such as the Chowder Bay science reach search facility, applying an epoxy painting system for Cockram Constructions. HPS NSW has also manufactured hand made finishes for the likes of Louis Vuitton and Channel.

HPS NSW takes a "can do" approach to all their projects, including those which have needed a 24 hour based and managed painting team to achieve specific milestones, without the compromising quality or safety.

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MAKING ZARA STILETTO-READY

For a high end international fashion retailer like Zara in a flagship retail centre like Westfield Sydney, making a fabulous first impression on customers relies on impeccable surroundings from the ground up. That's why Accent Floor Services were engaged to provide prompt and effective remedial works to extensive floor surfaces in the new and renovated retail areas Zara now occupies in the redeveloped CBD icon.

Accent Floor Services were the company of choice due to their combination of experience in floor toppings using the Alpha based floor systems as well as an extensive range of heavy duty and specialised floor prep equipment.

The old floor surfaces were quite uneven, needing toppings of between 10 to 300 millimetres over large areas, and in other areas up to 30mm shaved from the concrete surface to bring the base floor to a satisfactory level specification to accept specified floor coverings. Other concerns included the load bearing limits of the existing floor.

Accent Floors personnel said that the technical assistance and backup provided by Pactech Products was an essential element for the effective solution for the floor topping requirements. Pactech specified Alphas, a light weight version of Alphatop, for the very deep areas and Alphatop in the shallower areas and as a high performance topping over the Alphas to keep the weight down and the rolling load bearing strength up.

"The Alpha range of products was by far the best choice because of the tight construction time frames allowed and the large volume of product that had to be pumped into place while giving full security of bonding with the various sub-strates," they said.

"Using Alphatop, we can deliver a lot of material to where it is needed very quickly and sleep well that night knowing that there will be no problems facing us next morning."

"Pactech floor topping products span the full range of requirements for the repair, renovation and finishing of spalled, degraded, uneven and damaged concrete sub-strata. They are especially useful in shopping centers and multi level residential complexes. Decotop, another Alpha based product, is fast becoming popular as a designed finished floor due to its durability, uniqueness and versatility," Mr Barrie Heiler of Pactech Products told us.

Alpha based flooring compounds are produced around the world. They are genuinely self-levelling, suitable for variable and unlimited depth range with volume stability to prevent cracking or delamination. They are 100% non-reactive with host structures, compatible with most floor sub-surfaces, including tiles and timber and can readily accept stable hard floor finishes. Alphatops' volume stability makes it ideal for embedding floor heating cables or pipes.

The Green credentials of the product match the guaranteed excellent performance. The base material for Pactech's internationally used formulations is produced in Germany as a by-product from the collected and reprocessed waste outfall of coal fired powered stations. Clever chemical modification gives a stable, non-reactive, PH neutral and very strong binder. The compact molecular and modified crystal structure affords degrees of hardness comparable to concrete materials, making it perfectly suitable for load bearing construction elements.

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HIGH-END TILING

Those entering the foyer of the new ASIC headquarters adjacent to Westfield Sydney will be given a dramatic and classy first impression. Santo Tiling played a key role in creating this impressive ambience, with the supply and installation of Turkish reconstituted stone floor tiles.

Santo Tiling had three crews working back to back on around the clock shifts over three and a half weeks to complete the foyer, and tiling for the kitchens and bathrooms. The 600m² of foyer tiles are far larger than standard – 1200mm X 600mm, with a high gloss finish. The laying of them required special attention to caring for both the materials and the manpower due to the sheer weight of the stone. The bathroom and kitchen tiles included both mosaics and 100mm X 200mm vitrified Italian tiles in greys and blacks, all installed using low VOC grouts and fixatives.

"Access was a challenge on this project," explained Santo Tiling Director, Michael Santo. "The only way to get the materials on site was by use of one crane servicing the entire site. We then had to pallet jack the materials to where they were needed. The materials included many tonnes of sand for the foyer tiling which needed to be moved and mixed, well over 100 bulker bags 1.5m³ each in size.

"The ASIC foyer came up beautifully, there are a lot of decorative touches such as carpet inserts in the middle of the tiles. The Chambers bathrooms also came up really well, there were challenges in the design including shadow lines architraves and tiled internal suspended ceiling which formed part of a cloak cupboard. The suspended portion was



2.6m high and our crew were literally tiling against gravity, a very difficult thing to do as tiles don't like to hang upside down, we used a specialized quickset adhesive for that part of the job."

Other recent showcase projects include the 90 multi-unit residential development in Darwin, where Santo Tiling undertook all the tiling for 110 units for builder Halikos; tiling for 32 units at Emerald lakes; tiling for Lake Crackenback Resort; tiling for Villa Caprera at Elizabeth bay; tiling for Darwin Police Stations across the command area; and the tiling for La Bodeguita Del Medio restaurant in Sydney. Santo are national Code Compliant and accredited to undertake Federal Government projects, and have several Defence Department commissions completed to date.

Santo Tiling has been in business for seven years, founded on a previous company and the Director's 25 years of experience in the industry. The company has two divisions, one specializes in high end homes, the second division in Australia-wide commercial projects. With a strong supplier network, Santo can source tiles from anywhere around the world, and provide advice on design aspects including colours and textures.

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Waste water gets the treatment at Westfield Sydney

The decentralised black water treatment plant installed by WJP Solutions in the Westfield Sydney redevelopment captures 300,000 litres of waste water from office building toilets, sinks, hand basins and showers as well as from commercial premises such as hair dressing salons and restaurants located in the centre's six-level retail development and Sydney Tower.

The treatment process produces 220,000 litres of treated water daily for toilet flushing, cooling tower supply, plant room wash-down and irrigation of planter boxes on the centre's rooftop garden. The plant reduces Westfield Sydney's annual water consumption by more than 80 million litres; enough to fill 32 Olympic-sized swimming pools.

In the formative stages of the development of decentralised black water treatment systems, most small plants were processing up to 10,000 litres a day, but with the significant advances the industry has made in recent years, it's now not uncommon for plants to deliver anywhere from 200,000 litres to more than two million litres of recycled water a day.

"The rapid development seen in the industry has been driven by innovation borne out of the necessity to supply a range of decentralised plants for a variety of applications that contribute significantly to conserving the nation's water reserves," said WJP Solutions' chief executive officer Derek Gnauck.

Today's state-of-the-art black water recycling systems follow a number of processes in order to produce water of a uniformly high standard. After the raw sewage is captured it is screened to remove solids which are disposed of through the sewer.

From there the waste water is processed through a biological reactor containing small micro-organisms in high concentration which break down nutrients and organic matter. The water is then drawn through tiny porous fibres known as membranes that filter out microscopic contaminants and pathogens.

Finally, the water flows through a reverse osmosis plant (to remove salts) and undergoes a final UV and chlorine disinfection process to ensure product water that is of the highest quality required for the various uses, including the cooling towers.

Westfield's Services Manager Steve Makris said, "We've been delighted with the job WJP Solutions has done on the plant for us. Their attention to detail and workmanship were first-rate, and they took great pride in installing a system that meets our needs in every respect."

Melbourne-based WJP Solutions specialises in the design, construction, delivery, commissioning and maintenance of state-of-the-art decentralised plants for treating grey-water, storm-water and black-water to facilitate the efficient re-use of water for purposes such as toilet flushing, cooling tower and irrigation supply.

Part-owned by Lend Lease Ventures, WJP Solutions has the capacity to work in all states utilising its in-house capabilities and network of suppliers and contractors.

Treatment plants can be designed to suit a wide range of applications including office buildings, health care facilities, retail developments, multi-residential complexes and tourism and eco-village developments.

