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State of the art

Established in Western Australia over 40 years ago, Multiplex has continually expanded and thrived in its industry and the Centrelink project is no exception

The \$130 million Centrelink project is a state of the art commercial office built on a 5 hectare site in the heart of Tuggeranong in the ACT. It consists of 40,000 sqm of Net Lettable Area and boasts an ABGR rating of 4.5 stars. The building has two main low-rise strcuture stretching for 180 metres that are joined together by a 6 level glass atrium in the centre, the centrepiece of the design. The whole building will be home to the Centrelink National Support Office, and will house over 2500 employees, while also incorporating 1100 car parking spaces.

Diversified property business Multiplex led the design and construction of the project. They have a reputation for quality, innovation, and the successful delivery of major projects including large scale commercial, retail, residential and specialist construction projects. Established in Western Australia over 40 years ago, Multiplex has continually expanded and thrived in its industry. It conducts business operations in Australia, New Zealand, the Middle East, and the United Kingdom. Today it employs more than 2000 people across four divisions. Work recently completed by Multiplex includes the Village Park Redevelopment in the ACT, Southern Cross Building in Melbourne, and World Square in Sydney.

Multiplex has won multiple awards for its outstanding work on the Centrelink project. They include the Master Builders Awards for excellence in occupational health and safety, excellence in environment management and eco efficiency, and project exhibiting technical difficulty and innovation. It has also received numerous awards for another recent project, the Urban Workshop in Melbourne.

The Centrelink project incorporated many innovative features. For example, the temperature control in the building is achieved via the use of a low temperature VAV system which is enhanced with the use of environmentally efficient, heated flooring and chilled beam technology.

To minimise the energy lost in the voluminous atrium, these passive systems were assisted by the creation of microclimates throughout the occupied areas. The temperature control is carefully monitored and controlled by a state of the art, highly intelligent, building management system (BMS). This BMS interfaces with all other systems in the building, including lighting, generator and lift control, and smart metering.

A cutting edge lighting control system combining Dali and Dynalite technology reduces energy consumption from electric lights, while the building makes extensive use of daylight harvesting.

A sophisticated generator system controlled by SCADA has also been incorporated giving operators the flexibility to shift power around the building to where it is needed most. To monitor power consumption - which is essential for buildings such as the Centrelink project, which are aiming to achieve high environmental standards - a smart metering system developed by Edge has been widely incorporated in to the building.

The Centrelink project also boasts the largest solar power farm in the ACT, which is used to generate the heating requirements for the building's water supply. Cutting edge water recycling technology has also been incorporated to allow the collection and re-use of both stormwater and grey water.



Exterior view of the Centrelink project



As a result of Canberra's highly variable climate conditions, extensive detailing and attention to quality was required to ensure careful control of both structural movement and thermal transfer from outside to inside the building.

The Centrelink project was designed with total flexibility in mind. Additional space within ceilings, flexible grid and tile ceilings and access floor were used throughout the building to allow easy reconfiguration of the office spaces. All services connected within these areas were also provided with flexible connections so that relocation, rather than disconnection and reconnection, is all that is required during alterations.

The high level of "churn" required by Centrelink necessitated an innovative approach to the floor plan, so sections of floor space up to 500 sqm could be completely reconfigured overnight.

Multiplex Facilities Management has been engaged for the maintenance of the Centrelink National Support office for the entire lease period. Multiplex Construction and Facilities Management worked together closely during the development to get a full understanding of the building and the most crucial areas for maintenance.

The biggest difficulty encountered by Multiplex was the construction of the 6 level Atrium, purely due to its size. It was the most expensive feature of the Centrelink project, and thorough planning was required to ensure the temperature and lighting was constant throughout the whole of the atrium. A further feature of the project was the construction of an access tunnel underneath the building, which provides access to all lifts and service risers without the need to interrupt workers during churn or reconfiguration.

Multiplex constantly demonstrates that they are leaders in designing, constructing and maintaining innovative and efficient projects, and the Centrelink project exemplifies their leadership qualities.



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Current partners

Together, Star Electrical and Heyday Group have over 80 years of experience and more than 1000 experienced, dedicated employees. When they joined forces to provide electrical services for the Centrelink project, the result was an organised, cohesive team that completed the job thoroughly and efficiently.

Established in 1956 as a family owned company by the late John Andrews, Star Electrical has grown in size over the years, but has remained a privately owned company. Star Electrical's dedication to quality service has been the main contributing factor to its successful growth.

With a focus on electrical installation and data communications, Star Electrical also designs and implements lighting control systems in house.

This defining characteristic sets them apart from the majority of electrical contractors.

Heyday Group, created in 1978 in the back of a small garage, has grown to a \$185 million company with nearly 850 employees.

The company provides electrical contracting and communications installation that cover a range of building utility services such as electrical infrastructure, energy management systems, fire detection, and voice and data networking systems.

The company aims to deliver quality work, within budget and on time. Their simple philosophy has led to more than 20 NECA awards for electrical and communications excellence, an achievement that demonstrates the

company's commitment to delivering excellence on every project.

Working together, the two companies created electrical systems that complied with the "4.5 Star ABGR" energy rating of the building, a challenge that, though difficult, was nonetheless achieved through the teamwork between the companies and other groups working on the project.

Though they come from different backgrounds, Star Electrical and Heyday Group have one thing in common: the dedication and skill to create effective, efficient electrical and data communications systems. When the two companies come together, they create a force to be reckoned with.



Green with envy

Group GSA's approach to Ecologically Sustainable Development (ESD) responds to the interests of diverse clients providing quality architecture reflecting contemporary environmental and social concerns. It is now broadly acknowledged that 'green buildings' can deliver financial benefits through direct operational savings, increased productivity and marketing opportunities.

Over its 25 year history, the practice has delivered many environmentally responsive projects in diverse sectors. These include the Sydney International Shooting Centre (for the 2000 Green Olympic Games), the Beijing Shooting Centre, Office of Sustainable Futures, Gladesville Office development and many multi-unit residential projects.

The design & development of the national headquarters building for Centrelink by Group GSA & Multiplex establishes a new benchmark in workplace design, driven

by environmental and social sustainability initiatives. The 6 storey, \$120 million building, with a 50,000m2 GFA accommodates 2,800 employees. Constructed on a 5.4 hectare greenfield site, the development is designed to sit within and reflect the landscape. The plan comprises two major volumes and is joined by an atrium (main street). The atrium provides a high level of social and environmental amenity. The office floor plate width maximises daylight penetration from external windows and the atrium. The atrium is activated by breakout spaces, meeting rooms and cafes. The louvre-protected atrium facing north, maximises daylight penetration. Landscaping of the site with local species promotes biodiversity.

The flexible floor plate and building services design to accommodate Centrelink's high churn level of 110 per cent annually. Overnight (4pm to 7am) re-configuration of large office areas (1,000m2 +) is achieved by a flexible

service grid, modular workstations and access flooring. A 250mm-deep ceiling service zone accommodates supplementary mechanical equipment, fire sprinklers with flexible connections, and light fittings with flexible leads enabling repositioning of services without modification to supply lines.

As a Commonwealth Government facility, the building targeted and achieved a 4.5 star ABGR rating. The design of the building envelope achieves this performance and addressed related sustainability issues of longevity, minimal maintenance and resource efficiency. Precast concrete structural panels, shaded double-glazed (low-E) windows to the north, east and west elevations and insulated cladding panels are the major wall elements. Thermal performance is achieved via air spaces, bulk insulation and specialised double-sided insulation material. Floor slabs are insulated for two metres inside the external walls to minimise thermal bridging.

Careful selection of finishes contributes to a high level of internal environmental quality. Low VOC Onterra carpet tiles are used throughout, which facilitate re-use and local replacement. Timber veneers from sustainable sources are used in the breakout areas to denote the informal socialisation zones.

Building system design and management contributes to the ABGR rating. Low temperature VAV air conditioning is provided to the office area. High-level chilled ceiling panels, low-level heated slabs, and displacement systems, maintain comfort in the non-conditioned atrium space. Hot water is provided by roof-mounted gas-boosted solar water heaters. General lighting to supplement daylight is provided by T5 fluorescent fittings (dimmable) controlled by proximity switching devices (photoelectric cells and motion detectors). External fire stairs are largely daylight. Total building energy consumption is managed by a sophisticated BMS, which alerts facilities personnel by alarm when consumption exceeds design levels.

All greywater (kitchen, handbasins, showers) is collected, treated and re-used for toilet flushing. All sanitary fixtures and tapware are water efficient. Roof water is collected to supplement the greywater system, the remainder is detained onsite and released into the Murrumbidgee River system to assist in environmental flows. Carpark runoff is collected in landscaped deep swales which filter out pollutants before detention and release into the river system.

The Centrelink National Support Office will deliver a number of key ESD objectives – low environmental impact at both global and local scale, high occupant amenity and substantially reduced wastage usually associated with high churn tenancies. The building continues the evolution of good workplace design capturing the synergistic benefits of environmental, social and economic sustainability.

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The warmth of wood

Established eight years ago, Supawood are at the forefront of the architectural panel lining industry.

Supawood’s portfolio includes many high profile projects such as prestigious government buildings, cultural and heritage landmarks, and premium office fit-outs for banking institutes and other large corporations. The company works across NSW, ACT, Queensland, Western Australia and Northern Territories.

As specialists in the industry Supawood design and construct timber-based acoustic, solid and slatted panels to client specifications. The company works closely with architects, designers, and contractors to ensure realization of the design concept and desired result. Maintaining this close working relationship enables Supawood to produce whatever is demanded by a specific project, including shaped and curved panels, special substrates and finishes.



For this prestigious government development Supawood supplied panels for the building’s atrium, the lift lobbies on each floor, the ceilings and the balconies. The panels used were designed specifically for aesthetic impact. As the appearance of an atrium or lobby is often the client’s first impression of a company, these fixtures are fundamental for creating the right mood and atmosphere.

The modular panels used in the building were designed to allow easy access for any service panels, while maintaining high aesthetic standards. Each panel is fully demountable and re-usable. The project necessitated specific colour consistency of the timber throughout the development, with the panels designed to complement the floor colour. This required Supawood staff to take exceptional care in the timber and veneer selection to achieve the correct colour tone on each modular panel. The size of the project meant colour-matching panels for an area of 800m².

The company employs a team of 22 persons, and have long established relationships with dedicated subcontractors who install their bespoke panel linings. In-house and on-site training of subcontractors and staff ensures Supawood can guarantee the quality of their product and installation.

The scale of this project meant that numerous trades were operating simultaneously on the development; with the client’s own consultancy and support team also on site. This meant careful planning and ongoing negotiation to enable the smooth and successful installation of the panels to the project requirements

From start to finish Supawood were involved in this project – right from the architect’s design and specification through to the final installation.



Cool and green

An innovative and energy efficient air conditioning system is imperative for a building to receive an ABGR rating of 4.5 and a green star rating. The \$130 million Centrelink project did just that, and Hastie Air Conditioning was on site to design a cutting edge air conditioning solution. The company was committed to the project, from the early conceptual stage to testing, commissioning, and hand over. Because the company was responsible for the system from beginning to end, any issues that arose could be easily fixed during the construction stages.

The project was successfully completed by Hastie with a site based team and specialist mechanical and controls sub-contractors for the installation, testing and commissioning works.

For the project to receive such an efficient rating, a number of new materials were used for the project, including Radiant Chilled Ceilings and Swirl Diffuser. The buildings ductwork design was based on a low temperature VAV system. Hastie Air Conditioning is Australia's leading air conditioning installation, maintenance, and electrical company, and has been providing services in Australia since 1970 as a subsidiary of Hastie in the UK, from offices across Australia and New Zealand. Their experience and knowledge

of the industry gives Hastie a distinct advantage, and ensured there were no major issues on the Centrelink project.

Projects previously completed by Hastie include the Parramatta Justice Precinct, and Regent Place and Latitude in Sydney. They are currently finishing the Latitude East Project.

The Centrelink National Support Office was a challenging but successful project. The 6- level glass atrium, the projects centre piece, required a constant temperature throughout, which Hastie's expertise and immaculate air conditioning design allowed to happen. Client handover was achieved on schedule by Multiplex in June 2007.

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Easy access floors

Tasman Access Floors boasts more than 25 years experience in the design, manufacture, supply, and installation of access floors across Australasia.

With direct representation in all states & territories of Australia, the company has positioned themselves as market leaders. Their impressive project portfolio of over 1.5 million m² includes numerous installations for leading IT, financial, banking, government, & private business sectors. Tasman's current major projects include Commonwealth Bank - 'The Zone' @ Sydney Olympic Park & Norwest Data Centre, Macquarie Bank - 135 King Street, Suncorp - 259 George St, Council House 2 (CH2) Melbourne & Centrelink NSO at Tuggeranong, Canberra.

Tasman's in-house installer training enables the company to maintain their high quality service.

For the Centrelink project, Tasman's Design & Construct contract included supply & installation of 33,000m² of the Tasman Tascor® Unifix access floor system.

This system consists of a 600mm x 600mm corner-locked steel/ concrete composite panel on a Unifix pedestal under structure installed 200mm above the structural slab level. These panels also incorporate OnGrid™ locating holes for the location of the on-grid carpet system without carpet adhesives. Designed for easy access, the access floor system in conjunction with on-grid carpet tile allows for

the rapid churning of the office environment and enables users to re-route under floor services with ease.

This modular system designed by Tasman Access Floors facilitates re-use at the end of a tenancy. Furthermore, the raw materials used in the construction of the modular panels & under-structure enable easy recycling and contribute to the environmental advantages of access floors.

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Thinking outside the box

Redbox Design Group specializes in urban design, town planning, landscape architecture, and site planning. Based in Canberra with an office also in Melbourne, they are dedicated to providing quality, relevant, practical, and innovative solutions.

For the Centrelink project Redbox was responsible for the landscape design. There were a number of environmental factors affecting the Centrelink project's development, and Redbox came up with a design that conformed to stringent environmental codes for dealing with issues such as the effect on native fauna, the location of the development which is adjacent to the Murrumbidgee River Corridor, and the effect the 2003 Canberra bush fires had on the local area. To minimise any future fire risk several measures were taken. Tree placement in relation to the buildings was thoroughly planned, and recycled concrete mulch was used on all gardens.

In response to the devastating effects of the drought on the Canberra region, Redbox imposed many innovative and energy efficient designs to ensure only minimum water usage including extensive use of local flora and native grasses.

A detailed assessment of water use versus rainfall was set up. Because water for irrigation was restricted due to its scarcity, the grey water system, which recycles most of the water on site, was used. The irrigation system was also programmed to adjust water use based on the season and availability of the water.

Redbox Design Group is the amalgamation of 2 leading Canberra companies, and has been operating since 2004. They have won numerous planning and design awards from the Australian Institute of Landscape Architects and have been involved in many major projects around Canberra including Parliament House and the Brindabella Business Park for which they received a design award

Redbox has been involved with the Centrelink project over a 12-month period. Their commitment to quality design has been shown through the high profile projects they are involved in, and further cements their position as one of Australia's leading landscape architects.

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Pumping it up



The new Centrelink National Support Office being constructed by Multiplex in Tuggeranong ACT is a state of the art design that incorporates many innovative features. It consists of 2 low rise buildings stretching for 180 metres that are joined together by a 6-level glass atrium. The large scale project required the involvement of a concreting company that had the expertise and professionalism to complete the project on time and on budget. CPS Concretors Pty Ltd was the ideal candidate for the task.

CPS Concretors have more than 36 years experience in the concreting industry, specializing in concrete placing and finishing. It also includes another company, CPS Concrete Pumping, which specialises in shotcreting and concrete pumping. CPS has built a solid reputation for providing high quality, professional service to all their clients in the Canberra region and surrounding area. 22 of their employees were involved in the Centrelink project, completing all concreting and concrete pumping.

CPS has 6 mobile concrete pumps and two tower pumps. Five of the mobile pumps work in the Canberra region and one permanently based at Batemans Bay NSW. The concrete pumped by CPS was used for most of the base and for structural support on the Centrelink project. Though

the construction consisted of many new designs and innovative features, it was business as usual for CPS and no major issues ensued for them. Its passion for large commercial projects, and unquestionable commitment to excellence, was proven in their dedication to the project.

The team at CPS has taken on many large-scale projects, all of which have been undertaken within the parameters set for time, cost and guaranteed quality. These factors have earned them many awards including 'Excellence in Building' awards for various projects such as Radford College, National Memorial to the Australian Vietnam Veterans, and CCEGGS Indoor Swimming Complex.

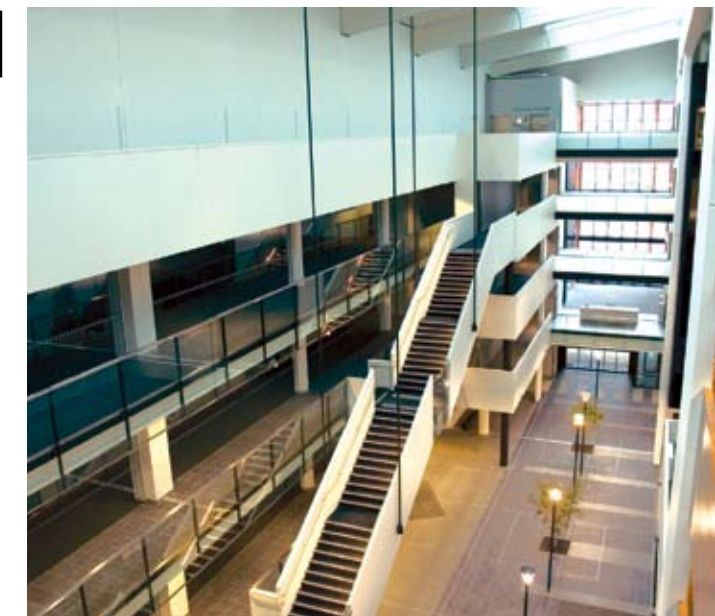
CPS' involvement with the Centrelink project has lasted for approximately 18 months and is running right on schedule. They have recently completed projects at 7 London Cct Canberra and 18 Marcus Clarke St Canberra, both for Thiess Pty Ltd.

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Customised fire safety

The \$120 million Centrelink project constructed in the heart of Tuggeranong, ACT was designed with safety in mind. This was the perfect opportunity for the fire safety consultancy service Defire to use their expertise and knowledge to design a fire safety strategy that met their clients objectives whilst maintaining the required level of safety. The building is amazingly efficient with a 4.5 ABGR rating

Defire worked with the construction company Multiplex and the projects architects, Group GSA, during the design process to develop a specialized concept for the fire safety design. Four of Defire's 15 staff members were involved in the design, which included performance based alternative solutions such as active fire suppression with smoke separation and natural buoyancy driven ventilation for smoke control within the atrium. The design was then analysed using the latest computer simulation technology, the Fire Dynamics Simulator (FDS), to predict the possible scenarios and conditions of a real building fire. Simulex evacuation modelling then analysed the evacuation time of different areas



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of the building. An issue encountered by Defire during the design of the Centrelink project was the need to develop a fire safety strategy that would meet the clients objectives and still conform to modern office design features like large, open floors, visual connections, and circulation spaces inside an atrium. The expertise and attention to detail of Defire, coupled with their ability to work closely with the construction company Multiplex and architects Group GSA, meant they were able to provide a strategy that perfectly suited the clients needs.

Defire is a specialised consultancy service in performance based fire safety design that provides a customised package of alternate fire safety measures for every design. Beginning in Sydney in January 2002, Defire has experienced significant growth in demand due to their high quality and innovative fire safety services. In July 2007 Defire merged with Canberra based company Stephen Wise & Associates to further strengthen their ability to provide timely and quality fire safety design.