

# A SOPHISTICATED STRUCTURE

50 Flinders Street is an impressive \$80M commercial tower consisting of 14 levels with tenants including People's Choice Credit Union, Santos, and includes a lobby with retail banking, childcare and a restaurant.

**MAIN CONSTRUCTION COMPANY :** Hansen Yuncken Pty Ltd  
**ARCHITECT :** JPE Architect Pty Ltd  
**STRUCTURAL ENGINEER :** Mott Macdonald Pty Ltd  
**SURVEYOR :** Engineering Surveys Pty Ltd  
**PROJECT VALUE :** \$80 Million

**Hansen Yuncken has applied novel and exciting work practices at the sleek, new addition to Adelaide's Flinders Street.**

The \$80 million mixed-use development is a testament to the company's proactive attitude embracing new technologies and sophisticated delivery methods to improve construction.

The building at 50 Flinders Street is a 14 storey, glazed commercial tower offering 80 spaces of above-ground parking over 2 levels, topped with 12 stories of commercial office space. The ground floor houses a lobby, restaurant, childcare and retail banking for People's Choice Credit Union, the largest tenant occupying roughly half of the total 23,000m<sup>2</sup> floor area.

The other key tenant is Santos, who will link to the new building from their neighbouring head office via two concourses at level 6.

The building's sleek exterior hides a suite of Green Star features. It is targeting a 6 Star in Green Star Office Design and As Built ratings, as well as earning a 5 Star NABERS Energy Base rating. Thermal effects of a fully glazed curtain wall are offset with stylish, powder-coated aluminium sun-shading outside in a chic ochre colour. Inside, ceiling-based, passive chilled-beam air conditioning provides convective cooling.

The internal working environment will benefit not only in terms of reducing energy consumption from reduced fan usage, but occupant wellbeing and comfort is enhanced with chilled beam systems offering a better air-distribution pattern, elimination of mechanically recirculated air and quieter working environments. Outside air will be circulated at 2.5 times that required.

End of journey facilities are above average with showers and bike parking for 10% of occupants. However don't expect poor water consumption arising from those commuting staff - mains water consumption will be 50% lower than standard. Consumption (both water

and electricity) will be monitored and reported monthly through extensive sub-metering.

During the build, Hansen Yuncken improved sustainability by altering the fly ash content in concrete, carrying out integrated fitout work simultaneously with building works to reduce materials waste and paying attention to chemical compounds within sealants, adhesives and paints.

Assisting the positive environmental ratings has been the utilisation of Building Information Modelling to ensure optimal processes and outcomes during design and build. Hansen Yuncken used BIM throughout the project from conception, allowing simulation of building design and construction that included energy efficiency modelling.

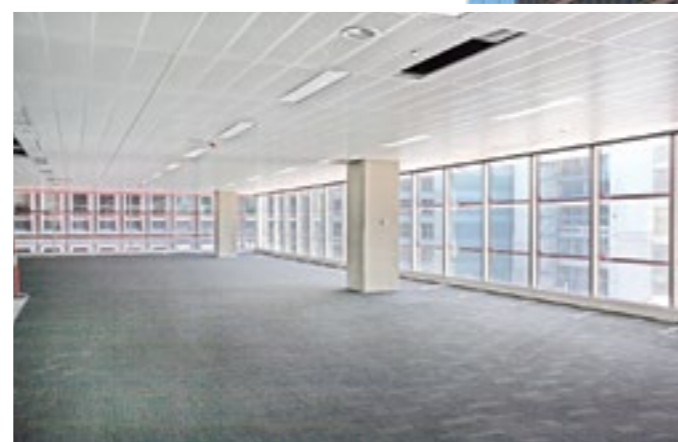
Project Manager Heath Price described the benefits from the process as impressive. "Although we had the same BIM management tools as the new Royal Adelaide Hospital PPP project [another Hansen Yuncken contract], this was really a test case for using BIM for the organisation, employing it at the very earliest phase of design and construct. It is the first time Hansen Yuncken employed a dedicated Model Manager on a build."

A co-located design studio was set up onsite whilst demolition works were being undertaken. Using Revit software enabled the entire project to be 3D modelled from the outset, with wide-ranging professionals from various disciplines feeding in to the model from design onwards. "It was involved enough to allow adjustments at prefabrication, such as to vertical surface risers, that can lead to significant savings" said Price.

In addition to replacing traditional two dimensional drawings with three spatial dimensions, the inclusion of time and cost parameters make BIM modelling a desirable project management tool, allowing pro-active and dynamic decision-making throughout the project life-cycle.

Throughout 95 years of operating in Australia, Hansen Yuncken have strived to use cutting-edge methods and embrace improved delivery methods. The company now employs over 650 people; over 160 individuals were engaged onsite at peak construction at Flinders Street. With BIM added to Hansen Yuncken's portfolio of service delivery advances, the company is proving its reputation for innovation.

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Below Virtual Built provided and managed the BIM services at 50 Flinders Street.



**VIRTUAL BUILT**

Below Moto Projects provided project management and advice on the construction of 50 Flinders Street.



To achieve a positive, collaborative approach during the design and construction of a project, BIM expertise is essential. The array of BIM services provided by Virtual Built ensure the Team is highly connected, making collaboration (and coordination) much easier.

Offering a range of BIM services including BIM Management and BIM Coordination, content creation, training and support, Virtual Built believes design and construction can be collaborative, efficient and profitable.

“Collaborative teamwork should be easy and with the use of technology we can master complex things, BIM enables both of these, helping us achieve much more,” Virtual Built Director Michael Clothier explains. Michael adds that the 50 Flinders Street development was a benchmark BIM project that used many technologies to maintain a coordinated approach to design and construction.

“We develop and use many tools to facilitate the BIM process – such as a BIM Management Plan, audit reports, BIM analytics, quantification and clash detection,” he said.

“All these tools were used to keep the team on path, collaborative and ultimately, coordinated.” Michael also notes that “a project-wide QA

strategy focusing on the process, supports this collaborative approach and good QC is imperative to maintaining a high standard of modelling.”

“Implementing technologies such as cloud-based model environments kept the team efficient and allowed them to focus on content and production, while maintaining a level of transparency for the whole team.” Regular meetings were also held with modellers and key design team stakeholders to ensure collaboration and milestones were met.

Michael and the team at Virtual Built are excited about the potential that BIM technology has on the whole lifecycle of the built environment, everything from master planning, design, all the way through to commissioning and operations.

“On future projects, teams will be better connected - cloud platforms, tools such as BIM Bicycle, will enable teams to be agile and responsive, Building Information will be created and shared easily, but, it will be the quality of information that can be delivered that will be the differentiator.”

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Project Managers, Moto Projects provided advisory services and managed the clients interest for the fit out of 4 levels within the 5 Star Green Star commercial building at 50 Flinders Street. They assist clients implement their vision by providing focused, value-driven professional services. “We are proud to have been involved in this project and believe the collaborative approach adopted to its delivery provided the client with a successful outcome,” Director Lorne McClurg said.

Moto Projects aims at providing excellent independent project management, development management and consultancy services, and has a broad range of experience delivering projects across many sectors. This includes office and commercial, retail, residential, education, health, public infrastructure, industrial and retirement living. “We firmly believe that successful businesses and relationships are founded on principles of trust, honesty, mutual respect, integrity and reliability.” Lorne added. “A collaborative attitude, combined with knowledge, experience and our truly hands-on approach provide us with a competitive advantage and point of difference within the marketplace.”

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Below InfraPlan provided consultancy on traffic engineering and transport services for 50 Flinders Street.

Below Jordan Plumbing have utilised BIM technology to accelerate construction of the plumbing services at 50 Flinders Street.



As a leading traffic-engineering consultancy, InfraPlan has developed traffic impact statements and parking rationale for well over 200 projects during the past decade. This includes the 50 Flinders development, where the company provided professional traffic engineering and transport services. This involved preparing a comprehensive engineering report in support of the development application and a full traffic impact statement.

InfraPlan also assessed the design of the commercial development for vehicle access points, parking configuration, service deliveries and pedestrian access. "The project design was complex because of site constraints and the need to develop a two-level car park served by a shared exit/entry ramp for two-way traffic," InfraPlan's George Giannakodakis explains. "This required specialised probability and engineering analysis and design of an automated Traffic Control System, to ensure vehicle queuing and pedestrian conflicts were minimised. This approach required considered and ongoing cooperation with the architects and structural engineers to achieve an agreed outcome."

After realising the need for dynamic two-way thinking in strategic planning, George established InfraPlan in 2005 after 25 years in various capacities, including as Manager, Metropolitan Planning Strategy and

Network Strategy Manager at the Department of Transport Energy and Infrastructure (now DPIT - SA). In addition to traffic engineering, InfraPlan offers an innovative approach to a range of consultancy services, including: transport policy advice, urban and regional policy and integrated planning, infrastructure and transport planning, economic analysis as well as movement planning with offices in SA and VIC. Its integrated and fresh approach to national, state and local challenges has ensured the successful approval of numerous major commercial and residential developments across unique urban and regional settings, large-scale infill projects and work for local municipalities.

InfraPlan's recent projects include the Kings Rd Traffic Impact Study (traffic engineering and transport design for a 20-hectare retail and bulky goods precinct), 45 Park Tce, Gilberton (car park design, internal walking and cycling network, external connections and sustainability strategy for a 200-dwelling Infill project), Wayville Station (Project Management) and 111 South Tce (Residential development and automated car parking).

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South Australia's Jordan Plumbing offers diverse plumbing installation and maintenance services across major projects. 10 of their 120-strong staff have been engaged at the mixed-use 50 Flinders Street build. Jordan Plumbing have undertaken this project as a Design and Construct contract. They have been key in working to achieve water reduction measures that lend the building its anticipated Green Star credentials. Extensive water metering allows monitoring and mitigation of water volumes used, and a 50,000 litre rainwater tank has been installed to collect water for reuse in the flushing systems.

Jordan Plumbing's Dean Gibson commented on the value added to both the design and construction process through using BIM software Revit MEP. This is Jordan Plumbing's pioneering project utilising BIM technologies, with Gibson himself relocating to primary contractor Hansen Yuncken's office early in the construction design process. "We worked together to find efficiencies. Collaborating in Hansen Yuncken's office with other design team members such as architects and structural engineers allowed us to get ahead of the game."

Gibson said that staff are impressed with the efficiencies in plumbing installation that are evident using BIM. They have been able to build into and consult the model dynamically, send emails and questions

onsite via mobile devices straight to project management, and make real-time consequent improvements. "It allows you to accelerate processes," Gibson explained. "For example we utilised 3D setout onsite with our surveyor. Results are quick and accurate. Ordinarily set out will take the best part of a day, but using digital technology you can complete setout within a significantly reduced timeframe."

"There's been a time investment learning and implementing the BIM tools for the first time, but this groundwork pays off with an up-skilled workforce which can now hit the ground running with future projects".

By employing a full time specialist, Jordan Plumbing can also ensure best practices in the areas of quality, safety and environmental management and reduces the chance of any risks being uncontrolled. This commitment ultimately benefits all key stakeholders on any project.

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