

# Big developers combine in steel to connect Flinders Link

In the heart of Adelaide three developers have combined to create Flinders Link, an exciting new mixed development. A complex of multi-level office buildings, residential and car parking development is being built in five stages and is set to invigorate the inner city.

PT Building Services is a one third partner developer with Kambitsis Group and Hindmarsh Group. The joint project at 58-80 Flinders and Wyatt Streets will replace the former Nolan Shannon Building, the rundown YMCA Building and the former BEA Motors site. A pedestrian walkway will link Flinders and Pirie Streets and join onto Freemasons Lane (stage 1); a multi-storey public carpark with 700 spaces (stage 2); the construction of a 9 storey apartment building fronting Wyatt Street with 36 two-bedroom apartments to be known as "Dakota on Wyatt" (stage 3); multi-level office building (stage 4); and an 8 storey office building for one tenant (stage 5).

The first three stages currently being built are the 700 space multilevel carpark and IAG Building (stages 2 and 5) and the Santos Building (stage 4). Although described as stage 2 and 5 the carpark and IAG Building integrate, with the top 2 levels of the office building

Below: At level 6 the building is supported on 508 x 10 circular hollow sections (CHS) filled with reinforced concrete.

Bottom Left: Mobile crane in operation on site.

Bottom Right: The decking is predominantly Fielders KF70 at spans of 2.8 metres.



extending over the carpark. These stages of the project will be completed between March 2006 and March 2007.

IAG has leased 100 per cent of the steel framed building (stage 5) while the oil and gas giant, Santos, has locked in a 10 year lease taking 100 per cent of the second new office building. Both buildings aim to achieve a five-star green rating under the Green Building Council of Australia system.

Designed by architects HASSELL and structurally engineered by Wallbridge & Gilbert the façade of the new IAG office building is a double glass curtain wall on a steel framed structure with composite metal decks and a central concrete core.

Chris Watkins, project architect for HASSELL said that "the site covers an area of 6,600 square metres to deliver a building with 12,000 square metres of office space over 8 levels. To level 8 the grid is 8.4 x 8.4 metres but changes at level 8 to 16.8 x 16.8 metres. These top two levels extend over the carpark below to deliver large floor plates of 3,000 square metres each."

At level 6 the building is supported on 508x10 circular hollow sections (CHS) filled with reinforced concrete. The column design was based on Corus Tubes Design Guide for Concrete Filled Columns. These columns have a Fire Research Laboratory (FRL) rating of 120 minutes. More than 1,600 tonnes of steelwork is going into the project with most of the steel supplied by OneSteel Distribution. All the columns used DualGrade® C350/C450 L0 steel supplied by Smorgon Steel Tube Mills and Smorgon Steel Distribution.

The decking is predominately Fielders KF70 at spans of 2.8 metres unpropped with a slab thickness of 140 millimetres. The floor to ceiling heights are 2.7 metres.

During the design phase, quantity surveyors Currie and Brown worked closely with both the developers and engineers on the steel estimates. These



Structure during steelwork erection of stages two and five - the carpark and IAG building. The extended floors at levels seven and eight are taking shape over the carpark.

estimates proved reliable, being marginally above the lowest tender.

## Fire engineering

The structural steel solution was adopted following a Fire Engineering assessment by Ian Bennetts from the Victorian University of Technology. As the carpark module was limited to 25 metres in height with ample cross flow ventilation, no sprinklers or mechanical ventilation were necessary. However the addition of the 2 levels of office space over the carpark was required to include sprinklers.

Fire engineering evaluation demonstrated that the carpark columns, concrete filled, provided an FRL of 60 minutes. The design of these columns utilised 400x300x12.5 rectangular hollow sections (RHS) and 300x300x10 square hollow sections (SHS). The tubes were supplied by Smorgon Steel and OneSteel's Fire Design Note 3, Sept 2002 was the basis for these designs. These composite design columns also supported the 2 floors of office space located above the 9 storey car park.

Using the Cardington UK test as a reference only, selected office floor beams required FRL 60 minimum. These beams were all primary with grid line secondary beams. Assessment dictated that they be painted with one coat of intumescent paint.

Greg Zafiridis of Wallbridge & Gilbert said that "the fire engineering assessment resulted in a cost effective, versatile structural steel solution which was simple to fabricate."

## Project team

**Developer:** PT Building Services, Kambitsis Group and Hindmarsh Group

**Architect:** HASSELL

**Structural Engineer:** Wallbridge & Gilbert

**Civil Engineer:** Wallbridge & Gilbert

**Steelwork Contractor:** Samaras Group

**Steel Detailer:** Samaras Group

**Quantity Surveyor:** Currie and Brown