

## Totally Precast office building gains a 5 Star Greenstar Rating

The Bishops See development is located at Perth's western 'gateway' to its CBD on the corner of St Georges Terrace and Mount Street, Perth. Recognised as the 'resources' precinct and occupied by the nation's largest resource companies, the development retains the historic Bishop's House with its gardens and St Georges House.

Developed by Hawaiian and built by Brookfield Multiplex, Bishops See is comprised of two office buildings. The \$160 million Stage 1 south tower is a nine storey, 44 metre high 'garden' office building comprising 18,000 square metres and is due for completion early in 2009. The 26 storey Stage 2 building will comprise some 46,000 square metres of office space and is due for completion in early 2012.

The Bishops See Stage 1 south tower has set a first for Australia in being the only fully precast office building to attain the coveted 5 Star Greenstar office design rating awarded by the Green Building Council of Australia.

### **Precast manufacturer**

Delta Corporation

### **Developer**

Hawaiian Group

### **Builder/head contractor**

### **Architect**

Fitzpatrick & Partners

### **Engineer**

Connell Wagner

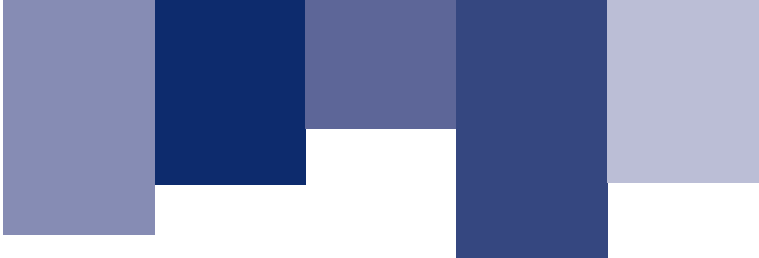
### **Head Contractor**

Brookfield Multiplex Group

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The tower's success in achieving the first 5 Star Greenstar office design rating for a commercial property in Perth is further good news following its earlier success in gaining 100% in pre-committed leases late last year. Green Building Council Australia's Chief Executive Romilly Madew confirmed that Perth's first 5 Star Greenstar rating is important in setting a precedent in WA.



*"The Australian property industry has clearly embraced green building and it's no longer a niche market, and it's a firm testimony to Hawaiian and Brookfield Multiplex in their commitment to sustainability that Bishops See will lead the way."*

### **The green benefits**

Adding to this performance as a significant environmental plus are the 'green' benefits of the totally precast concrete construction of this building:

- Environmentally Friendly. After water, concrete is the most frequently used material on earth. Precast concrete is nontoxic, environmentally safe and composed of natural materials.
- Low Maintenance. Precast concrete requires little or no maintenance, which makes it an ideal choice for nearly any design solution.
- The mass of precast concrete offers good thermal and acoustic control.
- Precast is well recognised for its fire resistant properties easily providing the fire resistance levels required by authorities.
- Efficiency. Precast concrete products arrive at the jobsite ready to install.
- Quality control systems are implemented in the factory.
- The factory environment eliminates adverse weather problems and removes environmental issues such as noise, dust and clean-up activities from the construction site.
- Precast permits parallel precast manufacture with site preparation.
- Not weather dependent. Precast concrete increases efficiency because weather will not delay production.

### **The precast structure**

The structure of the Bishops See project is wholly precast except for the three levels of basement car parking, the podium and transfer levels plus the 13-level slip-formed core. All precast elements were supplied by Delta Corporation Ltd. Precast provided the architects with the high quality of finish they sought, while the engineers were able to achieve maximum structural efficiency while meeting cost objectives. The high thermal-mass efficiency of precast concrete aided the 5 Star Green Star target.

As well as the 255 external precast column elements, a further 32 internal precast column elements were supplied. The precast perimeter beams totalled 287, each being supported on corbels cast into the precast columns to create a quickly erected vertical structure. A total of 1,840 DC170 hollowcore planks covering a total area of 16,610m<sup>2</sup> were supplied by Delta, with a further 360 DC200 hollowcore units of 3,000m<sup>2</sup> completing the floors.

### **The erection cycle**

During construction, the typical seven to eight working day floor cycle involved erecting and grouting 32 internal precast columns, erecting and grouting 30 precast perimeter beams, erecting and grouting 206 precast hollowcore floor elements (2,150m<sup>2</sup>), fixing topping reinforcing, and finally pouring and finishing concrete topping for the total gross floor area of 2,420 m<sup>2</sup>.

The exterior of the building has only the external precast columns exposed, with the curtainwall façade concealing the innovative precast structure. The combination of precast columns, precast beams and precast flooring as used here on a multi-storey building is relatively new in Australia and in its success is sure to be repeated.