



Retirement Appartments on Prospect Hill



AUSTRALIAN STEEL INSTITUTE

□ Steel in Buildings CASE STUDY

Structural steel delivered:

- Reduced costs
- Increased speeds efficiency
of construction

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■ Retirement Apartments on Prospect Hill

Camberwell Victoria

An up market retirement village in Melbourne's leafy Camberwell was constructed in steel to enable it to comply with town planning restrictions on the height of the project. Zig Inge, developers on the project, has been in the business of developing retirement villages for 25 years but this was their first venture into a multi-storey village.

The 63 apartments vary in size from 10 to 17 squares. The plan includes a communal lounge area, bar, dining room with a commercial kitchen, library, a medical practice and other services. These common community facilities occupy around 40 per cent of the ground floor.

The horseshoe shape creates privacy, protection from the south and maximises the exposure to light and sunlight into each unit.

Site: Sloping west to the rear. The complex has a ground floor, three main upper levels, and a basement car park which slopes to the west at the rear. The slope allowed the accommodation of an additional manager's unit and storage facilities.

Height: John Manila of Fredman Manila, architects on the project said that: "The height of the building was such a major issue in the town planning phase that engineering initiative and professionalism were needed to realise the proposed three storey project within the height limitations imposed by the local council."

Commercial viability: Under three storeys the project was not commercially viable. So to stay within the height restriction and still build the proposed 63 apartments over three storeys, the architects and engineers specified steel.

The steel:

- The steel structure lies in the same plane as the concrete slab. Although there was a cost penalty for this on the slabs, the height constraint forced the consultants down that road.

- Richard Eckhaus of Barry Gale Engineers and Partners, the structural engineers on the project said that: "All the internal steel beams were cast within the depth of the concrete slab, providing a clear ceiling

span for the services. Importantly it was anticipated that this initiative would reduce the long term creep and shrinkage deflection of the concrete slab."

- The steel option not only reduced the cost of the project it also increased the speed and efficiency of construction in that the number of load bearing walls were minimised and their construction was removed from the critical path.

- The steel frame allowed metal decking formwork to be used - the cheapest form available at the time of construction - further increasing the speed of erection.

The steel frame also reduced the span of the slabs which led to a consequent reduction in slab depth so there was less dead load to the transfer floor.

By pouring the concrete into the web of the 300PLUS® universal beams the builders were able to keep the height of the slab to a minimum. The steel frame allowed the elimination of all internal load bearing walls which reduced the overall weight to the transfer floor and to the footings.

The 300PLUS steel columns are positioned in the post-tensioned slabs with the steel reinforcement penetrating the steel beams making sure the slabs fall within the depth of the steel structure.

Commenced in February 2003 the Zig Inge Retirement Village was completed in March 2004. Using steel as the structural material enabled the architect and engineer to build the planned three storeys of the complex within the height limits which ensured the viability of the project.

Project team

Client: Zig Inge

Architect: Fredman & Malina

Structural Engineers: Barry Gale Engineers & Partners

Building Contractor: L U Simon Builders

Steelwork Contractor: Stilcon

Structural Steel delivered:

A commercially viable project within local authority height limits
Cost efficient construction
Speed of construction
A lighter weight structure



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