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- **Speed in construction**
- **Costs and time advantage**
- **Eliminating design errors**

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Built to lure

Securing the high profile tenant

The A grade office development on the corner of Frome and Flinders Streets in Adelaide's central business district was designed to attract high profile tenants.

Built Environs project managed and build the development. At the early stage the project team of Rider Hunt, Matthews Architects, and engineers Meinhardt PT Design, worked with OneSteel Market Mills on a steel package for a preliminary design, fire safety engineering and fabrication price which showed that the composite steel option was the most competitive system.

"The advice on the cost and time advantage of steel came from our consultants and from the quantity surveyors, Rider Hunt," said Nick Emmett of Built Environs. A fire safety engineering solution was adopted which enabled the use of bare steel for both beams and columns.

The commercial viability of the project depended on the construction of three suspended levels above the ground floor. However, a height limitation of 12 metres restricted the design options. The steel option enabled Meinhardt to meet this restriction without compromising the mechanical services or the floor to floor height.

Matthews Architects designed open floor plates which would incorporate state-of-the-art environmental features. Carl Reeves, the project architect on the job, said that: "essentially the building is a structural steel-framed glass clad box that maximises the site. The Frome Street elevation has a series of vertical and horizontal elements which break the glass curtain wall façade in a geometric pattern."

This façade is broken in the centre by a two storey recessed entrance below a cantilevered steel framed canopy that extends to the central lift core, creating an architectural feature of the entry foyer. Two balconies top each other to the north and south elevations.

The floor plates on each level encircle the lift and service core. Two central fire stairs, located behind the core in a scissor arrangement, offer two means of exit from the upper floors. The permanent formwork for these stairs is also steel.

Carl Reeves said that: "Because the steel framing could be fabricated offsite and erected as a kit of parts the primary structural building elements above the ground floor were faster to construct. The builder advanced the ground floor construction over the basement to foreshorten the overall construction programme even further."

Taking the in-situ concrete basement car park off the critical path enabled the builder to work simultaneously in two areas saving between three to four weeks. The steel frame was erected over 4 weeks.

Michael Samaras of Samaras Structural Engineering, who detailed, fabricated and erected the steelwork said that: "Creating a 3D model allowed us to accommodate all the other trades on the project and iron out the bugs before construction started, eliminating errors and saving time on the job."

The composite floor system with secondary beam spacings of approx 2.8 metre centres was designed to eliminate propping which enhanced the site flexibility for following trades.

On all three levels the beams from Frome Street to the centre of the building were erected after all the steelwork, then erected from the inside out making it possible to use a mobile crane on site in lieu of the more costly tower crane.

One neat construction detail on the development was the accommodation of rainwater and drainage down pipes inside the steel columns between the flanges.

By saving construction time Built Environs Developments were able to start tenancies earlier and further capitalise on their development investment.

Project team
Client: Built Environs Development
Architect: Matthews Architects
Structural Engineer: Meinhardt PT Design
Builder: Built Environs
Steel Fabricator: Samaras Structural Engineers
Steel Detailer: Samaras Structural Engineers
Quantity Surveyor: Rider Hunt
Fire Safety Engineering: VUT CESARE

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