Biztek

AUSTRALIAN STEEL INSTITUTE
Beyond 2- grow up with steel

Structural steel delivered:

- **Minimised construction time**
- **Simple and efficient approach to design**
- **Earlier occupation**

www.beyond2.com.au

Biztek - a signature in steel

20 Dale Street Brookvale, NSW

Located on a 3000 square metre site at Brookvale on Sydney northern beaches, Biztek is a steel showcase. It was commissioned by the Orlani Property Group and constructed over 14 months at a cost of $13,500,000 employing a clever construction technique to overcome the site constrictions for the basement levels.

Stephen Nordon of Nordon Jago Architects designed for maximum flexibility for future leasing requirements, where the floor area of a tenancy can be altered, without affecting the fire safety strategy for the building. Mr Nordon said that: "Biztek is E-shaped in plan. Tenancy spaces are arranged around two open, three level atria, a design device used to present the tenancies and to create a dynamic working environment. The steel and glass aesthetic enhances the sense of technological enterprise."

The composite steel floor framing typically consists of OneSteel 530UB82 primary members spanning approximately eight metres with 310UB40 secondary beams at third points on the primary beams. The floor to floor height is 3.6 metres with mechanical services running through pre-cut penetrations in the floor beams

Ray Kusturin of Henry & Hymas, structural engineers on the project said that: "An innovative design based on top down construction was developed for the upper floors to overcome the high water table, four metres below ground level. This, combined with the structural steel option, with structural decking slabs and concrete tilt-up wall panels for the three walls not facing the road, presented the builder with a number of attractive options to minimise construction time. By utilising composite construction of steel and concrete the structural steel sizes, and hence weight, could be minimized."

"Once structural steel had been adopted for the framing of the upper floors it became apparent that a number of economies could be achieved due to the simplicity of building with steel," Ray Kusturin said.

The large two storey basement car park was built after the upper structure, removing it from the critical path and saving construction time. The above ground structure of the fire safety engineered, unprotected steel was prefabricated off-site. At the same time preliminary excavation was started and perimeter curtain piling was commenced to contain the ground water, without the need for ground anchors. One metre diameter piles were then bored at the column locations and steel stanchions lowered into the wet concrete to support the post-tensioned ground floor transfer slab.

Once the transfer slab was laid the superstructure could be erected and fitted out above while the basement was excavated.

The unpropped decking steel formwork was installed concurrently with the structural steel saving more time. The shear studs were stud welded on site through the pan and erection of the roof sheeting was completed prior to pouring the 150mm thick slab. Simple connections made fabrication of the structural steel very easy.

As the main supporting columns were continuous from the ground floor all the way up, two floors plus the roof were able to be completed simultaneously. Once the southern part of the structure was erected, the builder was able to start laying the Condek as well as roof sheeting.

This simple but efficient approach to design and construction enabled the building to be completed in 14 months and tenant to gain earlier occupation delivering financial benefits to the owner.

Project team

Client: Orlani Property Group
Architect: Nordon Jago Architects
Engineer: Henry and Hymas
Builder: Berem Constructions
Fabricator: Universal Steel Constructions
Steel Detailer: Jem Drafting
Fire engineering: Holmes Fire and Safety

"Once structural steel had been adopted for the framing of the upper floors it became apparent that a number of economies could be achieved due to the simplicity of building with steel,"

Ray Kusturin
Henry & Hymas