

BIZTEK - A SIGNATURE IN STEEL

20 Dale Street Brookvale, NSW

Constructed at a cost of \$13,500,000 over 14 months Biztek is located on a 3000 square metre site on the west side of Pittwater Road. The building has created 6500 net square metres of office space.

The building was designed for the Orlani Property Group by Stephen Nordon of Nordon Jago Architects to foster social and business interaction among its occupants. The simple, strikingly elegant, two storey office building reflects intelligent design.

Elegance has been created by breaking the long street frontage with two courtyard voids defined by strong steel beam bracing, shaped in an elongated cross to form a signature X constructed from OneSteel 610UB101s.

Built primarily of exposed structural steel and aluminium with horizontal shaped panel glass walls, Biztek is E-shaped in plan and has twin communal atria. There are two levels of basement carpark, a ground floor level and two storeys above. A discrete mezzanine level has been designed into the roof on the northern third of the building.

Angled industrial style stairs rise from the ground level leading to wide galley walkways. Two passenger goods lifts, a loading bay, access for deliveries and its own café complete the complex.

Stephen Nordon said that: "The tenancy spaces are arranged around two open, three level atria. They were a design device used to present the tenancies and to create a dynamic working environment. The steel and glass aesthetic of the building was

pursued to enhance the building's sense of technological enterprise."

To enter the building from Dale Street, visitors choose one of two entrances, and then pass under a steel awning overhanging a wide path which leads to automatic sliding glass doors into the deep E unroofed atrium. These twin atria penetrate almost the full depth of the building.

Each of the two entry awnings has been hung from the bracing beams and are further supported by overhead pre-tensioned steel rods which connect back to the centre of the cross beams. Upward curving 230PFC channels, hung from the cross beams, frame the awnings, the under side of which are bronze alucabond sandwich panels.

The ground floor offices are accessed from the atrium courtyard. At the half way point open mesh steel-tread stairs angle at 10 degrees in plan to the first level gangways. Level two is accessed by a further set of stairs forming a zigzag.

The balustrades on the steel framed galleries and stairs are clear glass dressed with stainless steel hardware.

The lift core is located at the rear of the building and is accessed from the rear passageway which runs the full length of the building.

A series of light adjustable aluminium mesh awnings cascade down the street face of the building supported on tapered steel beams and strung across the facades on



guyed wires. The appearance is delicate, accurate, precise and floating, with a hi-tech look.

The exposed structural steelwork provides a frame for the glass walls adding to the hi-tech feel. The exposed exterior column and beam supports are recessed.

Typically the composite steel floor framing

consists of 530UB82 primary members spanning approximately 8 metres with 310UB40 secondary beams at one third points on the primary beams.

The floor to floor height is 3.6 metres. Mechanical services for the building were run through penetrations which had been pre-cut through the floor beams.

Ray Kusturin of Henry & Hymas, the Structural Engineer on the project said that: "This Brookvale site has a very high water table four metres below ground level so a building construction technique was devised to meet the twin objectives of managing the water table while at the same time producing a building with the desired hi-tech presentation."

"Considering the depth of excavation that was required for the basement car park the only practical means of construction for the below ground works was to develop a design based on top down construction."

"As a design team we decided that the best, most cost effective material to achieve the architectural requirements for the upper floors would be to use structural steel in combination with Condeck slabs and concrete tilt-up wall panels for the three walls not facing the road."

"In combination with the top down construction this 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 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.

To save construction time, the large two storey basement car park was built after the upper structure. The above ground structure of fire safety engineered unprotected steel was being 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.

Once the ground water dam was in place one metre diameter piles were then bored at the column locations and steel stanchions lowered into the wet concrete.

Next the post-tensioned ground floor transfer slab was laid on top of the one metre diameter piles. At the same time, the superstructure was being erected and fitted out above the transfer slab while the basement was excavated to its full depth, the low strength concrete scraped off the steel column supports and an intermediate basement floor was poured.

The critical path through the construction process, which was the excavation and construction of a waterlogged basement, was thus bypassed.

Mike Berkery, Project Manager of Berem Industrial, the builders on the project said that: "Once we got the tilt-up panels erected the steel structure just flew up. We used relatively simple connections for connecting the steel to concrete panels and we were able to work on a number of fronts simultaneously."

"Because the super-structure was constructed of structural steel it was possible to install the unpropped Condeck HP®.75 bmt steel formwork system at the same time as the structural steel which saved 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."

The exposed steelwork has been protected with inorganic zinc silicate and top-coated with a Ferreko finish.

Biztek has been designed as a stimulating and harmonious work environment with ample parking. The project was efficiently designed and built in steel employing a clever construction technique to overcome the site constrictions for the basement levels.

Spotlights, located at the level of the lowest mesh awnings have been designed to blend into the steel and illuminate the building at night showcasing the steel.

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: Davis Langdon

Photography: Anthony Fretwell

Photography: Eric Sierens

