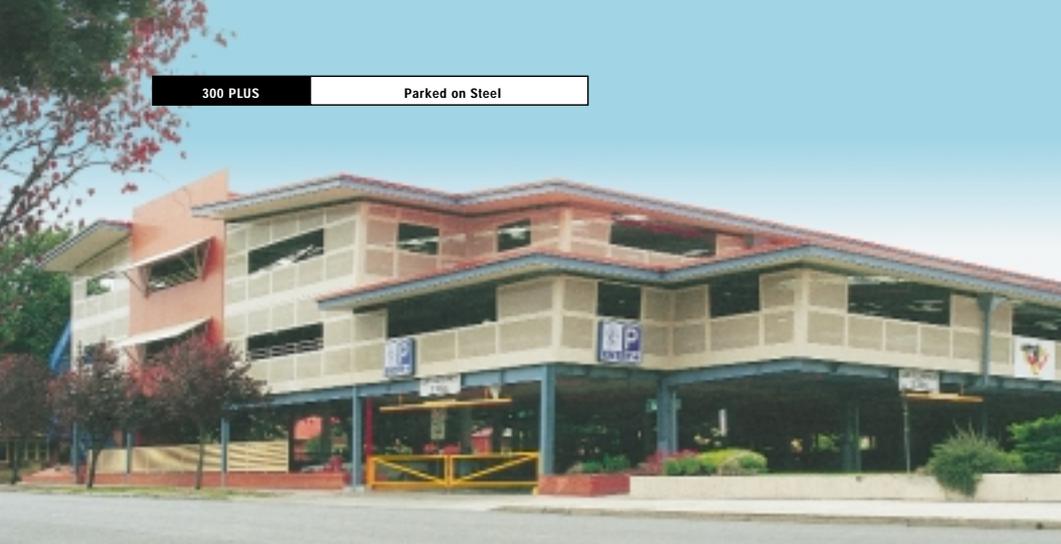


Albury Commercial Club

December 2002

This case study was written at the time when InfraBuild (formerly Liberty OneSteel) was part of OneSteel. In that context, in some instances within this case study reference may be made to OneSteel.



Albury Commercial Club

The need to keep 60 per cent of the existing facilities open and the short construction time frame dictated a steel solution

CLIENT

Commercial Club
(Albury) Ltd

ARCHITECT

Teillion Pty Ltd
Architects

ENGINEER

Belvoir Consulting

BUILDER

Colin Joss & Co Pty
Ltd

SHOP DETAILER

Endeavour Drafting

FABRICATOR

Old Bull & Box Pty Ltd

FACADE TREATMENT

Kiewa Valley
Engineering Pty Ltd

BUILDING CONSULTANT

Trevor Howse &
Associates Pty Ltd

When the Commercial Club in Albury needed to increase their parking facilities they turned to steel. Significant expansion over the last five years and further planned future growth to the Club had created the demand for more parking space. The Club already had an underground parking facility, built in 1991, and the space over that facility was available for the new carpark.

The new steel carpark follows the existing grid of the 1991 underground structure, the foundations of which were sufficient to support the new structure.

In building the new carpark the Club had a key requirement. It had to continue trading during construction so at least 60 per cent of the existing on-ground parking had to continue to be available for patrons during the planned 20 weeks of construction.

The carpark is a 5,000 square metre steel framed composite steel structure with two suspended levels catering for 240 cars or 80 cars per level in addition to 80 cars in the 1991 underground carpark. A covered steel roof at a 5° pitch cantilevers 1.5 metres from the decks which themselves have a hefty cantilever of 4.6 metres.

The project architect, Robert Simmons of Teillion Pty Ltd Architects, said that "the

building is the first multi level carpark in Albury. The need to keep 60 per cent of the existing facilities open and the short construction time frame dictated a steel solution. We contacted OneSteel in the first instance who provided design guides and a list of existing steel carparks in Sydney, which I visited. The OneSteel publications provided accurate design options, allowing decisions to be reached quickly with minimal effort."

One major site problem was the strength of the existing suspended concrete slab above the basement carpark. With a load limit of eight tonnes it couldn't support the heavy equipment and delivery vehicles needed for the construction.

David Sharp of Belvoir Consulting the structural engineers for the project, said that the solution was to erect a tower crane on the existing suspended slab. The builders, Colin Joss & Co, erected this tower crane which was placed on the slab and back propped down to basement level. The crane was then used as the main method of constructing the steel framed car park above. All steel and concrete deliveries were outside the site and craned into position.

Endeavour Drafting had completed the steel detail drawings by the time the builders moved onto the site, so the project got off to a flying start.

Steel fabrication was carried out off-site by Old Bull and Box of Albury, allowing shorter on-site construction time and minimising disruption to the Club.

David Sharp said the structural steel for the decks was pre-cambered to reduce in-built deflections and allow a uniform slab. Shear studs were welded to the structural steel. The un-propped solution allowed the ground level of the carpark to be

available for Club carparking during the construction of the upper levels.

The car parking decks cantilever 4.6 metres on both the north and south faces of the building maximising the number of car bays. The roof has a further 1.5 metre cantilever.

The split levels of the carpark are connected by 6.6 metre wide ramps at a maximum 1 in 5 gradient.

The façade gives the structure its unique appearance. Brightly coloured perforated metal clad panels alternate with checker plate steel panels. These were chosen because they were both attractive and relatively light-weight given the extent of the cantilevers. The gloss blue, terracotta and cream panels lean out at an angle of 5° giving the façade its singular character. They allow light into the building during the day and provide light "windows" at night giving visibility from outside. This design feature has been enhanced by a high level of artificial lighting at night, increasing safety and making the carpark more user friendly.

The panels are fixed to Duragal angle frames which act as safety hand rails and are supported off the primary structural steel members. Robert Simmons said that "from a distance the building looks like an office as the openings are mistaken for windows. At night the perforated panels appear translucent.

The carpark has been designed for convenient pedestrian movement. In the south-east corner an exit opens to the club's bowling green while the stairs at the north-west corner gives access to the street."

Minimal construction material, off-site fabrication and storage of materials and a no-propping structural solution enabled the Club to continue operations during construction. It also contributed to the project's completion in just 18 weeks, 2 weeks ahead of schedule with a bonus for the builder.