InfraBuild

Melville Plaza Carpark Perth

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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.

Melville Plaza Carpark

Located at a Perth suburban centre in Bicton, Melville Plaza is five kilometres from coastal Fremantle. The new carpark services a suburban shopping plaza and replaced parking provided on a run-down, inefficient ground carpark facility on a 30% sloping site behind the shopping centre.

The old carpark was closed and the graders moved in to excavate and level the site before building on the new two-level carpark commenced. An old retaining wall was underpinned and new retaining walls required on the site were provided by contiguous piles. These elements were then rendered for appearance.

The new Melville Shopping Plaza carpark is a good looking structure with a welcoming ambience. The two levels are entered from separate access points on Waddell Road and the lower deck also has access from Fifth Avenue, running parallel with Waddell Road. The suspended deck, which accommodates 110 vehicles, gives cover for the open, ground level of the carpark, which provides parking for 121 vehicles. There is no cladding on the façade of the building allowing light to reach the interior and give a very safe and secure environment.

Matt Buggins of Pritchard Francis Associates, structural engineers on the project, said that, after excavation, the main deck footing went in and the contiguous piling around the perimeter high side was constructed. "The steel frame was erected straight onto the footings. The steel columns cantilever 2.2 metres off the base eliminating the need for any bracing."

Commercial imperatives of speed and cost drove the selection of steel as the construction medium of first choice and enabled the stringent time and budget restrictions to be met.

Roger Jones also said that "greater time efficiency was gained by planning the steelwork so that the columns and steel beams, crash rails and hand rails were part of the structural steel and were erected before the Deltacore Panels were positioned and the concrete poured. This allowing the crane to position and set the Deltacore Panels segment by segment with the crane able to work its way out towards the edges. This method not only saved four weeks construction time but provided safety for construction workers on the site and enabled the 12 week construction program to be met. "

"structural steel frame and Deltacore Panels were erected in just nine days "

Roger Jones of Merym Constructions, builders on the project, said that "a steel framed and precast plank construction offered a compressed construction timeframe as well as being the most cost effective solution. All the structural steel frame and Deltacore planks were erected on site in just nine days!"

The basic structure is constructed from 530 UB 82 beams 300PLUS which span continuously over 200 SHS 9.0 columns on a 7.7 metre or 3 car bay grid. The deck is a proprietary precast 150 Deltacore with a 65mm concrete topping. The jointing in the topping is at 30.8m or every fourth column.

The steel crash rail barriers on the ramping off Waddell Street, constructed from 200 SHS, were erected after the concrete was poured.

By design the steel was to be exposed but the location, just 5 kilometres from the coast, dictated the need for a surface treatment. The steel was therefore hot dip galvanised to provide corrosion protection and the coating left to oxidise to a uniform patina.

CLIENT

Beaudame Pty Ltd

ARCHITECTS

Spowers Architects

BUILDER

Merym Constructions

ENGINEER

Pritchard Francis Associates

FABRICATOR

Southern Steel Works