

Four Commercial Terraces – A Completely Precast Solution

National Precast Member Baseline Constructions Pty Ltd has developed a fine reputation in Sydney over more than a decade for providing a complete precast solution for a range of projects. In many ways they have pioneered the growing change to precast for projects in Sydney that a few years ago would have been considered in masonry.

In 2004 Baseline engaged Hokin Design Group to provide the architectural services for four, four storey commercial terraces in Blackfriars Street, in the inner Sydney suburb of Chippendale. With a relationship going back to early 2000, the previous experience ensured that the design process was well understood and the solutions were tailored to efficient use of precast.

The configuration of the site, which is approximately 20 metres wide by 24 metres with four approximately equal width terrace lots, lent itself to a simple precast concrete vertical structure on boundary and party walls, large open balconies on the front towards the street, and precast hollowcore floor planks spanning the terraces and for the roof.

Paul Bettar, General Manager of Baseline Constructions said: "With the approved height restriction, the 150mm deep precast hollowcore floor and roof planks allowed four levels to be squeezed in within the height, a solution that could not have been obtained with flooring systems that require beams."

The resultant architectural expression met the requirement for a design of very simple appearance with only the thickness of the floors and walls showing on the façade. While the general appearance was simple, there was a layering of interesting detail created by grooves in the panels. The large balcony openings facing north towards the street were screened with large blade adjustable louvres for privacy, solar and weather protection. As well, they provided a fine textural contrast.

The design lent itself to a very fast construction sequence where the structure could be erected quickly allowing finishing trades and services access to the building to work under cover and unhindered by formwork and back propping. The external end walls were 175mm thick ship-lapped painted precast panels, with the dividing internal walls between the terraces being a space-saving 150mm thick, while achieving fire and acoustic

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For more information call Nicole at the Concrete Institute on (02) 9736 2955 or email admin@concreteinstitute.com.au

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... continued from page 4

separation. These panels were typically 9.5 metres long by 3 metres high, weighing 11.5 tonnes. A total of 210 hollowcore floor panels, generally 9.5 metres long by 1.2 metres wide comprised the floors and roof slabs. The 150mm deep hollowcore was given a 60mm in-situ concrete topping reinforced with a layer of SL62 to internal areas and SL82 to external areas.

Jeff Hokin of Hokin Design Group said: "In summary, from an architectural perspective, the use of precast in building design should be used as a core part of a building's architectural expression and create a strong discipline for the structural layout. It works best where there is relevance for repetitive and regular layouts, and this should be clearly expressed through the design outcome."

"The major challenge is to ensure that there is a good balance between solid and void, with as many large openings as possible," he said.

This design approach achieved a very buildable and attractive result at Blackfriars Street.

Project Details:	Four Commercial Terraces Address: 1 – 7 Blackfriars Street, Chippendale, Sydney
Developer:	Chiswick No.1 Pty Ltd
Building Design:	Hokin Design Group
Engineer:	Meinhardt
Head Contractor:	Baseline Constructions Pty Ltd
Precast Supplier:	Hanson Precast Pty Ltd



Precast can handle 350km/hr winds at Bulk Liquids Berth Jetty



The new Bulk Liquids Berth at Dampier's Burrup Peninsula, in WA's north, handles the loading of liquid ammonia. It consists of a 490 metre long access trestle jetty and a berth incorporating four mooring dolphins, four berthing dolphins and a large loading platform. The berth has been designed to accommodate vessels ranging from 5,000 DWT to 65,000 DWT and has a design ultimate wind velocity of 350 km/hr.

The nearly 500 metre long jetty has 15 spans of 32 metres and a 20 metre access bridge.

The trestle jetty supports comprise twin 1,050mm diameter steel raker piles supporting precast pile caps and in-situ infill headstock. Precast prestressed concrete TeeRoff beams span between headstocks, acting compositely with the in-situ concrete deck. The 40 TeeRoffs supplied by National Precast Member Delta Corporation each weighed 56 tonnes and were 32 metres long by 2.5 metres wide, being 1.5 metres deep. They incorporated an up-stand kerb to one edge of the beam. Specification called for a 50MPa Silica Fume Concrete with a minimum of 35mm cover to the reinforcement. While manufactured in Perth, the beams were transported over 2000km to Dampier, using steerable jinkers.

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