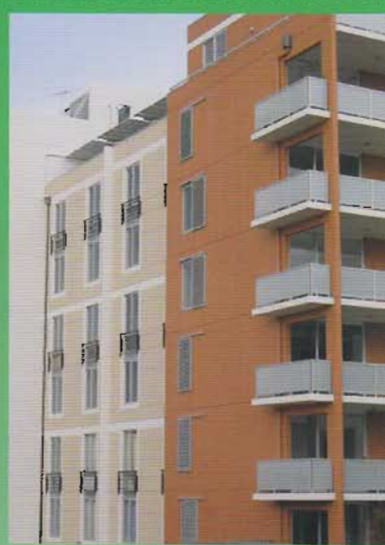
BUILDING IN PRECAST

Residential Units Medium Density

Metro Village, Alexandria



Hollowcore flooring
Transfloor permanent formwork
Precast Walling
Precast Balustrades
Precast Service Risers
Precast Stairflights

RESCRETE

SOLUTIONS IN PRECAST

Metro Village, Alexandria

Metro Village started as a gamble for builder Baseline Constructions. Full precast construction was not widely accepted in Sydney as a construction method for residential developments. Nick Bettar, Baseline Constructions Managing Director — after successfully building a few smaller structures in precast, saw it as the future of building. Metro Village was designed around a rectangular floor plan with alternate floor access to the naturally ventilated units. This design suited precast construction perfectly. Baseline recognised this and in consultation with Rescrete began design of Metro Village as full precast construction.

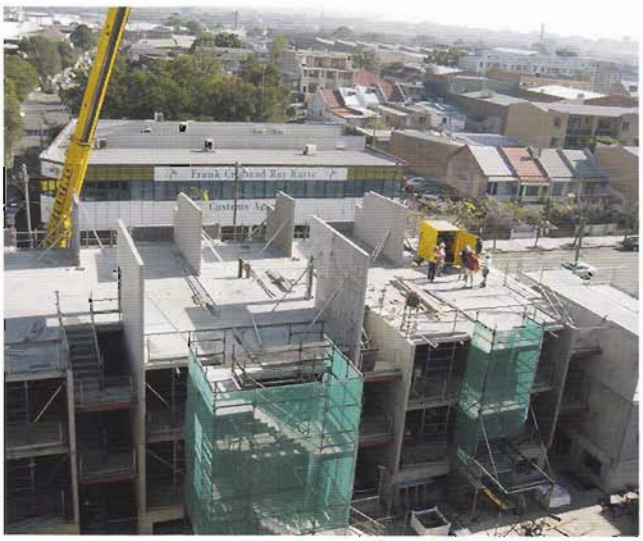
The 277 unit development, made up of seven buildings ranging in height from three to seven storeys, was constructed in three stages. Stage one commenced at the southern end of the site with three buildings. The building layout was based on a 4,100mm grid. The internal 150mm thick load bearing precast walls were located at 8,200mm centres. On the alternate floors that required a partition wall, lightweight acoustic and fire rated walls were used Generally, R200 hollowcore floor planks were used to span the 8,200mm internal floor areas. A steel hanging frame supported by hollowcore planks on either side was used to form the stair voids thus eliminating the need for additional columns and beams.

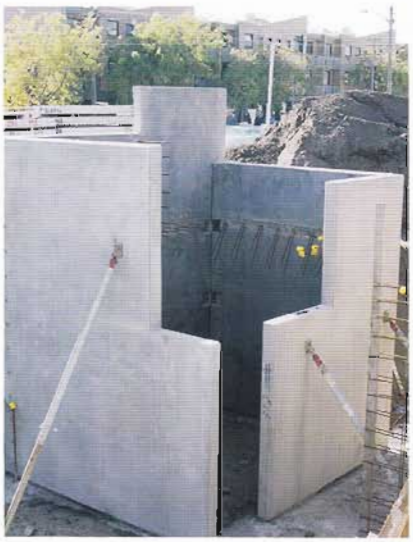
BUILDER
Baseline Constructions Pty Ltd

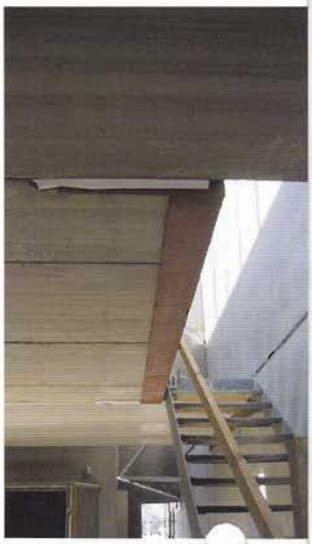
ARCHITECT
arc achitects

ENGINEER
Meinhardt

PRECAST ERECTOR
NSW Precast Pty Ltd







The floor plans called up large balcony areas, with either glazed or full masonry balustrades. Rescrete supplied Transfloor permanent formwork panels complete with cast in balustrades or edge upstand. The balustrades and upstands contained the necessary fittings to attach handrails for construction safety and final fit-out They also acted as edge forms for the insitu concrete. The Transfloor panels had a class 2 soffit finish suitable for painting and did not need a suspended ceiling.

Tight structural zones for the flooring excluded the use of corbels or permanent support angles on the 175mm thick end walls to support the hollowcore floor planks. This lead to the development of a shear friction connection detail for hollowcore floor planks. This connection, formed using a temporary support angle does not require any permanent bearing. The loads are transferred through the reinforcing cast into the wall and floor resulting in a flush connection detail.

Fast cycle times were achieved by maximising wall panel sizes to around 12 tonnes each and utilising high capacity cranes. The buildings were constructed floor by floor; load bearing walls were erected and propped then the precast floor system installed. Insitu reinforcing and topping was placed, then the cycle repeated.

Baseline's gamble had paid off. They now have proceeded to other similar sized developments designed in full precast construction. As Baseline's Construction manager – Peter Groenewegan says "you can do wonderful things with precast".

RESCRETE

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