

Circular precast design delivers a wholistic learning environment

Project: Smalls Road Public School

Location: Ryde, NSW

Master Precaster: Ultrafloor

Client: NSW Government

Engineer: SCP Consultants

Architect: Conrad Gargett

Australia's population is on the rise, and that means a rise in the number of children that will need education. In the northern district of NSW alone, a four percent rise in 2019 in students attending the district's 24 primary schools equates to 531 students.

To accommodate for the region's increased demand, the NSW State Government is replacing the old Ryde High School which closed in 1986 with a new public primary school in the City of Ryde. Roughly 10km south of Sydney, the new Smalls Road Public School has been estimated to cost a total of \$30 million.

The Smalls Road Public School is as eye catching as it is functional. Spread over three levels, it has been designed in a circular form to create an arc structure that surrounds a spacious open courtyard.

According to architect Jane McGarry from Conrad Gargett, the design uses the building as a learning tool by allowing visual connections between all classrooms and major shared areas, across and through the space.



The new structure includes 43 classrooms, after school care, indoor play spaces, covered outdoor learning spaces and a spacious library that are spread over three levels. Adjacent to the structure are large sporting fields for the children to use and sufficient space to build a secondary school at a later date.

Due to the radial structure and the client's requirements for an accelerated programme, National Precast member Ultrafloor was the successful structural design and construct contractor. As well, the company designed, supplied and installed various precast elements for the project.



A total of 60no. 15-metre-long precast primary beams, alongside over 6,000m² of Ultrafloor flooring were designed, manufactured and installed across the structure's two suspended levels. Using two cranes, Ultrafloor installed both levels in just 14 days using the labour of only 10 workers.

Approximately 15 meters long, the prestressed primary beams measured 600mm wide and 700mm deep. An Ultrafloor 250C-450 slab system which spanned between 5.165m and 6.790m was chosen for this project due to the wedge-shaped segments being supported by the primary precast beams. A 32MPa in-situ topping slab was cast over these two precast elements resulting in a combined structural depth of 1070mm.

Providing an elegant and efficient structural outcome for the client, Ultrafloor met the accelerated programme requirements that were set by the client,

whilst also highlighting a cost and time efficient method of construction.

Set to open in 2020, Smalls Road Public School will deliver a long lasting, striking facility that will give a modern take on education for the 1,000 students whom it will host at any given time.

