



FULTON AWARDS



Concrete Beton

A celebration of excellence and innovation in the use of concrete



DF MALAN HIGH SCHOOL Multi-purpose activity centre

DF Malan High School in Bellville has gained an international reputation for academic excellence. The governing body took the decision to build a new multi-purpose activity centre for concerts, dances, dinners, exhibitions, assembly, examinations and sports training.

With 1 040 learners attending the tertiary facility, the biggest challenge was to effect quick, efficient construction of a robust, elegant space. Apart from noise, access, time and budget constraints, the design and materials had to complement the existing visual landscape and school complex.

Van Biljon Barnardo Architects and Isipani Construction collaborated with KLS Consulting Engineers and the Portland Group to provide an innovative solution using precast and in-situ concrete.

Large scale hollow core precast concrete panels, 160mm x 1200mm x 4700mm long, manufactured by means of the extrusion method, could be installed faster than other con-

ventional robust materials. A 50MPa strength was specified, 40% less weight and a high thermal quotient.

A vertical H-shaped off-shutter cast concrete column system, between 7,6m and 8m high, was designed into which the precast panels could be slotted first to form the foundation beams and then the walls. The panels were hoisted individually and carefully manoeuvred into place with the panel ends sliding into the column slots.

No strip foundation was required as the columns were designed to withstand major lateral force and at foundation level the panels rest on the column footings. The precast panels stacked between the columns created a high, open space with pertinent

horizontal modular banding, both inside and on the exterior of the building. The structure was held together by exposed steel roof trusses.

The panels were cast and erected within four days and all 375 linear metre panels were placed in position within 10 days after casting commenced. These panels are robust enough to withstand the site installation process and future occupancy wear and tear. This construction method reduced construction time and costs.

The architectural concrete elements perfectly complement the design of the school.

Team

- Client: D F Malan High School, Bellville
- Principal Agent: Van Biljon Barnardo Architects
- Main Contractor: Isipani Construction
- Subcontractors: KLS Consulting Engineers
- Submitted by: Van Biljon Barnardo Architects
- Precast: Portland Hollowcore