



## 115 WEST – Alexander Forbes

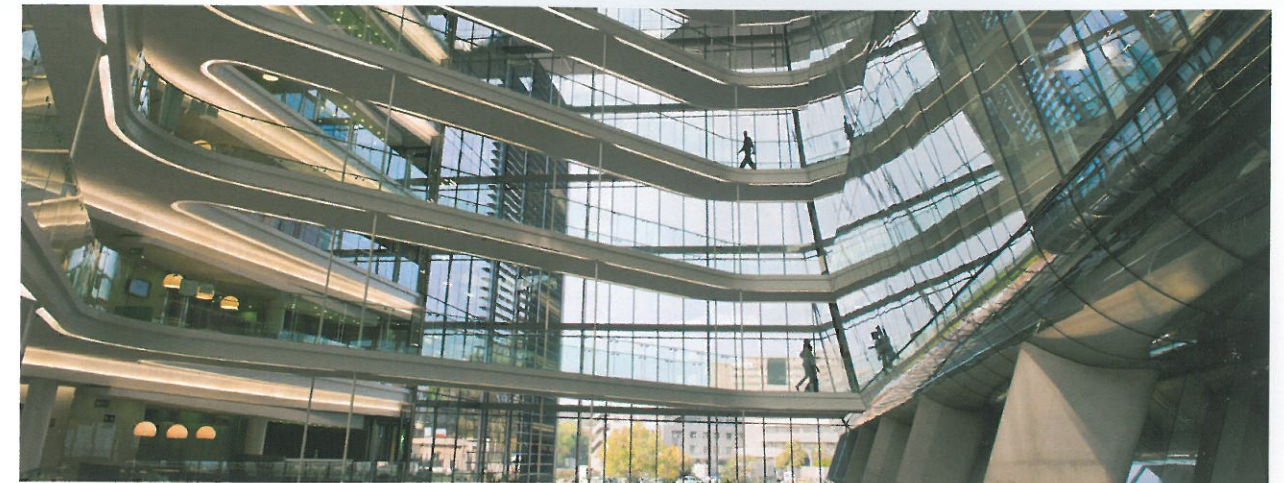
The new landmark headquarters for Alexander Forbes is one of the largest and most innovative buildings to be completed in South Africa in the past two years. The eight storey building can accommodate 2 500 people within a combined 35 000m<sup>2</sup> office space, six levels of parking and three entrances on different levels, to increase traffic flow in and around the building. The prestigious project is the winner of the 2013 Fulton Awards 'Architectural Concrete' category and also earned a Commendation in 'Building Structure' category.



The 100 000m<sup>2</sup> Four Star Green Star Design V1 rated building symbolises more than simply a new work space from where clients are served – it also symbolises a new beginning. The architecture features a continuous design of fluid curves. Sections of the façade incorporate S-shaped 'scallop' walls and wavy flowing lines are further incorporated throughout the interior of the building.

The role of concrete in the construction of this building was critical, not only in its obvious structural application, but also for specialist architectural elements. It is the expression of concrete that sets the building apart. Off-shutter concrete columns are an architectural feature of the project. Raked and vertical columns on the ground floor are 8,5m tall and moulded in a single cast. Self-compacting concrete was used due to the amount of reinforcement within the column and to obtain a quality finish.

Textured off-shutter concrete walls and S-shaped 'scallop' walls clad with Rheinzink form part of the office façades. Randomly placed pre-cast panels of varying sizes, combined with steel wire mesh, were used in



the construction of the basement façades. Creepers in planters behind the mesh, will in due time, create a green wall that will soften the look of the exposed basement.

Link bridges span the north and south atriums to link the large office plates for easy access between work spaces. The long spans of these bridges, along with the architect's request to keep the bridges as thin as possible, meant suspending them from the roof. Seven levels of suspended bridges meant that they had to be lightweight and constructed of steel and concrete. Construction took place as each plate was being constructed and all seven levels of bridges were supported temporarily on the lower level floor slab by means of a temporary supporting steel frame.

Smooth off-shutter concrete planter walls to create break-away meeting areas, which are linked

by polished concrete walkways. In total, 45 750m<sup>3</sup> of concrete and 4 974 tons of reinforcement were used. At 100 000m<sup>2</sup> under construction, concrete was always going to be an integral part of the project.

From the complex raked columns to the in-situ walls, both smooth and textured, concrete was widely used in elements from floors to walls, roof, columns and landscaping.

The building programme took 19 months, so documentation and construction often ran concurrently and clear and consistent communications was vital. Given the extent of the project and the timeline for completion, the mammoth task was contracted to the WBHO/Tiber joint venture. It also meant that clear and consistent communication was critical.

Raked and vertical columns on ground floor stand 8,5m tall and are moulded in a single cast. The spe-

cialised formwork was generated in Revit Design and Revit Structure; and exported to AutoCAD in DWG format to the sub-contractor for construction. Minimum sizes were specified by the engineer and then sculpted by the architects, who pinched the noses of the columns to create a more elegant and sculptural form. There are two types: a Y-shaped branch that supports the cantilevered walkway, and a simple style that supports the building structure. Self-compacting concrete was used to support the amount of reinforcement within the column and to handle the difficulty of vibrating the concrete for 8,5m tall raked columns.

SA Pine shutter board cut into various thicknesses and widths was used as a lining in the shutters to create timber-grained, textured off-shutter walls for the north gable and south concrete walls. The textured finish



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also accommodated the varying quality of concrete finish, and construction joints could easily be hidden at the board edges. These walls were cast past the floor slabs to minimise horizontal construction joints, which meant that all floors slabs had to be tied to the concrete walls with either pull-out or dowel bars. To guarantee a quality finish, self-compacting concrete was also used for these off-shutter walls.

A further architectural feature was the S-shaped or 'scallop walls', on the east and west façades. The accuracy and finish required would normally have called for highly specialised formwork, at a high cost.

Peri used its girder wall formwork system, made up in 10m long units with special radius whalers to construct these curved walls with the same quality and tolerance, but at a much lower cost. A different texture was required by the architect for these walls, which were clad with Rheinzink.

Planter walls, constructed from smooth off-shutter concrete, create various meeting areas in the planted and xeriscaped areas to the north and south of the building. Polished concrete walkways with exposed aggregates link the different meeting and break-away zones. Concrete



was chosen for its durability, texture and reduced maintenance costs. Complexity of design, coupled with intense programme constraints and the sheer scale of the project, made it a health and safety challenge for the contractor.

The WBHO/Tiber JV rose to the challenge and won the Gauteng Master Builders Association's top award in the GMBA annual Regional Safety awards as well as the FEM Super League Trophy for its health and safety achievements on the project.

### Team

- Client: Zenprop Property Holdings
- Principal Agent: Capex Projects
- Main Contractor: WBHO/TIBER BONVEC JV
- Subcontractors: Paragon Architects
- Submitted by: Sotiralis Consulting Engineers



## Judges' Citation

This new Alexander Forbes head office is an architecturally ground-breaking space with environmental sustainability being crucial to the design as the building is accredited by the GBCSA as 4-Star Green Star rated.

The judges were impressed with the use of concrete in this landmark office block within the Sandton economic node, and are pleased to declare this project **the winner in the 2013 Fulton Awards 'Architectural Concrete' category. The project also receives a Fulton's 'Building Structure' Commendation.**

This iconic building utilised concrete in structural, architectural and artistic ways. The timeline for the superstructure was eight months, during which a horizontal concrete area of 101 000m<sup>2</sup> and a total amount of 43 000m<sup>3</sup> of concrete was poured.

The complex architecture is technically difficult and iconic, incorporating elements such as

concrete double-storey raked columns and curved scallop walls. The off-shutter, raked and vertical columns, each cast in a single pour, are an impressive architectural feature of the structure, which creates elegant and sculptural forms, and also helps to reflect light inside the building.

Other special architectural concrete elements utilised were: smooth off-shutter roof soffits and overhangs; textured off-shutter concrete walls; precast panels on the basement façade; precast stair treads to the main entrance, smooth off-shutter curved walls integrated with landscaping and polished concrete walkways in the landscaped areas.

Due to its advantages, self-compacting concrete was used on all the vertical walls. This raised concerns due to high pressure on the formwork, so special high-tolerance box-outs were designed and manufactured for the entire project.



## BUILDING EXCELLENCE



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