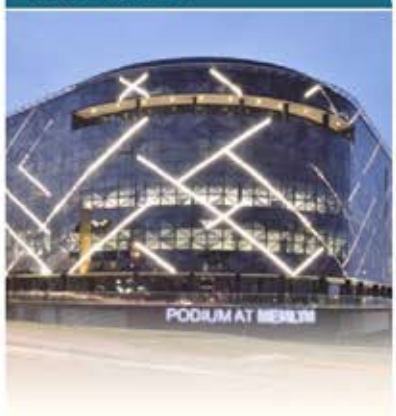
PROJECT



Podium at Menlyn

Podium at Menlyn has become the gateway to the Menlyn node, which is to become an A-Grade business hub with in excess of 300,000m² of mixed use development including retail, offices, hotels and residential units being planned.

PODIUM AT MENLYN
Pretoria

PROPERTY DEVELOPERS
Emira Property Fund
Eris Property Group

ARCHITECTS & PRINCIPAL AGENTS
Boogertman + Partners Architects

PROJECT MANAGERS
PPM Project Managers

QUANTITY SURVEYORS
Pentad Quantity Surveyors

CONSULTING STRUCTURAL & CIVIL ENGINEERS
DG Consulting Engineers

CONSULTING ELECTRICAL ENGINEERS
Quad Africa

CONSULTING MECHANICAL ENGINEERS
Spoormaker & Partners

CONSULTING FIRE ENGINEERS
Specialised Fire Technology

CONSULTING TRAFFIC ENGINEERS
Civil Concepts

TOWN PLANNERS
Origin Town Planning

LANDSCAPE ARCHITECTS
Uys and White

MAIN CONTRACTOR
WBHO Construction North

TEXT
Boogertman + Partners Architects

PHOTOGRAPHY
Emira Property Fund
Boogertman + Partners Architects

The three-part brief from the client seemed simple enough at the time. Firstly, the design team at Boogertman+Partners Architects had to design a building that would not date. Secondly, the design had to be implemented with materials that were low maintenance, and the building had to be Emira Property Fund's flagship building, and become a Pretoria Icon in itself. The design team translated the brief by creating a striking triangular geometry using low-maintenance materials. In 2012, phase one of Emira Property Fund's new office development, Podium at Menlyn, was successfully completed. This iconic building has been a talking point ever since the first off shutter concrete facade was revealed.

Design Concept

The seamless triangular union of glass and off-shutter concrete was inspired by ancient engraved artworks found in the Blombos Caves on the Southern Cape coast of South Africa. This symbolises a bridge between a 77,000 year old culture and the future of South Africa. Inspiration was also drawn from the ancient Chinese Tangram dissection puzzle. This puzzle, consisting of seven flat shapes called tans, are put together to form shapes. The design team met the client's "Icon" part of the brief by transforming this ancient game into a magnificent triangular grid which features on the eastern and southern facades of the building. The abstract design is produced as a modular unit that can be configured into a geometric grid, making the implementation of the design an exact science and representing a synthesis of mathematics, symbolic systems and art. Even the basement and lift lobby artwork makes use of these tans to create a "geometrical garden" within an urban space, giving one the feeling of being in a digital landscape. The artwork transforms a once dull basement into an exciting space, through which one enters for a day's work. The design suggests both the archaic nature of its origins and the sophistication of 21st century technology.

ARCHITECT & BUILDER
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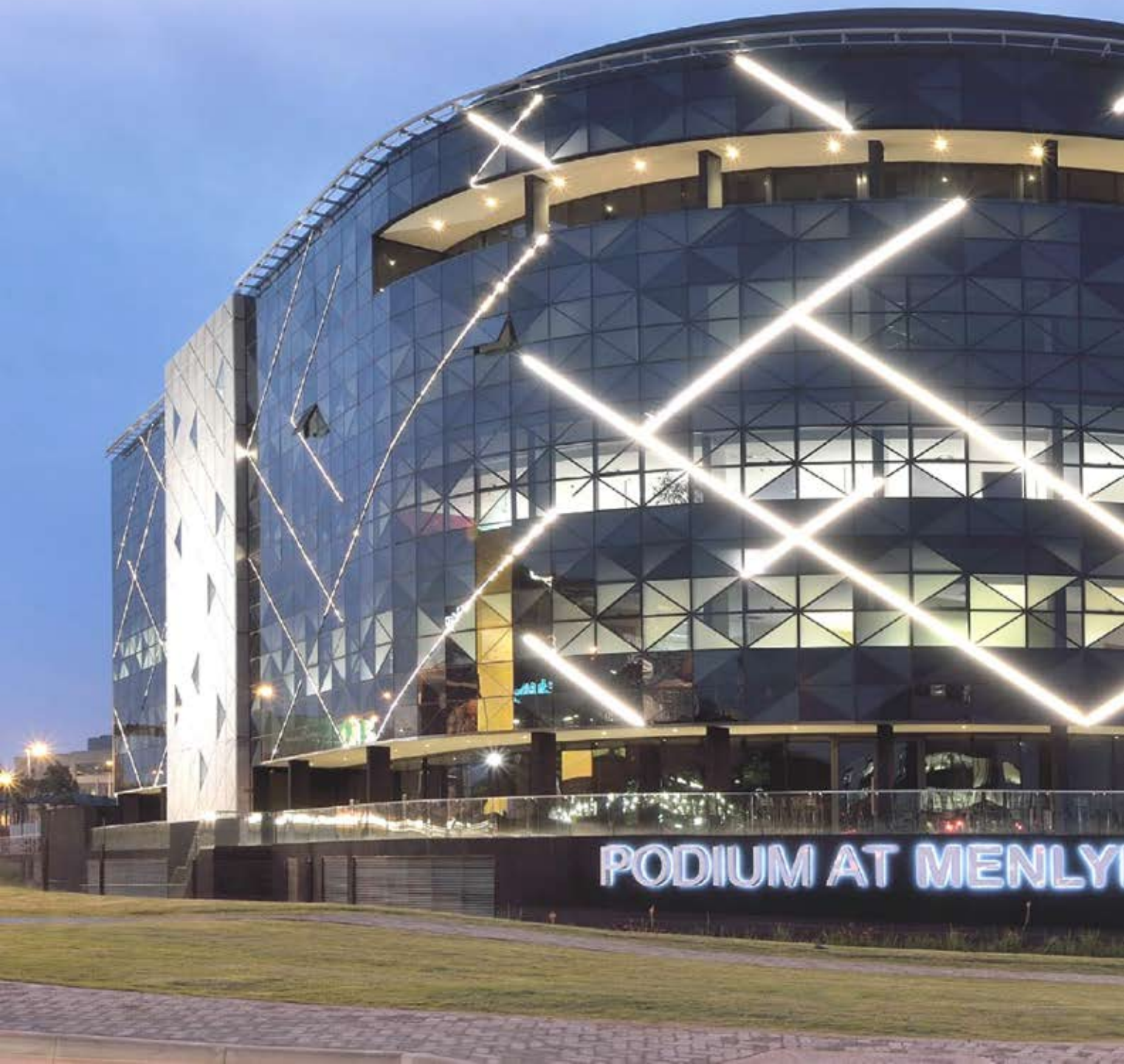
MATERIALS - Glass

The use of mottled grey and black glass on the facades lent itself to the concept of a triangular geometry. The design team wanted to achieve contrast with the use of clever materials and a contrasting curtain wall grid was designed. The internal face of the triangular façade is a sharp contrast with the exterior. Instead of the shades of grey on the exterior, the interior consists of shades of white. This is due to the construction process of the laminated safety glass used for the facades, whereby the lamination film is grey and/or black to the outside of the building, but the internal surface of the film is white. This accentuates the grid of the aluminium structure on the inside of the building, a decision made in the design phase, also enabling the end user to experience the geometric grid of the exterior.

Concrete

As the triangular geometry of the curtain wall is only 2 dimensional, the design team wanted to explore materials that would be able to incorporate a third dimension to the triangular forms of the façade. In the end, the most suitable material to achieve this



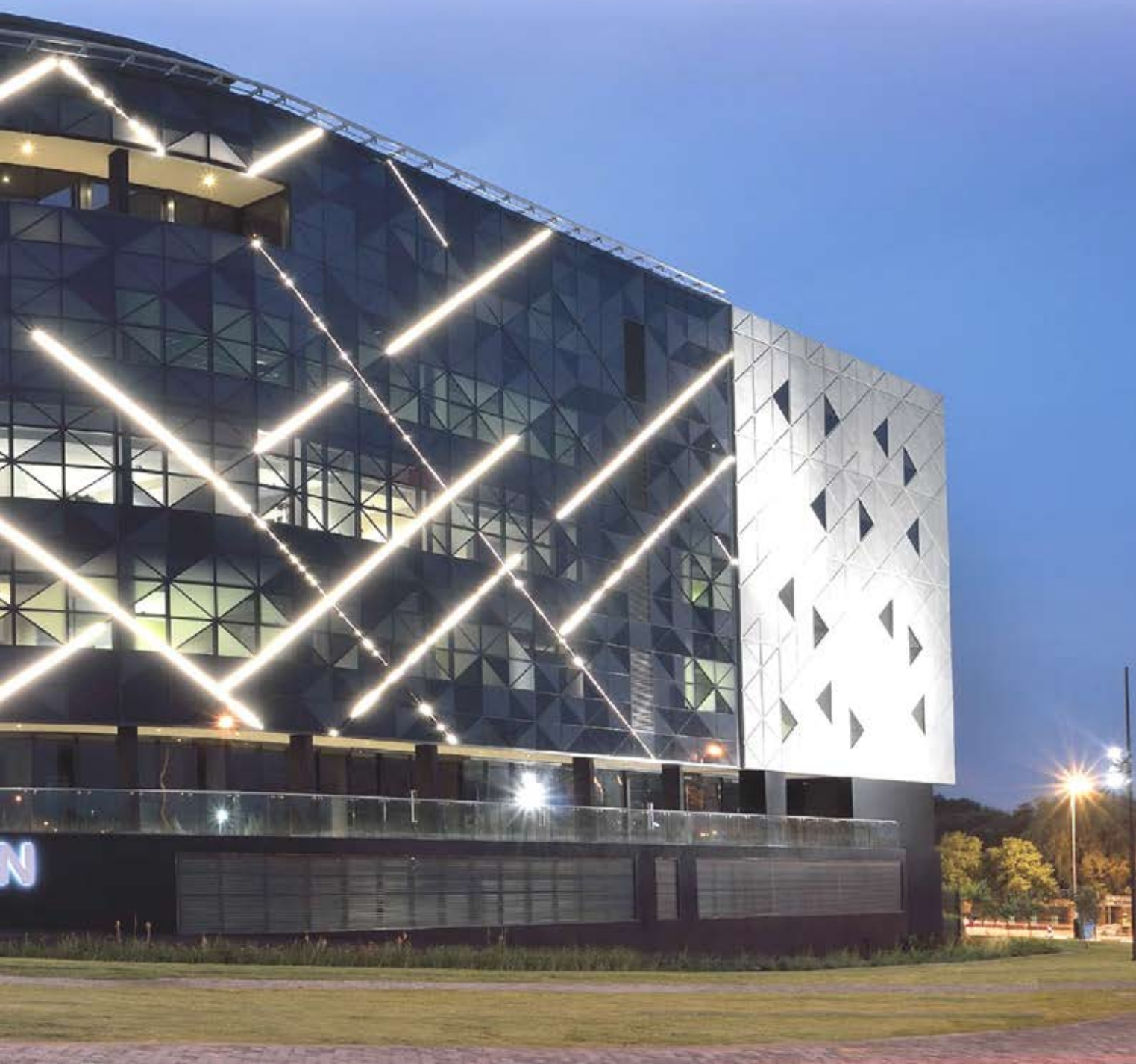
3 dimensionality was raw concrete, allowing the triangular shapes to transition from 2 dimensional patterns in the curtain walls, to 3 dimensional extrusions within the concrete. The raw concrete juxtaposed with the smooth curtain wall would create a harmonious balance in the design.

The 3 dimensional triangular pattern was a construction feat in itself, constructed by creating 35mm deep recesses within the concrete. The function of the triangular windows is to allow natural light to filter into the internal office space situated behind the concrete feature walls.

Challenges

Creating the recessed lines which define the triangular geometry meant that once the shutters were removed there was a risk that the concrete could break out, leaving the face of the walls with ragged edges that would require patching.

Patching of the concrete is a process the entire team wanted to avoid at all costs as the beauty of off-shutter concrete lies in the seamless and sculptural appearance as well as its unique texture. A sample panel was constructed beforehand, allowing the architects and contractors to explore different

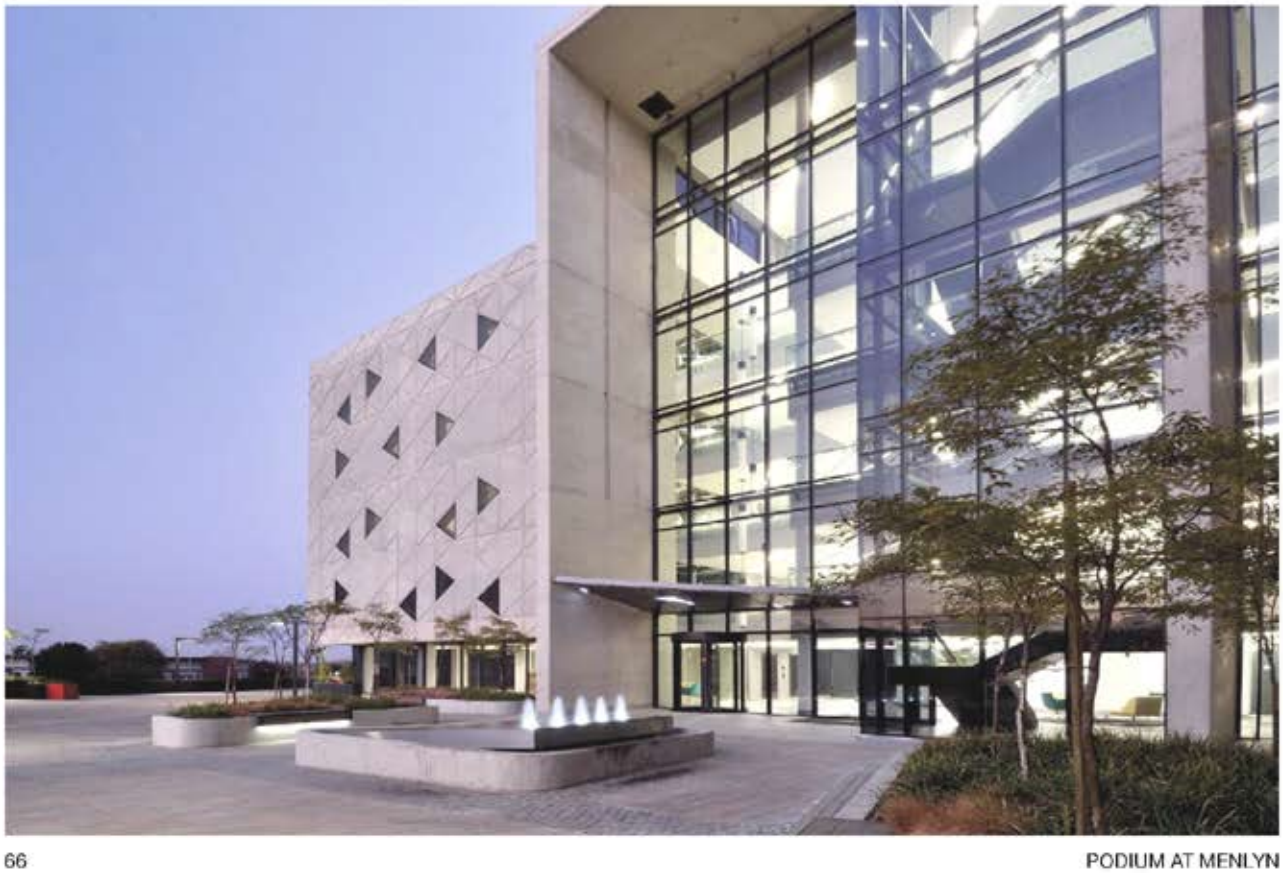


methods and materials to achieve the desired finish. These methods include:

- The use of fibre reinforced concrete
- The use of self-compacting concrete
- The use of pre-mixed concrete with a smaller aggregate.

Another challenge was that the structural engineer required the concrete feature walls to form part of the structural framework of the building. This required portions of the feature wall to be cast simultaneously with the main frame of the building. To deliver the required structural integrity, the construction of the concrete was done as follows:

The down stand portion of the feature walls were cast simultaneously with the first floor slab. Construction with regular premixed concrete as opposed to self-compacting concrete was used, as a continuously cast concrete structure was required by the structural engineer. Due to the added cost of self-compacting concrete, it could not be used for the casting of the floor slabs. The second cast of the feature wall (first floor to second floor level) was



completed using self-compacting concrete. On the top portion of the feature wall, a polystyrene pocket on floor slab level served as a permanent shutter for the concrete of the second floor slab.

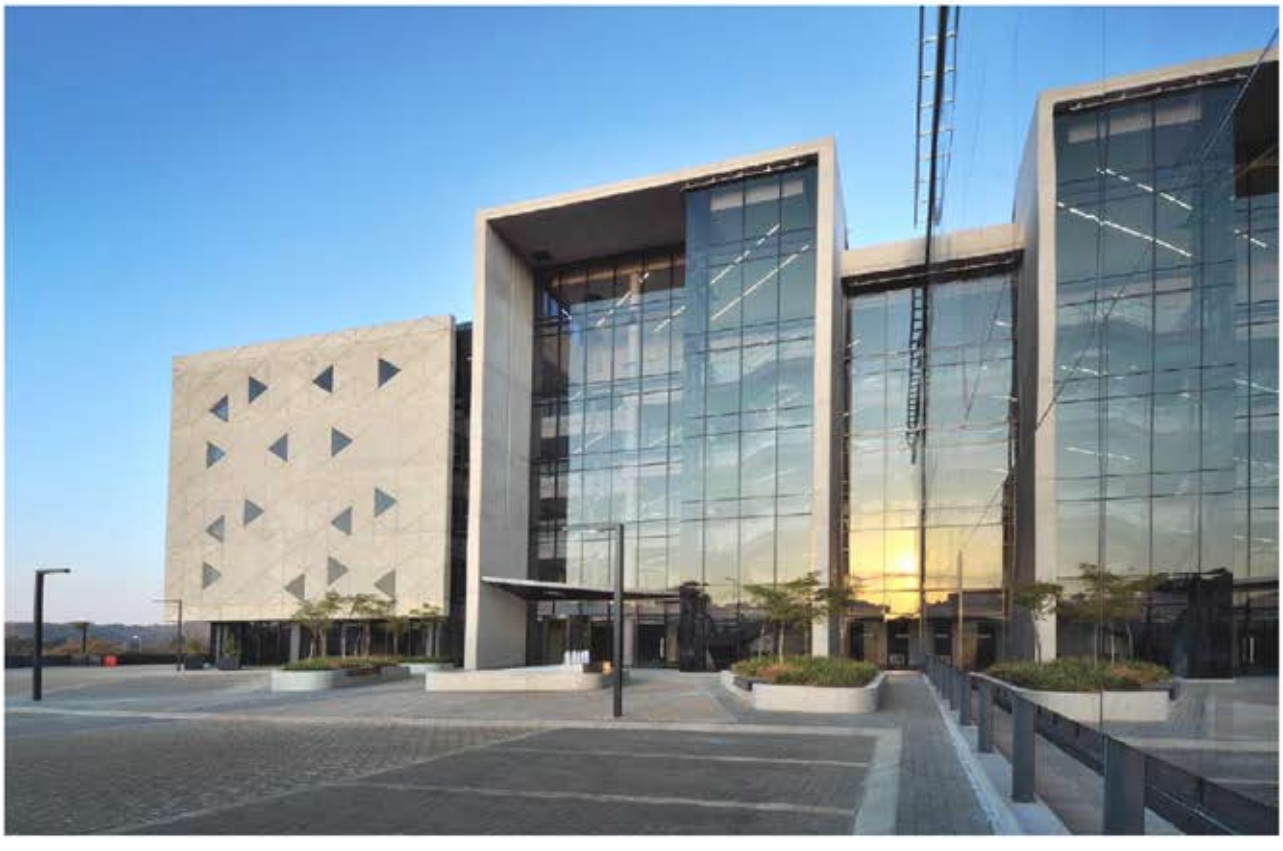
The second floor slab was cast using regular pre-mixed concrete, with splicing of reinforcing done above the floor slab level.

This procedure was repeated for the second, third and fourth floor pours (to the underside of the roof slab)

As with the bottom portion of the wall, the uppermost portion of the wall also required one continuous pour for the structural integrity of the roof slab upstand. This upper portion was again cast using regular pre-mixed concrete due to cost constraints.

The construction joints in the concrete walls were required at very specific heights so as not to impact on the contractor's programme. Numerous consultations between architect, contractor, structural engineer and concrete specialists were held, resulting in a design solution that had no impact whatsoever on the programme of the building.

Two sets of shutters were used for the construction of the three feature walls.



A single set of shutters was used for both the eastern and western façade's feature walls. The eastern and western feature walls were phased by levels, i.e. once the first down stand was complete on both the eastern and western facades, the first wall cast on the western wall's shuttering was used on the eastern wall's first cast, and so the process continued. The walls are, therefore, a mirror image of the other.

The second set of shutters was used for the construction of the fire escape stairwell on the southern façade. The utilisation of the same shutter for the construction of the two walls meant a cost saving of 40% on the shuttering.

The contractor approached Lafarge Readymix Gauteng and, in the end, it was decided to use Lafarge's Agilia Vertical self-compacting concrete solution. Of the total volume of 11,500m² of concrete used, 360m² was Agilia Vertical.

What makes this methodology so unique is the fact the building's entire façade grid was set out using the same grid of the concrete feature walls. One would imagine that, due to time and cost restraints, the triangular grid of the feature walls would only be an external surface treatment. However, upon entering the interior of the building, it becomes apparent that the internal faces of the feature walls are, in fact, a continuation of the triangular grid. It is evident that due to good planning and construction methodology, this feat was achieved without an impact on the contractor's program and the client's budget.

The Building

The monochromatic triangular facade consists of a 3 shaded curtain wall of grey and black glass which spans the building's south façade, as well as the soft curve of the building on the corner of Atterbury