



*The dramatically curved facade and double-volume entrance facing the intersection of Bancor and Amarand Avenue places emphasis on the pedestrian arrival experience.*

# Queen of the Curve

Park Lane West at Menlyn Maine in Pretoria, designed by Boogertman + Partners, makes a sleek addition and sustainable, forward-looking contribution to the precinct, while winning several awards for the innovative use of steel.

PHOTOGRAPHY TRISTAN MCLAREN

**T**he latest addition to Menlyn Maine – a mixed-use precinct in Waterkloof Glen in Pretoria’s eastern suburbs – is Park Lane West. Menlyn Maine combines office, residential, retail and entertainment in a Green Living Precinct, with a distinctive character through its emphasis on innovative architecture and urban design. The development supports pedestrian connectivity in an effort to stimulate walking within the precinct, thus promoting a healthier, greener lifestyle.

This seven-storey building, primarily intended as office space, faces onto a prominent traffic circle on one of the main pedestrian

routes through the precinct. It will, however, incorporate a ground-floor restaurant and co-working space in addition to offices. Its five-floor basement houses 630 parking spaces.

Given its prominent position, a certain architectural presence was necessary. The shape of the plot – and the fact that buildings in Menlyn Maine are built to the boundary line – prompted the curved glass façade, which serves as the building’s most eye-catching feature and imparts its main identity. It also provides a visual prompt to the building’s pedestrian entrance on the intersection of Bancor and Amarand Avenue.

The main entrance also faces and engages with the nearby mall. The double-volume entrance links to the scale of the mall, while placing emphasis on the pedestrian arrival experience.

A balcony bounded by planted landscaping along the ground-floor façade – intended as a spill-out space and outdoor seating for a restaurant – engages and activates the street edge and provides security by means of ‘eyes-on-the-street’ for the shared public domain between buildings. The landscaping also softens the edges of the building, providing a pedestrian-friendly experience, thus contributing to the walkable

character of the precinct while contrasting with the smooth, sharp finishes and form that give the architecture a modern corporate look. The building is intended to host both small and large enterprises, as well as the aforementioned co-working space, so a professional corporate image benefits all users.

Balconies figure prominently on the façade, partly because, as speculative office space, the building had to be as flexible as possible. Each floor is designed to accommodate up to six tenants, and each is provided with its own balcony.

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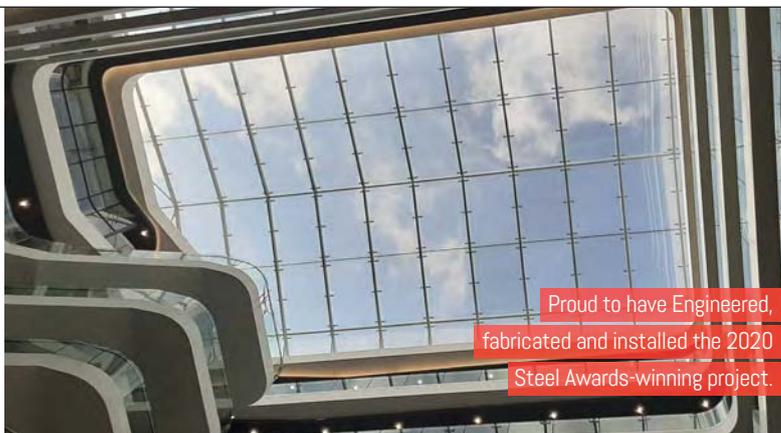
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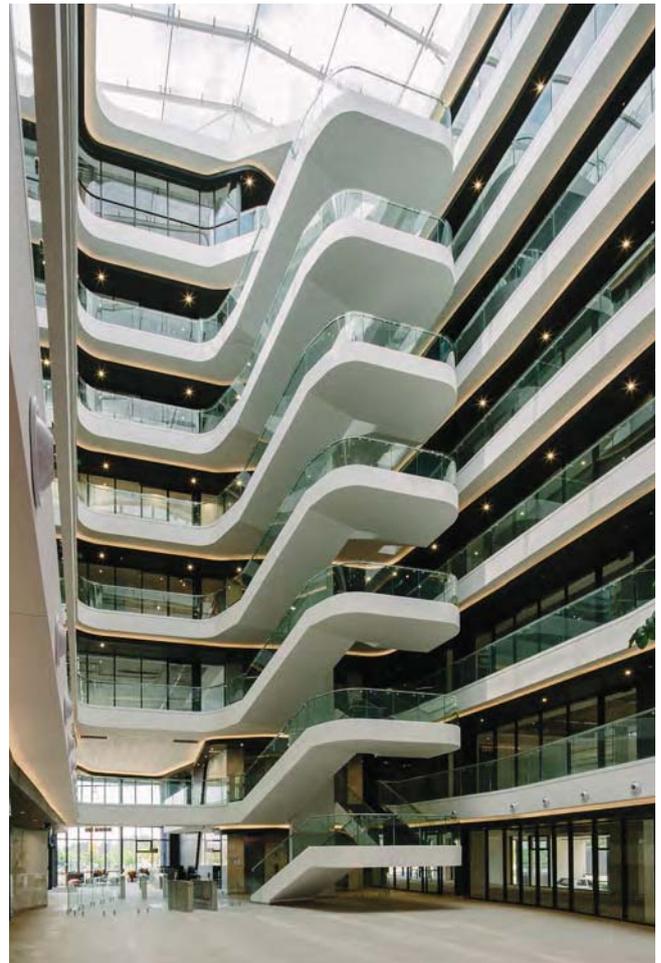
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*Clockwise from top left: The interior behind the curved glass facade; the curving cantilever stair on the northern side of the atrium; the reception area.*

The versatility of the design is further expressed on the façade in a staggered window grid, following the differentiating floor plans and tenant needs.

Internally, Park Lane West has been designed as a perimeter office block with a central open atrium and garden at its heart, which functions as a gathering space in the semi-public ground floor. The dramatic curve of the building's façade finds expression internally in the curved, wrapped atrium-passage balustrades, articulated with black

and white detailing for emphasis and effect. The first two floors splay out in a variation of the typical form, which continues from the third floor up. At the very top of the building, roof gardens allow the tenants views over Pretoria and an additional tranquil space to break away from the busy urban environment.

The curving cantilever stair on the northern side of the atrium, which forms a seamless continuation of the atrium-passage balustrade, provides a vertical design element in the atrium space, visually connecting levels and contextualising human-scale experience in the multiple-volume atrium. As an eye-catching focal point, it also encourages healthy behaviour through the active use of the stairs instead of the lifts. Its design is based on the notion of the stairway as a social interaction space - an area where people have chance meetings and interact socially.

The stair received a commendation in this year's SAISC awards. The most

impressive technical aspect of this staircase is that it was manufactured off-site and installed as a retrofit item. The precision and the complexity of the installation makes this quite an accomplishment.

The biggest challenge of the staircase's design and construction was its enormous weight in terms of dead and imposed live loads. With each stair weighing close to three tons in steel alone, a maximum of two stairs could be placed on the ground-floor slab before it would collapse. Each staircase had to be split into two pieces at landing level to be able to transport the pieces to site and lift them over the building and into the atrium, in order to fit the pieces into place with the tower crane.

At the top of the atrium, the skylight was awarded the winner's trophy in the Association of Steel Tube and Pipe Manufacturers (ASTPM) Tubular category at the SAISC awards, for its remarkably unobtrusive lightweight structure, which maximised the amount

of natural light into what is a deceptively small atrium. (See sidebar for detailed commentary.)

Running costs at Park Lane West have been minimised and resource efficiency maximised by addressing the key strategic categories of green or sustainable buildings. These range from materials and water use to energy, management and indoor environment quality. Perhaps one of the most impressive features is the air-cooled chiller housed in the basement. This vast ice-storage tank is 'charged' at night during off-peak hours when electricity is cheaper, and provide 50% of the

building's peak energy demand during the day.

Although the decision was made before the pandemic to maximise fresh air in the building and create a healthy working environment, the fact that Park Lane West is designed to have 60% more fresh air than required for green buildings in South Africa is well suited to the co-working model. It is also particularly appropriate given post-pandemic concerns for well-ventilated spaces with abundant fresh air. It is notable that the additional air is provided without significant additional cost or energy.

*The 2020 SAISC award-winning atrium skylight at Park Lane West allows for the optimal passage of light into the atrium below.*

**LEAF STRUCTURES WON THE ASSOCIATION OF STEEL TUBE AND PIPE MANUFACTURERS (ASTPM) TUBULAR CATEGORY AT THE 2020 SAISC AWARDS FOR THE ATRIUM SKYLIGHT AT PARK LANE WEST, MENLYN MAIN**

Leaf Structures was briefed with creating a modern skylight with lightweight steel members and a clean geometry that would bring the right balance of heat and light into the atrium below.

The structural frame comprises 11 duo-pitched, three-pin beams made of rectangular hollow sections and two duo-pitched gable ends with stub columns. A thrusting three-pin beam design was selected to minimise the size of the steel beams, while not transferring a bending moment to the concrete supports. A combination of round and rectangular tubes was used for longitudinal lateral bracing. Hollow sections enabled the effective use of concealed pinned and bolted moment connections, resulting in a neat structure with minimal site welding.

In addition to the clean lines of the structural frame, one of the skylight's most eye-catching features is its distinctive 2.2m wide by 3.3m long point-supported glass panels. Each panel weighs approximately 350kg and is made up of two 10mm thick fully tempered glass lites laminated together. The elimination of redundant structures (often aluminium frames) on the cladding system, by using a point-support system and glass-to-glass joints, resulted in a highly transparent skylight. The total skylight clad area (glass surface) is 465m<sup>2</sup> and of that only 12m<sup>2</sup> is obstructed by support attachments (rotules) and silicone joints. The reduction of visual obstructions on the cladding element resulted in a skylight with more than 97% transparency.

The high yield strength of the S355 tubes made it possible for small beams to be used, while the hollow sections produced neat, hidden connection details, making the structure aesthetically appealing. In addition, due to the stringent deflection requirements of the glass, both during installation and over the long term, the high stiffness of the structure meant the joints between each glass panel could be sealed with just a strip of silicone. No mullions were required, resulting in a skylight that provides exceptional and optimal passage of light into the atrium below.

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