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Colin Gardner

A Chance to Shine

It's easy to see why the spectacular new building at 15 Alice Lane, Sandton, was nicknamed "Dancing Towers" by the team responsible for its design and construction. Its dramatic, curved silhouette, combined with the striking black and white glass of its façade, make this new Sandton landmark look like it is, quite literally, dancing on the skyline. It's this unique façade that makes Colin Gardner of Grinaker-LTA Façades glow with pride.

The iconic 15 Alice Lane Towers consists of two curvaceous towers linked by an atrium. Each tower has glazed wings which cantilever 2.5 metres past their gable ends. "It is a building with a dynamic shape that pushes the architectural form," Colin notes. "The architects wanted a glazing effect using black and white glass to simulate falling paper," he explains. Enter Grinaker-LTA Façades, which rose to the challenge of manufacturing and installing a curtain wall to meet this requirement.

The utilised glazing system was selected as erected without the need for scaffolding.

Curved "underbelly"

Colin says that challenges abounded on this project, but his team consistently came up with innovative solutions. One particularly testing element of the contract was catering for the building having a curved "underbelly" on the lower levels, while the upper levels almost act as a rooflight.

"Conventional post-and-panel systems would not have worked because they would not have got around the curved 'belly' of each façade. By using an innovative unitized system, we achieved the extremely demanding time-lines required to complete this testing installation within the time-frame required."

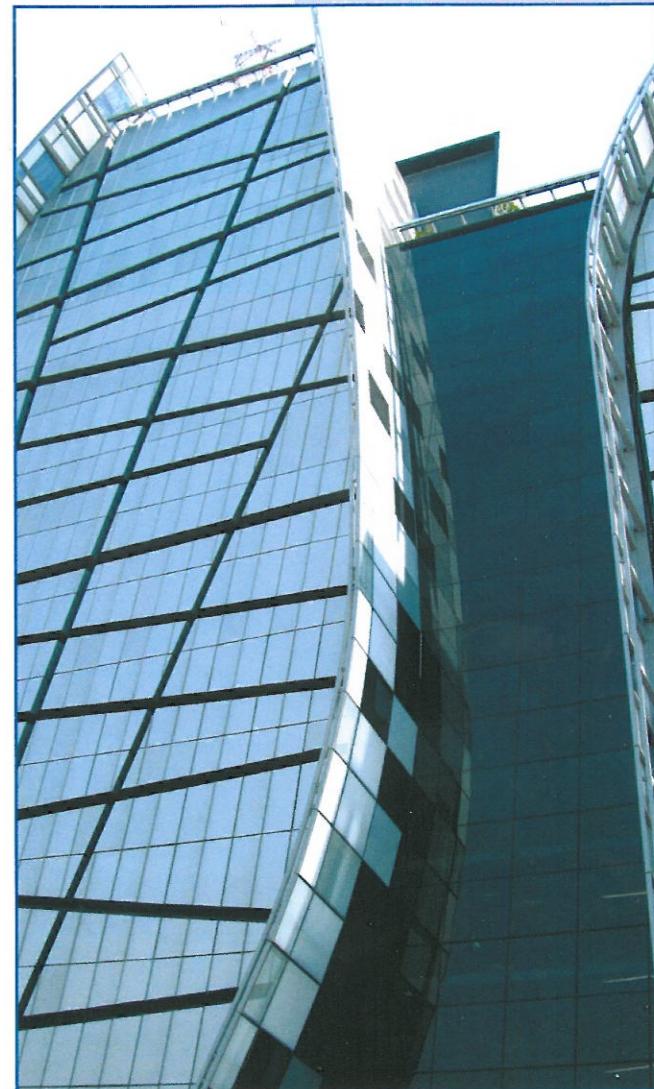
Contending with the fact that the starting point of this installation was actually in mid-air

Different size

Outlining this challenging time frame, and highlighting some staggering statistics, Colin reports that the first unit was installed on 1 October 2009, and the last unit went in on 24 July 2010. "A total of 9 569 square metres of glass incorporated into 2 997 curtain wall units makes up the glass façades. Each curtain wall unit weighed around 600 kg and most are over 2m wide. Our glass supplier (GSA) invested in the latest state-of-the-art machinery to do the fritting of such large pieces of glass.

"Every single row of glass is a different size, with varying combinations of glass type (pattern and colour). This presented a massive challenge when manufacturing the curtain wall units. Quality checks and balances of the highest order were required in order to meet this challenge. The use of barcoding assisted us greatly in achieving this end."

A further challenge for Grinaker-LTA Façades was contending with the fact that the starting point of this installation was actually in mid-air (above the atrium entrance level). "The atrium area is 10 storeys in height, the towers are joined with link bridges, and each floor is at a different angle to the bridge below," Colin explains. "This creates a fan-like effect. Interfacing the internal, with each bridge link being different, required ingenuity in terms of glass alignment and closures."





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Dramatic effect

A major innovation on this project was how Grinaker-LTA tackled the east and west elevations, where dark-grey glass has been utilised with dramatic effect, to create slashes across the façades. "This was achieved by the introduction of 400mm-deep composite paneled boxes ('pillows'). Each and every one was a different shape and size, and was mechanically fixed to a unitized curtain wall. Here, the curtain wall incorporating the angular 'slashed' glazing acted as the weather line. We assisted the project team in terms of the design and development of this innovation," Colin explains. The blocks keep the heat out of the sides that are most exposed to the sun and the slot windows are reset by 400 mm. The original vertical slot windows developed into cut-outs in the façade.

More complex curtain walls that I foresee becoming increasingly commonplace in the industry

"The inspiring and dramatic effect at 15 Alice Lane would certainly not have been achieved using the brickwork that was originally considered," he stresses.

Cleaning and maintenance

A major consideration on all high rise buildings is the cleaning and any maintenance repairs to the façade that might be required during the life of the building. The curved façade of Alice Lane Towers presented its fair share of challenges in this regard. To overcome these, Grinaker-LTA Façades has incorporated specially designed, concealed guide rails into the unitized glazing system, to carry a glass replacement carriage and cradle.

Abseiling cleaners using a rope-rigging system combined with the guide rails will be used for façade cleaning.

Environmental impact consideration

Alice Lane Towers is more than just a pretty face, however. Its energy efficient curtain wall has also resulted in this new landmark standing out as a "green" building, which represents significant cost savings for the occupants.

With environmental impact a burgeoning consideration on many new building projects, Grinaker-LTA Façades ensures that energy efficiency is always one of the top criteria when their input is sought on the design and development of new projects. Colin adds, "Alice Lane Towers was no exception". He reports that during the initial design stages, the newly-launched pilot version of the Green Star rating tool to enhance energy-efficient design practice was used. "15 Alice Lane outperforms most conventional buildings in terms of its energy efficiency, falling just 25 kWh/m² short of the South African National Standard 204 requirement of 200 kWh/m²," he notes. Several factors contributed to achieving this low level of consumption, including the use of

low-E performance double glazed façades.

Fritting the façade panels to create shading, well-insulated spandrel panels, minimal glazing on the east and west façades, as well as deep-set windows on these façades to maximize shading, also helped. In addition, Colin elaborates, the recessed "slashed" windows, which are reset by 400 mm, keep the heat out of the sides that are most exposed to the sun.

'Suit of clothes'

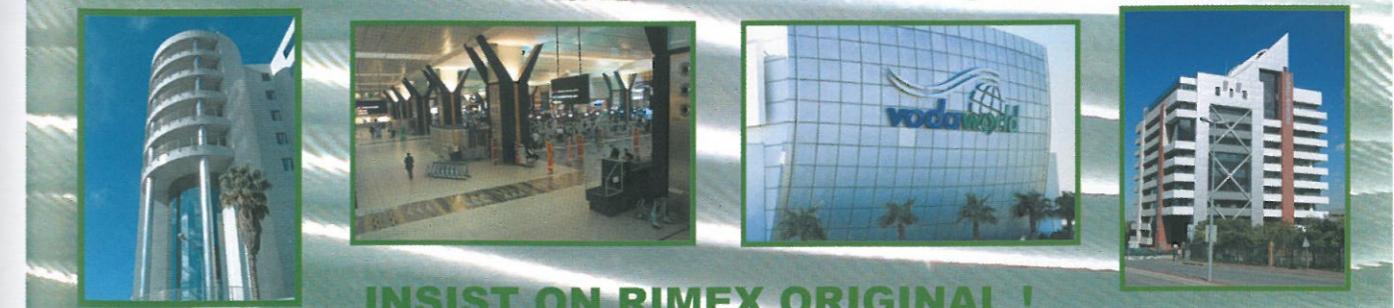
"This is a project that we are very proud to be able to stand back and admire now, and say: 'we did that', " he enthuses. "We learnt a lot. From the complexities of doing a curved facade, to the intricacies of putting a 'suit of clothes' onto split high-rises joined by a large glazed atrium. We played a pivotal role in the design and development of the complete facade, and we rose to challenges that were big, but never insurmountable. Having successfully completed this project, I am confident that we are well-equipped to tackle the more complex curtain walls that I foresee becoming increasingly commonplace in the industry," Colin concludes.

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