

Crystal towers

Henning Larsen Architects shine at the BE Inspired Awards with Crystal Towers, a BIM centred project with a focus on sustainability in the heart of Riyadh's financial district

To design and erect a building that will make an impact in the Gulf States you really have to come up with something special. There are two routes you can take; make it grander or more visually impressive than its neighbours, or utilise the latest advances in building technology and design to counteract the extreme climatic conditions that the building and its inhabitants have to endure. Ideally, it will be both nice to look at and comfortable to live and work in.

It's a bonus if you can succeed on both counts - and this is exactly what Henning Larsen Architects have achieved with Crystal Towers, a striking building situated in the centre of the financial district of Riyadh, Saudi Arabia, lying between the Financial Plaza and the wadi Hanifa, a verdant, cool, pedestrian thoroughfare.

The financial district is a new project and the Crystal Towers will lie at the heart of it. The whole district is designed to provide financial institutions, as well as residential and recreational areas, shops, restaurants, hotels, conference and sports facilities. It will even have a unique Saudi Arabian monorail linking different parts of the district, with air-conditioned footbridges above street level providing comfortable pedestrian access between offices (the midday heat in Riyadh is notorious).

It has been commissioned by the Saudi Binladen Group, and the building itself comprises two towers, one of 18 stories, and one with 26 stories, connected via a raised podium that creates a direct passage from the Plaza



to the Wadi. The towers will house prime office and retail facilities, and the podium provides a cool, shaded, outdoor meeting area.

Currently under construction, it is destined to be completed in 2013, and already the project has started to gather international design awards, the first in 2006, and the most recent in the Innovation in Building category at the Bentley BE Inspired awards in Amsterdam towards the end of last year.

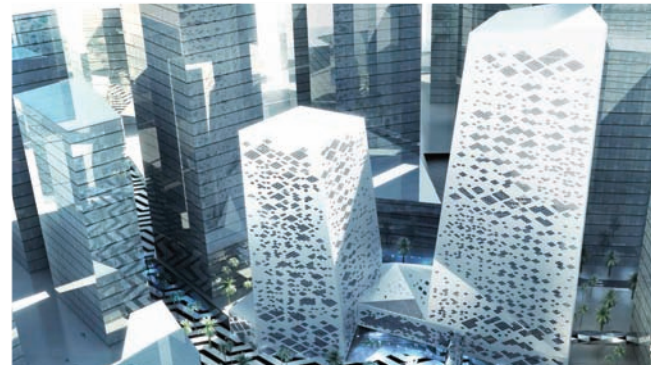
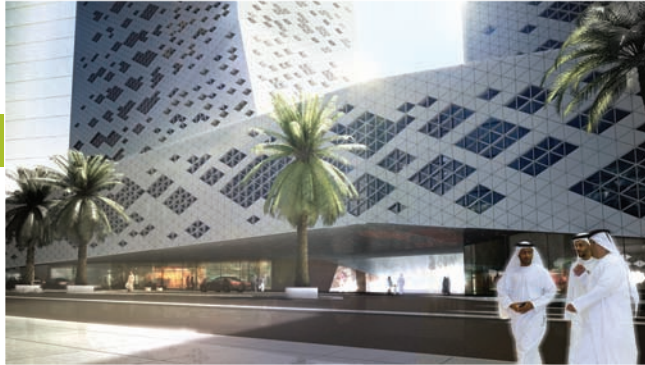
The BE Awards, hosted by Bentley, look at projects worldwide in all construction and civil engineering categories, using panels of industry experts to judge winners in each category. Two Crystal Towers was successful in the Innovation in Building category.

As a guideline, the judges were tasked to evaluate each entry based on a number of criteria; the use of advanced technology to deliver aesthetically appealing, high performance buildings that provide greater safety, increased energy

savings, reduced CO2 emissions and compliance with regulations. The use of such techniques must also offer a clear return on investment, of course, and should demonstrate excellence in planning, designing, building, modelling, analysing, operating and maintaining said buildings. All of which has to be offset against the region's natural hostility to human edifices (as Ozymandias would testify to), unrelenting and massive solar exposure, and a high incidence of abrasive sand storms.

To achieve the desired LEEDS Certification, the towers had to be designed to minimise solar heat gain, and achieve specific cooling targets, whilst retaining the views from the towers over the surrounding landscape.

There is a big team involved in the project, with Henning Larsen following on from the original design by Jes Tonsgaard Andersen, architect within the group, acting as consultants during the building phase to ensure that the scheme achieves the standards that will be seen as a world-class example



of development.

BIM, therefore, is being used throughout the project, focused on Bentley Architect and Microstation V8i, allowing the Group to maintain excellence in design, planning and implementation through all stages.

KEY ARCHITECTURAL FEATURES

As can be seen from the accompanying illustrations, the striking design with recessed, scaled, crystalline apertures, helps the structure achieve its aim by minimising solar heat gain and associated cooling requirements. Blending the structure into the region, a light local stone cladding provides the building with additional durability, using a long lifetime material with low maintenance costs.

The design has helped to improve sustainability as well, through judicious use of optimised building proportions that are able to lower outdoor

temperatures by as much as 6 to 8 degrees. The light stone clad façade helps to maintain humidity, vegetation and water features in the landscape, contributing towards the lower temperature, and possibly replicating the natural cooling features of wadis found in desert conditions around the world.

HENNING LARSEN ARCHITECTS

The group has developed a worldwide reputation for designing environmentally friendly and integrated, energy efficient solutions, with a high level of focus on social responsibility. They like to provide buildings and open spaces that are comfortable to work in, and that encourage a spirit of intimacy and community. They work closely with the client, users and partners to design buildings that will last for a long time, and that can be run efficiently and economically - a high life-cycle performance.

Henning Larsen Group uses 3D design and modelling as an invaluable tool for communicating its ideas to clients and others in the design process, and, of course, the use of BIM is central to this. The group is also proponents of the most advanced design and analysis tools for construction, in particular, the company's expertise in Generative Design which, although it was not required for the Crystal Tower project, is a frequently used tool in some of Henning Larsen's other complex and award winning designs.

In the group's own words "3D design is an unequalled tool to communicate architecture to clients and between all parties in a design process. It strengthens interdisciplinary collaboration between, for instance, architects and engineers, and, in the final analysis, results in much better projects."

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