

Ground breaking project for flooring specialist

Tough stuff on the floor

A ground breaking distribution centre for the largest food retail chain in the Saudi Arabia, Al Azizia Panda United, is under construction in Riyadh and will be completed and fully operation by the end of 2007.

Panda, having over 52 supermarkets and eight hypermarkets across Saudi Arabia and stores in Dubai, have opted for a centralised distribution centre to provide the backbone for their aggressive expansion plan in the Middle East.

The conceptual design of the warehouse was done by Industrial Logistics Systems, a South African based logistics company. An architectural design was done by Zuhair Fayed Partnership, a local firm of architects and engineers with offices in Jeddah and Riyadh.

Technical advisor

The refrigeration and insulation design, as well as optimisation of the power reticulation system and lighting installation was done by WSP Consulting Engineers SA. WSP Also managed the site supervision and installation of the warehouse while simultaneously acting as client technical advisor for various aspects.

The construction of the distribution centre has been a challenging project from the start, utilising consultants, engineers and equipment from around the globe to facilitate and strengthen to the local knowledge, incorporate local conditions to

ON SITE IN
RIYADH ANDREW
MINNAAR.



FLOORING WORK GETS UNDERWAY ON PART OF THE AL AZIZIA DC IN RIYADH.

create a state of the art distribution centre.

The warehouse has a total floor area of more than 72,000m², consisting of a refrigerated dry goods, chilled area, 3000m² freezer and returns centre. Over 6500 metric tons of steel was used for construction, there is 9 MW of power generated on site and a 7.4 MW refrigeration system serves to keep the DC conditioned. The total project value is £37m and will take place over a 12 month construction period ending in August 2007.

Due to the high racking structures of more than 11m and the heavily loaded and trafficked internal areas, it was clear from the onset that a high quality floor with a superior flatness and surface finish is required.

One of the most critical aspects of the DC according to Andrew Minnaar of WSP Consulting Engineers SA, the Project Management team for the Panda DC, was the design and implementation of the hub flooring. He explains some of the challenges encountered on site.

“International flooring specialist Twintec played a key role, by designing and installing the concrete floor, one of the most critical aspects of the DC,” says Minnaar.

“A joint-less, steel fibre reinforced concrete FM2 floor slab was specified and installed in three separate visits to accommodate an early go-live date for the dry goods area. Under some difficult concrete supply conditions and extreme environmental conditions they have successfully completed 55,000m² of the

floor area and were due to complete the last 11,000m² by the beginning of August.”

On a technical note the slab was ground bearing with individual leg loads from pallet racking of 100kN and a UDL of 50kN/m². The flatness tolerance for the whole of the floor area was FM2 Special to the 2003 edition of TR34.

The Twintec SFRC proprietary design software allows the plastic moment redistribution effect to be taken into account whilst still using an elastic method of design. This is a well established design methodology, supported by TR34 and with a track record of several million square metres.

Ground bearing flooring

Twintec design methods have been developed in conjunction with steel producers and independent consulting engineers for over 20 years now. In total, the volume of joint-less ground bearing floors laid throughout Europe using our design methods since 1982 exceeds 60,000,000m².

“The project has been a great experience for all involved. The many cultural and language differences (sometimes as many as 10 different cultural backgrounds working together on one task) providing many moments of laughter, learning and the odd frustration, but ultimately team effort and co-operation has culminated in amazing experiences and successful completion of a large scale project,” concludes Minnaar.

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