

Press release

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Construction due to start on first Haramain High-speed Rail stations in Saudi Arabia

Designs by the joint venture (JV) team Foster + Partners and Buro Happold, in collaboration with local architect Dar Al Riyadh, have been revealed for four major new stations along the state-of-the-art Haramain High-speed Railway (HHR), providing a vital new service for the millions of pilgrims travelling between the Holy Cities of Makkah and Madinah during the Haj. The HHR is a major new infrastructure project for the Kingdom of Saudi Arabia, connecting the cities of Makkah, Madinah, Jeddah and the developing King Abdullah Economic City (KAEC).

The stations are conceived not only as gateways to their respective cities but also as civic social centres, filled with places to meet, shop, eat and shelter from the sun beneath their rhythmic arched roof canopies. Each station uses the proposed modular design in different ways, with variations in colour, to signify the four cities served while remaining emblematic of the HHR system. Altogether, the large, flexible stations will cover an area more than 30 times the size of London's Trafalgar Square and will accommodate an anticipated 60 million passengers by 2012 approximately six times the number of passengers that take the Eurostar from St Pancras each year. This is expected to increase to 135 million passengers by 2042.

The two termini and two through stations are designed to provide a comfortable, uplifting experience for passengers. Climate-controlled concourse spaces provide respite from the desert climate. The design concept draws on Islamic architecture and takes the traditional gateway arch form as the basis for its roof design.

The design, common to all stations, features a sequence of 25-metre-high arches rising from the concourse, complemented by smaller 9-metre-high arches at platform level. Supported by freestanding structural trees, repeated on a 27-metre square grid, the arches connect to form a flexible vaulted roof that can be configured to deal with passenger flows from all directions and which can be extended in the future if required.

Mouzhan Majidi, Chief Executive of Foster + Partners, said:

The HHR project is remarkable, especially when you consider the fast-track programme we are aiming to complete four major new stations in almost four years. The Foster + Partners and Buro Happold joint venture was appointed at the end of March 2009, by the beginning of April we had mobilised a team and set up a joint office, the scheme went to tender in spring 2010 and will be on site imminently. This has been helped by our excellent relationship with the client, who has shared our vision to create an exceptional series of buildings.

Jerry Young, Buro Happold's Project Principle for the Haramain project, said:

While this has been one of the most exciting and challenging projects for the practice, the collaborative

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working methods adopted by the joint venture team from the outset have been instrumental in the JV meeting the quality, cost and time targets set by the client and should be a model for the future design of similar projects.

Notes to editors:

The main contracts for the station have been awarded: Saudi Binladin Group have been selected as contractor for Madinah and Makkah Station and Saudi Oger have been selected for Jeddah and KAEC.

Each station is oriented according to the path of the sun, turning from Madinah Station, which faces east, to north-facing Makkah Station. Their changing position is articulated through openings in the roof, in which light tubes draw daylight down to the concourse level and animate the space. At night, spotlights between the perforations give the impression of stars in a night sky.

By following the direction of the trains, the arrangement of spaces helps passengers navigate the stations intuitively, with few level changes. Arriving passengers pass through a dramatic triple-height atrium, while a departure lounge below the vaulted roof maintains a visual connection with the platforms.

Following the kit-of-parts approach, each station has a combination of different facades according to their orientation solid facades are used where visibility is not essential, in order to reduce solar gain. The glazed entrances to the concourse and the platforms are concealed behind a combination of external mashrabiya and the deep overhanging roof canopies, which provide additional shade.

The terminal stations of Madinah and Makkah are characterised by a rich colour palette: Makkah Station references the gold leaf of the decorated Kabah and the city's significance as a holy site, while Madinah Stations vivid green colour draws inspiration from the Mosque of the Prophet. Jeddah Station features a shade of purple which has a particular resonance with the city and KAECs station is a futuristic blue and silver, representative of its role as a modern new city.

A large circular chandelier defines the entry sequence for each station its glowing band is made up of a series of connected prisms, which are designed to catch the light passing through the openings in the roof. The prisms then reflect and refract the light onto the soffit and the concourse floor, creating patterns of illumination and shade that change as the sun moves across the sky. Further spherical chandeliers, suspended between the arches, provide focused lighting, mediating between the scale of the roof and concourse level and accentuating the rhythm of the structure.

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