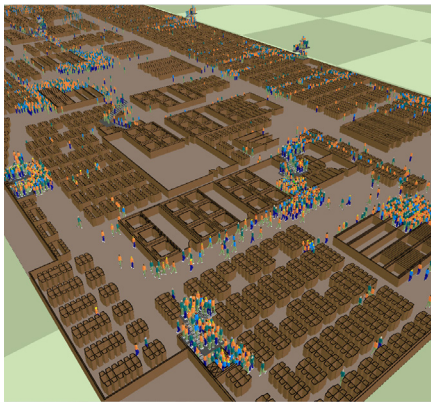
BUROHAPPOLD ENGINEERING



MAGHRABI AND DIYAFAH HOTELS MAKKAH, SAUDI ARABIA

Buro Happold's SMART Space team were invited by YALJ to analyse the pilgrim movements within the Maghrabi and Diyafah hotels.

These 18,000 – 21,000 capacity hotels, located approximately 2-3km from the Holy Mosque in Makkah, are part of major redevelopment in the city to cater to an increasing demand from the Hajj and Umrah pilgrimage in the kingdom.

Our work began by defining holistic experience of the visitors to the hotel throughout their stay, and went on to assess and inform the design to maximise the comfort and safety of the visitors.

Critical scenarios such as arrivals/check-in, morning prayer visit to the Holy Mosque, meal-time movements, check-out, and emergency fire evacuation were assessed against the parameters that define the visitor experience, e.g. density, travel distances, queue lengths, etc.

This analysis allowed conclusions to be drawn concerning pilgrim movements, optimum operations in the dining and concourse areas, as well as obtaining maximum efficiency in the bus terminal.

Knowledge gained by the team from previous projects completed in the region of Makkah was invaluable to understand the operations of the hotels. Combined with demand provided by the wider design team, peak hour demand scenarios for these hotels were generated to feed into the analysis.

Detailed static and dynamic analysis of the lobby level, pedestrian crossing from the bus bay, dining hall level and vertical transportation elements were carried out. Pilgrim movements were analysed between the hotel and Holy Mosque during evening meal time and afternoon peak during the last day of Hajj and during an evacuation.

Dynamic modelling using SMART Move and Exodus was undertaken and peak hour scenarios were modelled.

CLIENT
Yousef Abdul Latif Jameel Co. Ltd (YALJ)

ARCHITECT
CBT Architects (Maghrabi); Michael Graves & Associates (Diyafah)

SERVICES PROVIDED BY BUROHAPPOLD
Crowd flow modelling

Images © CBT Architects / Michael Graves & Associates