

# Capital connection

**L**inking London's suburban west to its suburban east, Crossrail is Europe's largest construction project and the largest sub surface project to be undertaken in London since the building of the Jubilee Line. Due for completion in 2017, Crossrail will provide rail links to all the major southern airports and direct links to the London Underground and Network Rail systems at various interchanges at seven new sub surface stations.

The new stations, at Paddington, Bond Street, Tottenham Court Road, Farringdon, Liverpool Street, Whitechapel and Canary Wharf together with further stations at Woolwich and Custom House, will form the Crossrail Central section of the project. The design allows for an expected increased passenger growth rate of 20%. To accommodate this number of passengers, Crossrail Central stations will have the longest sub surface platforms in the UK and allow for the arrival of trains every five minutes.

But as Rhys Vaughan Williams, Crossrail's MEP Engineering Manager, says, "It is one thing to get people to their destination but it is another to move them efficiently and comfortably within the stations en route. This is the job of the Vertical Transportation System."

The current design for vertical transportation at Crossrail Central incorporates 52 lifts and 92 escalators, to make it the most efficient sub surface line within London. Alan Groves is the Lift and Escalator Engineer at Crossrail, bringing his many years experience in the industry to

develop and manage the vertical transportation for the project.

## EASE OF USE

Dual entrances and ticket halls are proposed for step-free access to and from the platforms. From the ticket halls, it will be possible to travel directly to the Crossrail platforms or to interchange with other transport systems through intermediate concourse levels via further banks of escalators and lifts for passengers with restricted mobility (PRM) in compliance with the Disability Discrimination Act (DDA).

The design includes for a greater redundancy of units than usually found in this environment, allowing for lifts and escalators to be removed from service for

planned interventions without affecting passenger flows during peak hours.

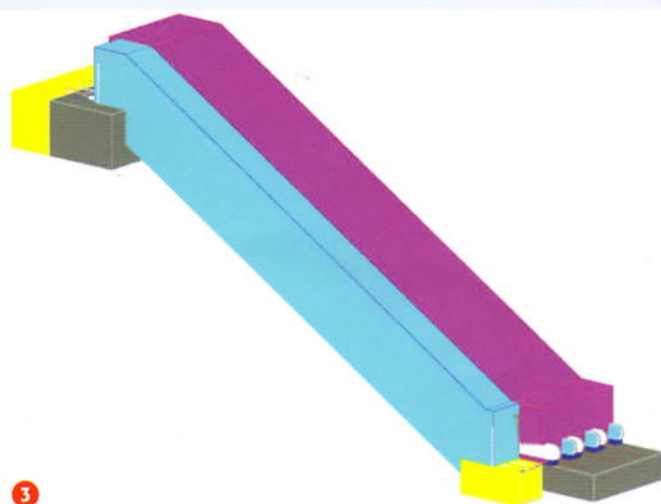
A layout common to all the stations will allow for passenger movement to the ticket halls via banks of three escalators and lifts that can accommodate up to 17 people, to assist not only those with impaired mobility but those passengers with heavy baggage and pushchairs, which represent up to 10% of the users. Alan Groves says, "We hope that by standardising the station layout and creating a light, airy and step-free environment, we will create an efficient and pleasant experience for passengers using Crossrail."

The Heavy Duty 'Metro' escalators which rises up to 26 metres form an integral part of the station design, giving a commonality of approach throughout the Crossrail Central design for passenger routing. Escalators will comply with the latest DDA options with handrail and skirting lighting supplying the relevant step lux levels and up lighting mounted at the corner of the side wall and decking panels to light the overhead areas.

Coloured glass balustrades are proposed, to give passengers easy to follow, visual directions throughout their journey. The use of glass will also be encouraged in the design of the public lifts, the cars to be mainly glazed with a through car layout.

## INCLINED LIFTS – A UK FIRST

Alan Groves is delighted that Crossrail is to introduce inclined lifts into the station designs at Farringdon and Liverpool Street.



- 1 Proposed Crossrail station at Canary Wharf.
- 2 Escalator configuration
- 3 Sketch showing the inclined lift running parallel with escalator