

**Farringdon,  
Whitechapel  
and Liverpool  
Street  
stations**

Commissioning  
of Smoke  
Control System



**An estimated 200 million annual passengers will use Crossrail when it opens in 2021. London's new Elizabeth line will serve 41 stations, including 10 new stations amongst which are Farringdon, Liverpool Street and Whitechapel.**

The Elizabeth line will transform rail transport in London and the south east, increasing central London rail capacity by 10 per cent. This will reduce congestion and allow for more comfortable journey conditions. Congestion at many London Underground stations will be reduced, even for those that are not on the Elizabeth line route.

With safety front of mind in the design, construction and fit-out across all of the Elizabeth line stations, L.B. Foster Telecoms (Tew Plus Ltd) has lead the installation and commissioning of a Smoke Control System (SCS) at Farringdon, Whitechapel and Liverpool Street stations.

“The Crossrail Project is redefining designed-in safety mechanisms for mega construction projects. Every new station incorporates state-of-the-art control and safety features. At Farringdon, Whitechapel and Liverpool Street stations the new Smoke Control Systems deliver best-in-class performance, removing contaminated air at exceptional speeds. That’s all about protecting the travelling public and London Underground staff in the event of an unforeseen emergency.”

**Project Manager**  
**Farringdon Station**

## Requirement

Farringdon, Whitechapel and Liverpool Street stations each required a tailored system of safety-critical control panels for a pressurised Smoke Control System. This covers the ingress and egress shafts at each end of station platforms.

The installed SCS controls adhere to multi-layered alarm priorities, operating effectively in conditions where there are many potential alarm sources, alarm sequence order and potential fire scenarios.

Each station's SCS system is designed to integrate seamlessly into the station Building Management System (BMS), fire alarm system, over-platform extract and tunnel ventilation systems. This is in order to initiate the smoke control equipment in the event of a fire alarm.



## Our Solution

In addition to our BMS contract works at Farringdon, Whitechapel and Liverpool Street Elizabeth line stations, L.B. Foster Telecoms (TEW Plus) also did the installation and commissioning of Smoke Control Systems for each of the locations.

Working to consultant generated design briefs, our first step was to onboard a specialist sub-contractor to work alongside our expert BMS team. Our team developed the original design into a working system, which was subsequently commissioned on-site by our specialist partner.

Each station presented its own unique challenges. Our solutions included:

- > A SCS comprising of a number of distributed Input/Output (IO) modules, controllers, routers and switches configured to build a network of devices to allow the system at each station to control and monitor items directly related to the SCS.

- > Entrance Air Release Door Controllers (ARDCs) designed to accommodate up to two floors/zones of pressure monitoring and damper control and monitoring. This is to ensure the response to pressure changes between the accommodation area and the protected lobby/staircase is minimised and to reduce remote wiring requirements by locating the pressure sensors and damper IO within the vicinity of the controlled space and dampers.
- > SOR Fire Brigade's Override Panel: Each station's panel houses a fibre to copper media converter, an EtherCAT bus coupler and IO devices/terminals. The IO is connected via the EtherCAT network over a fibre media type to a controller located within the SCS control panel. The IO contained within this panel provides all IO required for the OPE Override Pushbuttons and LED indication for the SOR OPE override panel and Perturbed Ventilation override switch.



## What they said

"Having worked with the team at L.B. Foster Telecoms (TEW Plus) on the station's Building Management System, it was a logical step to engage them to sort out the SCS for each of the stations. What the guys bring to the party is the ability to get on with the job with minimum fuss, demonstrating an inherent understanding of what is required and delivering to tight deadlines."

**Project Manager**  
**Crossrail Project**

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