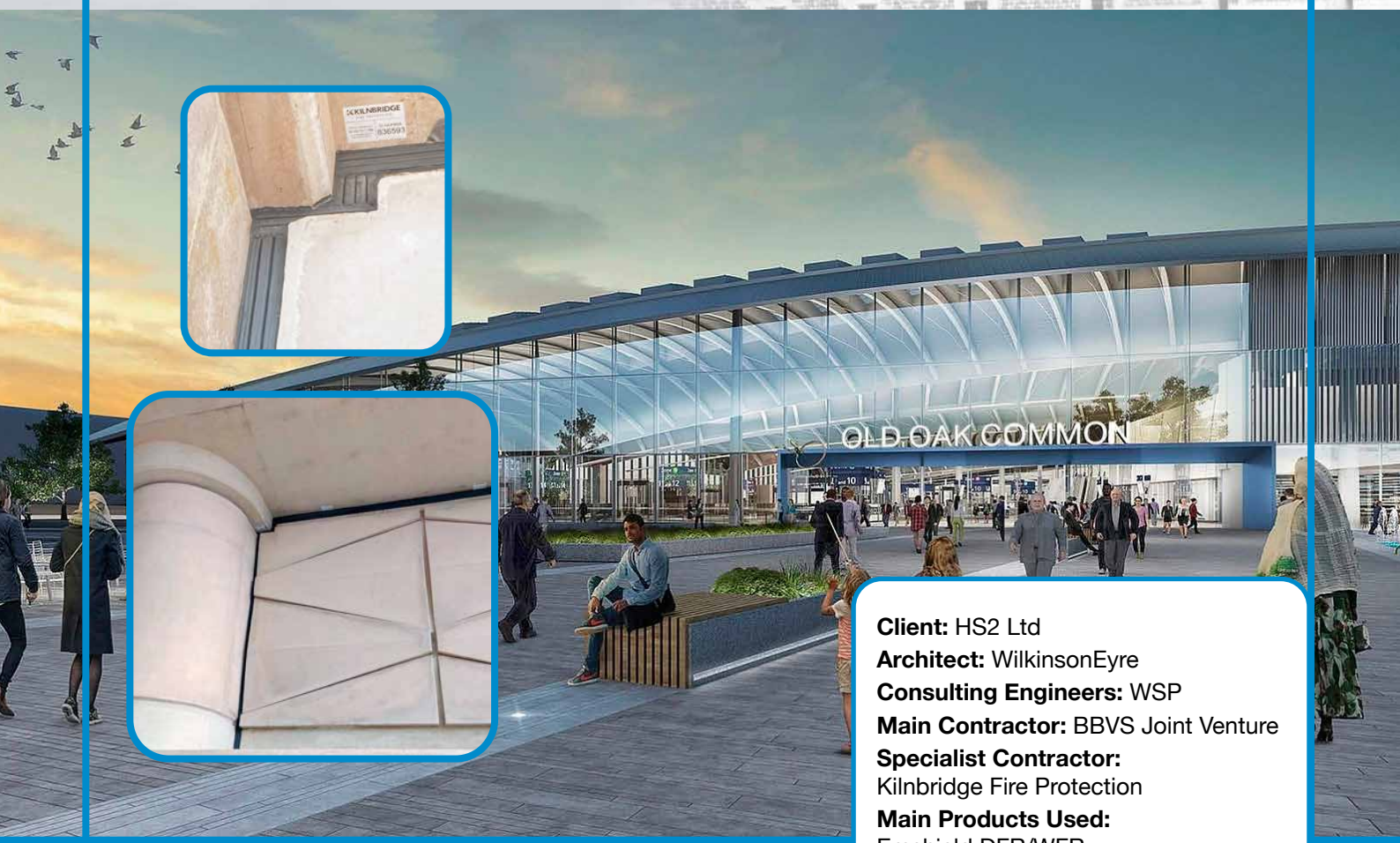
EMSEAL

'Watertight by Design'



Client: HS2 Ltd
Architect: WilkinsonEyre
Consulting Engineers: WSP
Main Contractor: BBVS Joint Venture
Specialist Contractor:
Kilnbridge Fire Protection
Main Products Used:
Emshield DFR/WFR

For More Information:
NCC Movement Joints Ltd
01257 266696
technical@nccinaction.co.uk
www.EmsealServices.co.uk
www.Emseal.com

Old Oak Common Station
- HS2 London Interchange

Case Study

Old Oak Common Station is being built as the London interchange for HS2 and is the largest subsurface station ever built in the UK. WilkinsonEye and WSP designed large smoke downstands as an important part of the structure and its fire engineering strategy. They are produced as precast concrete panels integrated into the roof structure, which extend downward creating a sealed barrier with compartments that trap any hot smoke and toxic gases at a high level, preventing it from descending to the passenger concourse and platform levels, allowing time for safe egress.

Technically, in terms of Fire Integrity and Standards, the smoke downstand barrier, including the structural movement joints, had to comply with BS EN 12101-1:2020 Smoke and heat control systems. As well as with TfL Fire Engineering Standards for sub-surface environments, to provide 120 minutes of integrity, or integrity and reduced heat transfer to allow for safe escape. After the extensive testing programme, involving full-size site panels at WarringtonFire, the advanced Emseal Emshield DFR/WFR-CE fire resistant movement joint system was selected as the optimum solution.

Emshield DFR/WFR is a CE marked system with EN1366-4, 240 mins (4-hours) fire integrity and thermal insulation certification that also safely accommodates joint movement of +/- 50% (i.e. A total movement capability of 100%,) to provide joints that are 100% watertight and smoketight. Emshield-DFR/WFR also accommodates movement in 3-dimensions (shear, vertical and lateral), provides excellent acoustic and thermal insulation. The system is installed quickly and easily, with no potentially damaging mechanical fixings into the structure required.

Kilnbridge Fire Protection have been involved throughout, including the production of the full-scale samples for fire testing, and then in the successful site installation of the Emseal Emshield systems.

NCC Movement Joint Systems