Service Panels

The prefabricated multiservice panel has been developed to satisfy the requirements of 120-minute fire integrity design criteria for the ESJ project. The primary focus of the prefabricated product was to ensure that the arrangement maintains the integrity of the fire compartment, whilst simultaneously allowing MEP services to penetrate the fire rated wall compartment. The panels standardise the location, size and setting out of MEP service connections between the landlords back of house corridor (BoH) and tenants' areas. The primary MEP distribution interfaces with the panels integrated MEP components. This allows the secondary fix to take place on the tenant side while maintaining a two-hour fire rating. This solution circumvents the need for hole coring and fireproofing thousands of penetrations throughout the site, saving time and improving quality of workmanship on the project.

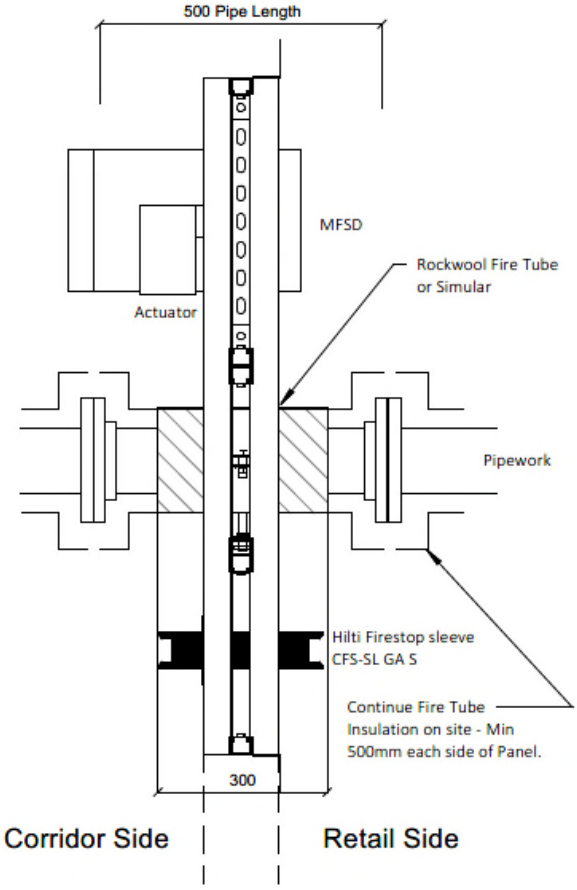

Figure 1. Elevation of Service Panel detail showing connections

The interface panel will be installed into an engineered frame as part of the wall construction. The intent was received well by both the client and building control.

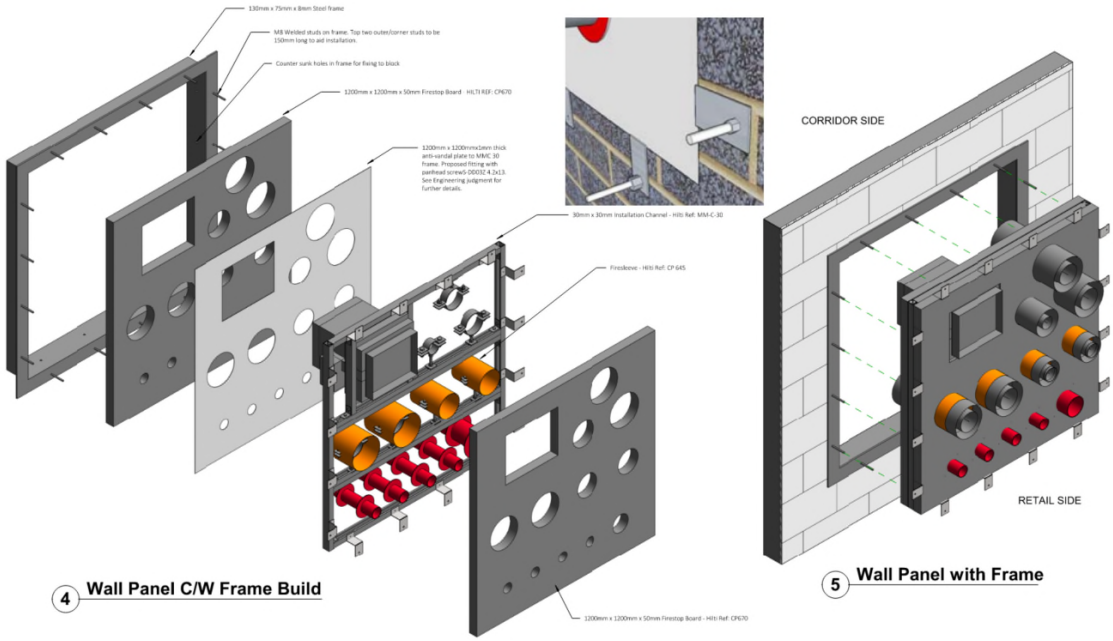

Figure 2. Exploded view of service panel construction with wall fixing detail

A typical panel arrangement incorporates a fire damper for ductwork, connections for low temperature hot water (LTHW), chilled water services (CHW), booster cold water services (BCWS), sprinkler and gas pipework. These connections are complete with fire sleeve arrangements that can be easily connected either via flange or coupling connections depending on material. As well as this, fire sleeve arrangements are used for electrical cable penetrations to supply the units in which the cable can be fed and pulled through, in the event of fire the fire sleeves expand and compress against the electrical cable, preventing air flow to fuel the potential fire on either side. The advantages of this is that all panels have a set standard that is repeated consistently on the project, something that has been a frequent issue in the past with regards to fire protecting service penetrations.

Panel designs are determined by the BIM coordination, once final positions have been agreed a fabrication drawing is produced (Appendix 2) and issued to CHtM in which they can produce the panels within two weeks.

Once on site, secondary frames are installed within the brick work. The panels can be handled by one man and a pallet truck. Panels are lifted into position by genies and pushed into position, guided by two larger rods and fastened into place within 30 minutes. Once installed, trades can then connect onto the prefabricated panel connections and fit out the retail units.

Figure 3. Builders work penetrations that service panels mitigate & service panel hole (aperture).

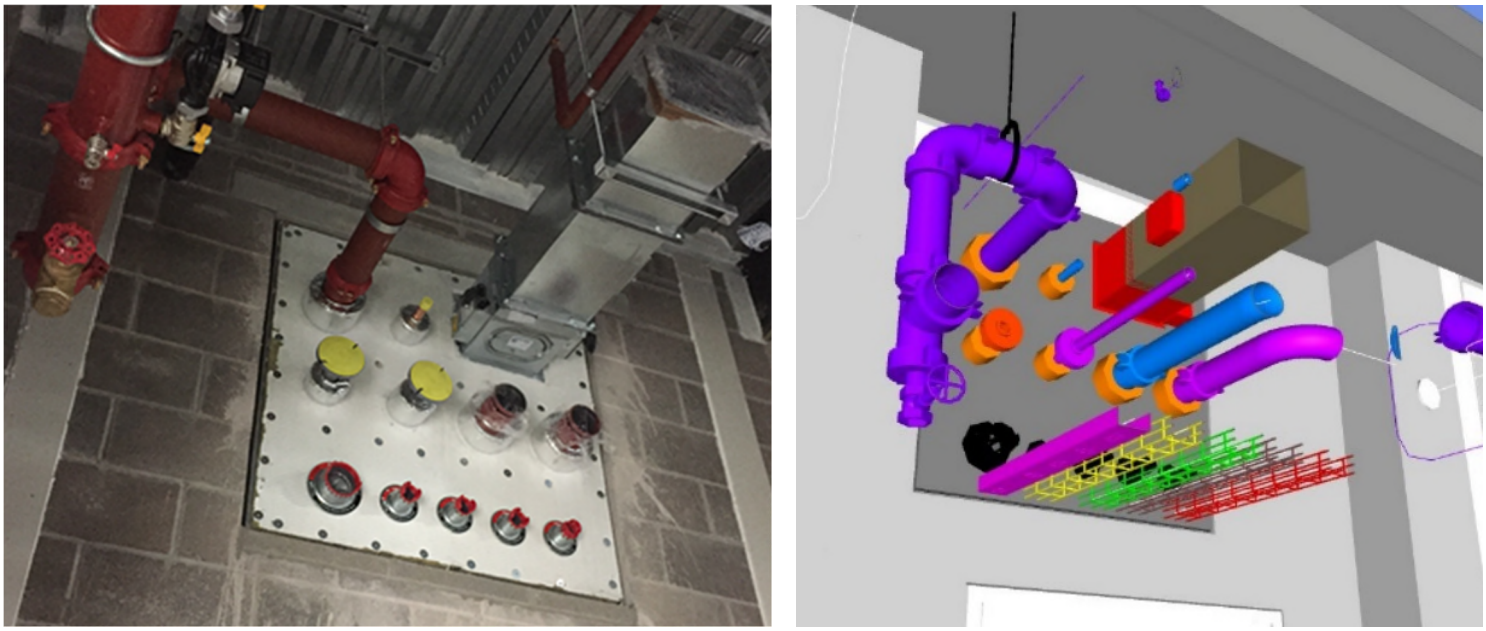

Figure 4. (Left image) Site install Service panel arrangement: Sprinkler pipe (top left) as part of secondary fix, within retail unit connected to panel with Victaulic connection. 150x250 duct work connected to fire damper (top right). LTHW & CHW (centre plane) Electrical services penetrations. (right) Digital twin on BIM Model of coordinated service panel