Fire – understand your responsibilities

The primary reason for fire protection in buildings is to save the lives of the occupants and also the people entering a building to extinguish a fire. It also serves to protect the structure of a building with the intention of reducing the risk of substantial damage so that the building can hopefully be repaired. So, it is an important part of any finishing or fit-out contract and **Joe Cilia**, technical manager at FIS, looks at why it needs to be fully understood by specialist contractors.

There are two types of fire protection, active and passive. Active fire protection typically suppresses a fire with sprinkler systems or, in some cases, by limiting the amount of oxygen in a space, whilst passive fire protection involves encasements, barriers and reactive coatings and products to hold back a fire, including any hot gasses and smoke.

Building Regulations (Approved Document B, ADB) are clear about what should be protected and how to demonstrate that the systems used will perform in the event of a fire. Note that I use the word systems rather than products as the majority of the options available to the interior sector are systems and not products. For example, there is no such thing as a fire-rated plasterboard, but there are fire-rated partition systems that use plasterboard.

Passive fire protection in fit-out will be used primarily to provide compartmentation and protected routes for escape. It will also provide safe access for the fire and rescue service. In some instances, a suspended ceiling will be used to provide protection to the structure above. For the purpose of this article, I will concentrate on the installation of partitions and doors as this is where I see the largest area of possible issues that impact members.

Partitioning must be able to resist a fire for a specified time, typically 30 or 60 minutes. That resistance covers two main criteria, stability and insulation. The first is easy to understand in that it must not break down and allow the passage of flames or hot gasses. The second part, insulation, is to ensure that the heat from one face is not transferred to the other making it too hot to escape past. Straightforward enough, until you realise that the test furnace reaches temperatures in excess of 900°C, that the test for hot gasses is a cotton wool pad placed over any area where smoke is escaping and that the same rule can apply to glazed partitions.

So, where are the issues here? Firstly, and quite common, is the assumption that all generic products are fire rated. For example, any stud from any supplier with any plasterboard equals a fire-rated wall. Unless there is evidence that when installed together the components will meet the required test to BS 476, parts 20 to 23, or BS EN 13642: 1999, 1365-2:2014 and 1364-1:1999, you will not be able to provide any evidence of the products' fire performance should you be asked for it.

The next issue is one of workmanship. We have been aware of examples where inner layers boards were not screwed as required or boards fixed to head channel where a deflection head was installed. These simple examples had huge cost implications for the contractor when they were discovered.

The other big issue with solid elevations is that of partial

or full service penetrations. This is where sockets are installed or service runs go through a run of partitioning. Here, particular attention is required to ensure that integrity is maintained with the correct intumescent products. Some filler products will only perform where the gap is less than a stated size, so not using a foam spray to fill a 100mm gap for instance. FIS recommends that this work is only carried out by a suitably competent operative.

The second area of deeper concern is where glass is installed within a partition. It is permissible to install integrity-only glass in some situations, but there will be instances where insulation will also be a requirement. In this case, the same rules apply about transference of heat from one face to another. To meet this requirement, fire glass that incorporates intumescent interlayers must be used. In the event of a fire, the glass will go opaque, swell to cut radiated heat and insulate sufficiently for people to pass by and escape. The issue here is that the glass must have been tested in the glazing frame it will be installed in, as some glass requires the edges to be kept cool whilst others require an even temperature across the face. Get it wrong and the glass can break in less than five minutes. You should also check that the size of glass proposed is covered within the test evidence.

The last area where we see evidence of incorrect specification is doors. A fire door must be supplied as a door-set which includes the leaf, a frame and the ironmongery which has been tested in the configuration that will be installed on-site. For example, a single door single action must have a separate test for a single door double action and so on. Also the size of the leaf must be within the matrix of sizes allowable from the test result. Again, there have been examples where doors have been installed on the assumption that a fire door with a frame, intumescent seals and a closer from separate suppliers will meet the requirement; until that is the case, evidence in the form of a test certificate is requested.

So the message here is this. Request a copy of the test evidence including the assembly details before placing the order rather than struggle after the event; ensure your operatives are fully conversant with the assembly instructions; and make sure that you fully understand the specification and requirements that you are being asked to meet.

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