

ADVISORY NOTE 33

Guidance for those involved in designing Passive Fire Protection, including Principal designers and Architects

Introduction

The way that passive fire protection systems are designed and specified across construction sites in the UK and Ireland often leads to problems later in the construction phase. Issues arise with interfaces between systems such as service penetrations through compartment walls and locations where the structural fire protection interacts with compartment walls.

The ASFP have produced this Advisory Note to help guide architects and designers through the process of designing passive fire protection systems to help reduce the delays and compliance issues that they may face later in the construction process. The Client, Principal Designer and Principal Contractor need to ensure that the design responsibility sits with someone who has the appropriate competence for that role. Ultimately, however, the Principal Designer does need to fulfil their legal responsibility as outlined under the Building Safety Act and Construction (Design and Management) Regulations by:

- taking reasonable steps to make sure all designers comply with their duties under building regulations
- assessing design work to make sure all designers produce designs that comply with relevant building regulations
- working with the Principal Contractor and share information about planning, managing, monitoring and co-ordinating the design and building work
- assisting the client in providing information to others, if requested

The above list is taken from www.gov.uk

This document is concerned with the legal requirements laid down for the Principal Designer. It does not contain advice on how contractual responsibilities should be allocated throughout the contractual chain. Principal designer and Principal contractor should take steps early in the contractual process to ensure that the contractual responsibilities regarding design are clearly allocated and documented.

If design decisions covering wall design and MEP service placement are made before the specialist PFP installer is appointed, then it is probable that decisions covering the wall type and service location will be made without due consideration of the requirement to provide passive fire protection. Consequently, those involved with some level of contractual design responsibility, may struggle to find systems that are supported by suitable certification or test evidence to ensure compliance.

It is a common phenomenon in these instances that the project only considers these issues when construction is too far advanced to allow suitable changes in the design to ensure that a tested and certified detail exists or is even possible. Ultimately this might mean that it is impossible for the project to achieve the correct level of fire resistance required.

In these instances, the project is often left with delays, and significant on-costs rectifying issues to enable compliance. Where walls cannot be changed and services cannot be moved to match existing certification and test evidence, then other remedial approaches will be required. There has recently been a growth in project specific fire testing, conducted at great cost and time on behalf of the Principal Contractor / Project team, in order to obtain the required evidence to demonstrate compliance.

The ASFP position

After meetings and discussions with the Principal Contractors, Designers, Manufacturers and Specialist Passive Fire Protection Contractors in UK construction, the ASFP recommend that the process for the design and specification of Passive Fire Protection outlined below should be followed.

- Principal Designer, in conjunction with the Lead Designer, M&E & HVAC Designers, identifies the areas where passive fire protection is required from the fire strategy plans. Use of BIM software will help identify intersections of concern and allow the preparation of a passive fire protection schedule.
- Principal Designer requests support from Manufacturers / Specialist Fire Engineers / Contractors to help provide system specifications and advise on limitations in early design – A provisional modelling plan is drawn up to pass onto M&E/HVAC and Drywall Contractors to highlight areas of concern / focus.
- Principal Contractor Design / Fire teams work with Principal Designer and M&E/HVAC Designer to identify areas where potential issues may occur following Designers proposals.
- Principal Contractor and Principal Designer appointed to engage with the Specialist Fire Protection Contractor early to review the areas and systems proposed in the design for the Specialist PFP Contractor to confirm compliance. The Specialist PFP Contractor can also advise if changes to other services / walls should be considered to ensure the design can be constructed and deliver compliance. The Principal Designer must take reasonable steps to make sure anyone working on the design co-operates, communicates and co-ordinates their work with:
 - the Client
 - the Principal Contractor
 - other designers and contractors

ASFP is currently drafting a Code of Practice that covers this topic.

- As part of pre contract meetings, Principal Contractor and Principal Designer should review the contractual specification to ensure that the specification correctly addresses quality requirements including detailed extents of installer record keeping, installer quality inspection and the extent of any client appointed inspection.
- Design meetings should be organised by Principal Designer / Principal Contractor with key contractors involved in the project to highlight the importance of building to the agreed design – M&E, Drywall & Fire Protection Specialist etc. to review the highlighted areas of concern and ensure collaboration. Pre-construction meetings between these parties will enable the

Principal Contractor to sequence the firestopping works appropriately, thereby reducing the risk of potential re-work.

- Benchmarking allows installation standards to be set either prior to, or at an early stage of a project. How this is achieved will vary, depending on project scale, ranging from a dedicated sample construction to using an early element of the finished construction.
 - Benchmarking should be established as the norm for all construction projects.
 - All suppliers and installers of passive fire protection systems and other construction elements that impact on them should be involved in this process from an early stage.
 - Benchmarks can consist of product samples, on site mock ups, first in place or previous installed work of a similar nature.
 - Benchmarks should be in place, agreed and signed off by the Principal Contractor and Specialist Passive Fire Protection Contractor prior to works commencing on site. Where standards of finish are important, the Architect / Principal Designer should also be involved in this process. A photographic record of the construction and completion of the agreed benchmark should be included in the sign off sheet.
 - The agreed benchmark should be used to induct the Contractor's installation personnel on the requirements of the site installation before they commence work on site.
- During the construction phase, regular design meetings are needed to highlight any further issues that have arisen / check progress and review any design changes and consequent regulatory requirements. It is important that the Specialist Passive Fire Protection Contractor carries out pre-installation checks prior to commencement of their respective works to ensure the supporting construction is being built in such a way that will not negatively impact the compliant installation of the chosen fire stopping products and systems.
- The legal duties for the Principal Contractor require that they plan, manage, monitor and co-ordinate matters related to the building work. This means that the Principal Contractor must:
 - make sure building work done by all contractors is co-ordinated so that it complies with all relevant requirements
 - assess building work to make sure it complies with relevant building regulations
 - never accept non-compliant building work
 - work with the Principal Designer and share information about planning, managing, monitoring and co-ordinating the design and building work
 - assist the Client in providing information to others, if requested
- Upon completion, inspection of the completed works is recommended to ensure that the installation of passive fire protection complies with relevant requirements. Supplementary to any Building Control inspection, a specific project-based systematic approach involving the actual installer, his/her supervisor, the Principal Contractor, the Architect / Principal Designer, and an inspection agency (which may be an ISO/IEC 17020 UKAS accredited third-party Passive Fire Protection Inspection Body) is essential to ensure passive fire protection is installed correctly before other parts of the building are constructed and fit-out takes place.

Summary

Early engagement in the fire design process with Specialist Fire Protection Contractors/Consultants and Manufacturers is critical to ensuring issues are identified and the correct specification and system design is achieved. This will ensure the legislative requirements and compliance of the project is achieved without needing expensive and time-consuming redesign or project specific fire testing.

Whilst the Principal Designer will not necessarily have the competence to determine the compliance of passive fire protection details, it is an essential part of the process that they engage fire specialists early in the design process to avoid issues at a later stage in construction.

Provision of information to the other contractors on site is needed so that all are aware of the importance of keeping to the design to ensure no additional costs or technical issues arise throughout the construction phase.

Collaborate on Design to Design Better, Build to the Design to Build Better, Record the Design & the Construction

Further information

Further information can be found on the ASFP website at www.asfp.org.uk.

Disclaimer

©2024 Association for Specialist Fire Protection – All Rights Reserved.

This publication and its content are the copyright of the Association for Specialist Fire Protection © (Company number 01292282) ("ASFP") 2024. ASFP is the owner or the licensee of all intellectual property rights in this publication, and in the material published in it. These works are protected by copyright laws and treaties around the world.

To view the full ASFP Copyright and Disclaimer statement(s), please view via the link: https://asfp.org.uk/resource/resmgr/documents/terms_and_conditions/disclaimer_and_copyright_sta.doc