WALLS AS A SYSTEM
DESIGN GUIDANCE FOR NON-LOADBEARING WALLS

This guide is the result of a collaboration between these not-for-profit associations:

ASDMA

dhf Raising Standards Advancing Safety

FIS FINISHES & INTERIORS SECTOR

GIRI Get It Right Initiative

GPDA Gypsum Products Development Association

Guild of Architectural Ironmongers

PFKG Passive Fire Knowledge Group

WALLS AS A SYSTEM
DESIGN GUIDANCE FOR NON-LOADBEARING WALLS

CONTENTS


The Haldane Room

FOREWORD

Buildings are a series of products and systems assembled into supersystems such as structure, roof, façade, M&E and fit out, yet the interface between these products, systems and supersystems can be designed in isolation without considering the compatibility of compliant test evidence.

This 'Walls as a System' guide looks in detail at where interfaces take place. It provides specific guidance on where designers should consider if the products, when installed with each other and through each other, do in fact have compatible evidence of compliance. It also introduces the long-overdue term fire wall to describe fire resistant walls in much the same way as fire doors, fire glass and fire stopping. Using fire walls puts an emphasis that the wall is doing more than delineating space, it is there to protect people and property alongside a raft of other performance parameters that might be required.

This is a complex area because we have generally accepted that product A with evidence of performance will be acceptable if put together with product B with similar evidence of performance. And yet, the granularity of that evidence might preclude them working as system. For example, with a compartment wall constructed from drylining, installed to the underside of a structural beam, there is a need to consider how that beam is protected from fire, how deflection is accommodated (to meet the guidance in Approved Document B (AD B)) and how the requirements for service penetrations, fire stopping, acoustic performance and thermal insulation will be compromised unless further interventions are planned.

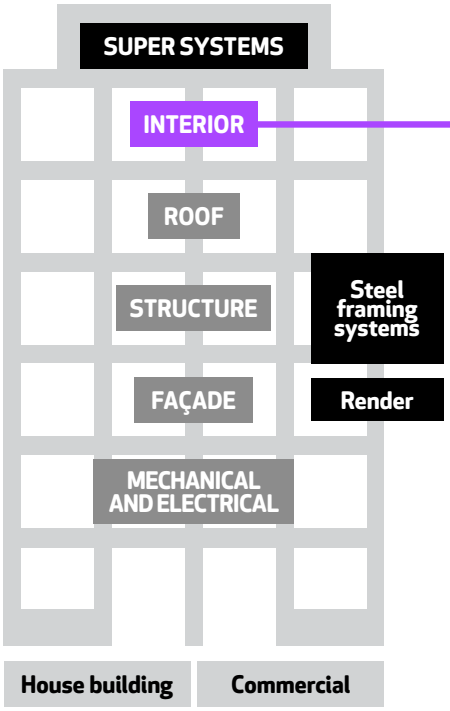
The key is early engagement with manufacturers and contractors to ensure that what is designed can be compliantly delivered, and to do we must establish a defined design development process.

This guide was produced with the help and collaboration of technical experts and a wider group of peer reviews to help inform, educate and ultimately to ensure all buildings are safe for us to work, play, sleep and enjoy.

JOE CILIA
FIS TECHNICAL DIRECTOR

INTRODUCTION

This guide is designed to encourage collaboration and coordination to ensure there is compatible compliant evidence where the drylining interfaces with doors, glazed partitioning, MEP, raised access floors and other systems such as the structure.



INTERIOR SYSTEMS			
Walls	**Ceilings**	**Flooring**	**Staircases**
Partitioning	Suspended	Raised access	Stairs
Masonry walls	Metal furring	Raised hollow	Balustrades
Drywalls	Acoustic baffles	Others	
Access panels	Chilled		
Doorsets	Stretched		
Operable walls	Discontinuous		
Surface finishes			
Penetration seals/ firestopping	**Penetrations, fixtures, fittings and interfaces: often overlooked in specifications and detailed with 'site solutions'.**		

In turn, components are made from a collection of products. It is important to determine seller of the product, and their level of responsibility. This should be represented in the design responsibility matrix.

Figure 1 Building systems, an introduction to interior super systems

SCOPE

Non-loadbearing drylining is tested imperforate but installed with perforations for service penetrations, glazing panels and door openings. This guide will consider the test standards for all of these elements and point out where further consideration is required at the design stage to ensure there is evidence of compliance and that there is compatibility of the evidence of compliance.

0.1 TARGET AUDIENCE

This guide is aimed at the following audiences:

Designers
- Architects
- Specifiers
- Consultants

Installers
- M&E contractors
- Contractors

Other specialists
- Fire engineers
- Manufacturers
- Principal designers
- Principal contractors (main contractors)
- Specialist penetration seal contractors

Inspectors
- Building control bodies (BCBs) and the building safety regulator
- Clerks of works
- Site managers
- Supervisors
- Competent persons
- Insurers

Fire and rescue authorities

Clients
- Owner occupiers
- Building owners
- Residents

0.2 STRUCTURE OF THE GUIDE

The main sections of this guide provide guidance on actions that should be carried out during each of the RIBA Plan of Works stages 1 to 6. These are illustrated here, with the exception of stage 0, which is not covered as no decisions relating to compartmentation are made at this stage.

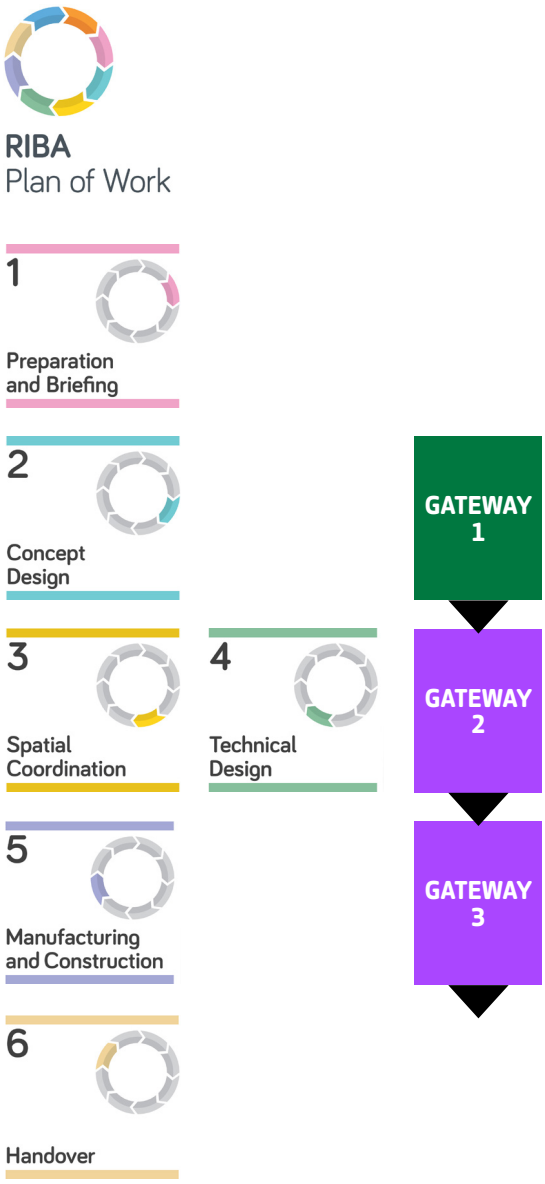


Figure 2 RIBA Plan of Work and associated gateway stages

0.3 RACI MODEL

Planning and communication is key in the success of any plan to reduce the risk of injury. To assist this, a project planning tool known as the RACI model is recommended:

EXAMPLE TASK
Installing the penetration seal

WHO IS RESPONSIBLE?

Who is or will be doing this task?

Who is assigned to work on this task?

Principle designer

WHO IS ACCOUNTABLE?

Whose head will roll if this goes wrong?

Who has the authority to make decisions?

WHO SHOULD BE CONSULTED?

Is there anyone who can tell me more about this task?

Are there any stakeholders already identified?

Product manufacturer
Designer
M&E consultant
Structural engineer

WHO NEEDS TO BE INFORMED?

Is there anyone whose work depends on this task?

Who has to be kept updated?

Principal contractor

KEY PERFORMANCE INDICATOR

Compliant specification and installation of all fire walls underpinned with a full documentary record including product certifications

0.4 TERMS AND DEFINITIONS

MEP
Mechanical, electrical and plumbing.

VOC
Volatile organic compounds.

CDM
Construction design and management
hse.gov.uk/construction/cdm/2015/index.htm

Fire wall
A barrier to the movement of fire and smoke from one side to the other as an essential part of a building's fire compartmentation strategy.

System owner
The organisation that assimilates the products into the system, provides the warranty and owns the performance test evidence.


HYTNE

1 PREPARATION AND BRIEFING

1.1 DESIGN PROCESS

The project team should start by developing a Defined Design Development Process clearly describing the responsibilities for the project in the context of duties and responsibilities enshrined in the Building Regulations and the Building Safety Act by creating a Design Responsibility Matrix (DRM).

The process that supports the creation and management of the DRM should be called the Design Development Process. As part of this, where suggested details (or vitally where detailed information is omitted or is listed as CDP) are proposed to fulfil the element of design, these are properly reviewed to ensure that a product solution is available that:

- Is appropriate to the circumstances of the building and building space it is designed to function within
- Is specified approximately to enable its prescribed usage and its regulated performance can be evidenced
- In the installed condition it is compatible with all interfacing products or fabric elements and fixing details
- Fits into the form or space for where it was intended
- Can be installed safely and access for future maintenance
- It can be procured/supplied in the timeframe.

Where a product is available that meets these six steps, it goes into the DRM as confirmed detail. Where it can't be determined against these six steps it should be recorded, as nominal detail.

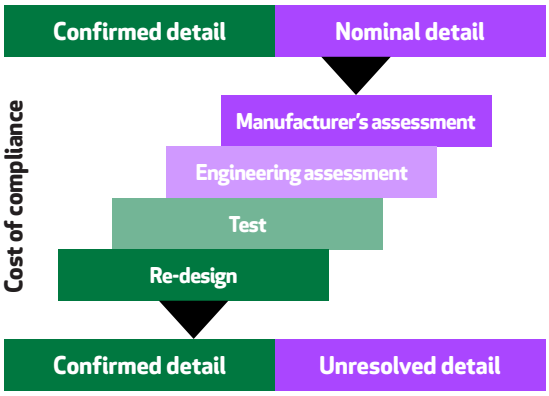


Figure 3 Developing details in a design context.

Moving through the six steps to a resolved detail or construction. To shift a 'nominal detail' to 'confirmed detail' status, we need a defined process for building the evidence (see figure 3).

The options are (to be agreed with the Building Control function):

1 Determine the scope of what the wall assembly or system of products need to meet
All products that don't have a fire or structural safety performance will still need to meet their appropriate Building Regulations. Products that have a fire performance must meet their functional specifications and their performance in fire.

2 Re-design
Design out the detail to ensure that the building is within the scope of existing test evidence.

3 Engage with manufacturers and suppliers
Speak to the product manufacturer with the descriptive requirements determined to see if there is any test evidence that is not currently in the public domain that will support the design.

4 Get an assessment

If no evidence is available, seek advice from a competent person, and/or by finding such a person at a UKAS accredited fire test laboratory, within the product area to see if a technical assessment is possible by a competent individual. Where the evidence is required for fire resistance or reaction performance seek advice from a competent person within the fire performance product area to see if a technical assessment is possible by using the PFPF Methodology 1.

5 Test it

Create a scope and test programme in line with the determination of what the product performances are and what was the required output from the formal assessment protocols within the engineering assessment.

THE PRINCIPAL DESIGNER

The primary role of the principal designer (Building Regulations) is to plan, manage and monitor the design before work starts on-site to ensure that the design complies with the Building Regulations. This can only be done by individuals or organisations with the required competency, skills and established management processes.

The following factors should be considered as early as possible:

- The buiding's use
- Fire stategy and layout and compartmentation
- Services layouts and penetrations
- Number and type of other eliments in the supporting construction
- Their configuration
- Minimum distances between elements/openings
- Future requirements.

All openings should be programmed ahead of the installation of interfacing passive fire protection systems and M&E services to ensure the compartment wall can be installed compliantly around the interfacing elements and above the services.

Number and type of other elements elements in the supporting construction.

- Fire resistance
- Reaction to fire
- Airborne sound insulation
- Robustness
- Sound absorption
- Air permeability
- Moisture resistance
- Health and hygiene requirements
- VOCs
- Flexibility.

1.2 COLLABORATION

For any scheme to be successful, there must be collaboration between all parties with adequate time allowed. This would include:

- Designers: principal designer, architect, structural engineer, building services engineer and specialists such as access consultants and fire engineering consultants
- Building control bodies
- Principal contractor
- Specialist manufacturers and installers
- M&E contractors
- Product manufacturers - penetration seals, drylining, glazed partitions, door sets, M&E services
- The building owner.

"For any scheme to be successful, there must be collaboration between all parties with adequate time allowed."

1.3 RESPONSIBILITY

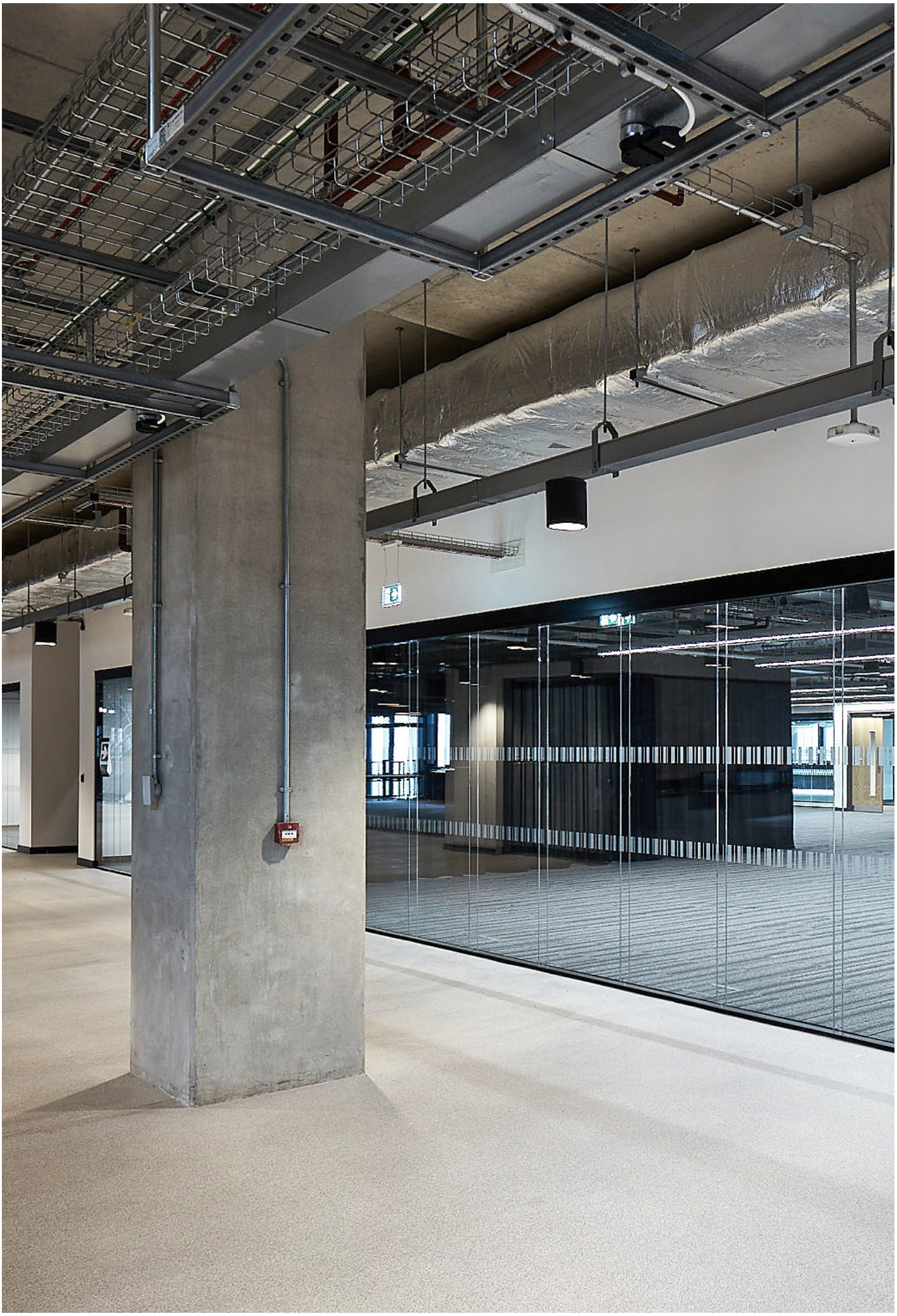
Everybody involved in provision of a fire protection package, at any level, shares liability for its effectiveness and performance when needed in a fire. For more detailed information, see the ASFP advice 'Fire and Your Legal Liability' asfp.org.uk/store/viewproduct.aspx?ID=19771236

Anybody making product decisions at any point should be aware that they are taking on a level of design responsibility and potentially a consequent liability. Under CDM and the Building Safety Act (BSA) a designer is an organisation or individual whose work involves preparing or modifying designs for construction projects, or arranging for, or instructing, others to do this.

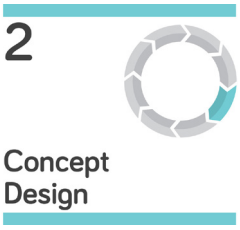
1.4 COMPETENCY

The Skills, Knowledge, Experience and Behaviour (SKEB) approach developed in response to the government's review of the Building Regulations will be used to evidence compliance by individuals and organisational competence. More information on competence is available at thefis.org/knowledge-hub/technical/fire-protection/building-safety-act/

The Passive Fire Protection Forum (PFPF) Guide to undertaking technical assessments of fire performance of construction products based on fire test evidence provides guidance on the competency requirements of assessors and reviewers carrying out technical assessments of fire performance based on test evidence. The guide recommends that the assessment is performed by an assessor with the appropriate level of expertise from the competency matrix of the relevant organisation.
asfp.org.uk/page/ASFPTechnicalDocuments?&hhsearchterms=%22pfpf%22



2 CONCEPT DESIGN



2.1 BUILDING FIRE STRATEGY

A fire strategy provides a clear set of measures encompassing fire precautions, management of fire safety and fire protection.

The common approach for producing a fire strategy is using Approved Document B Volume 1 (for dwellings) or Volume 2 (for non-dwellings) or BS 9991 and BS 9999 which offers an alternative approach to Approved Document B regulatory guidance, at a relatively higher level (before going to a full fire engineering evaluation ref BS 7974).

Approved Document B provides the basic guidance for compliance with Building Regulations concerning fire safety. However, it can be restrictive in some complex buildings.

Fire engineering using BS 7974-8 can offer flexibility and innovation to explore the various design solutions available within the project. A fire strategy, in conjunction with drawings and/or a digital model, should explicitly detail the type of fire safety facilities that are to be incorporated within the building, along with their respective specifications

The fire strategy will contain information on compartmentation and the requirements for any passive fire protection. This should include basic details of the requirements for the fire walls. If there is any doubt, the fire engineer should be consulted at the earliest opportunity. It is essential that designers, contractors and all those involved in a project read and understand the fire strategy document and/or fire strategy drawings.

Where a fire engineer is appointed as part of the design team, they become responsible for writing a fire strategy to comply with the Building Regulations.

Designers should ensure that a project complies with the current published guidance (eg Approved Document B, BS 9999 or BS 9991) and/or meets the functional objectives of Schedule 1 of the Building Regulations through the development of an alternative fire engineering approach. Information about Part B of the Building Regulations is available at assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/832633/Approved_Document_B__fire_safety__volume_2_-_2019_edition.pdf

Note: for the purposes of this document reference is made to the Approved Documents or other guidance in England. Designers working in the devolved nations should adhere to the guidance in the following documents:

- Scotland Technical Handbooks gov.scot/policies/building-standards/monitoring-improving-building-regulations/
- Wales Approved Documents gov.wales/building-regulations-approved-documents
- Northern Ireland Technical Booklets buildingcontrol-ni.com/regulations

Throughout the RIBA Plan of Work stages 2 and 6, a fire engineer should be retained to assist the design team, lessen the project fire risks and ensure successful coordination with the Building Control Body and fire authority throughout the rest of the project.

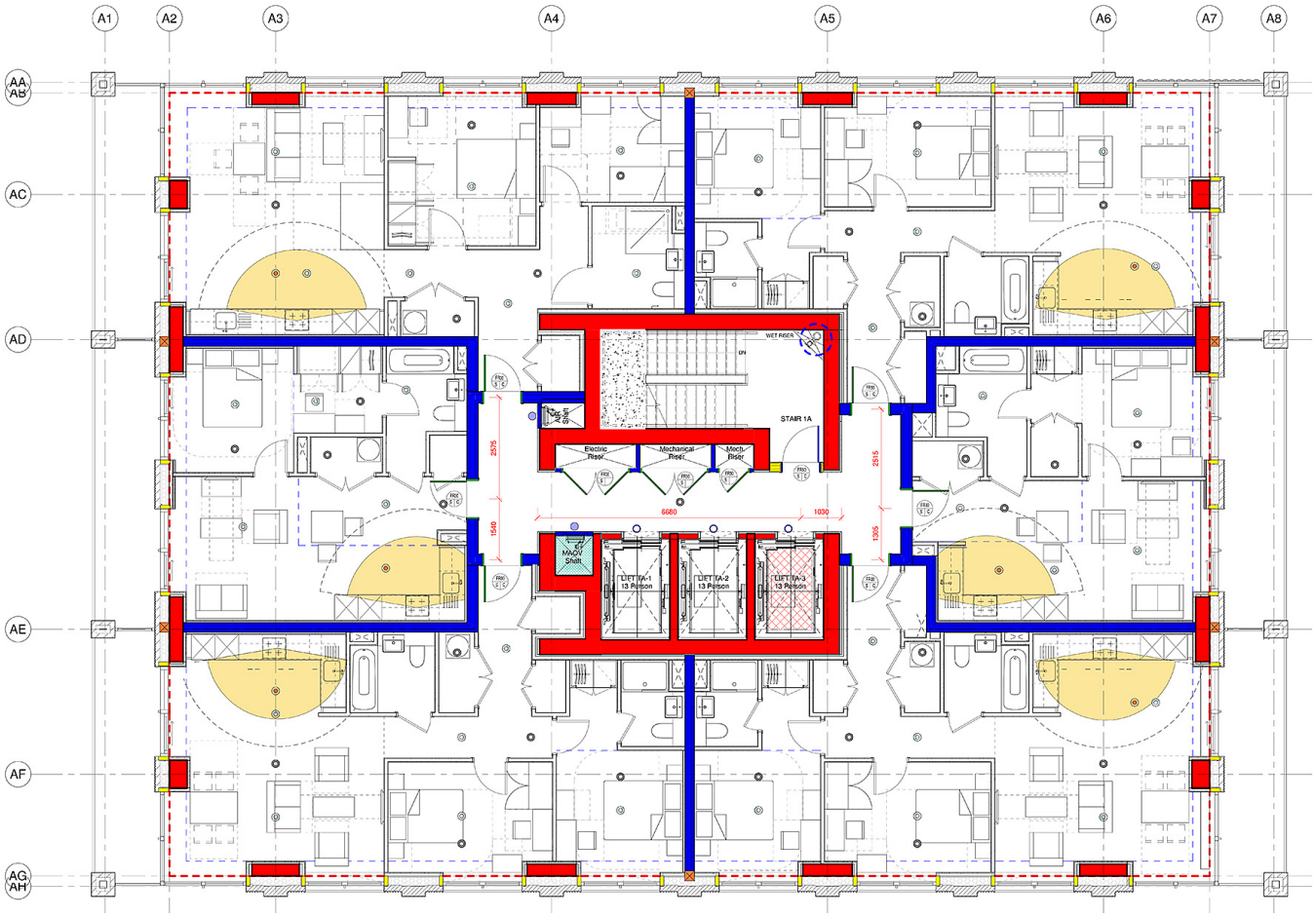


Figure 4 Typical fire strategy plan with coloured compartment walls illustrating the fire ratings required (image courtesy of Broadway Malyan)

2.2 COMPETENCY TO PREPARE A FIRE STRATEGY

It is vital that those entrusted to prepare a fire strategy have the necessary levels of competence to undertake the task professionally and thoroughly. The level of competency required will be commensurate with the expected complexity of the building to be assessed, but the person or team should have the following credentials:

- A good understanding of fire related aspects of premises and their function.
- An appropriate knowledge of fire legislation and the requirements of other enforcing bodies.
- Appropriate qualifications, training and/or experience in fire safety and fire protection issues.
- Knowledge of relevant national codes and past experience of their application.
- Where products and constructions are considered then an awareness of the characteristics of fire and the influences on the intensity of building fires is really important.

One way of validating competency is to ensure that those preparing the strategy or those approving the strategy are members of a relevant professional body at an appropriate level. For more detailed studies, the competent person or company may need to demonstrate ability to undertake complex fire modelling or evacuation analysis.

3 SPATIAL COORDINATION

STEP A: Will your layout be achievable with conventional walls and door systems (see table in Appendix A)?
If yes, proceed to RIBA Stage 4.
If no, consult manufacturers in RIBA Stage 3.

3.1 DESIGN PROCESS FOR FIRE WALLS

This section of the guide should be used for the design process of fire walls to comply with the Building Regulations.

To ensure the correct type of fire wall and any elements are specified and installed, key questions need to be addressed before final selection.

These include, but may not be limited to:

- What type of non-loadbearing supporting construction wall system is going to be used?
- Is the supporting construction wall under consideration going to be an external wall, compartment wall, protected shaft, enclosure, wall separating attached or integral garage, firefighting shaft, sub-division of a corridor or a flue wall as described in Table B3 of AD B vol 1 or 2?
  Page 126 here
  assets.publishing.service.gov.uk/media/639ae7e98fa8f5069839c7d7/Approved_Document_B_fire_safety_volume_1_-_Dwellings__2019_edition_incorporating_2020_and_2022_amendments.pdf
  Page 141 here
  assets.publishing.service.gov.uk/media/639ae876e90e0721839ea637/Approved_Document_B_fire_safety_volume_2_-_Buildings_other_than_dwellings__2019_edition_incorporating_2020_and_2022_amendments.pdf
- Does the wall need to provide fire resistance performance from one or both sides? (see Table B3 AD B 'Type of exposure' column).
- What fire resistance period does the supporting construction need to have?
- What are the maximum heights and widths of a specific supporting construction used on the project?
- What adjacent materials will the supporting construction wall system be fixed to?
- What fixings are needed and at what fixing centres?
- Are suspended ceilings and/or raised access floors intended to being used adjacent to the supporting construction wall, if so, how will they interact and be connected?
- What test standards are to be used to evidence the performance of the supporting construction wall system and any components fitted within it?
- Does building movement need to be accounted for in the design of the wall system eg deflection heads, expansion/movement joints?
- Is the supporting construction required to have a particular reaction to fire performance? Does this requirement also apply to any components due to be fitted within the supporting construction?
- Is the supporting construction required to have acoustic, impact, airtightness, water resistance or other performance properties? Does this requirement also apply to any components due to be fitted within the supporting construction?
- What components are due to be fitted within the supporting construction wall system eg glazing systems, fire/smoke doors, ducts/dampers, penetration seals, linear joint seals, partial penetrations such as electrical sockets and switches, other?


LEVESON

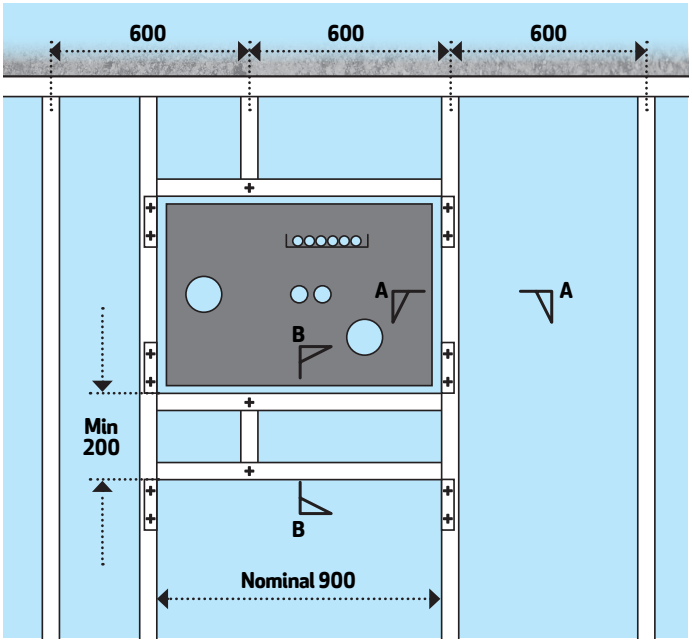


Figure 5 Opening for services above door

- What are the intended separation distances between apertures?
- Is the supporting construction wall system adequate to support the components due to be fitted within it?
- Does the supporting construction wall system need to be built with additional stiffeners, braces and/or additional materials used within the wall to support and provide a fixing medium for the components due to be fitted within it, such as timber infills to metal studs to support glazing systems or fire/smoke doors?
- Do any of the intended components require the supporting construction wall to be framed and lined during the construction?
- What size apertures are acceptable within the chosen supporting construction wall system?
- Does the wall system require additional measures to be included around apertures, such as lintels or additional studs, track, noggins within the framework?
- Do apertures need to be made oversize to accommodate components fitted within them such as glazed screens and fire/smoke doors and their back of frame installation firestopping materials?
- What thickness is the intended supporting construction wall and will glazing frames and door frames be made to suit the wall thickness or will they be fitted centrally or offset within the aperture reveal?
- Does the proposed wall construction include the correct type and number of facing boards to conform to the requirements of a supporting construction?
- Once built, will the wall be accessible from both sides?
- If access is restricted, will it be possible to adequately install and maintain the selected components within the wall?
- Does expansion allowance need to be included within the wall system and/or the component parts?
- Which aperture detail takes the lead in the design of the wall around apertures in the wall system - wall manufacturer or component part manufacturer? Who has design liability for the completed wall system?
- Does the proposed drywall system conform to the minimum requirements of a flexible supporting construction according to EN1363-1?
- Are you making provision for the correct construction around the glazing reveals?
- Where the construction of the drywall is required to be modified to accommodate glazing and/or other passive fire protection systems, are the warranties of the drywall system affected?
- Does your proposed glazing system have the correct supporting evidence to enable it to be supported by a flexible drywall construction?
- If the glazing system has evidence to suggest using flexible supporting constructions, does its field of application extend to the size of the proposed application?
- If the proposed design requires the base of the glazing system to be above the floor slab, for example as a window or a

screen supported by a drywall upstand, does the glazing system have supporting evidence that allows it?
- If you are proposing to use butt-jointed glazing of significant span within a drywall supporting construction, does the glazing system and the glass have the necessary supporting test evidence to enable this?
- Has a process been agreed to mitigate risks, define and accept a detail and assign design liabilities for the interface?

3.2 SUPPORTING CONSTRUCTION USING A FLEXIBLE WALL ; DRYLINING

Drylining and its installation tolerances are described within BS 8000-8 Workmanship on building sites - Code of practice for plasterboard partitions and drylinings.

Drylining construction can include walls, linings and ceilings and each will have different performance attributes: fire, robustness, acoustics, air permeability, moisture resistance, thermal conductivity and hygiene. Parameters may differ depending on the building's use and other requirements described in education and healthcare memoranda and standards.

Testing standards for performance may have been reviewed out of step, leading to gaps where products are designed but specified where the evidence may not be compatible. The relevant consultant along with the principal designer should define the performance requirements for the wall system and provide guidance where needed. (See Appendix C for further guidance on drylining.)

Approved Document B Building Regulation in England covering fire safety matters within and around buildings states that fire resistant walls should be classified in accordance with BS EN 13501-2. It also states that evidence of compliance can currently be demonstrated using test evidence from BS 476-22 (this will be removed from AD B in September 2029) and by assessment in accordance with the principals of BS EN 15725 with further guidance from the PFPF Guide to Undertaking Technical Assessments of the Fire Performance of Construction Products Based on Fire Test Evidence, using organisations or individuals who are able to demonstrate their competence.

Reaction to fire performance relies on the material used beneath the covering being the equal or better performance than the one used in the test; if the backing board was an A1 product the installation should be of equal performance.

Figure 6 Table 6.1 from Approved Document B

Table6.1 Classification of linings

Location	Classification
Small rooms of maximum internal floor area:	D-s3, d2
a. 4m^2 in residential accommodation	
b. 30m^2 in non-residential accommodation	
Other rooms (including garages)	C-s3, d2
Other circulation spaces	B-s3, d2[(1)]

NOTE:

1. Wallcoverings which conform to **BS EN 15102**, achieving at least class C-s3, d2 and bonded to a class A2-s3, d2 substrate, will also be acceptable.

EVIDENCE OF COMPLIANCE

Designers should request evidence of compliance for products and systems for the proposed application (including the covering tested on the proposed substrate), this can be in the form of supporting evidence from a fire test report and field of application assessment report or a third-party certificate. In each case the designer should request sight of full reports and not cover certificates.

However, primary tests may not provide the evidence required to demonstrate compliance with specific supporting wall types as the doors may have been tested using a type F plasterboards rather than a different type of board being specified for the walls, If this is the case, a field of application or specific assessment document produced in accordance with The Passive Fire Protection Forum (PFPF) Guide to undertaking technical assessments of fire performance of construction products based on fire test evidence, ideally based on the EXAP and or DIAP rules, should be consulted to detail how the door set or other element will work in certain wall detail. The test report does not cover this as it does not really consider beyond the test specimen.

Note: where we refer to drylining in future passages, please consider this to be non-loadbearing drylining. Caution should be exercised before proceeding with any installations within loadbearing partition or wall systems and further guidance from the projects principal designer, structural and fire engineers should be sought.

FIRE PERFORMANCE

There are only two terms used to describe a construction products fire performance, they are Fire Resistance and Reaction to Fire. Both have clear classification systems defined in separate standards that use data from a range of listed fire tests, and it is only these terms that should be used to describe product and system performance.

BS EN 13501 series of standards are not fire test standards, they are used to classify the results of appropriate tests listed in Clause 5 of the classification standard.

'**Fire resistance**' is the ability of a product to withstand the spread of fire from one side to another.

Standard supporting constructions for flexible wall constructions (drylining) are defined in BS EN 1363-1 and tested in accordance to BS EN 1364-1 Fire resistance tests for non-loadbearing elements and classified in accordance with EN 13501-2 Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services. There is a risk that the test evidence between other elements such as ducts and dampers may not be coordinated leading to non-compatibility of evidence after the installation.

Although type F boards are specified as part of a standard supporting construction and may have been used in testing items such as doors and dampers this may be missed when it comes to specifying the walls and ceilings on a project. This should be clarified and checked at the detailed design and specification stage to avoid a possible non compatibility between test evidence.

Care should be taken during the specification process to clearly describe the European classification required.

Products tested in accordance with BS EN 1364-1 yield results which are then classified in accordance with EN 13501-2 using E Integrity and I Insulation, where the performance figures in minutes are expressed E I.

The difference between National classes for fire resistance and classified systems using EN standards can lead to a non-compliant installation.

Estimators and buyers should be aware that the permissible method to determine fire performance may differ depending on the descriptions used in the tender documents. Getting this wrong could mean installation may be deemed non-compliant against the specification.

Although the BS EN 1364-1:2015 test and the BS 476: Part 22: 1987 tests have some similarities, and Approved Document B currently gives a parity between the two test methods this doesn't mean a parity of specification ie a 60-minute specification tested to BS 476 would not necessarily pass a 60-minute test to BS EN 1364-1, there are differences in the test standards and the major ones are:

- Plate thermocouples are specified in series tests which require more energy to be used early in the test
- The furnace pressure can be slightly more onerous (especially for timber fire doors in the BS EN 1634-1 tests)
- BS 476-22 makes no allowance for the partition height above its tested evidence (see Appendix A page 46)
- BS 476-22 has no field of direct application or EXAP, so what is tested should be what is built in practice without modification, unless assessments using test evidence in accordance with the PFPF guidance are carried out by a competent person as described in the guide
- BS 476-22 has no allowance to extend the height from what was tested, so what is tested should be what is built in practice without modification, unless assessments using test evidence in accordance with the PFPF guidance are carried out by a competent person as described in the PFPF guidance.

When testing using BS EN 1364-1, system manufacturers have had to develop different detailing so that the specimen will pass the test.

Designers and contractors should always check the full test report and/or relevant and applicable third party certification and performance class, or classification is required at the costing, scheduling and material ordering stage and that this information is clearly communicated with the site to ensure a compliant build and avoid costly disputes and remediation.

Doors and glazing tested using BS 476 and BS EN 1634 series will have further considerations between the tests that should be noted in the design process to ensure compatibility.

BS EN 1364 fire resistance tests are used to measure the ability of a non-loadbearing wall system to resist the spread of fire from one side to another.

Test results to BS EN 1364 are classified in accordance with the categories provided in BS EN 13501-2.

In the case of a non-loadbearing wall a test will be conducted in accordance with BS EN 1364-1 and the results classified using BS EN 13501-2 Fire classification of construction products and building elements. Classification using data from fire resistance and/or smoke control tests, excluding ventilation services.

Figures 7 Glazed partition in a supporting construction during testing, where the intumescent interlayer has reacted to provide thermal insulation

Drylining systems are classified using the following performance characteristics:

R Loadbearing capacity (in relation to this guide it only applies to loadbearing light gauge steel framed systems (SFS))

E Integrity

I Thermal insulation.

REI classifications are expressed in minutes eg REI 60. In the case of non-loadbearing walls only the E and I or E classifications are used eg EI30.

'**Reaction to fire**' is the measurement of how a material will behave when exposed to heat and fire. The reaction to fire classification is the measurement of how a material will contribute to the fire being able to develop.

BS EN 13501-1 Fire classification of construction products and building elements. Classification using data from reaction to fire tests - this standard defines a procedure for the classification of reaction to fire of construction products, based on test procedures carried out in accordance with clause 5.

There are seven reactions to fire classifications levels available. The reaction to fire classification determines how much (if any) a material contributes to growth of the fire and the spread of flame:

A1, A2 Non-combustible materials

B, C, D Ranges from very limited to medium contribution to fire

E, F High contribution to fire or no performance declared (NPD).

The 's' index relates to total smoke propagation during the first 10 minutes of exposure. In accordance with the procedure of the single burning item (SBI) reaction to fire tests BS EN 13823:2020.

These determine a 'smoke' index:

s1 A little or no smoke

s2 Quite a lot of smoke

s3 Substantial smoke NPD or not complying with s1 or s2.

The 'd' part relates to 'flaming droplets and particles' during the first 10 minutes of exposure. The index is:

d0 None

d1 Some, but none lasting longer than 10 seconds

d2 Quite a lot, NPD, or if the product (a) does not comply with the d0 and d1 classification criteria or (b) ignites the paper in the ignitability test (BS EN ISO 11925-2).

Table 4.1 in AD B1 Residential dwellings and table 6.1 in AD B2 non-residential buildings are identical and specify the classification of surface linings and walls and ceilings.

Figure 8 Fire reaction key to types

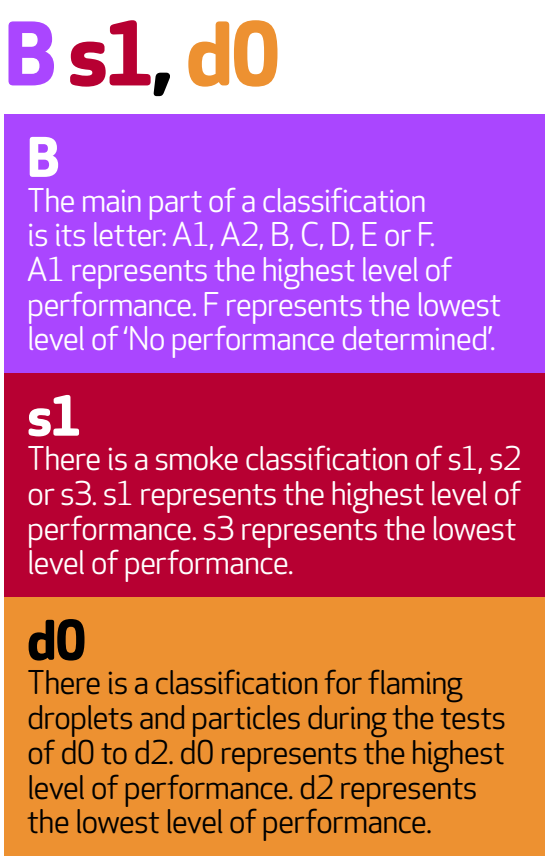


Figure 9 Fire resistant glazed side light and door in a supporting construction

3.3 GLAZED PARTITIONS AND DOORS

Non-loadbearing fire resistant glazed partitions are usually tested within a rigid supporting construction of high or low density concrete, blockwork, autoclaved blockwork or fixed directly to the concrete surround of the test frame, yet are often installed to the underside of a drop bulkhead, which may have service penetrations, and designers may need to consider live deflection as well as protection from falling (guarding) and robustness in the final design.

This section will consider the test standards for all these elements and point out where there may be contradictions or further consideration required at the design stage to ensure there is evidence of compliance and that there is compatibility of the evidence of compliance.

Glazed partition systems are described in the FIS Specifiers Guide for Partitioning
thefis.org/membership-hub/publications/specifiers-guides/partitioning/

The construction of glazed fire-resistant partitioning may require a number of performance attributes: fire, robustness, acoustics, air permeability, protection from falling (guarding), and the performance parameters may differ depending on the buildings use and other requirements described in education and healthcare memorandum and standards.

INTEGRITY ONLY FIRE-RESISTANT GLAZED PARTITIONS

Glazed fire screens are available as an integrity only or integrity and insulation.

The two performance parameters should not be conflated where insulated glass is installed in non-insulated frames, for example where butt jointed glass is used to help with stability of the system during a test. See Understanding the insulation criteria for fire resistant glazed partitions systems
thefis.org/knowledge-hub/technical/fis-technical-notes-industry-alerts/

Further guidance on glazed partitions can be found in Appendix C.

GUARDING

- All glass installed in a guarding situation should conform to the requirements within Approved Document K and BS 6180 and Eurocode EN 1991-1-1 and EN 1990 - Eurocode - Basis of structural design
- The designers should ensure that the whole system including the deflection head and the bulkhead have evidence of compliance
- See FIS Technical note on Guarding with Frameless Glass Partitioning
  thefis.org/wp-content/uploads/2019/12/Guarding-with-frameless-glass-partitioning.pdf

Other building regulations in England that should be considered within the design process:

- Approved Document K Protection from falling

- Approved Document M Access into and around a building, which includes a requirement to manifest the glass. This should be considered alongside the requirements for reaction to Fire as stated in AD B which may be more onerous on non-insulated glass.

In addition, regional regulations, approved documents, technical guidance hand booklets, memorandums and notes should be considered depending on use, category and location.

All design proposals for fire resistant glazing applications, with and without integral doors, should be checked for suitability against the supporting fire test evidence and its Field of Direct Application (DIAP). Where the evidence is not directly suitable, Extended Application (EXAP) and Field of Application (FOA) reports should be checked. Where these are not available, check any available Assessment of Field of Application reports from an authoritative source for suitability. These will include members of the Passive Fire Protection Forum (PFPF).

FOA reports are often difficult to interpret, particularly with regard to the supporting construction which is permitted. Often, the referenced evidence of flexible or other non-rigid supporting construction (see EN 1363-1) is of a limited or small application which is not applicable to the wider field of application of the assessed glazing system. Specifiers and manufacturers should thoroughly investigate the field of application of the allowable supporting constructions, and the referenced supporting evidence behind it, to verify that they meet the requirements of the intended application.

Where there is no supporting evidence for the intended application, designers and manufacturers should consider a project-specific assessment from an authoritative source. Assessments are required to be based on the EXAP principals in EN 15725 and to satisfy the principals in the PFPF Guide to Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence based on applicable and relevant BS 476 Part 22 test. This will require a detailed understanding of the available fire test evidence to ensure that it fits the requirements of the assessing organisation.

Note: any assessment is written for a specific project, it is not transferable and is subject to withdrawal if fresh information comes to light.

3.4 SMOKE SHAFTS

Gypsum-based systems are used in the construction of smoke shafts for mechanically ventilated systems in some high-rise buildings.

Gypsum-based systems are typically tested for fire resistance, sound insulation, air permeability and robustness. These tests do not replicate the pressure differential conditions or measure leakage at ambient or elevated temperatures which may be required for this application and any specific requirement to meet performance in accordance with BS EN1366-8, and where the shaft is classified to BS EN 13501-4 or elevated negative air pressures are referenced this should be clarified by the principal designer and/or engineering services designers and manufacturers consulted.

4 TECHNICAL DESIGN

4.1 SPECIFICATION

The most common methods used by designers for the selection and specification of partition walls are noted below. Collaboration and communication are key to a compliant specification, and it should be noted that any changes made to the specification at any stage will turn whoever makes those changes into the designer.

Key points to consider when writing a specification:

- Talk to the manufacturer
- Performance is king (fire, acoustics etc)
- Consider the interface with other elements
- Understand the use, now and in the future
- Understand the budget
- Understand the feasibility of construction to ensure a safe installation aligned to the programme and site conditions
- Understand the vision and client aspiration
- Ensure the performance and workmanship requirements and standards are clearly included
- Understand the implications of maintenance
- Understand the environmental implications and what will happen at end of life
- Do not fear specifying new products.

A good specification should be developed with competent people from:

- Manufacturers/suppliers
- Architect or designer
- Specialist installer
- Fire engineer
- M&E consultants.

The specification should include (the following list is not exhaustive):

- Product name and reference
- Detail references
- Performance requirements and supporting evidence
- Field of application
- Structural performance
- Environmental conditions
- Movement accommodation
- Substrate specification
- Sample mock-ups and quality benchmarks
- Tolerances
- Thermal performance
- Humidity
- Air permeability
- Acoustic performance
- Life expectancy and durability
- Third-party certification
- Colour
- Manufacturers' details
- Special instructions
- Fixings and fasteners to the structure
- Protection from damage during construction phase
- Installation requirements (third-party certified installers)
- Inspection and preparation.

STEP B: Fire resistance of curved and high bay partitions

CURVED PARTITIONS

There is no standard fire resistance test for a curved wall construction.

Any designs for a curved fire-resistant partition should be discussed with the designer and the manufacturers of the supporting construction, door assembly and penetration seal system owners before an ad hoc test is carried out and a specification is produced.

HIGH BAY

When planning a 'high bay' partitioning in a warehouse or similar a structural engineer, fire engineer and system owner should be consulted on the head detail, the deflection requirements, the requirement to install an umbrella detail and any proposed fixing, especially to a purlin which are not designed to accommodate the imposed load of a partition especially where it may be subjected to a wind load which should be considered during the design and prior to the specification being written. FIS has more guidance in Appendix C.

STEP C: Fire resistance of a door set in the desired wall

DOORS AND DOOR ASSEMBLIES IN DRYLINING PARTITIONING AND DOORS IN FIRE RESISTANT WALLS

Fire doors of all types are customarily tested in a number of defined standard constructions which can be rigid (high- or low- density blockwork) or flexible. Where the proposed construction does not fit those standard constructions then particular non-standard constructions can also be tested.

The designer should be satisfied that the test evidence is compatible with the intended installation and supporting construction.

Coordination between the door set manufacturer and the drylining supplier should take place early in the design process to ensure there is compatibility between the test evidence and the systems being considered.

Figure 10 Flexible fire resistant double door set in a flexible supporting construction

Where an installation is required at the junction between a fire-resistant rigid construction and a non-fire resistant flexible construction, eg drylining, the designer should ensure that the positioning of the fire resistant door assembly is consistent with its fire test evidence.

A door fire rating will be limited to the fire rating of the wall if the wall is of a lower fire rating.

Fire resistant door sets (door leaf, frame, ironmongery, door seals and the seal between the door frame and the surrounding structure), can include timber, glass, steel and composite constructions. Where a door leaf is asymmetric in construction, it should have been tested both opening into and outwards from the furnace face, this is particularly a requirement of composite doors (often used as doors to flat entrances) and steel riser doors to comply with the guidance in approved document B.

Door sets/assemblies (the door leaf, frame and ironmongery) should be tested from both directions unless proven to be symmetrical as described in BS EN 1634-1 and table 2. The fire resistance of doors is often tested in a defined standard wall type A, B or C, (see table 1 in BS EN 1363-1 in annex 1 below) ie single or two layers of board either side of a galvanised stud, but riser doors might be installed in an asymmetric construction (shaftwall) or twin wall constructions which currently fall outside of the scope of the standard construction of a flexible wall in the test standard, therefore ad-hoc bi directional test evidence is required.

Standard timber inserts C16 (grounds) are often required as part of the build-up. This is to allow the doors and frames to be installed by carpenters using wood screws. The test evidence and door manufacturers installation instructions should be used to specify the type and size of the screws and any timber ground to ensure there is evidence of compliance.

Note: timber may also be required at the head of the frame as well as the sides.

Because timber, aluminium and steel will react differently during a test, they are not interchangeable without test evidence; for example, a steel or aluminium frame should not be used where the door only has test evidence in a timber frame. This is also the case with ironmongery, for example concealed hinges and closers, and only configurations with primary test evidence or EXAP's (or assessments based on test evidence from BS476-22 or BS EN 1634-1) should be specified.

Some configurations of ironmongery can make the doors asymmetric meaning they should have test evidence of being tested from both faces.

Air transfer grilles (ATG) should be tested in the specified door assembly and ideally installed by the door manufacturer to ensure a compliant installation, although they may be installed on site but strictly to the ATG manufacturer's instructions.

Doors are typically tested in a 3m x 3m opening which means that doors greater than 2800mm either require evidence using an Extended Field of Application based on performance overrun or testing at laboratories with taller furnace heights, or using an assessment using test evidence as described in PFPF guidance firesectorfederation.co.uk/wp-content/uploads/2021/02/Guide-to-Undertaking-Technical-Assessments-of-the-Fire-Performance-of-Construction-Products-Based-on-Fire-Test-Evidence-2021-1-2.pdf

The test standard BS EN 1634-1 stipulates that there should be a minimum 200mm infill above the doors, a minimum of 200mm between the frame and the furnace frame and a minimum of 300mm between doors, so the position and proximity of door openings in the drylining may be limited to what is tested and defined by the drylining system owner, which may limit the design of the layout and setting out of the partitions.

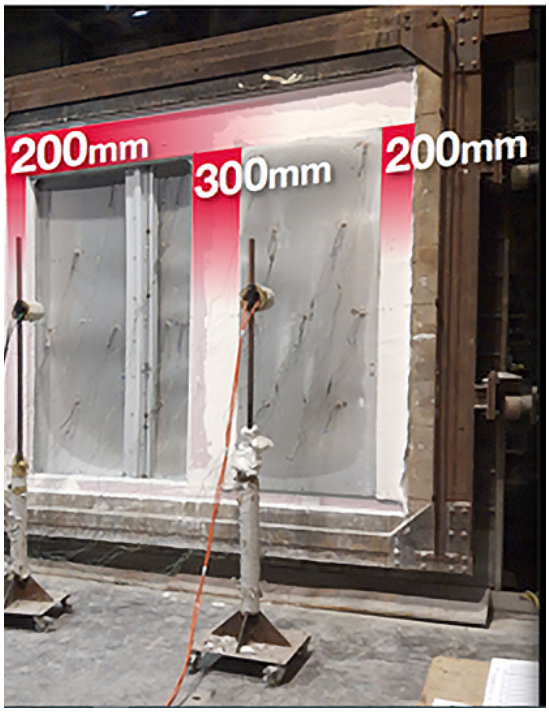


Figure 11 Proximity of openings as defined in BS EN 1634-1

Note: this is not application guidance but guidance in the test standard to ensure separation between different elements in the test to avoid a boundary effect, any deviation to this should be designed in consultation with the door manufacturers and the system owners for the drylining.

BS EN 16034 describes the requirements for fire and/or smoke resistant door leaves and BS 8214 is guidance and recommendations for the specification, installation and maintenance of timber-based fire doors (up to two hours fire resistance), covering fire door assemblies and door leaves; door sets, which are defined under EN standards to be the complete door in its entirety for installation, including the frame and all components, from a single source.

The style and type of door frame will impact performance, ie with or without architraves, wrap round frames and timber or metal.

It should be noted that:

- Careful consideration is required where asymmetrical walls (shaftwall) type systems form the supporting construction to ensure that the proposed door assembly has been tested in the supporting construction proposed on the installation.
- Where design for security is a consideration the sizes of the screws and additional measures may be required in the build up and specification of the supporting construction, it is important to ensure that any considerations in the supporting construction to satisfy the security classification do not compromise the construction required to comply with its fire resistance evidence.
- Only door hardware tested as part of the door set to EN 1634-1, BS 476-22 or specifically referenced in an EXAP report, are covered by the primary fire test evidence. Any changes or the inclusion of additional, secondary hardware should be the subject of a third party assessment based on relevant fire test evidence. Door hardware which has been the subject of a fire test on any other door type will not be directly applicable to its use on a fully glazed metal framed door.
- Valid and applicable test evidence should come from formal test reports which have been validated and signed by a representative from the responsible test body, indicative tests should not be used.

DOORS IN ASYMMETRIC WALLS (SHAFTWALLS)

Fire test reports define that the rear of the frame shall be fully protected by the supporting construction which may be an issue where doors and frames are installed in shaftwall.

Asymmetrical constructions (shaftwalls) fall outside of a standard construction, and caution should be exercised when considering service/riser door test evidence that the doors and penetration seals being considered have the appropriate test evidence on a non-symmetrical wall. Riser doors installed in asymmetrical shaftwall constructions can be installed in either three or four-sided openings. Test evidence should align with the design intent.

THRESHOLDS

Where door assemblies are tested in three sided openings the threshold in the test will be non-combustible. Where the door is to be installed in a carpeted area designers should consult with the design team and the manufacturers as it may require a non-combustible threshold strip under the door leaf to a minimum specified width and thickness according to the door manufacturers test evidence. This is to reduce the risk of flaming longer than 10 seconds which would lead to an integrity

Figure 11Fire resistant riser doors installed in a flexible supporting construction

failure during a test in accordance with BS EN 1634-1 or BS 476-22.

Where fire doors are installed the integrity of the compartment through and under the floor should be maintained (see page 33 - supporting construction.)

DOOR WEIGHTS

BS5234 Partitions (including matching linings) - Specification for performance requirements for strength and robustness including methods of test, includes a door slam test where the weight of the doors is defined at either 35kg or 60kg and the door size is defined as 900 mm wide x 2100 mm high. This can be challenging when considering doors above 60kg and wider than 900 mm as part of the design, so the mass and size of the proposed doors should be considered early in the design and specification process. The increased width of a door could increase the load on the supporting construction by a ratio of 50% of the door and this should be discussed with the manufacturer of the supporting construction early in the design process.

Coordination between the supporting construction and door frame to accommodate heavier doors should be carefully considered during the design stage, which may require ad hoc testing to avoid late unplanned interventions such as steel goalposts which may in turn require separate fire protection measures. Steel goalposts may also be used to additionally support the flexible walls where they are compromised with apertures that exceed the fire wall manufacturers' recommendations.

These details are largely avoidable by careful coordination between the flexible wall manufacturers, M&E consultants, fire stopping manufacturers and door suppliers. This may require careful planning of the service runs to avoid additional steelwork.

LINEAR GAP SEALS AROUND DOOR OPENINGS

To ensure the gap between the supporting construction and the back of the door frame is sealed to inhibit the passage of fire and or cold smoke, the gap should be sealed with a linear seal using a fully tested solution.

Typically described as fire resistant mineral (stone) fibre/intumescent mastics/reactive sealants, they should be CE/UKCA marked and the parameters under which they can be used (depth and width) should be checked at the specification stage and may be third party certified. These should be tested in accordance with BS EN 1363-1, BS EN 1634-1, BS476-20-22 or BS EN 1366 -4 for the required period of fire resistance.

It is recommended that linear gap seals should be specified in accordance with the fire door assembly manufacturers test evidence and installation instructions in the same way as the ironmongery to avoid the risk that inappropriate substitution of components may negate any test evidence.

Where a door manufacturer operates under a third party certification scheme, their guidance for use of appropriate linear gap sealants should be sought and followed.

Robust solutions for sealing the frame to wall junction gap are also available in tables 2-5 from BS 8214.

SHADOW LINE DETAILS

Any changes to a system such as shadow line details at door frames and skirting generally will require an additional sacrificial layer of plasterboard over and above the required layers of boards to achieve and maintain the fire and acoustic performance of the partition. In all cases any changes should be checked with the system owner before specifying.

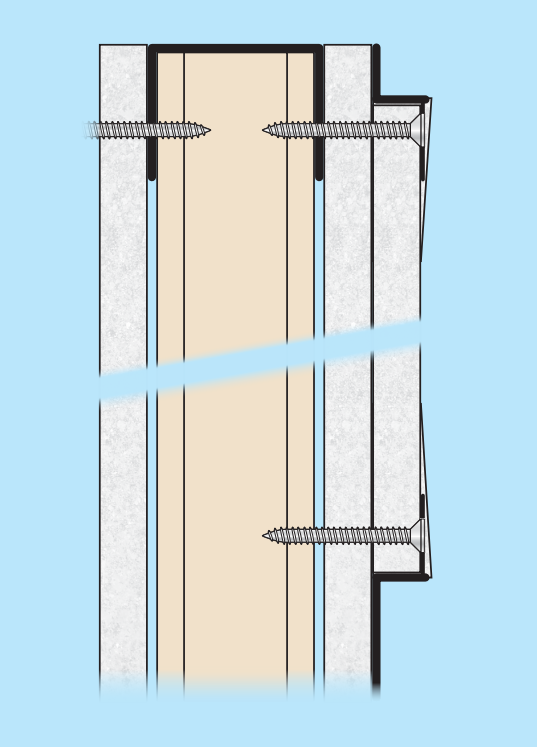
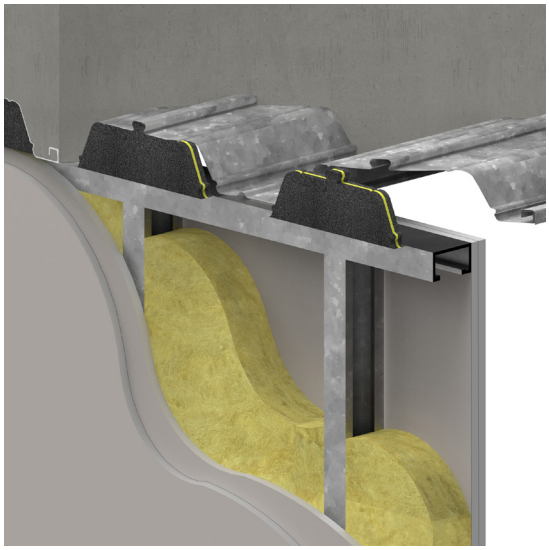


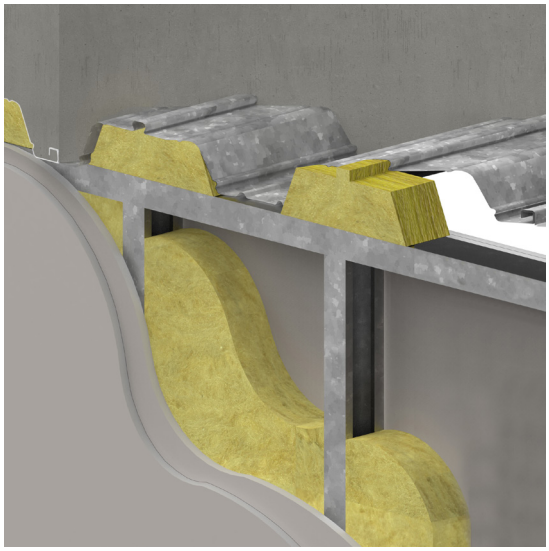
Figure 12 Shadow line detail showing sacrificial layer of plasterboard

INTERFACE WITH RIBBED METAL DECKS

Where the fire wall interfaces with ribbed metal deck profiles a robust method of infilling the variety of apertures left above the line if the drylining system should be considered alongside the detail of the fire wall to maintain performance, specifically, fire resistance, airborne acoustic insulation and air permeability.



Figures 13 Firestopping above a flexible construction under a profiled deck



Figures 14 Airborne sound insulation above a flexible construction under a profiled deck

DOORS AND DOOR ASSEMBLIES IN FIRE RESISTANT GLAZED PARTITIONING

The fire resistance of doors, where tested to EN 1634-1, is normally proven using the supporting constructions defined in EN 1363-1. Where fire doors are to be used in a glazed partition of the same construction (an associated supporting construction), they should be tested using the method described in EN 1634-1 where free edges are used on both vertical edges.

Where door sets are tested to EN 1634-1 in a 3x3m furnace, they will be limited by the requirement for a supporting construction above the door, so their maximum height may be determined using the DIAP. Door sets requiring fixed top lights will be further restricted unless they are tested in a larger furnace with a greater height.

The test standard EN 1634-1, stipulates that there should be a minimum 200mm supporting construction above the doors and a minimum of 200mm between the frame and the furnace frame and a minimum of 200mm between specimens for a rigid supporting construction, 300mm between specimens for a flexible supporting construction, so the position and proximity of door openings in the glazed partitions may be limited to what is stated in the test standards and defined by the system owner. Any variances to these minimum dimensions should be agreed by all relevant consultands with a competent person in consultation with the system owner.

STEP D: Consider junctions and detailing which standards may limit or are not covered by test standards and require design judgment.

SUPPORTING CONSTRUCTION

Where raised access floors exist, they should be terminated either side of the upstand, unless there is test evidence to support the proposed detail.

The glazed partitions will be tested in a test rig comprising of steel frame lined with concrete, and deviation to this on site should be assessed to ensure there is test evidence for the detail being considered. This might include test evidence of the floor or raised floor or suitable evidence of other supporting constructions.

The supporting constructions should be capable of carrying the load of the partition and any dynamic loads, and should be designed by a competent engineer, in consultation with the fire engineer and the glazed fire screen manufacturers test evidence.

Designers should consider constructing the upstand at the raised access floor level from blockwork.

See CROSS Safety Report Supporting constructions under fire doors and screens Report ID: 1181 Published: 24 May 2023
cross-safety.org/uk/safety-information/cross-safety-report/supporting-constructions-under-fire-doors-and-screens-1181

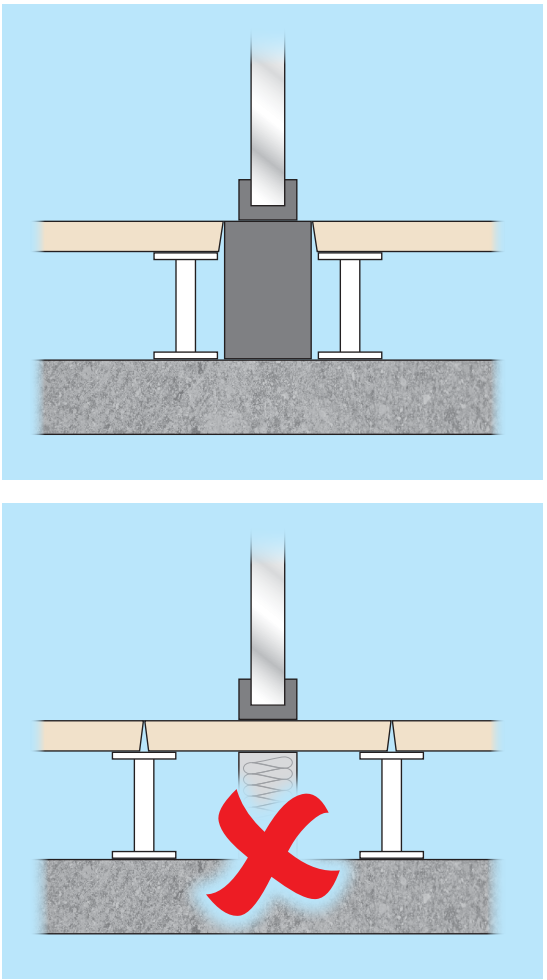


Figure 15 Limitations - nature and extent of the tested supporting construction. A supporting construction that conforms to the definitions in EN 1363-1, and is proven by fire test, should be used with raised access floor broken either side. Unless supported by relevant fire test evidence, a raised access floor with a fire stop beneath does not satisfy that requirement.

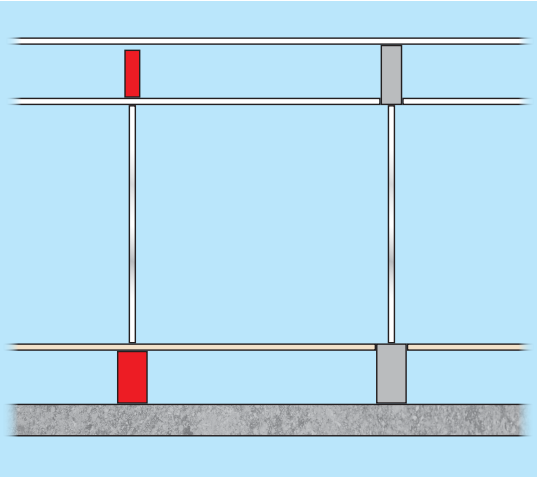


Figure 16 Glazed fire screens should be installed through any ceiling and raised floor to a suitable supporting construction capable of accommodating the weight of the glazed partition and any traffic that might pass through any openings.

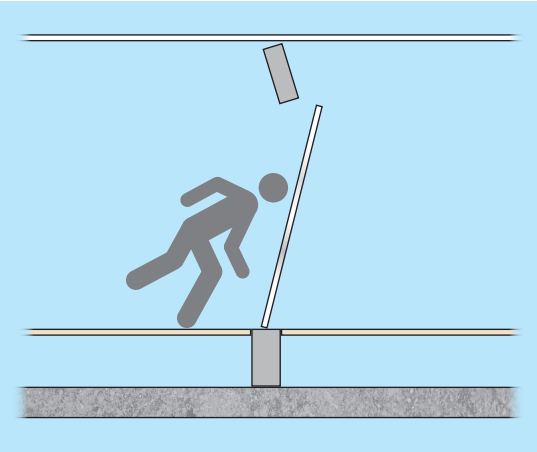


Figure 17 Any drop bulkhead should be capable of supporting any defined load on the glazed partition.

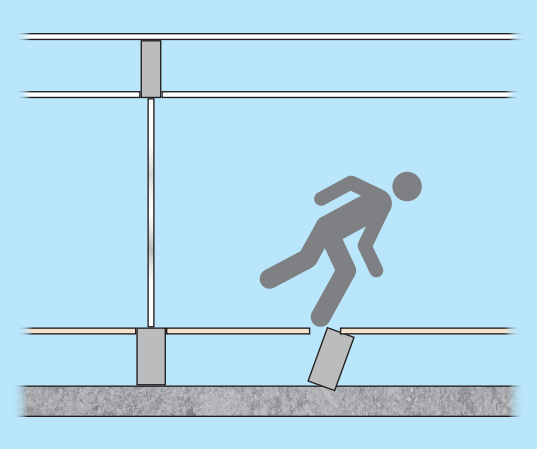


Figure 18 Any supporting construction below the floor level should be capable of supporting the load of the glazed screen and any traffic through the openings.

DROP BULKHEADS

- Where designs require a drop bulkhead to be installed to infill the void above a glazed partition where suspended ceilings are present then safety/ robustness and extended lengths should be considered.
- Supporting constructions are defined in BS EN 1363-1.
- Where the fire test evidence is from the system suppliers of the drylining. Designers should check that the extended field of application covers the proposed detail.
- Glazed partitions should be tested using the test requirements described BS EN 1364-1 2015 Fire resistance tests for non-loadbearing walls, which also describes the overhead supporting construction having a free edge.

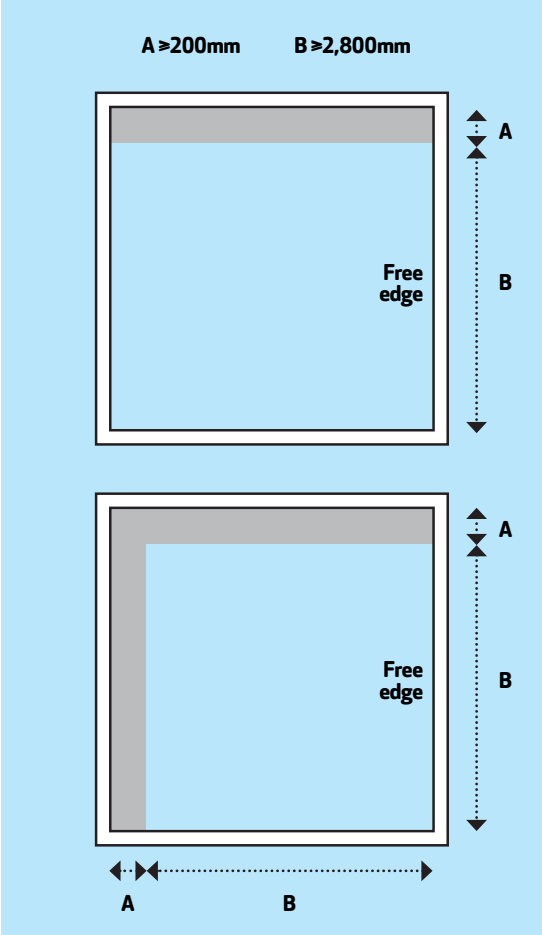


Figure 19 Standard supporting construction and free edge

- The designer should satisfy themselves that the supporting construction including the drop bulkhead is fit for purpose of meeting the fire performance requirements and capable of accommodating the load applied to it.
- Test evidence for bulkheads without a free end will be limited to a maximum width that the glazed partition can be installed based on the DIAP and Field of Application report (FOA) which limits the width to +20% wider than the tested bulkhead width or unlimited if a free end is used.
- The free edge is also required in any fire test evidence to allow the width of the partition to go beyond the tested size (currently 3m or 4m in the UK).
- Where a free edge is used on the bulkhead in the test, the maximum depth of the bulkhead in practice must conform to the DIAP for the partition type being supported, meaning a maximum height extension of 20% for a bulkhead above a glazed partition. Where a free edge is not used, the maximum depth of the bulkhead must be that which can reasonably be supported within the general flexible wall construction. Guidance should be sought from the drywall system manufacturer.
- The bulkhead or the glazed partition should allow for the live load deflection or the fire state deflection requirement in Approved Document B. Where the deflection is accommodated either at the head of the glazed partition or the head of the bulkhead, careful consideration is required to ensure all systems can accommodate any deflection requirements in tandem.
- The bulkhead should always be designed to satisfy the prevailing static and dynamic load requirements while also conforming, as a minimum, to the tested details from the fire resistance test and be capable of carrying all applied lateral loads incurred when BS 6180 and or Eurocode EN 1991-1 criteria is required, and evidence of such provided to the satisfaction of the Building Control Authority.
- All drop bulkheads and dwarf wall structures should be capable of supporting the glazed partitions and the wind/crowd load that may be applied in use and meet the robustness requirements of BS 5234 and form part of a compliant assembly to meet the fire-resistant requirements, which may require additional structural elements to provide the required bracing.
- Any accompanying fire resistance supporting evidence and the field of application should include details of the, supporting construction, glazed assembly interfaces, intersections and fixings in order for the Principal Designer and the building control authority to evaluate the proposal as compliant.

THERMAL DISTORTION OF THE STEEL FRAME IN A FIRE STATE

Where a deflection head is proposed and the glass is butt jointed, designers should consider the thermal expansion of the steel frame in the event of a fire.

Note: in a fire state the steel elements in the glazed system will distort, this is addressed in the test by including a free edge. This free edge can take up to 50mm expansion of the steel during a test, however in practice the deflection head is installed hard between two supportingconstructions meaning that in the case of a fire the head has nowhere to expand which may result in the glass being uncovered at the midpoint as the frame expands upwards (see figure20).

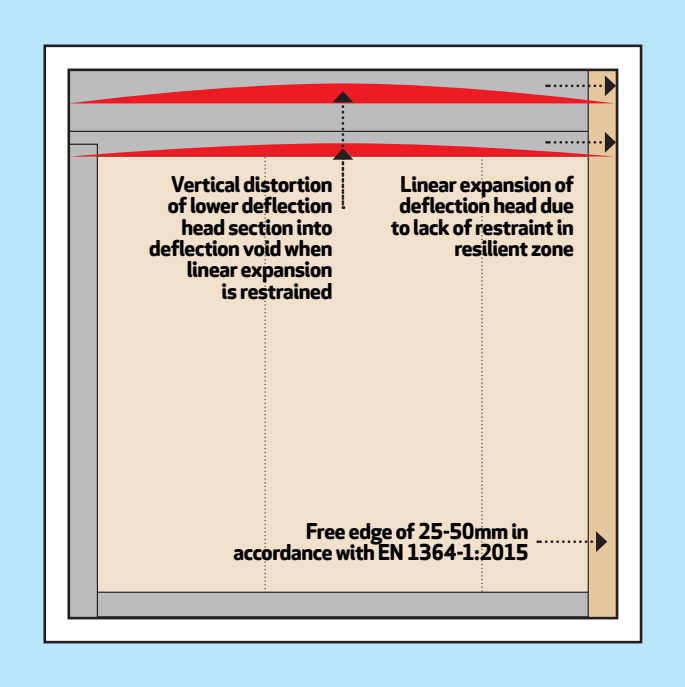


Figure 20 Expansion/distortion of deflection head with free edge

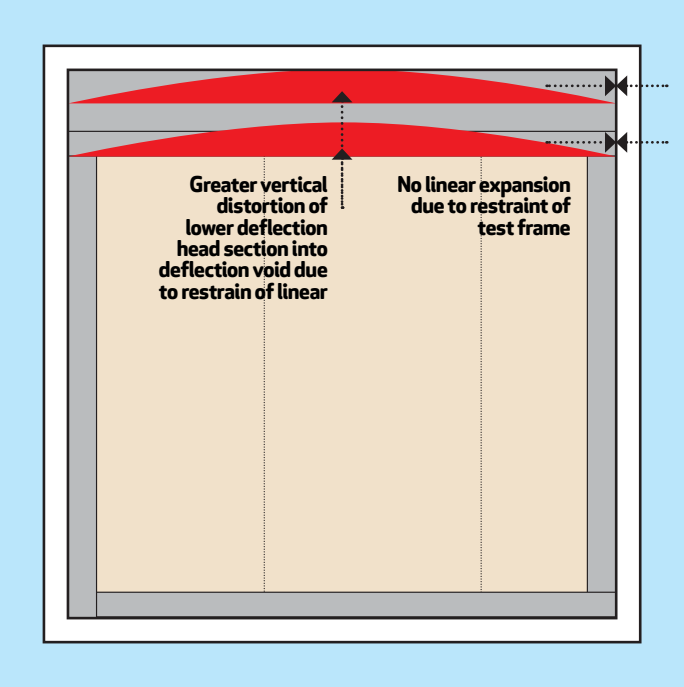


Figure 21 Expansion/distortion of deflection head with fixed edge

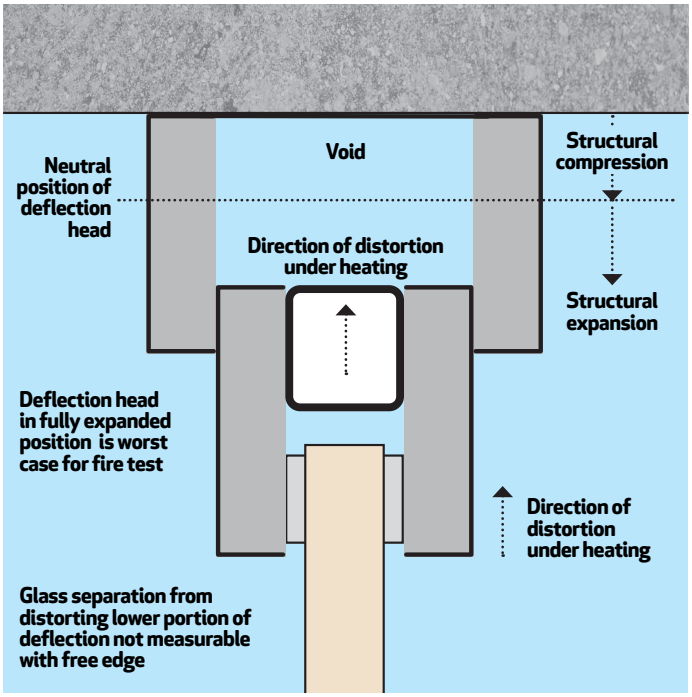


Figure 22 Typical two-part deflection head with butt jointed glazing

LIVE LOAD DEFLECTION

- The designer should ensure detailing allows for live load vertical deflection.
- The designers should satisfy themselves that the bulkhead can be installed as a self-supporting structure.
- The designer should consider how the defined deflection of -40mm deflection required to meet the guidance in Approved Document B and live load on the structure will be accommodated in any assembly.
- The designer should satisfy themselves that the junction between the self-supporting drop bulkhead and the structure or flexible wall can accommodate this deflection.
- There is no standard tested solution that will address the sliding joint between the bulkhead and the partitioning and accommodate the performance and interface details so the system owners should be consulted early in the design for their proved solutions.

8.24 Compartment walls should be able to accommodate deflection of the floor, when exposed to fire, by either of the following means:

a. Between the wall and floor, provide a head detail that is capable of maintaining its integrity while deforming.

b. Design the wall so it maintains its integrity by resisting the additional vertical load from the floor above.

Where compartment walls are located within the middle half of a floor between vertical supports, the deflection may be assumed to be **40mm** unless a smaller value can be justified by assessment. Outside this area, the limit can be reduced linearly to zero at the supports.

For steel beams that do not have the required fire resistance, reference should be made to SCI publication P22.

Figure 23 Extract from AD B

4.2 SUPPORTING CONSTRUCTIONS NOT BASED ON THE DEFINITIONS IN EN 1363-1

Supporting constructions can be considered as those which are an integral part of the structure of the building (primary steelwork) and steel framework that is installed specifically to support fire resistant glazing, but which does not form part of the structural fabric of the building (secondary steelwork).

This may be to support glazed screens or doors which are taller or wider than catered for by more conventional supporting constructions.

Where this occurs, the designers should consult with the structural engineer and fire engineer to ensure that in the case of a fire the secondary steel structure is designed and has evidence to protect to maintain its integrity to support the glazed fire screen.

FIXING TO STRUCTURAL STEEL

- Where glazed partitions are installed up to structural steel sections, (beams and columns), the designer should ensure that the steel remains rigid in the case of a fire. See ASFP Guidance note TG 18 asfp.site-ym.com/store/viewproduct.aspx?id=19769514
- Where additional steels are required to support the weight of the doors these should be tested in the glazed partition system as part of a system approach.
- Guidance from competent industry experts such as test houses can vary, and the designer should satisfy themselves that the limiting temperatures and maximum spans will meet the guidance in AD B and AD K
- The structural engineers should define the critical temperatures of any structural steel.
- To mitigate any thermal expansion and distortion in the event of a fire of a structural steel beam or a continuous hot rolled secondary steel installed to support the glazed screen, the designer should consider installing an encasement system to ensure the limiting temperature is kept below 350°C for the duration of the fire resistance.

5 MANUFACTURING AND CONSTRUCTION

5.1 QUALITY

The following 'PPP' process should be used to provide a record of what has been installed:

Product Keep records of the specification, test evidence, purchase orders and delivery notes.

Process Keep dated site images of the installation, especially elements that will be covered up in the final build.

People Keep records of the skill, attitude, knowledge and experience of any person who installed the system.

Information on the FIS Product Process People quality framework can be found at thefis.org/knowledge-hub/product-process-people

5.2 BENCHMARKING AND SAMPLES

Once the type of supporting construction and service penetrations is established, the design layout determined, the penetration seals and fixings specified and a penetration manufacturer selected, a sample wall and floor should be constructed for the project.

This can be used as a control sample for all to see and understand.

5.3 INSTALLATION

Ensure that the installation is carried out in accordance with the system owner' instructions and project packs.

Installers should be competent, ideally third party certified, and familiar with the systems installation requirements which may differ on a project or supplier basis.

5.4 THIRD-PARTY INSTALLATION CERTIFICATION SCHEMES

Examples of installer certification schemes:

Warringtonfire warringtonfire.com/certification-services/fire certification/firas

IFC ifccertification.com/certification/installer certification.html

BRE bregroup.com/services/certification-and-listings/

BM TRADA bmtrada.com/certification-services/
third-party-certification-fire/q-mark-firestopping-installation scheme

"Quality checks should start at the design and procurement stage to ensure interfaces have been considered and there is compatible evidence of compliance."

5.5 SEQUENCING OF THE INSPECTION WORK

Works should be sequenced to facilitate installation access and inspection Quality checks should start at the design and procurement stage to ensure interfaces have been considered and there is compatible evidence of compliance.

Examples at each stage include:

Installation

- Are the latest approved set of dimensioned construction issue drawings available and issued to the person responsible for setting out, to include all pattressing.
- Is the latest door schedule available and been issued?
- Is the schedule of builders work holes available and been issued?
- Are there any sample builds available for toolbox talks?
- Is there a requirement to benchmark any details or walls?

Work area

- Is the work area dry, watertight and ready for hand over?
- Has a trade-to-trade handover document been provided and signed?

Setting out

- Have you identified your method of setting out (is it capable) and checked that the equipment is calibrated?
- Are agreed tolerances clear and defined?
- Are door opening sizes and positions clear?
- Have you checked that any services do not impede the finished drylining, or impact their performance?
- Have all structural beams and columns with intumescent paint been identified where drylining will be interfaced and is an approved detail available for that interface.

First fix (metal and single or multiple layers of board on one side)

- Has a 'fixers pack' been issued to the operatives?
- Has a technical toolbox talk been delivered specific to the project and system which they are to install?
- Has the supervisor checked that the operatives have installed the specific systems before? If not has appropriate training been arranged? Record output.
- Have specific details for any deflection heads been issued, agreed and understood.
- Has the correct head floor channel been supplied for the individual wall type (size, gauge, and part number)
- Have the proposed head and floor fixings been specified and tested?

Second fix

- Are the correct boards installed and are they in good condition?
- Have the fixings been installed at the correct centres and the correct depth?
- Where multiple layers of boards have been installed have the correct vertical and horizontal staggering been maintained?
- Has the maximum permissible gap between the boards been exceeded? If so, has the joints been filled?
- Are the fixings edge distances in accordance with the system owner's requirements (they differ between bound and unbound edges)
- Are all second lift boards installed with appropriate details at the horizontal joint?

The information on page 40 has been taken from the FIS quality checklist to help assess risk during the project and provide a quality check document that can be used to plan structured inspections.

thefis.org/wp-content/uploads/2019/11/Drylining-quality-checklist.docx

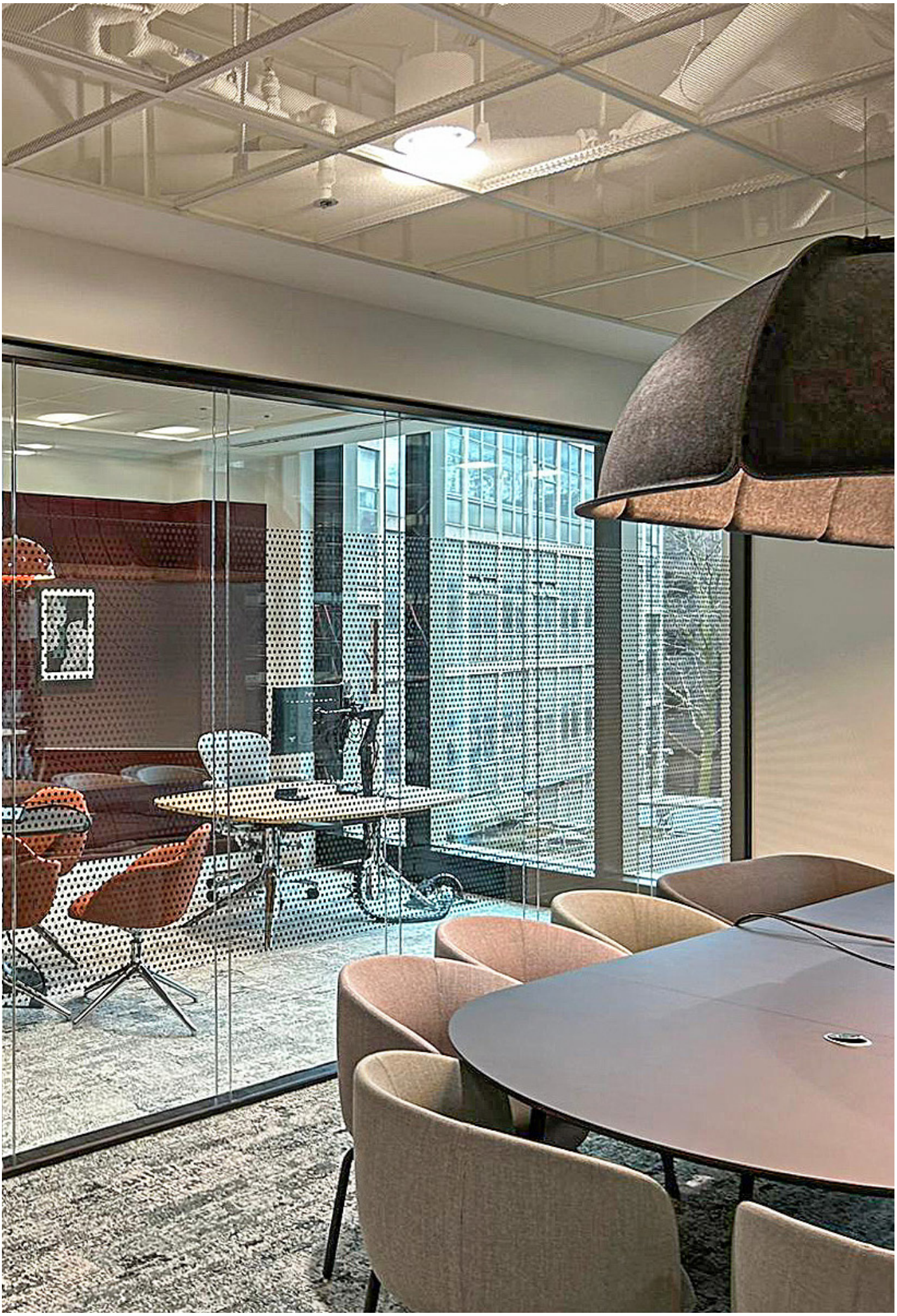
5.6 LABELLING OF FIRE SEPARATING ELEMENTS

Fire walls forming compartmentation should be clearly labelled by the specialist contractor on completion with the following information:

- Unique reference number of the firewall/penetration and the seal
- Installation date
- Name of the operative who installed
- Name of the supervisor who inspected
- Name and contact details of the manufacturer
- Name and contact details of the specialist contractor
- Date of next inspection.

ASFP, GPDA and FIS have a Fire Performance Partition Labelling Scheme as part of a commitment to improve safety. This aims to identify fire-separating elements to installers, M&E contractors, building owners and facilities managers and to highlight the risks of cutting holes in them for services.

thefis.org/fire-label



6 HANDOVER

6

Handover

6.1 MANUFACTURERS' INSTRUCTIONS

Fire walls, doors and penetration seals will need to be maintained in accordance with any manufacturers' recommendations and instructions. Therefore, it is vital that these are provided at handover.

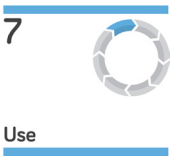
Manufacturers' technical departments should be consulted at the earliest opportunity to obtain copies of all evidence required to be handed to the building owners as part of the Regulatory Reform (Fire Safety) Order (RRFSO) and Regulation 38.

6.2 AS INSTALLED DRAWINGS

It is important that as built drawings reflect the layouts and specifications of what was installed and are updated to include any changes from any submitted drawings at the planning stages.

It should be noted that the Building Safety Act requires notification and approval for certain changes especially to layout and substitution of materials.

APPENDIX A DESIGN CONSIDERATIONS



Design considerations aligned to the RIBA Plan of Work

0 Strategic Definition	1 Preparation and Briefing	2 Concept Design	3 Spatial Coordination	4 Technical Design	5 Manufacturing and Construction	6 Handover
The designer should consider the following at each stage	Establish the building fire safety purpose group type	Establish a passive fire safety review team	Create the passive fire safety system seal registers	Review changes	Technical submissions	Digital records
	Establish RACI model Establish who the designer is		Establish descriptive classification for product fire safety type	Update spatial coordination and Prepared openings	Update any changes to prepared openings	
	Define the information requirements. (what and how)	Consider the systems required for the building Structure, internal layouts and fire strategy, M&E	Establish supporting constructions compatibility type	QA by competent person		Provide the asset information Regulation 7 requirements
	Use will dictate: Robustness Acoustic Environmental Fire performance Security	Engage with manufacturers	Classification requirements for drylining or Fire performance rules to be established	Ensure detailed drawings are complete and available to the selected contractor Highlight on the construction drawings clearly all firewalls and details any particular structural protection (eg steel beams) Consider how you could minimise number of Internal wall types Ensure the test standards align with the other elements and include workmanship and tolerance standards	Provide a benchmark and quality standard that includes penetrations and interfaces Ensure the quality is monitored at each stage and before closing up	
	Early engagement with drylining and firestopping, glazed fire screens and door manufacturers and specialists		M&E overlay will start to dictate opening sizes Identify all services Establish space requirements Penetrations and partial penetrations Follow the design rules in the penetration guide	Ensure details of openings and stopping requirements included in the design details Only select products with third party certification, ideally from one manufacturer ensuring third party certification covers wall type being installed into and, if not suitable, test evidence is available where practicable	Use third party certified installers and implement structured inspection plan at each stage	

		Consider interface with structural beams especially those with reactive coatings Also consider building movement				
			Will your layout be achievable with conventional walls and door systems? See table If yes, proceed to RIBA Stage 4 If no, consult manufacturers in RIBA Stage 3 Consider junctions and detailing which standards may limit or are not covered by test standards and require design judgment	Confirm fire resistance of wall as standalone element in its desired application		
Consideration when designing glazed elements			Will your layout be achievable with metal framed system glazing and is it supported by evidence? If yes, proceed to RIBA Stage 4 If no, consult manufacturers in RIBA Stage 3	Specify the performance requirements of the glazing system for the desired application including fire resistance, acoustic performance, moisture and corrosive resistance and robustness in a prescriptive specification Consider the interface details between glazing system and host wall. Particular attention should be paid to the specific construction around the reveal where the tested evidence of the glazing system may be different to standard construction details of the wall. Attention also to the wall construction around large spans of glazing where test evidence may dictate that the wall is reinforced with a robust steel frame assembled in a particular way Compile all evidence and place in record	Build ensuring that evidenced systems, components and detailing are being used in accordance with manufacturers' details	

Considerations when designing doorsets			Ensure that the door openings formed within the supporting construction are consistent with evidence provided by the door manufacturers	Ensure you have evidence on file of the door in the proposed supporting construction Ensure the proposed ironmongery is supported by compliant test evidence with the proposed door type Confirm interface requirements with the wall system is detailed in the proscriptive specification Confirm fire resistance of doorset in the desired wall Compile all evidence and place in record	Build ensuring that evidenced systems, components and detailing are being used	Provide evidence of compliance using a competent inspector
Relevant FIS guidance	FIS Firestopping of Service Penetrations thefis.org/membership-hub/publications/best-practice-guides/firestopping-of-service-penetrations/	FIS Specifiers' Guide - Drylining thefis.org/membership-hub/publications/specifiers-guides/drylining/ Specialists' guidance Manufacturer guidance on door positioning Service opening positions		FIS Site guide thefis.org/membership-hub/publications/specifiers-guides/drylining/	FIS Recommendations for the safe ingress of plasterboard thefis.org/membership-hub/publications/specifiers-guides/drylining/ FIS Installation of Drylining thefis.org/membership-hub/publications/best-practice-guides/installation-of-drylining/ Drylining quality Checklist thefis.org/wp-content/uploads/2019/11/Drylining-quality-checklist.docx	

a) BS 476-22 test standards do not impose maximum partition height restrictions regarding the maximum height of a partition in a fire state eg if a partition passes the fire test at 3m it is deemed to be suitable in fire resistance terms for any possible heights when the wall is tested in a cold state.

b) To claim heights above the tested 3m height, when testing to BS EN 1364-1, the partition is tested at a height of 3m and not deflect laterally by more than 100mm during the test to claim up to 1m above the tested height. For heights greater than 1m above the tested 3 m height there are design rules given in BS EN 15254-3 Extended application of results from fire resistance tests — non-loadbearing walls Part 3: Lightweight partitions. Where a 10% over run of time is also required to calculate additional heights.

Additionally, the manufacturer may have test evidence where the sample was tested in a laboratory in where greater sized openings are available.

Some manufacturers may also have fire test evidence above 3m high using BS476-22

APPENDIX B STANDARDS

FLEXIBLE WALLS DRYLINING PERFORMANCE

BS 476-22
Fire tests on building materials and structures - Method for determination of the fire resistance of non-loadbearing elements of construction

knowledge.bsigroup.com/products/fire-tests-on-building-materials-and-structures-method-for-determination-of-the-fire-resistance-of-non-loadbearing-elements-of-construction/standard

BS EN 1364-1
Fire resistance tests for non-loadbearing elements – Walls

knowledge.bsigroup.com/products/fire-resistance-tests-for-non-loadbearing-elements-walls/tracked-changes

BS EN 13501-2
Fire classification of construction products and building elements - Classification using data

knowledge.bsigroup.com/products/fire-classification-of-construction-products-and-building-elements-classification-using-data-from-fire-resistance-tests-excluding-ventilation-services/tracked-changes from fire resistance tests, excluding ventilation services

BS 5234-2
Partitions (including matching linings) - Specification for performance requirements for strength and robustness including methods of test (Annex F door slam)

knowledge.bsigroup.com/products/partitions-including-matching-linings-specification-for-performance-requirements-for-strength-and-robustness-including-methods-of-test/standard

BS EN 1363-1
Fire resistance tests - General requirements

knowledge.bsigroup.com/products/fire-resistance-tests-general-requirements/standard

Specifications for flexible constructions

Intended fire resistance	Nominal steel stud depth (mm)			Gypsum boards type F EN 520		Insulation: mineral wool	
	Group A	Group B	Group C	Layers at each side	Thickness (mm)	Thickness (mm)	Density (kg/m^3)
EI 30	44-55	56-75	76-100	1	12.5	40-50	30-60
EI 60	44-55	56-75	76-100	2	12.5	40-50	30-60
EI 90	44-55	56-75	76-100	2	12.5	40-50	85-115
EI 120	62-70	71-75	76-100	2	15	60-70	85-115

Flexible constructions with fire resistance 100 and 240 are not defined as standard supporting construction because the information available is inconsistent.

The minimum nominal steel studs mentioned represent the varying depths used in the European construction market.

The flexible constructions contain insultation in the voidebecause this will increase thermal deformation which is more onerous.

COMPONENT STANDARDS

BS EN 520+A1
Gypsum plasterboards. Definitions, requirements and test methods
knowledge.bsigroup.com/products/gypsum-plasterboards-definitions-requirements-and-test-methods/standard

BS EN 14195
Metal framing components for gypsum plasterboard systems. Definitions, requirements and test methods
knowledge.bsigroup.com/products/metal-framing-components-for-gypsum-plasterboard-systems-definitions-requirements-and-test-methods/standard

BS EN 15283-2
Gypsum boards with fibrous reinforcement. Definitions, requirements and test methods - Gypsum fibre boards
knowledge.bsigroup.com/products/gypsum-boards-with-fibrous-reinforcement-definitions-requirements-and-test-methods-gypsum-fibre-boards/standard

DOORS AND DOOR ASSEMBLIES IN PARTITIONING

BS 8214 Timber- based Fire door assemblies. Code of practice. (Currently being revised Summer 2024 to be a code of practice for fire doors and not just timber.)
knowledge.bsigroup.com/products/timber-based-fire-door-assemblies-code-of-practice/tracked-changes

BS5234-2
Partitions (including matching linings) - Specification for performance requirements for strength and robustness including methods of test
knowledge.bsigroup.com/products/partitions-including-matching-linings-specification-for-performance-requirements-for-strength-and-robustness-including-methods-of-test/standard

BS 6375-2
Performance of windows and doors - Classification for operation and strength characteristics and guidance on selection and specification
knowledge.bsigroup.com/products/performance-of-windows-and-doors-classification-for-operation-and-strength-characteristics-and-guidance-on-selection-and-specification/standard

BS 476-22
Fire tests on building materials and structures - Method for determination of the fire resistance of non-loadbearing elements of construction
knowledge.bsigroup.com/products/fire-tests-on-building-materials-and-structures-method-for-determination-of-the-fire-resistance-of-non-loadbearing-elements-of-construction/standard

BS 476-31.1
Fire tests on building materials and structures - Methods for measuring smoke penetration through doorsets and shutter assemblies - Method of measurement under ambient temperature conditions
knowledge.bsigroup.com/products/fire-tests-on-building-materials-and-structures-methods-for-measuring-smoke-penetration-through-doorsets-and-shutter-assemblies-method-of-measurement-under-ambient-temperature-conditions?version=standard

BS EN 14351-2
Windows and doors. Product standard, performance characteristics - Internal pedestrian doorsets

Note:: EN 14351-2 for internal fire doors is still not cited as an acceptable harmonisation norm. It is still subject to revision and Commission scrutiny, and that still means that internal fire doors cannot be CE marked. EN 14351-2 is also not on the Government's list of designated standards, and that means UKCA as well cannot be applied to internal fire doors.

knowledge.bsigroup.com/products/windows-and-doors-product-standard-performance-characteristics-internal-pedestrian-doorsets/standard

BS EN 1634-1
Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Fire resistance test for door and shutter assemblies and openable windows
knowledge.bsigroup.com/products/fire-resistance-and-smoke-control-tests-for-door-and-shutter-assemblies-openable-windows-and-elements-of-building-hardware-fire-resistance-test-for-door-and-shutter-assemblies-and-openable-windows/standard

BS EN 1634-3
Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Smoke control test for door and shutter assemblies
knowledge.bsigroup.com/products/fire-resistance-and-smoke-control-tests-for-door-and-shutter-assemblies-openable-windows-and-elements-of-building-hardware-smoke-control-test-for-door-and-shutter-assemblies?version=standard

BS EN 13501-2
Fire classification of construction products and building elements - Classification using data from fire resistance tests, excluding ventilation services
knowledge.bsigroup.com/products/fire-classification-of-construction-products-and-building-elements-classification-using-data-from-fire-resistance-tests-excluding-ventilation-services/tracked-changes

BS EN 15269-2
Extended application of test results for fire resistance and/or smoke control for door, shutter and openable window assemblies, including their elements of building hardware - Smoke control for doors, shutters, operable fabric curtains and openable windows. Part 2: Fire resistance of hinged and pivoted steel doorsets
knowledge.bsigroup.com/products/extended-application-of-test-results-for-fire-resistance-and-or-smoke-control-for-door-shutter-and-openable-window-assemblies-including-their-elements-of-building-hardware-smoke-control-for-doors-shutters-operable-fabric-curtains-and-1?version=standard

BS EN 15269-3
Extended application of test results for fire resistance and/or smoke control for doorsets, shutter and openable window assemblies, including their elements of building hardware - Fire resistance of hinged and pivoted timber doorsets and openable timber framed windows
knowledge.bsigroup.com/products/extended-application-of-test-results-for-fire-resistance-and-or-smoke-control-for-doorsets-shutter-and-openable-window-assemblies-including-their-elements-of-building-hardware-fire-resistance-of-hinged-and-pivoted-timber-doorsets-and/standard

BS EN 15269-4
Extended application of test results for fire resistance and/or smoke control for door, shutter and openable window assemblies, including their elements of building hardware - Part 4. Fire resistance of hinged and pivoted glass doorsets
knowledge.bsigroup.com/products/bs-en-15269-4-extended-application-of-test-results-for-fire-resistance-and-or-smoke-control-for-door-shutter-and-openable-window-assemblies-including-their-elements-of-building-hardware-part-4-fire-resistance-of-hinged-and-pivoted-glass?version=standard

BS EN 15269-5
Extended application of test results for fire resistance and/or smoke control for door, shutter and openable window assemblies, including their elements of building hardware - Fire resistance of hinged and pivoted metal framed glazed doorsets and openable windows
knowledge.bsigroup.com/products/extended-application-of-test-results-for-fire-resistance-and-or-smoke-control-for-door-shutter-and-openable-window-assemblies-including-their-elements-of-building-hardware-fire-resistance-of-hinged-and-pivoted-metal-framed-glazed-doorsets?version=standard

BS EN 16034
Pedestrian doorsets, industrial, commercial, garage doors and openable windows. Product standard, performance characteristics. Fire resisting and/or smoke control characteristics
knowledge.bsigroup.com/products/pedestrian-doorsets-industrial-commercial-garage-doors-and-openable-windows-product-standard-performance-characteristics-fire-resisting-and-or-smoke-control-characteristics?version=standard

LINEAR GAP SEALS

BS 1366-4
Fire resistance tests for service installations - Linear joint seals
knowledge.bsigroup.com/products/fire-resistance-tests-for-service-installations-linear-joint-seals-1/standard

Can be independently tested in vertical and horizontal configurations or tested as part of a door assembly using:

BS 476-22
Fire tests on building materials and structures - Method for determination of the fire resistance of non-loadbearing elements of construction
knowledge.bsigroup.com/products/fire-tests-on-building-materials-and-structures-method-for-determination-of-the-fire-resistance-of-non-loadbearing-elements-of-construction/standard

BS EN 1634-1
Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Fire resistance test for door and shutter assemblies and openable windows
knowledge.bsigroup.com/products/fire-resistance-and-smoke-control-tests-for-door-and-shutter-assemblies-openable-windows-and-elements-of-building-hardware-fire-resistance-test-for-door-and-shutter-assemblies-and-openable-windows/standard

BS 8214
Timber-based fire door assemblies. Code of practice
knowledge.bsigroup.com/products/timber-based-fire-door-assemblies-code-of-practice/tracked-changes

APPENDIX C FIS GUIDANCE (AS OF 2024)

Guidance to the Building Safety Act
thefis.org/wp-content/uploads/2019/12/5782-FIS-Guide-Building-Safety-Act.pdf

DRYLINING RELATED GUIDANCE

Drylining
thefis.org/knowledge-hub/technical/drylining/

FIS Specifiers' guide - drylining
thefis.org/membership-hub/publications/specifiers-guides/drylining/

FIS Preconstruction guide - drylining
thefis.org/wp-content/uploads/2019/12/FIS-Precon-Site-Guide-Drylining.pdf

FIS Site guide - drylining
thefis.org/wp-content/uploads/2019/12/FIS-Construction-Site-Guide-Drylining.pdf

FIS Planning for safe ingress of plasterboard
thefis.org/membership-hub/publications/best-practice-guides/recommendations-for-the-safe-ingress-of-plasterboard/

Top 10 risks to avoid when procuring and installing fire resistant drylining
thefis.org/wp-content/uploads/2019/12/Top-10-risks-to-avoid-when-procuring-and-installing-Fire-resistant-drylining.pdf

FIS Best practice guide - installation of drylining
thefis.org/wp-content/uploads/edd/2018/09/FIS-BP-Guide-Drylining-2018-DESKTOP-QUALITY.pdf

FIS Recommendations for safe ingress of plasterboard
thefis.org/wp-content/uploads/2019/12/FIS-Plasterboard-guide-2020-1.pdf

FIS Preconstruction site guide - drylining
thefis.org/wp-content/uploads/2019/12/FIS-Precon-Site-Guide-Drylining.pdf

FIS Construction site guide - drylining
thefis.org/wp-content/uploads/2019/12/FIS-Construction-Site-Guide-Drylining.pdf

FIS Firestopping of service penetrations
thefis.org/wp-content/uploads/2019/12/Firestopping-Guide.pdf

Plastering to floor level
thefis.org/wp-content/uploads/2019/12/Plastering-to-floor-level-with-applied-skirting.pdf

Fire door openings limitations of testing
thefis.org/wp-content/uploads/2019/12/Fire-Door-Openings-limitations-of-testing.pdf

Why benchmarks are so important
thefis.org/wp-content/uploads/2019/12/Benchmarks.pdf

Patress boards
thefis.org/wp-content/uploads/2015/10/Technical-Note-Plywood-Pattress.pdf

Fire door openings – limitations of testing
thefis.org/wp-content/uploads/2019/12/Fire-Door-Openings-limitations-of-testing.pdf

Creaking in tall buildings
thefis.org/wp-content/uploads/2019/12/Technical-Note-Creaking-in-Tall-Buildings.pdf

Deflection heads
thefis.org/wp-content/uploads/2019/12/Risk-of-exposing-the-head-track-in-deflection-heads-due-to-undulating-levels.pdf

Partitioning: Installing to the underside of structural beams coated with Intumescent paint
thefis.org/wp-content/uploads/2019/12/Installing-partitioning-to-the-underside-of-structural-beams-coated-with-Intumescent-paint.pdf

Wind load on drylining
thefis.org/wp-content/uploads/2019/12/Wind-loads-on-the-face-of-a-partition.pdf

Compatibility with Cpvc pipes and mastics
thefis.org/wp-content/uploads/2019/12/Compatibility-between-pipes-and-fire-and-acoustic-seals.pdf

Test evidence for fire walls
thefis.org/wp-content/uploads/2019/12/Test-evidence-for-fire-walls.pdf

Firestopping mouseholes
thefis.org/wp-content/uploads/2019/12/Mouseholes.pdf

Part L requirements to record junctions
thefis.org/fis-technical-note-ad-l-requirements-to-record-and-photograph-junctions-to-the-external-wall/

Causes of cracks
thefis.org/wp-content/uploads/2019/12/Causes-of-cracks-in-Plasterboard-joints.pdf

Reducing plasterboard waste
thefis.org/wp-content/uploads/2015/10/Technical-Note-Guidance-to-minimise-plasterboard-waste.pdf

Reporting non-conforming installations
thefis.org/wp-content/uploads/2019/12/Reporting-non-conforming-installations.pdf

Drylining quality checklist
thefis.org/wp-content/uploads/2019/11/Drylining-quality-checklist.docx

GLAZED PARTITIONING

FIS Specifiers' guide - partitioning
thefis.org/membership-hub/publications/specifiers-guides/partitioning

FIS Best practice guide - installation of partitioning
thefis.org/membership-hub/publications/best-practice-guides/installation-of-partitioning/

Guarding with frameless glass partitioning
thefis.org/wp-content/uploads/2019/12/Guarding-with-frameless-glass-partitioning.pdf

FIS Site guide - partitioning
thefis.org/wp-content/uploads/2016/03/FIS-site-guide-partitioning.pdf

FIS Site guide - glazed partitions
thefis.org/wp-content/uploads/2016/03/FIS-site-guide-glazed-partitions.pdf

INFILL SFS

FIS Specifiers' guide - infill SFS
thefis.org/membership-hub/publications/specifiers-guides/light-guage-external-wall-systems/

FIS Guide - design and installation of SFS
thefis.org/wp-content/uploads/2019/11/FIS-SFS-Guide-2018-online.pdf

FIS Best practice guide - through wall SFS
thefis.org/membership-hub/publications/best-practice-guides/through-wall/

FIS Guide - installation of SFS
thefis.org/wp-content/uploads/2019/11/FIS-SFS-Guide-2018-online.pdf

COMPETENCE

Building safety Act
thefis.org/knowledge-hub/technical/fire-protection/building-safety-bill/

Competency management plan
thefis.org/wp-content/uploads/2019/12/Sector-Guide-Competency-Management-Plan-Final-17-Jan.pdf

My Professional Passport
thefis.org/skills-hub/competency-passport/

Built environment - proposed construction product competence standard - white paper (Construction Products)
constructionproducts.org.uk/publications/technical-and-regulatory/built-environment-proposed-construction-product-competence-standard-white-paper/

ACKNOWLEDGEMENTS

This guide has been made possible with support from the following organisations:

ASDMA (Architectural and Specialist Door Manufacturers Association) promotes best practice in the manufacture and supply of bespoke doors and doorsets, and is here to support all those who work within the specialist door industry.

Founded in 1990, the association is made up of membership of bespoke door manufacturers and fabricators together with those companies which manufacture or fabricate components used in specialist door assemblies such as hardware, glazing and seals; installers of performance doorsets and those companies providing testing and/or certification services with a demonstrable relevance to the specialist bespoke door and doorset industry.

The diversity of ASDMA's membership means the association is uniquely equipped to offer the latest best practice guidance on issues relating to new standards, regulations and testing. ASDMA utilises its membership to offer a host of benefits, including:

- A united voice for the custom-made door industry to ensure best practice
- Representation of its members on British Standards Institution technical committees and the corresponding groups that are developing European Standards
- Preview performance-based standards that will emerge in the next few years
- Access to CPD presentations
- Networking within the trade, both manufacturers and suppliers
- Technical expertise and experience from within the trade
- Dissemination and presentation of technical documents, standards and regulations.

asdma.com

dhf (Door and Hardware Federation) is a not-for-profit trade association for companies associated with locks and building hardware; doorsets; industrial doors and shutters; domestic garage doors and automated gates.

Originally formed in 1897, dhf has over 500 members and is the 'go to' place for technical advice and training which lends itself to raising the standards of the industry. It is regarded as the 'centre of excellence', with a network of professional staff members as well as external consultants that can provide support in all sectors, making dhf a single source for technical expertise, information, knowledge, advice and practical help.

As a federation, dhf supports various industry sectors by representing them on BSI standards committees, liaising with compliance authorities such as the Health and Safety Executive and Trading Standards as well as fire safety organisations across the UK and Europe.

dhfonline.org.uk

FIS (Finishes and Interiors Sector) was created to draw the finishes and interiors supply chain together to improve safety and quality, minimise risk, enhance productivity and help embrace innovation.

Its growing community of vetted members is made up of fit-out and specialist contractors, manufacturers and distributors involved in the supply and installation of ceilings, steel framing systems, operable walls, partitions, plastering, drylining and joinery products in every type of building.

The finishes and interiors sector in the UK has an annual turnover of £10 billion and a workforce of 250,000 people - it accounts for approximately 10% of all construction works.

Fit-out and finishing is a key part of every building process, but unlike other elements of construction, buildings will often have over 30 fit-outs in their lifetime. Each one fundamentally impacts, not just the way a building looks, but how it performs and hence fit-out and finishing is fundamental to the wellbeing, safety, comfort and productivity of all those that live, work, play and recuperate in a building.

thefis.org

GIRI (Get It Right Initiative) is a group of over 100 UK construction industry experts, organisations and businesses actively improving productivity, quality, sustainability and safety in the construction sector by eliminating error.

getitright.uk.com

GPDA (Gypsum Products Development Association) represents the four major gypsum board and plaster manufacturers in the UK and Ireland - British Gypsum, Siniat, Knauf Drywall and Gyproc.

GPDA aims to develop and encourage the understanding and the use of gypsum-based building products and systems in the UK and Ireland. GPDA does this by:

- Advising on industry wide technical issue relating to lightweight construction
- Developing advice and support on matters of environmental impact and sustainability including the circular economy and climate change
- Setting standards on health and safety, wherever gypsum based products are used.

GPDA champions the use of gypsum based building products and systems with the wider construction industry and the relevant trade associations that work within it.

gpda.com

GAI (Guild of Architectural Ironmonger) is a not-for-profit professional association that supports, assures and represents architectural ironmongers, wholesalers, and manufacturers around the world. It promotes the highest standards of education, technical excellence and professionalism in its sector, and promotes these standards to the wider construction industry and its clients.

To achieve the mission of advancing architectural ironmongery, GAI collaborates with trade bodies across all areas of construction including: RIBA (Royal Institute of British Architects); CPA (Construction Products Association); CIAT (Chartered Institute of Architectural Technologists); FIS (Finishes and Interiors Sector); SPID (Society of British and International Interior Design); CABE (Chartered Association of Building Engineers); and overseas trade bodies like DHI (Door Hardware Institute).

gai.org.uk

PFKG (Passive Fire Knowledge Group) is a unique non-for-profit collaboration comprising contractors, consultants and relevant trade associations.

Its mission is to improve the delivery of well designed, specified and installed passive fire protection by focusing on three key areas: process, testing and education.

The group aims to investigate, understand, inform and promote knowledge and research in all areas of passive fire protection.

pfkg.org

FIS
Olton Bridge
245 Warwick Road
Solihull B92 7AH

+44 (0)121 707 0077
info@thefis.org
thefis.org