

Passive fire protection solutions

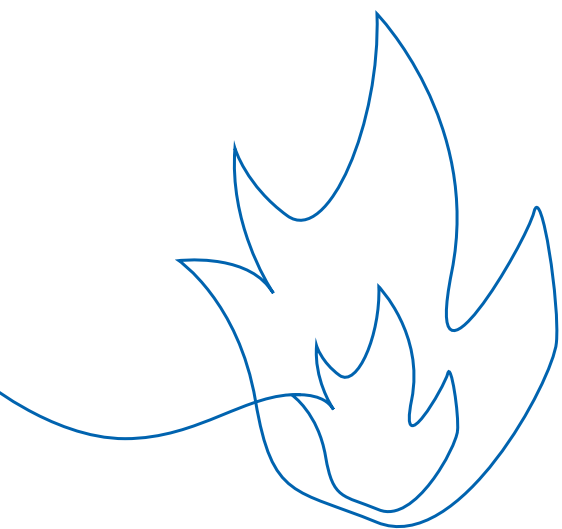
Summary Guide



A single source of certainty and truth


We're committed to making the world a better and safer home for all by creating high-performance drylining and insulation solutions that take care of people and the planet. The Saint-Gobain Interior Solutions brands – British Gypsum and Isover – bring together our total range of solutions and knowledge under one roof.

By bringing our brands together, we're strengthening our collective know-how and technical expertise. It allows us to support and guide our customers through every aspect of a project from the initial design to complying with legislation, meeting and exceeding performance requirements, all the way through to achieving the highest quality installation.



Applying the gold standard when it comes to fire safety and technical competency.





The need for certainty and clarity on fire safety specification is greater today than it ever was.

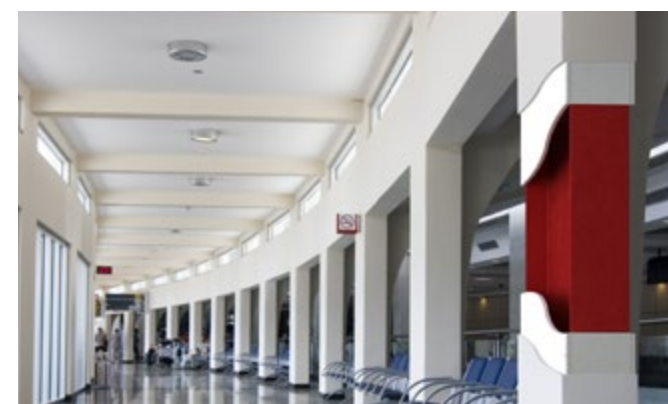
Ensuring fire safety and competency

In 2017, the Grenfell Tower tragedy triggered a Government inquiry that recommended many changes for the construction industry. Delving into issues of fire safety and competency, the investigation highlighted how complete transparency is crucial to ensuring that we all build better and safer.

Dame Judith Hackitt's review of Building Regulations and Fire Safety stated that there was a need for significant cultural and regulatory change throughout the entire industry to support the delivery of buildings that are safe, both now and in the future.

Following the review, the Code for Construction Product Information (CCPI) was established to ensure that manufacturers produce and present clear, accurate, up-to-date accessible and unambiguous information about their products.

As supporters of the CCPI, we're committed to providing our customers and construction partners with a golden thread of information to ensure that we support them with complete transparency, doing our part to help our construction partner customers build better.



By providing optimal solutions for passive fire protection

We have innovated, designed and developed passive fire protection solutions that provide outstanding performance in key and critical applications such as steel protection, internal partitions, heating and ventilation (HVAC), ceilings and shaftwalls.

Our specialist systems are designed to be used in most commercial (including healthcare, education, transport), leisure, offices and residential buildings.

Fire protection regulation and guidance

Fire performance covers fire resistance, fire protection and reaction to fire. These factors are relevant for compartmentation, structural steelwork and contribution to fire growth respectively. We only test solutions to the most up-to-date BS EN test standards.

The information in this section is given as a guide to the general principles of structural fire precautions. We also recommend that you always take the time to refer to the relevant national legislation, including any amendments and associated documentation.

Fire safety Building Regulations Approved Document B (AD B) and Technical Handbook (Fire – Section 2)

There are a series of approved documents that provide practical guidance on meeting the fire safety requirements of the Building Regulations 2000 (England and Wales) and Building (Scotland) Regulations 2004 respectively.

These documents are divided into two parts:

- AD B Volume 1 and Technical Handbook – Domestic (Fire – Section 2) which covers dwelling houses
- AD B Volume 2 and Technical Handbook – Non-Domestic (Fire – Section 2) which covers buildings except for dwelling houses.

The documents classify the use of a building into purpose groups and specify minimum periods of fire resistance that the building elements need to achieve. To read these in more detail and to find out more click here for Fire safety Building Regulations Approved Document B (AD B) and click here for Technical Handbook (Fire – Section 2).

Building Bulletin 100 (England and Wales) and Fire Safety in Schools (Scotland)

This covers the design of fire safety in schools. Following the guidance in these documents will typically ensure that the respective Building Regulations will be satisfied.

Find out more:
England and Wales
Scotland



Health Technical Memorandum (HTM) 05 series (England and Wales) and Scottish Health Technical Memorandum (SHTM) 81 series

Covering the fire safety design of healthcare facilities these documents provide guidance on the expected standards of fire safety in healthcare facilities and include recommendations on the following:

- Internal fire spread
- Elements of structure
- Compartmentation
- Fire hazard areas
- Hospital streets
- Penetrations
- Protected shafts
- Ceiling membranes
- Cavity barriers
- Fire-stopping

Find out more:
England and Wales
Scotland

Association for Specialist Fire Protection (ASFP) Yellow Book

Publication prepared by the ASFP. Presenting the theory behind, and methods for, fire protection of structural steelwork to comply with Building Regulations. This is a comprehensive guide to proprietary materials and systems, which are all manufactured and marketed by members of ASFP.

Find out more.

Association for Specialist Fire Protection (ASFP) Purple Book

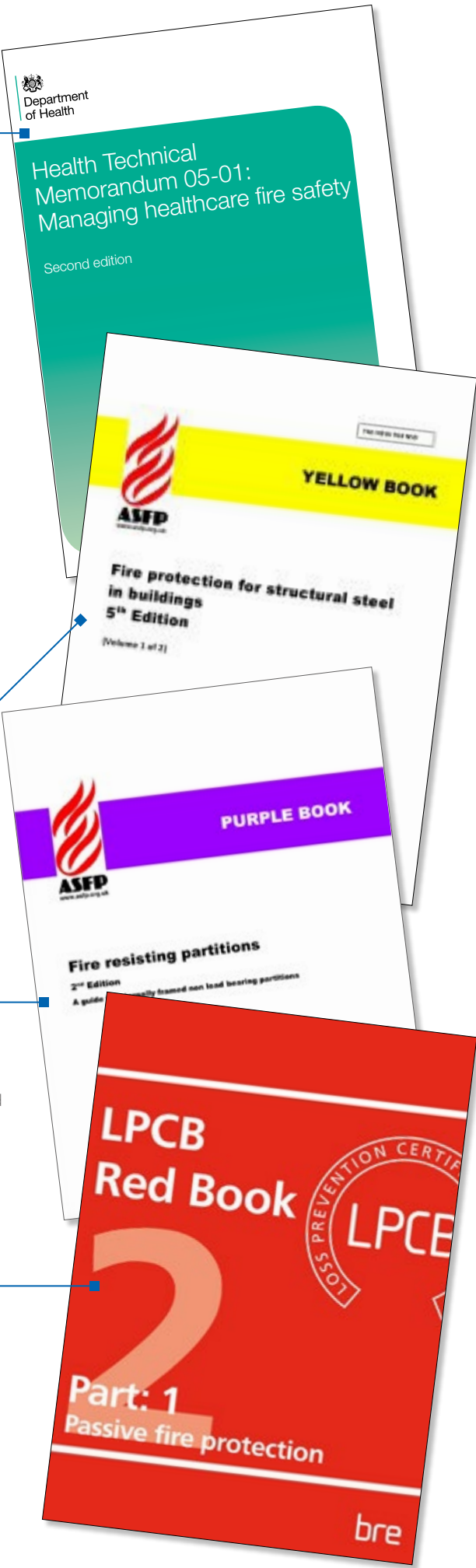
Publication prepared by the ASFP. This guide outlines the use of proprietary materials and systems to create fire-rated partitions. It covers fire resistance and reaction to fire performance under test standards, along with design, construction, and maintenance guidelines for fire-rated partitions in buildings.

Find out more.

Loss Prevention Council (LPC) Design Guide for the Protection of Buildings – Commercial and Industrial

Provides guidance on the general principles of passive fire protection - contribution to fire growth, fire resistance, compartmentation and external fire spread. It also provides guidance on 'active' fire protection such as sprinklers and fire alarms. It presents insurers with standards of fire protection for industrial and commercial buildings, and it's intended to help building designers and other professional advisors reconcile the provisions of national legislation standards against the recommendations of the insurance industry. It also gives guidance regarding how fire protection measures can be used to augment passive protection.

Find out more.



Principles of fire performance



Structural fire precautions

Premature failure of the structure can be prevented by fire protecting loadbearing elements. Providing the structure with fire resistance performance helps to:

- Minimise the risk to the occupants, some of whom may have to remain in the building during evacuation
- Reduce the risk to fire fighters engaged on search and rescue operations
- Reduce the danger to people in the vicinity of the building

Fire growth

The choice of materials for walls and ceilings can significantly affect the spread of fire and its rate of growth, even though they are not likely to be the materials first ignited.

Fire limit state

In structural design terms, fire is considered to be an accidental limit state, i.e. an accidental occurrence, and one for which the structure must not collapse. Loads and their factors of safety used in design at the fire limit state reflect the low probability of occurrence.

Structural behaviour of steel in fire

Steel generally begins to lose strength at temperatures above 300°C and eventually melts at about 1500°C. Importantly for design, the greatest rate of strength loss is in the range of 400°C to 600°C. You can learn more about our steel protection solutions in our White Book.

Compartmentation

The spread of fire within a building can be restricted by subdividing it into compartments separated from one another by fire-resistant walls and/or floors. The two key objectives are:

- To prevent rapid fire spread, which could trap occupants within the building
- To reduce the chance of fires increasing in size

Structural behaviour of concrete in fire

Inherently fire resistant subject to specification. All reinforcements with the floor structure must have the correct thickness of concrete cover.

Structural behaviour of timber in fire

Timber has a low thermal expansion coefficient, which minimises the possibility of protective layers and charred materials becoming displaced. It also has a low thermal conductivity, which means that undamaged timber immediately below the charred layer retains its strength. For specific advice and information on achieving a fire-rated timber stud partition you can use the Technical Enquiry Form.

For illustrative purposes only.

Steel protection solutions

Encasement systems that provide fire protection for structural steel columns and structural steel beams and joists.

FireCase

Protect structural steel columns and beams from fire for up to 120 minutes with our frameless structural steel encasement system.

Fire protection

30 to 120 minutes

Fire resistance standard tested to

BS EN 13381-4

Reaction to fire

Achieves a Euroclass A1 rating, the highest attainable classification

Key features

- Minimal space intrusion
- **SpecSure®** lifetime warranty available
- Can be used before building is fully watertight
- Suitable for castellated beams. Claims compliant with Yellow Book 5th edition 20% rule (YB4.2) assessment method
- High levels of acoustic and thermal insulation can be maintained with detailing of abutments between GypWall partition systems and FireCase encasements
- Reduced installation time - Glasroc F FireCase boards can be screw-fixed together without the need for additional framing
- Build-programme flexibility and earlier installation - the moisture-resistance capability of Glasroc F FireCase means that installation of the FireCase system can begin before the building envelope is fully weathertight. This is only suitable for temporary exposure, i.e. during installation
- The FireCase system is easy to inspect for continuity when compared to intumescent paint solutions
- Bespoke, pre-cut widths of Glasroc F FireCase are available (subject to minimum order quantity)
 - this means reduced labour and waste on-site

Key sectors

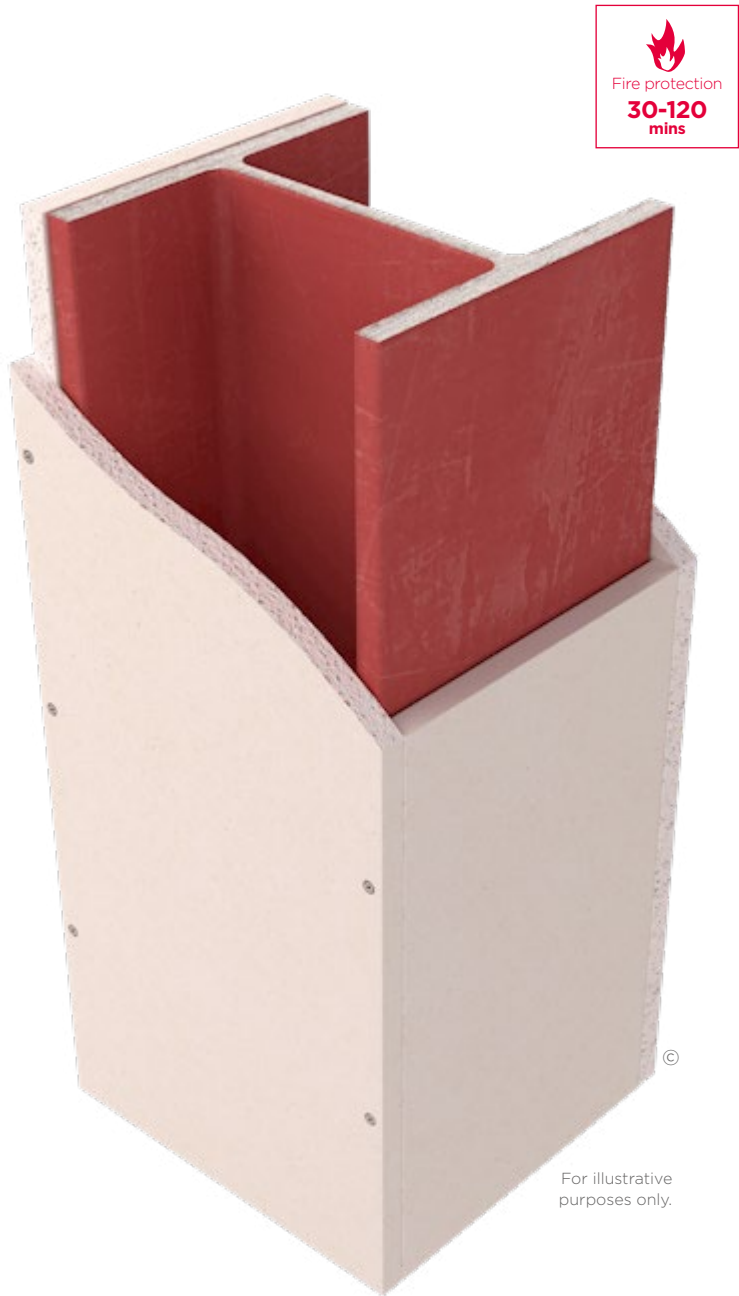
Commercial

Key applications

Structural steel

Sources for more information

[Click here for British Gypsum White Book](#)



GypLyner Encase

Protect structural steel columns and beams for up to 120 minutes with our metal framed encasement system.

Fire protection

30 to 120 minutes

Fire resistance standard tested to

BS EN 13381-4

Reaction to fire

Euroclass A2 rating

Key features

- Greater flexibility when installing
- **SpecSure®** lifetime warranty available
- Offers excellent acoustic and thermal insulation with the detailing of abutments between GypWall partition systems and GypLyner Encase encasements
- Reduces sound transmission as boards are fixed into a framework rather than directly into the steel beam or column
- The simple, clip-on framing system makes installation quick and easy
- Accommodates structural steelwork misalignment by ensuring the lining is straight and true

Key sectors

Commercial

Key applications

Structural steel

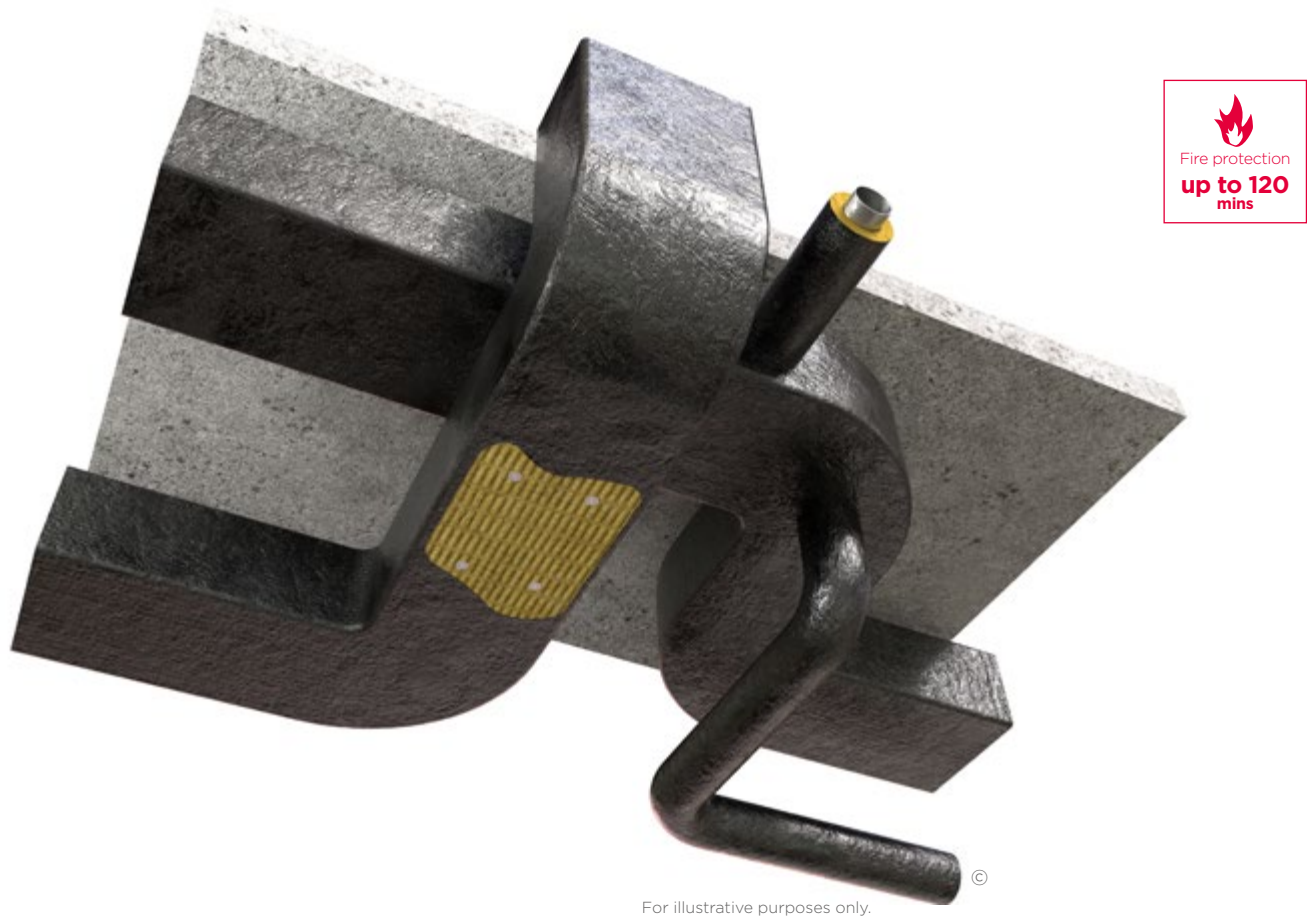
Sources for more information

[Click here for British Gypsum White Book](#)



HVAC solutions

Isover insulation system for passive fire protection in HVAC (Heating Ventilation and Air Conditioning) applications.



For illustrative purposes only.

Isover U Protect slabs and wired mats

Isover U Protect slabs and wired mats are made from ULTIMATE™ mineral wool insulation. ULTIMATE™ is produced using an exclusive, patented process, which ensures a shot-free product, made of long interwoven fibres.

Fire protection

Resistance to fire:

- Up to 120 mins passive fire protection in HVAC ventilation and smoke extract ducts
- Up to 60 mins passive fire protection for kitchen ducts

Reaction to fire:

- Achieves a Euroclass A1 rating, the highest attainable classification

Accessories are integral to the U Protect passive fire protection system, as they've been tested and assessed alongside U Protect slabs and wired mats to ensure they achieve the published fire performance.

Fire resistance standard tested to

BS EN 1366-1 and BS EN 1366-8 and assessed against BS 476: Part 24

Key features

- Euroclass A1 fire rating when classified according to BS EN 13501-1
- Lighter than stone wool alternatives
- Helps to reduce noise from ductwork
- Can be used to meet thermal building regulations
- Easy to handle and provide maximum flexibility and mechanical performance
- Fast and efficient cutting and fitting using standard knives

Key sectors

Commercial

Key applications

- Circular and rectangular ductwork
- Vertical and horizontal ductwork
- Fire locations inside and outside the ductwork
- Smoke extraction

Sources for more information

[Click here for Isover website](#)



For illustrative purposes only.

Isover U Protect accessories

There is a full range of accessories available to help ensure effective fire protection and straightforward installation. Accessories include intumescent paint, glue, screws and tape.

Fire protection

Resistance to fire:

- Up to 120 mins passive fire protection in HVAC ventilation and smoke extract ducts
- Up to 60 mins passive fire protection for kitchen ducts

Reaction to fire:

- Achieves a Euroclass A1 rating, the highest attainable classification

The accessories referred to above are integral to the Isover U Protect passive fire protection system. They've been tested and assessed alongside U Protect wired mats and slabs to ensure they achieve the published fire performance.

Fire resistance standard tested to

BS EN 1366-1 and BS EN 1366-8 and assessed against BS 476: Part 24.

Key features

- A full range of accessories is available to help ensure effective fire protection and straightforward installation
- The adhesive used in the system is only required at penetration details rather than at every insulation joint, resulting in further cost and time saving during installation

Key sectors

Commercial

Key applications

- Circular and rectangular ductwork
- Vertical and horizontal ductwork
- Fire locations inside and outside the ductwork
- Smoke extraction

Sources for more information

[Click here for Isover website](#)

Shafts and risers

Shaft and riser encasement systems and linings for use within confined spaces.

GypWall Shaft

Our GypWall Shaft systems provide lightweight, fire resistant protection to elements in confined spaces wherever access is limited to one side only.

Fire protection

60 to 120 minutes

Fire resistance standard tested to

BS EN 1364-1

Reaction to fire

Euroclass A1 or A2 rating depending on products used

Key features

- Protects elements in confined spaces wherever access is limited to one side only
- Can be added at an early stage of the construction, without the need for scaffolding
- A range of high-performance variants to meet project-specific requirements, such as the use of non-combustible linings
- Higher certainty of installed acoustic performance, supported by detailed laboratory tests incorporating deflection head details

Key sectors

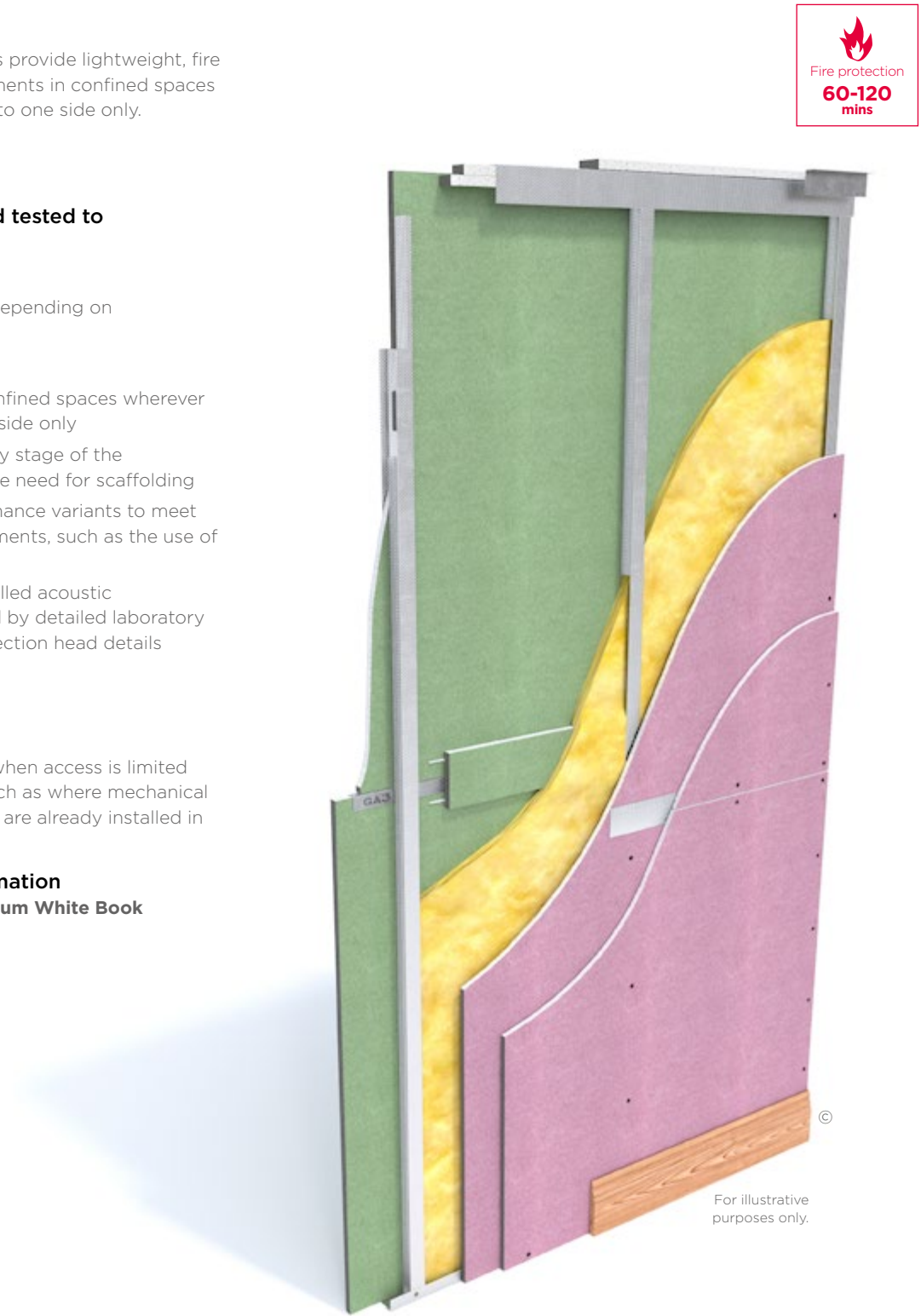
Commercial

Key applications

GypWall Shaft is ideal for when access is limited to one side at the head, such as where mechanical and electrical (M&E) cages are already installed in corridors

Sources for more information

[Click here for British Gypsum White Book](#)



For illustrative purposes only.

External walls

Through-wall infill SFS systems.

GypLyner Xternal

Our GypLyner Xternal system delivers adaptable and cost-effective multi-storey buildings quickly with our wraparound solutions for light gauge steel framing systems (SFS).

Fire protection

60 to 120 minutes*

* Tested on Hadley Steel Framing non-loadbearing SFS infill systems

Fire resistance standard tested to

BS EN 1364-1

Reaction to fire

Achieves a Euroclass A2 rating

Key features

- Systems designed to offer flexible specification options
- Meet and exceed thermal performance needs through a range of insulation solutions
- Comprehensive fire and acoustic-tested solutions
- Up to 56 R_wdB sound insulation performance
- Installation details for junctions, abutments, windows and deflection requirements

Key sectors

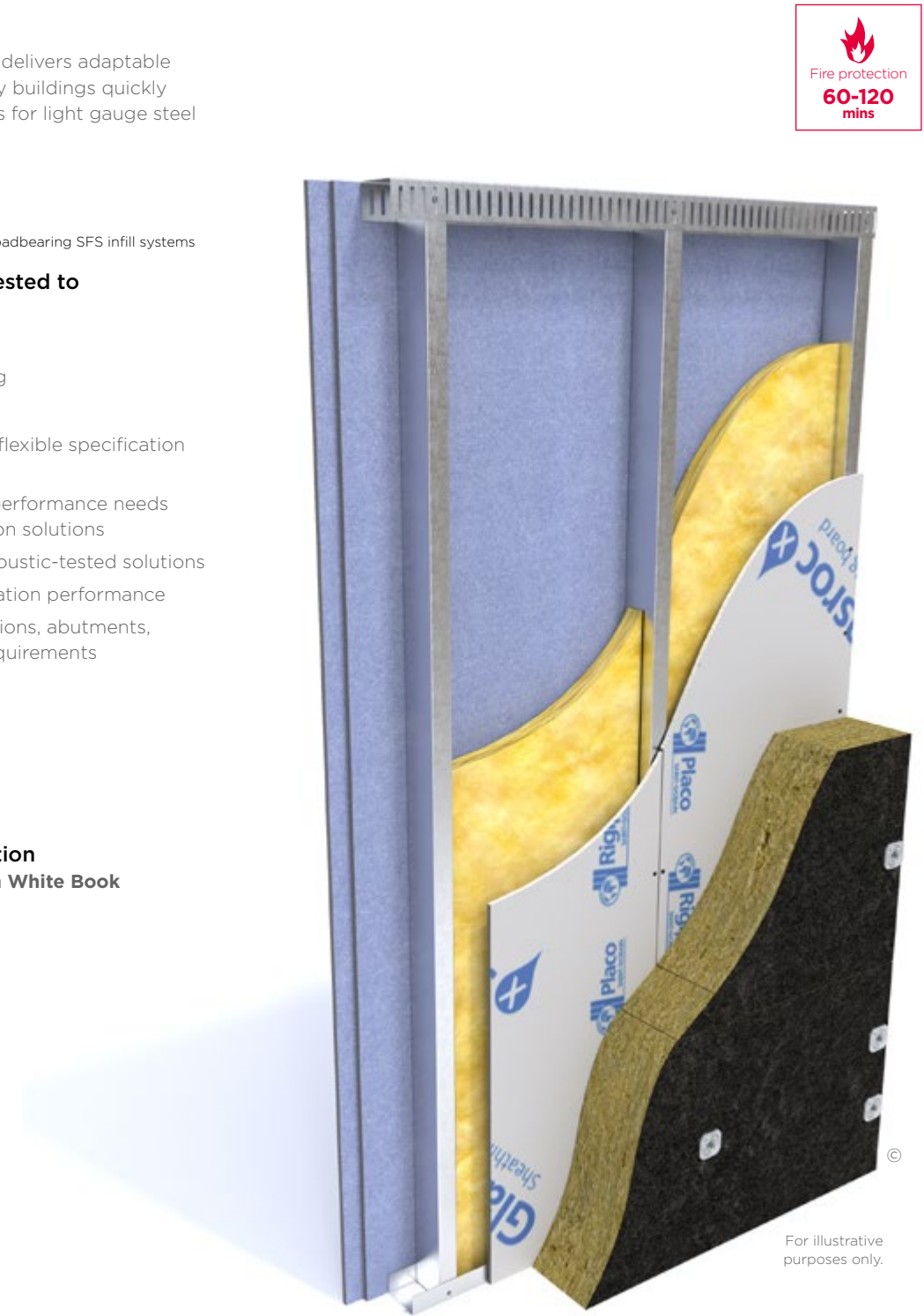
Commercial

Key applications

- High rise residential
- High rise commercial

Sources for more information

[Click here for British Gypsum White Book](#)



For illustrative purposes only.

Internal partitions and walls (including timber)

Internal partition system for all applications from high-performance walls to space division.

Partitions

We offer a range of partition systems with enough flexibility to meet your buildings specific requirements, providing a range of fire performances.

Fire protection
30 to 240 minutes

Fire resistance standard tested to
BS EN 1364-1

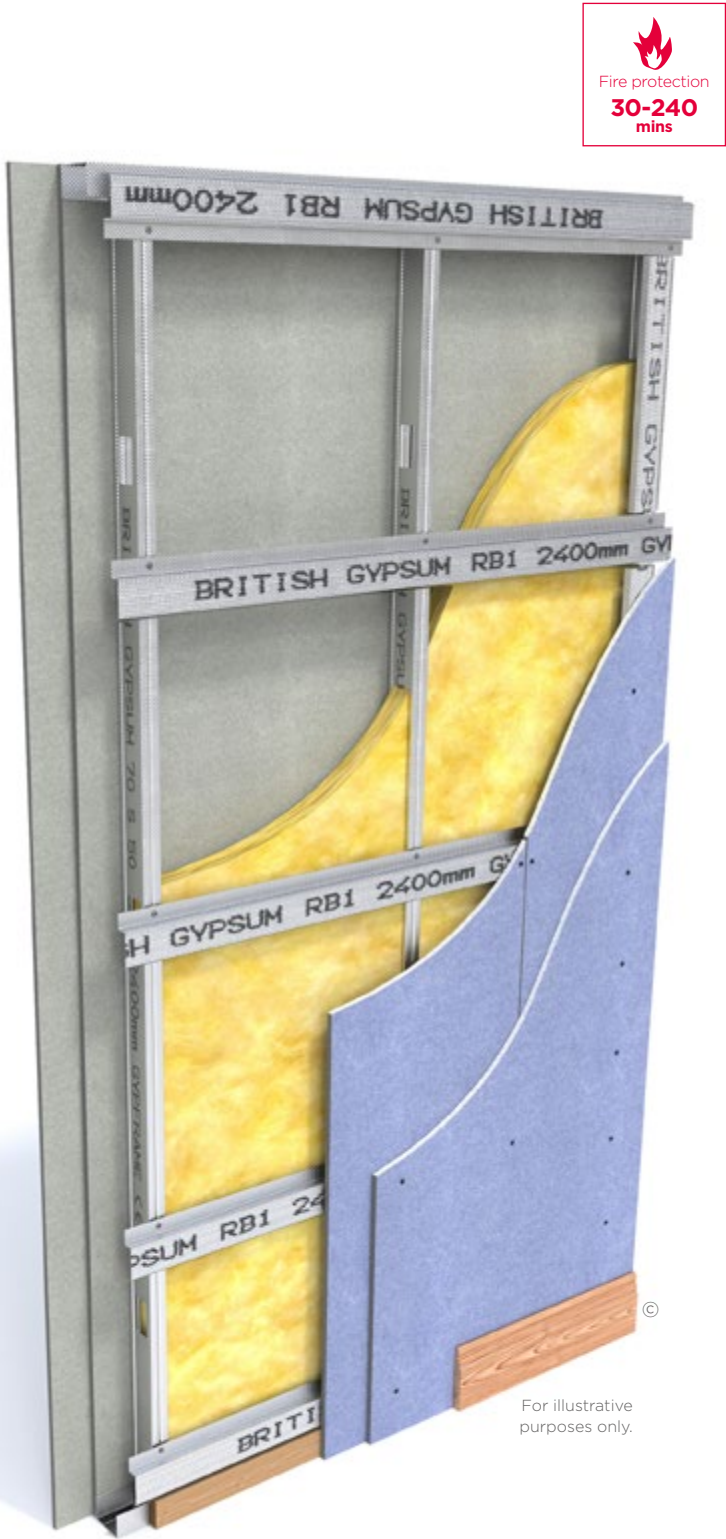
Reaction to fire
Euroclass A1 or A2 rating depending on products used. Reaction to fire performance excludes timber frame components

- Key features**
- Versatile systems that offer key building performances which can be achieved through the selection of the correct Gyproc plasterboard, Gypframe metal, Isover insulation and Gyproc jointing materials or Thistle finish plasters
 - **SpecSure®** lifetime warranty available
 - Medium, heavy and severe duty rating options
 - Quick to install compared to masonry constructions, allowing transformation of building layouts in minimal project time
 - Acoustic performance from 34-80 R_wdB

Key sectors
Commercial and residential

Key applications
Internal partitions and walls

Sources for more information
[Click here for British Gypsum White Book](#)



For illustrative purposes only.

Wall linings

Versatile system for wall lining applications.

GypLyner Independent

Use our GypLyner Independent system to upgrade the fire and thermal performance, sound insulation and aesthetics of your space with our independent framed wall lining system.

Fire protection
30 to 90 minutes

Fire resistance standard tested to
BS EN 1364-1

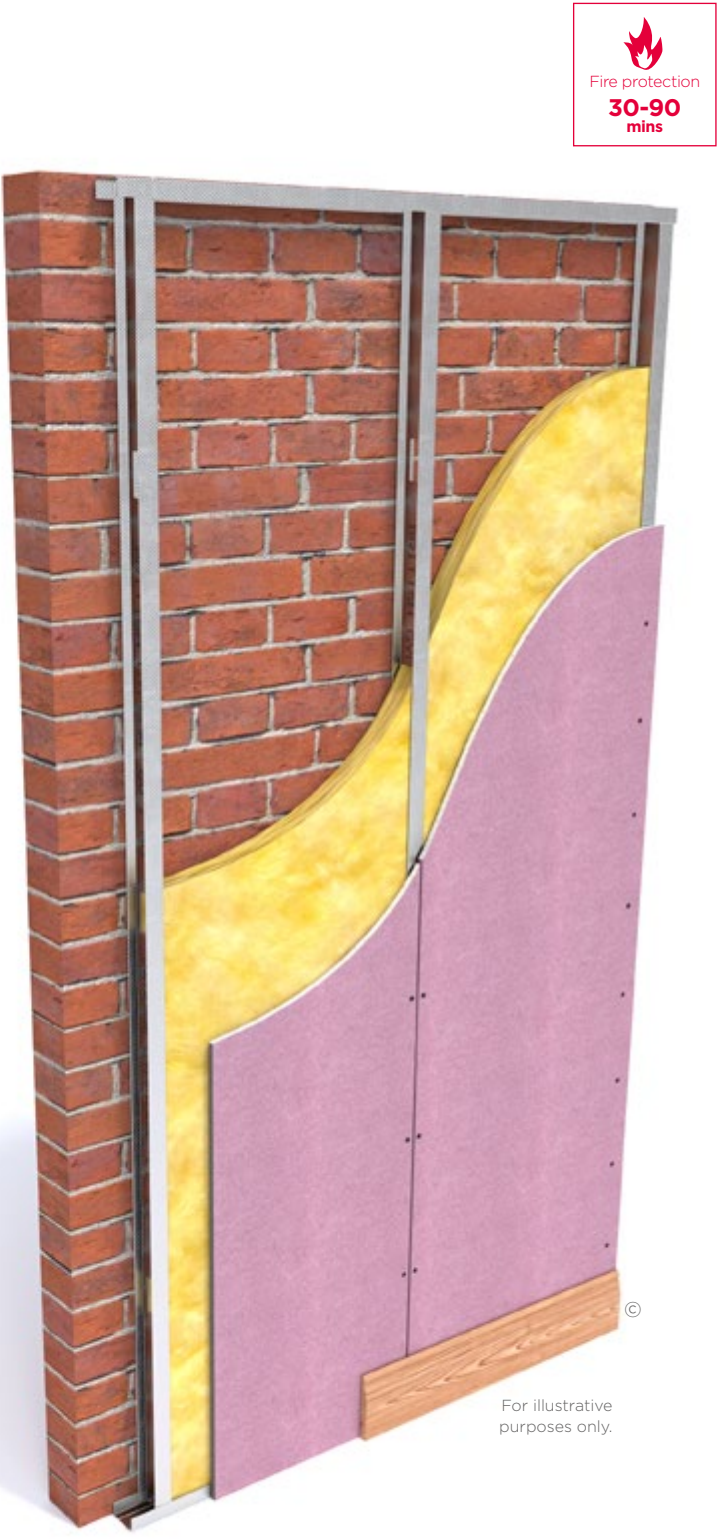
Reaction to fire
Achieves a Euroclass A2 rating

- Key features**
- Lets you install linings by fixing to the floor and soffit rather than the background; ideal for basements with waterproof tanking
 - **SpecSure®** lifetime warranty available
 - Provides thermal performance of between 0.35 and 0.16W/m²K
 - Medium, heavy and severe duty rating options allowing flexibility of design
 - Conceals external wall surface irregularities behind an independent framework
 - Gives you unlimited cavity space for installing services easily
 - Reduces cold bridging with its totally independent framework
 - Capable of protecting enclosed structural steel from fire while improving acoustics, abutments, windows and deflection requirements

Key sectors
Commercial and residential

- Key applications**
- Wall linings
 - Improvement work

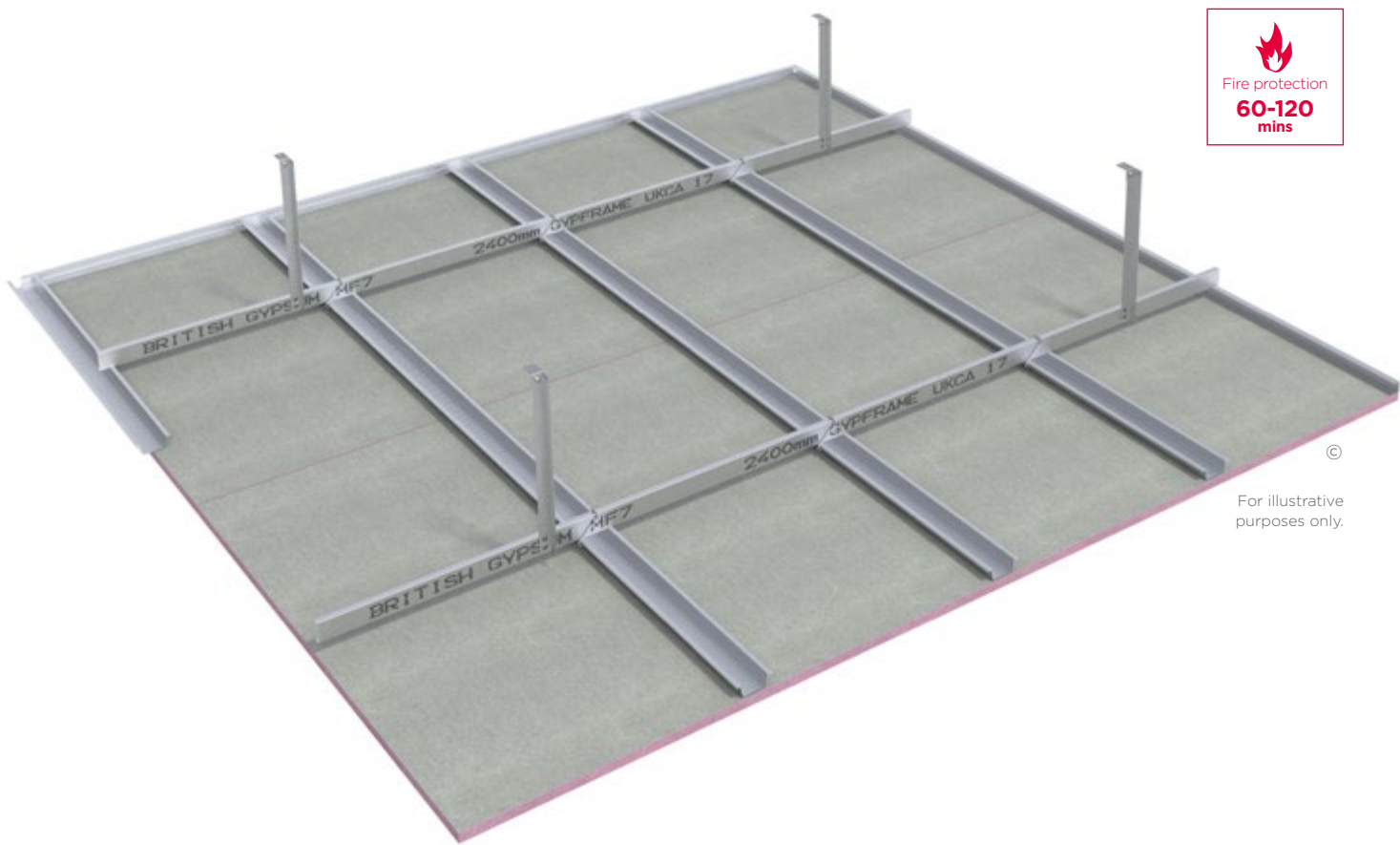
Sources for more information
[Click here for British Gypsum White Book](#)



For illustrative purposes only.

Floors and ceilings

High-performance ceilings and insulating floor systems.



GypCeiling MF

Use our GypCeiling MF system to create seamless, high performance suspended ceilings with a tested fire performance.

GypCeiling Lining

Use our simple GypCeiling lining system for any project.

GypCeiling Shaft

Use our GypCeiling Shaft system to create a free-spanning ceiling membrane that requires no support from the soffit.

Fire protection
60 to 120 minutes

Fire resistance standard tested to
BS EN 1364-2

Reaction to fire
Euroclass A1 or A2 rating depending on products used

- Key features**
- SpecSure® lifetime warranty available
 - Acoustic performance - airborne and impact
 - Services inspection and access points are easily included during design or installation

Key sectors
Commercial and residential

Key applications
Ceilings

Sources for more information
[Click here for British Gypsum White Book](#)



GypFloor Silent

Enhance acoustic comfort in your home with our GypFloor Silent sound insulating floor system with a tested fire performance.

Fire protection
Up to 60 minutes

Fire resistance standard tested to
BS EN 1365-2

Reaction to fire
Achieves a Euroclass A2 rating

- Key features**
- Reduces both impact and airborne noise transfer
 - SpecSure® lifetime warranty available
 - Versatile systems that offer acoustic performances, airborne and impact noise reduction"
 - Adds only 7mm to the existing floor height

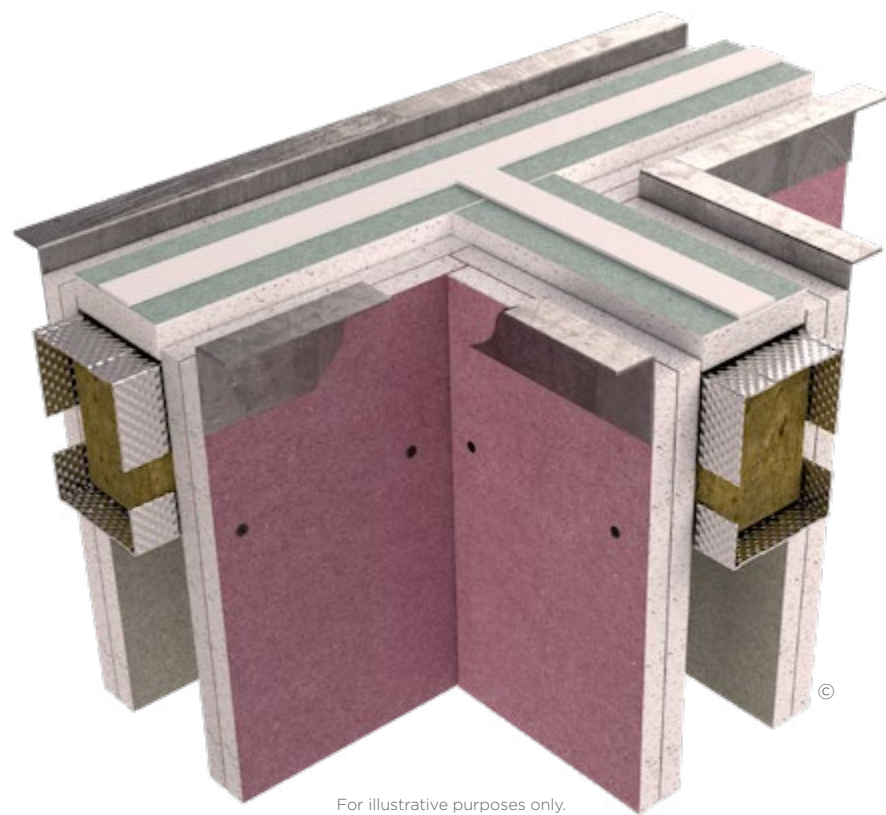
Key sectors
Residential

- Key applications**
- Residential conversions
 - Improvement work

Sources for more information
[Click here for British Gypsum White Book](#)

Deflection heads (including Fire Strip)

Fire and acoustic tested details used at the top of partition systems when needing to allow for structural movement of the floor or roof above.



For illustrative purposes only.

Deflection heads

Deflection heads are used within our GypWall partitions and linings or GypWall Shaft systems when needing to allow for vertical movement (up, down or both) within the structure at the head of a partition. This movement (or deflection) as determined by a structural engineer is created by live and dead loads on the floor or roof above. The partition system below needs to accommodate this movement without transferring load onto the metal studs.

Fire protection

N/A – dependent on the performance of the associated system

Fire resistance standard tested to

BS EN 1364-1

Key features

- Offers a range of head details that allow the top of the partition to move independently of the metal studs
- Maintains the structural performance and any fire resistance required

Key sectors

Commercial

Key applications

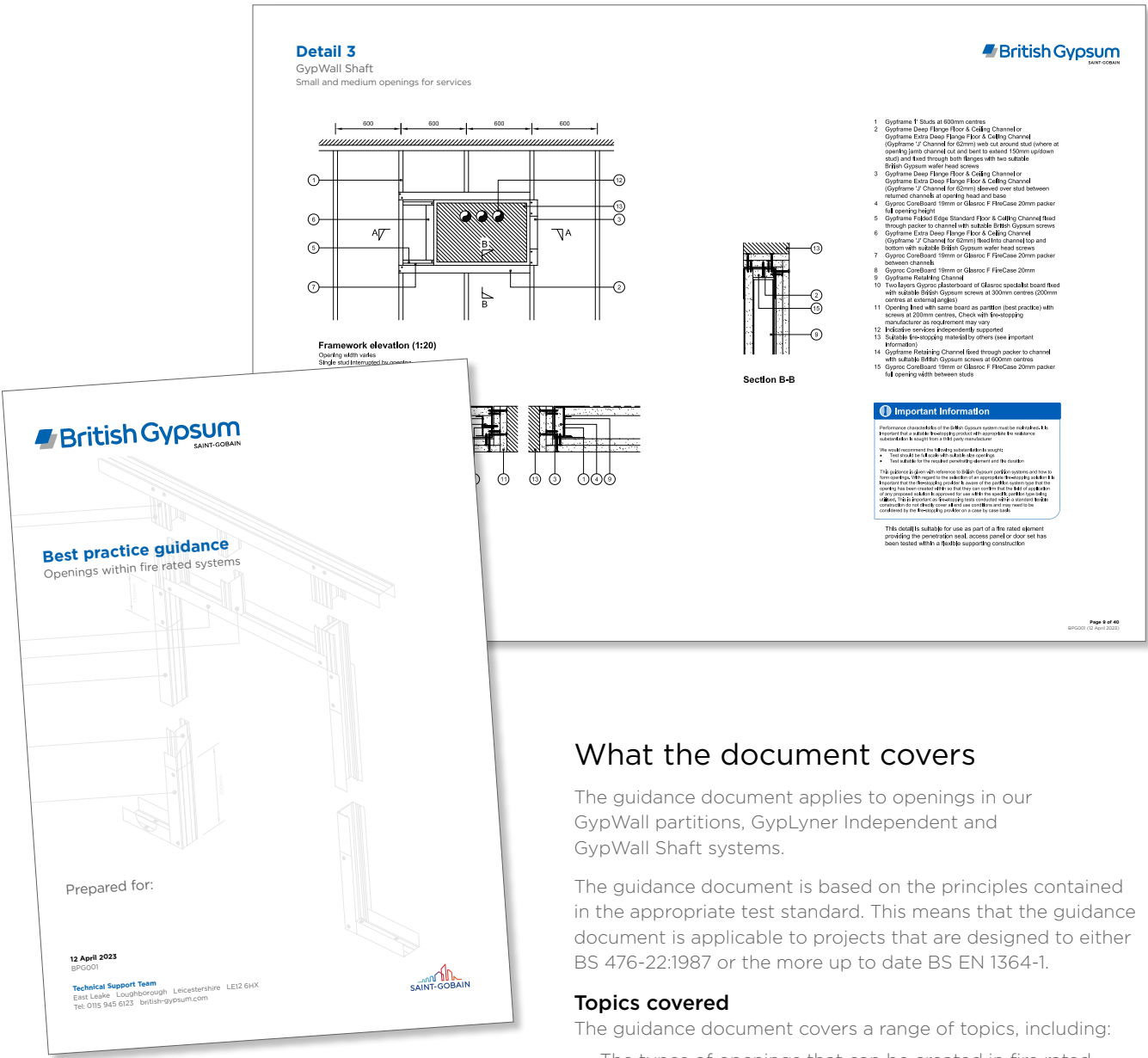
Typical deflection head details for each system can be found in the White Book Specification Selector

Sources for more information

[Click here for British Gypsum website](#)

Best practice guidance for openings in fire rated systems

Our best practice guidance document provides information on how to create openings in fire rated systems while maintaining the fire resistance rating of the system.



What the document covers

The guidance document applies to openings in our GypWall partitions, GypLynr Independent and GypWall Shaft systems.

The guidance document is based on the principles contained in the appropriate test standard. This means that the guidance document is applicable to projects that are designed to either BS 476-22:1987 or the more up to date BS EN 1364-1.

Topics covered

The guidance document covers a range of topics, including:

- The types of openings that can be created in fire rated systems
- The requirements for fire stopping around openings
- The installation of fire stopping

Sources for more information

[Click here for Best practice guidance for openings in fire rated systems](#)

Experts in testing and support

We're committed to being your trusted partner throughout your project. As a specifier of our systems, we'll support you with technical advice to help guide you to the best solution for your design.

Extensive test reports

Our 13,000+ test reports cover almost every possible performance combination of our internal partitions, wall linings, and ceilings, ensuring our systems are the most comprehensively and accurately tested systems on the market.

Building Test Centre (BTC)

We use the UKAS-accredited Building Test Centre (BTC), which is one of the best fire, acoustic and structural testing facilities in Europe.

Technical Support Team

Our Technical Support Team are here to ensure you receive the best possible advice. Our advisors are knowledgeable on legislation, system and product performance, and can help you with any technical queries you have that relates to a project. We'll support you on the topic of fire protection as well as acoustic, structural, thermal, moisture and sustainability requirements.

Our technical consultants are all highly trained in all aspects of passive fire protection, many have achieved industry recognised qualifications such as IFE (Institute of Fire Engineers) Level 3 Certificate in Passive Fire Protection. They also regularly attend fire tests to enhance their understanding of how products and systems perform in fire tests.

Whether you have a technical advice enquiry or need on-site support or full off-site training, we can provide the help and technical guidance you need.

Training Academies

We've invested in our training academies and facilities to make our industry-recognised training easy and accessible to everyone. Our academies are both CITB and FIS-approved training providers and hold ISO 9001, ISO 14001 and ISO 45001 certifications. We help to train around 5,000 professionals each year aiding them to gain specialist knowledge in all aspects of plastering and drylining.

Continuing professional development (CPD)

We have a RIBA-approved fire protection CPD titled 'Designing the drylining package to inhibit fire growth'. The CPD covers the following:

- The fundamentals of fire design when specifying internal lining systems
- How to design room interiors to inhibit fire growth
- How to protect the structural elements of a building in a fire to prevent structural collapse
- How to achieve fire compartmentation when specifying wall, ceiling and floor constructions
- What you get with the British Gypsum **SpecSure®** Warranty offer.

The CPD can be accessed through our website.

SpecSure® lifetime system warranty

Our **SpecSure®** warranty guarantees our systems will perform as specified, for the lifetime of the building. So you can rest assured your British Gypsum system is developed, tested and supported by drylining specialists, protecting the future of your building and its users.

For further information on the **SpecSure®** lifetime system warranty visit british-gypsum.com






British Gypsum
 Head Office, East Leake,
 Loughborough,
 Leicestershire, LE12 6HX
 T: 0115 945 1000
british-gypsum.com

 ISO 9001 Quality Management	ISO 45001 Occupational Health and Safety Management	ISO 14001 Environmental Management	ISO 50001 Energy Management
FM550533	OHS550586	EMS543324	ENMS606206

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British Gypsum reserves the right to revise product specification without notice. The information herein should not be read in isolation as it is meant only as guidance for the user, who should always ensure that they are fully conversant with the products and systems being used and their subsequent installation prior to the commencement of work. For a comprehensive and up-to-date library of information visit the British Gypsum website at: british-gypsum.com. For information about products supplied by Artex Limited or Saint-Gobain Isover please see their respective websites.

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