

The Association for Specialist Fire Protection



Fire Containment in Tall Buildings

For the Life of the Building

Wilf Butcher, CEO

Association for Specialist Fire Protection

Pioneering fire protection through innovation and professionalism

The Association for Specialist Fire Protection



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Who is the Association made up of?

The ASFP remit and its membership reflect and respond to the significant changes and challenges that are taking place at many levels within the PFP sector

Manufacturers
Specialist contractors
Testing and certification bodies
Tier 1 Contractors
and
many other
associate members



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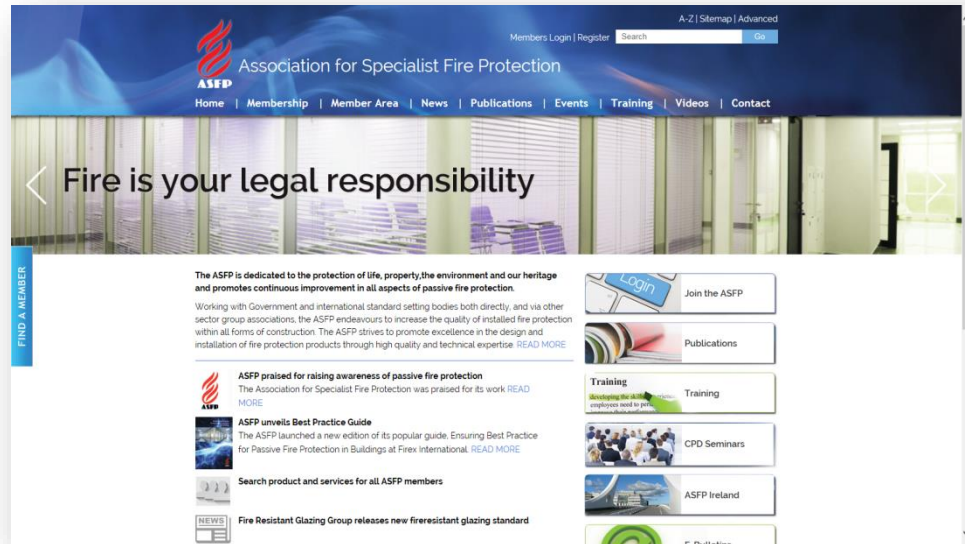


ASFP's support services

What are they designed to achieve?

Industry guidance

The ASFP's website offers comprehensive technical support to the professional at a number of levels



www.asfp.org.uk

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Who's responsibility is it?

From the owners perspective



**How important are the fire safety
measures inbuilt into the building design?**

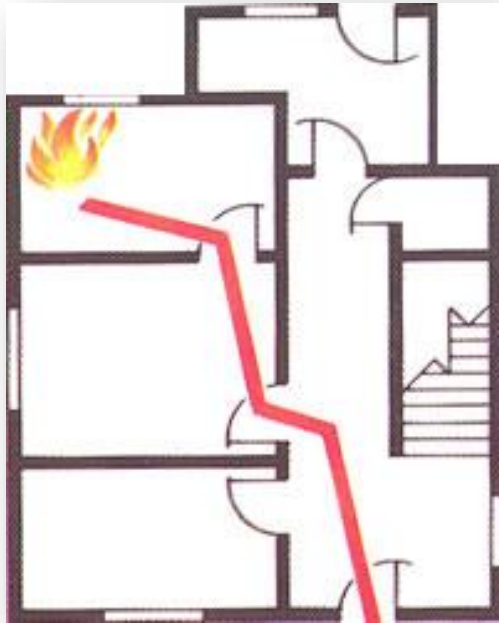
Why is this such an important question?

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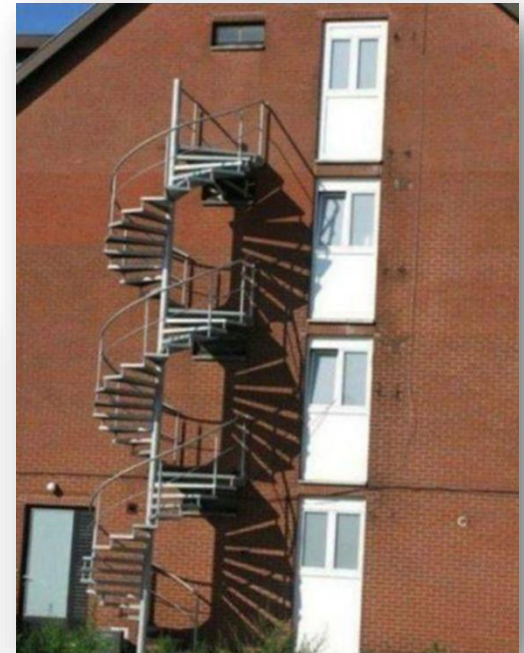


Who's responsibility is it?

Fundamentally is the building owner aware of the difference between:



Protecting people from a fire in a building to ensure a safe means of escape

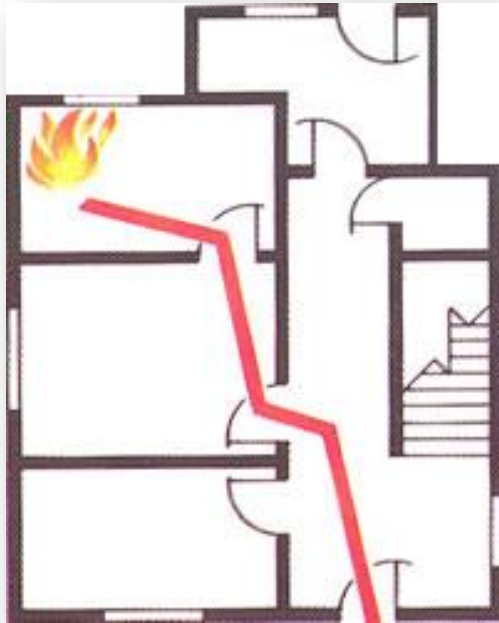


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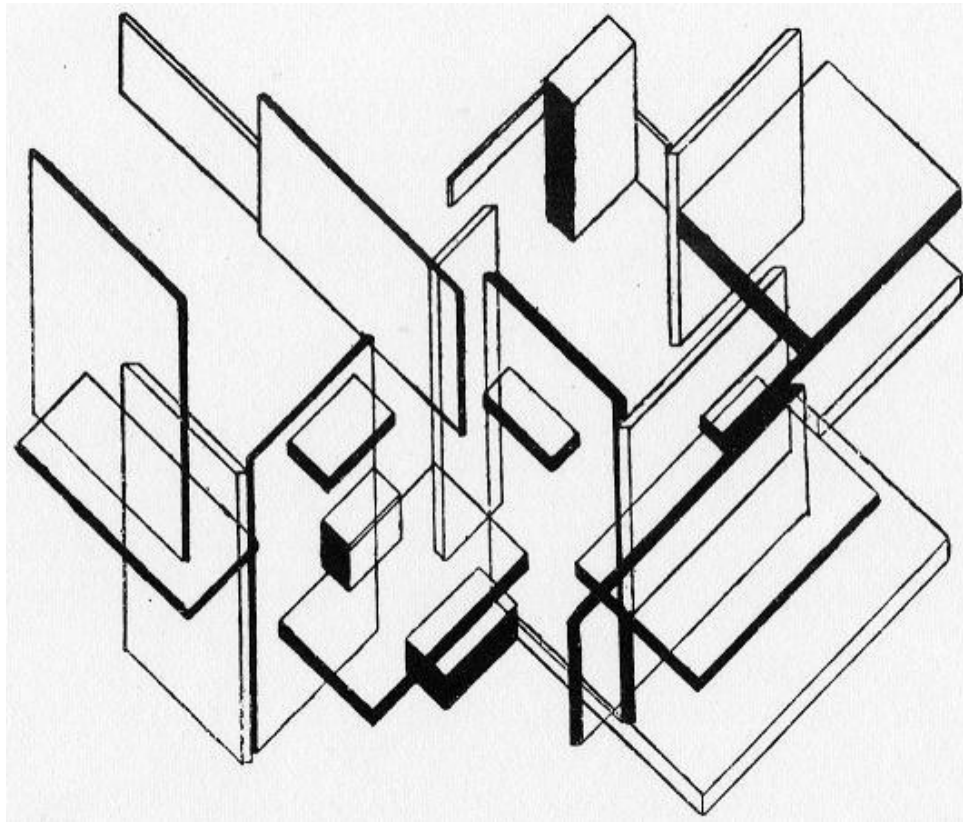
**Protecting people
from a fire in a
building to ensure a
safe means of escape**

Or

**Protecting the
building itself
from fire**



Who's responsibility is it?



And it all starts with the design

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Who's responsibility is it?



This apartment building has 30 different façade types. Multiple contractors responsible for the fire stopping installation

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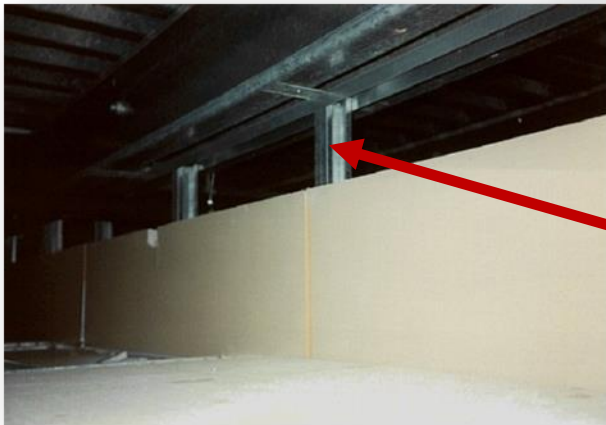
Who's responsibility is it?

Passed on the Main Contractor

The owner



Follow on Trades



The Main Contractor

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Who's responsibility is it?



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Who's responsibility is it?

What you will see in the future?



WARNING!
THIS IS A FIRE RESISTING PARTITION
Cutting holes in it may destroy its fire integrity. Consult the O&M manual or visit asfp.org.uk

FIS
FINISHES & INTERIORS SECTOR


ASFP
ASSOCIATION
FOR SPECIALIST
FIRE PROTECTION



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The Reality of Fire

Given the resources fire damaged buildings can always be rebuilt



Their priceless content however will be lost forever

Statistically 40% of businesses will be out of business within 12-18 months following a major fire

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The Reality of Fire

Is designing for or building in an appropriate fire solution simply a matter of determining what is suitable and sufficient?



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The Reality of Fire

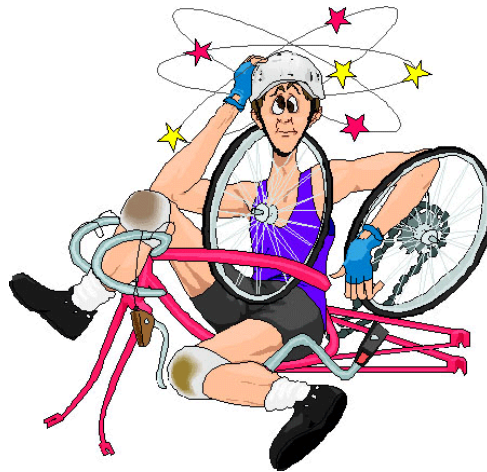
Is designing for or building in an appropriate fire solution simply a matter of determining what is suitable and sufficient?



Or is the route to construction a little more complex!

The Reality of Fire

Is designing for or building in an appropriate fire solution simply a matter of determining what is suitable and sufficient?



Or is the route to construction a little more complex!

Statutory guidance documents

- **Statutory guidance documents**

- England & Wales – Approved Document B 2006
- Scotland – Technical Handbook B 2010
- Northern Ireland – Technical Booklet E 2005
- Republic of Ireland – Technical Guidance Document B 2006

- **Other codes of practice**

- BS 9999: Fire safety in the design management and use of buildings
- BS 9991: for residential buildings
- BS 7974: Application of fire safety engineering principles to the design of buildings
- Department of education BB 100 Design for fire safety in schools
- Health Technical Memorandum 05 – 01, 05 – 02A, 05 – 02B, 05 – 03

The Building Regulations

Approved Document B: 2006

- Lists the requirements for fire resistance of compartment walls and floors, including any steel passing through the compartment wall/floor.
- Section 10.2 – ‘If a fire separating element is to be effective, every joint or imperfection of fit, or opening to allow services to pass through the element, should be adequately protected by sealing or fire-stopping so that the fire resistance of the element is not impaired’
- Section 10.17 – ‘In addition to other requirements for fire-stopping, all joints between fire separating elements should be fire stopped, and all openings for pipes, ducts, conduits or cables to pass through any part of a fire separating element should be
 - Kept as few in number as possible
 - Kept as small as possible
 - Fire stopped [which in case of a pipe or duct, should allow thermal movement]

The Building Regulations

Technical Guidance Document B: 2006



This can be the reality!

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The Building Regulations

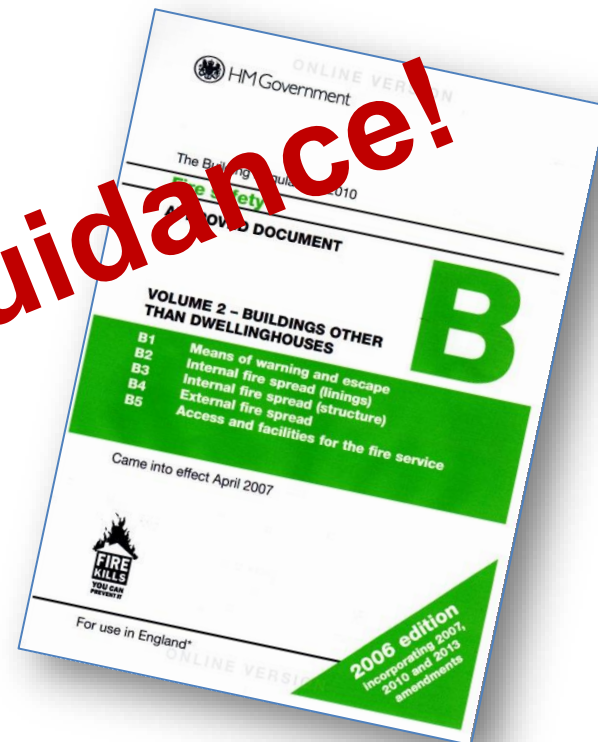
The England and Wales Building Regulations also state:

3rd Party Installation Certification

ADB 0.20

‘.... provide a means of ensuring that installations have been conducted by knowledgeable contractors to appropriate standards, thereby increasing reliability of the anticipated performance in fire’

This is the guidance!



The Building Regulations



3rd Party Certification is not mandatory!

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The Building Regulations

Regulation 7

“building work shall be carried out with adequate and proper materials which are appropriate for the circumstances in which they are used”



But is it all not just common sense?

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The Building Regulations



I think I have made my point!

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So who takes responsibility?

FIRE AND YOUR LEGAL LIABILITY

If you are involved in provision of fire protection, at any level, then you share liability for its usefulness and its operation when it's needed in fire, and that liability will still be there in the event of a court case.



Which is why proof of competency is essential

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The responsibility is yours

FIRE AND YOUR LEGAL LIABILITY

If it is your responsibility to specify the materials and/or appoint the installation contractor, it is also your responsibility to ensure that they can prove competency for the fire protection materials used, or the works to be carried out. It's no longer simply a duty of care or voluntary – **it's a legal obligation.**



Are you competent?

The responsibility is yours

FIRE AND YOUR LEGAL LIABILITY

If it is your responsibility to manage or install passive fire protection products, materials or systems, it is also your responsibility to ensure that they are 'fit for purpose' i.e. that the manufacturer's fire test and certification evidence fully covers the intended use.



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The responsibility is yours

FIRE AND YOUR LEGAL LIABILITY

It is also your responsibility to ensure that the installer can demonstrate appropriate competency in the installation of the passive fire protection products, materials and systems used.



It's no longer simply a duty of care or voluntary – **it's a legal obligation**

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The responsibility is yours

FIRE AND YOUR LEGAL LIABILITY

It is your responsibility to ensure that any installation of, or repair to, passive fire protection is undertaken by those with sufficient competency



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The responsibility is yours

FIRE AND YOUR LEGAL LIABILITY

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So who takes responsibility?

FIRE AND YOUR LEGAL LIABILITY



But what are the options?

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Understanding 3rd Party Certification

First-party certification

An individual or organization providing the goods or service offers assurance that it meets certain claims

Second-party certification

An Association to which the individual or organization belongs provides the assurance

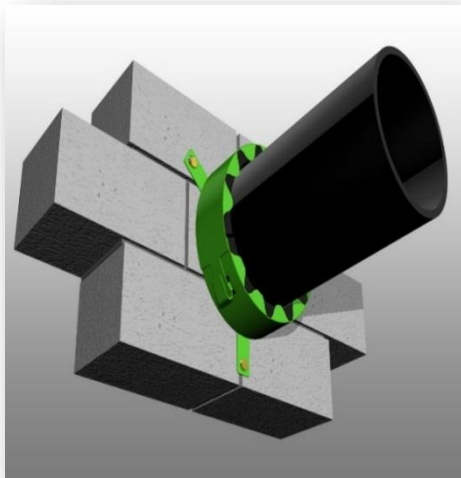
Third-party certification (As accredited in the UK by UKAS)

An independent assessment declaring that specified requirements pertaining to a product, person, process or management system set out in a scheme document or BS / EN / ISO Standard have been met.

Understanding 3rd Party Certification

Certification falls into two camps

Product Certification



Installer Certification



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Understanding 3rd Party Certification

What can you expect from 3rd Party Product Certification?

- Performance of products from a range to be tested (not single tests)
- Evidence from tests used in assessments to create a scope of certification to cover performance of product range
- Factory Production Control audits / inspections of production of the products, typically these will be conducted annually.
- Requirements for manufacturers to declare changes to products
- Ongoing product verification (audit tests / inspections) at predetermined frequencies.

Understanding 3rd Party Certification

Product certification is just one part of the essential mix!

Without competent installation there can be no assurance that the product or system installed will be fit for purpose in a real fire scenario!



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Understanding 3rd Party Certification

Which is why installer 3rd party certification is essential

Audit of company operational / management procedures and processes (typically annual)

Regular inspection of ongoing site work

Competence assessment of supervision and installation personnel at site

Award of certificate confirming scope of product types company can install under certification

Understanding 3rd Party Certification

Which is why installer 3rd party certification is essential

Listing of company on certification body website for access by regulatory authorities, building owners, insurers, management contractors etc.. providing assurance.

Ability to issue a certificate of conformity to the client for works carried out on each specific project which is supported by the certification body

Understanding 3rd Party Certification

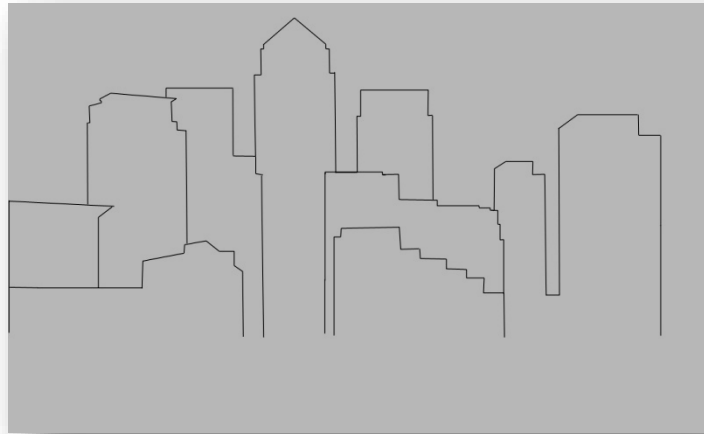
For nearly two decades all ASFP Contractors have been required to gain 3rd Party Certification from a UKAS accredited Certification Body as a mandatory requirement of entry to and membership of the ASFP



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A building is for life!



At the turn of last decade the ASFP completed a detailed three-year ‘Partners in Innovation’ project, partly funded by the then Office of the Deputy Prime Minister and the Department of Trade & Industry, where independent research on fire safety provisions in a wide variety of nominated types of buildings was collected.

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A building is for life!

A high percentage of compartment walls were either defective, through poorly installed fire stopping of penetrating service systems, or invalidated by incompetent maintenance



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A building is for life!

Or worse, no fire protection measures at all



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The Reality of Fire

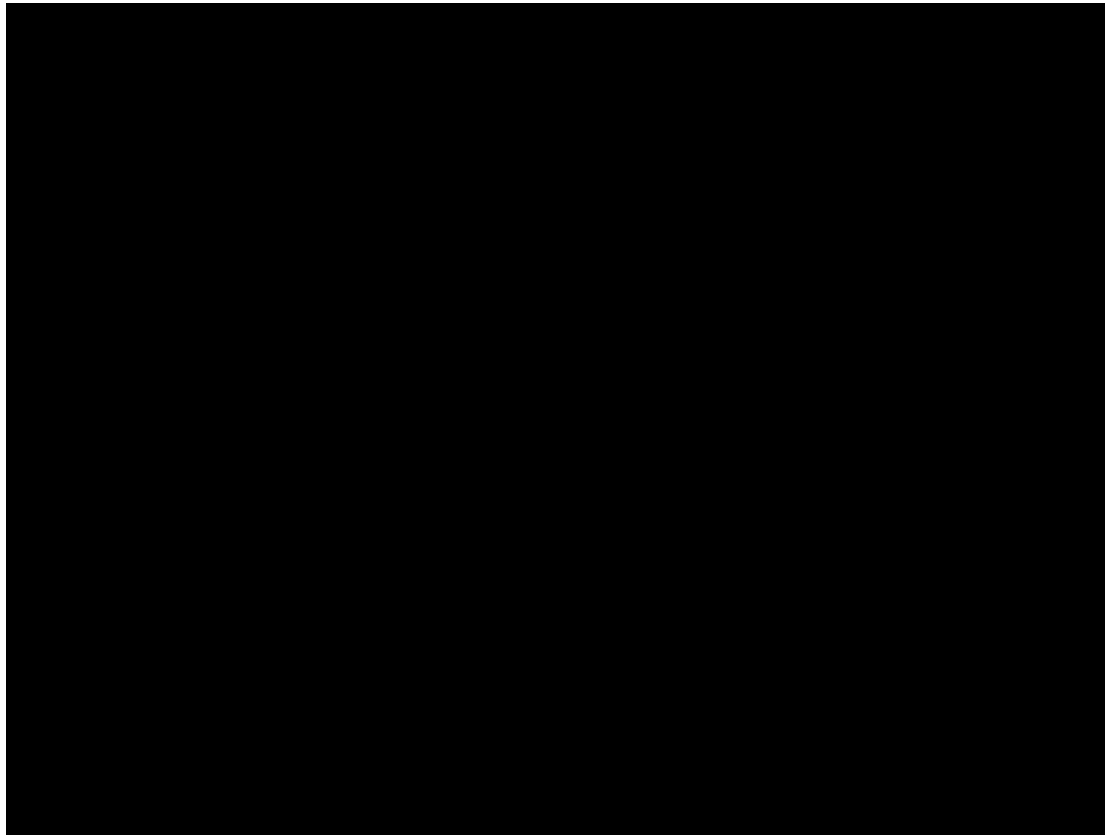
How many in this room have experienced a real fire situation?

Other than fire fighters
few of us have had to
face the reality of fire
and smoke spread!



The Reality of Fire

People do not operate on computer logic

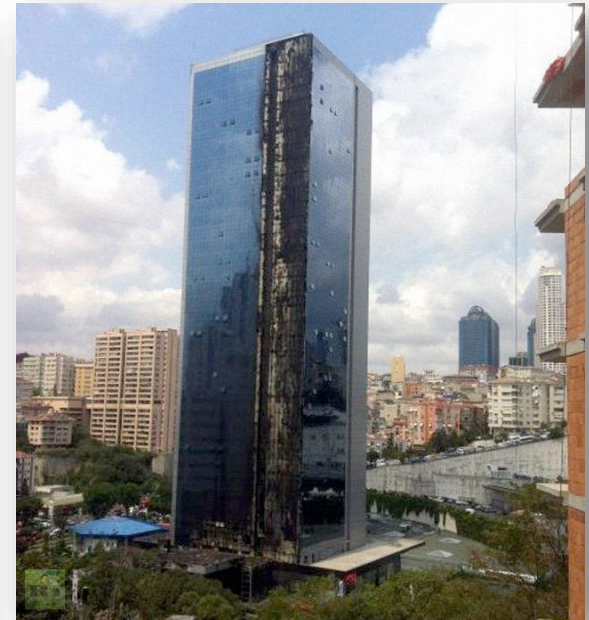


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The Reality of Fire

Fire in Tall Buildings - Are they a special case?



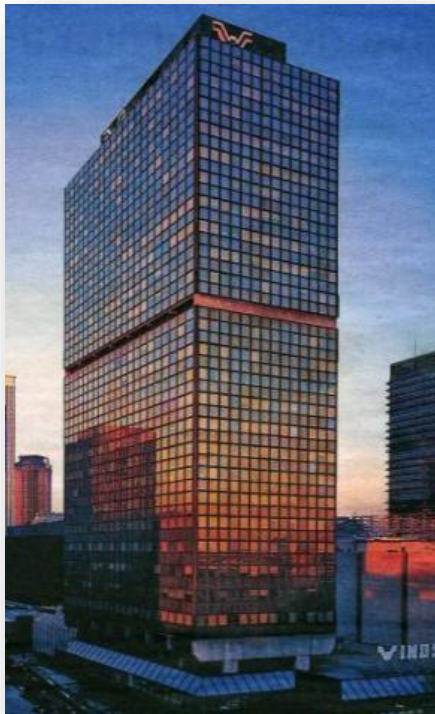
Polat Tower Fire, Istanbul July 2012

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The Reality of Fire

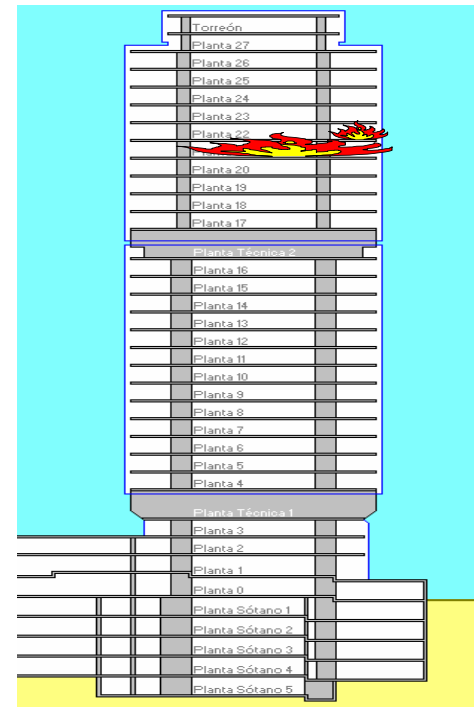
Fire in Tall Buildings - Are they a special case?



**Torre
Windsor
Madrid 2005**

**Built in
1970's**

**No slab edge
firestops**



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The Reality of Fire

Fire in Tall Buildings - Are they a special case?



**Fire started 21st
floor**

**Spread to all 30
above ground
floors**

Burning droplets



Basement floors were not affected, proving that the deficiency was in the slab edge fire protection, not fire stopping around services

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The correct specification and installation of fire-stopping

How do you know what is correct and what is incorrect?



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The correct specification and installation of fire-stopping



Arguably this is obvious!

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The correct specification and installation of fire-stopping

But is this?



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The correct specification and installation of fire-stopping

Or these?



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The correct specification and installation of fire-stopping

Or these?



Just because it may look right does not necessarily make it so!

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The correct specification and installation of fire-stopping

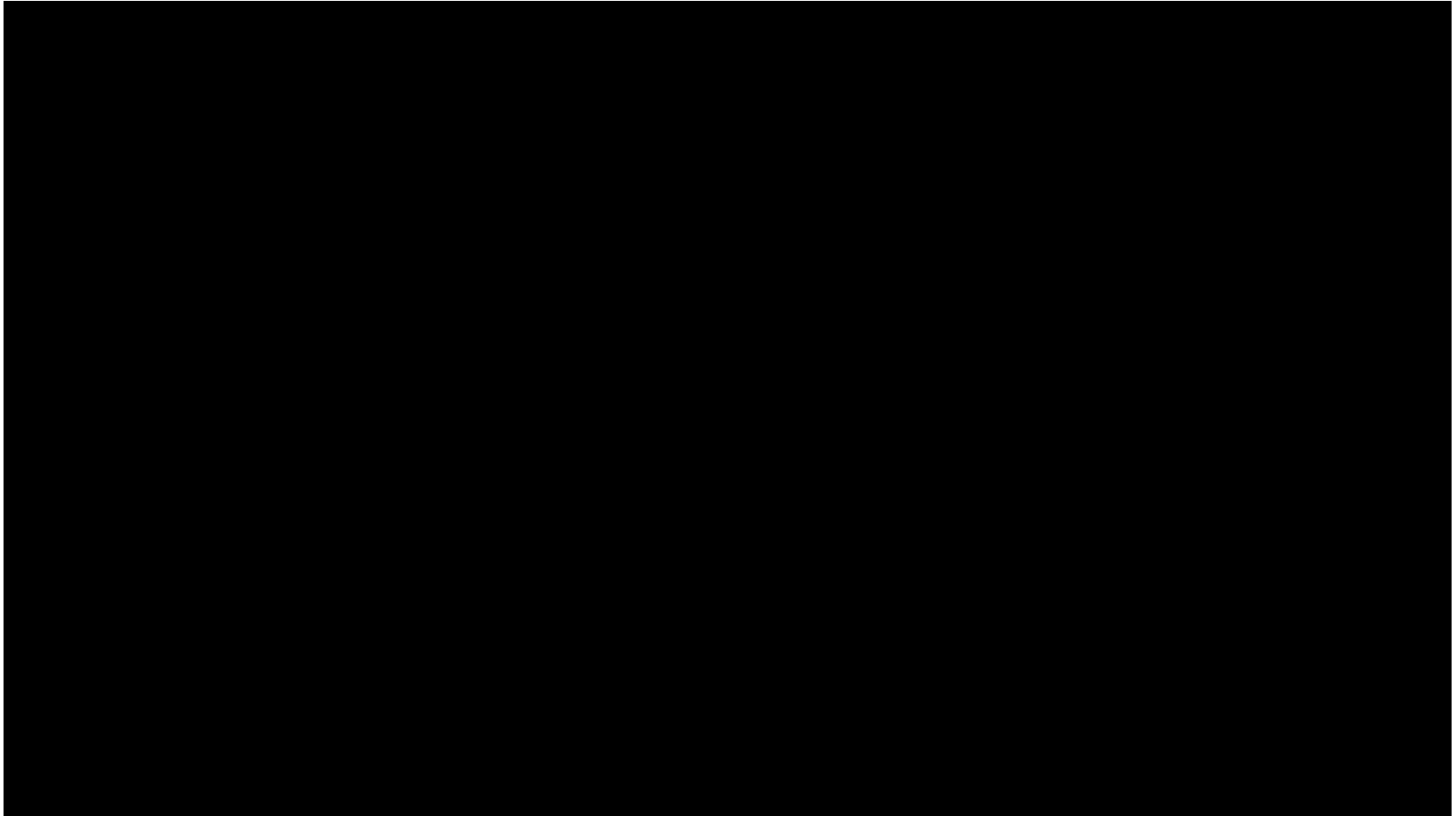
Because it implies so on the tin does not mean this to always be the case!



Depth mm	Width mm				
	10	20	30	40	50
10	280	140	93	70	56
20	140	70	46	35	28
30	93	46	31	23	18
40	70	35	23	17	14
50	56	28	18	14	11

Up to 4hrs fire rating But only in the right context

The correct specification and installation of fire-stopping



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Essential reading

Coloured Books

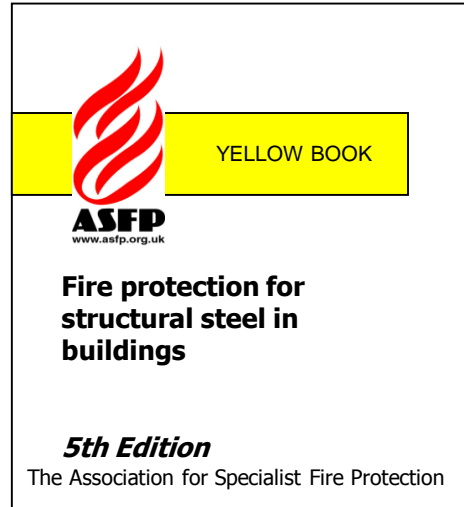




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RED BOOK

Fire stopping & penetration seals for the construction industry

4th Edition
The Association for Specialist Fire Protection

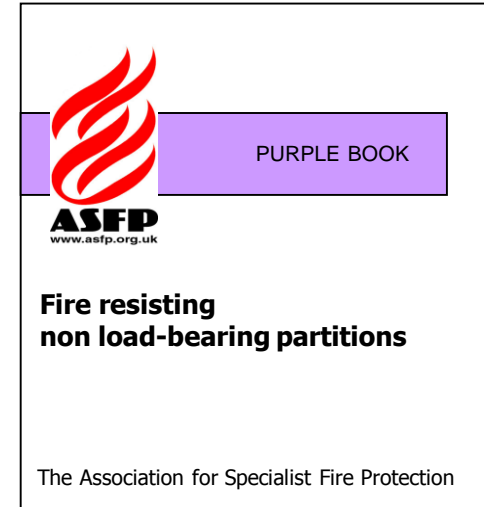




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YELLOW BOOK

Fire protection for structural steel in buildings

5th Edition
The Association for Specialist Fire Protection

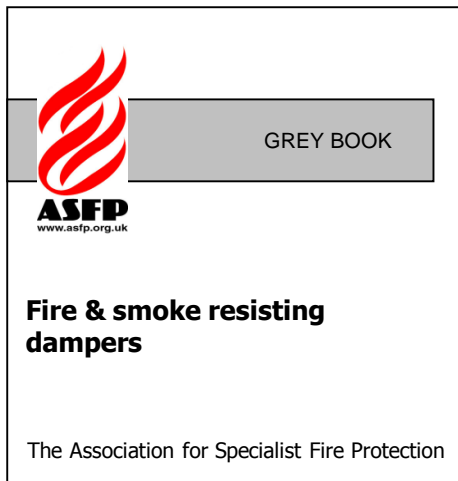




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PURPLE BOOK

Fire resisting non load-bearing partitions

The Association for Specialist Fire Protection

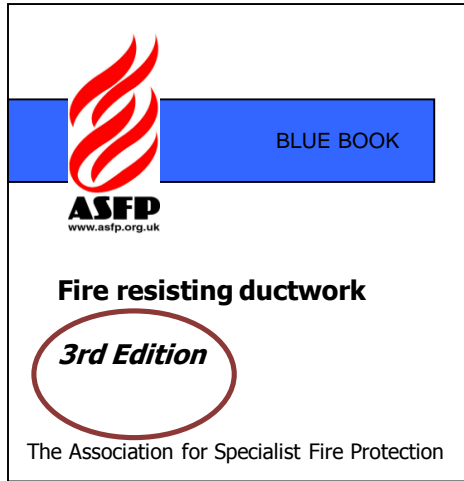




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GREY BOOK

Fire & smoke resisting dampers

The Association for Specialist Fire Protection

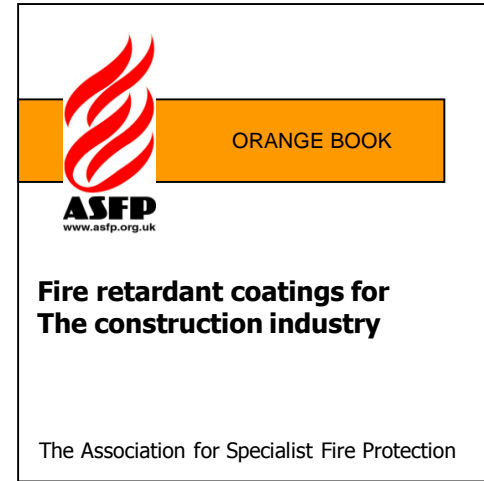




ASFP
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BLUE BOOK

Fire resisting ductwork

3rd Edition
The Association for Specialist Fire Protection




ASFP
www.asfp.org.uk

ORANGE BOOK

Fire retardant coatings for The construction industry

The Association for Specialist Fire Protection

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Essential reading

The 4th Edition of the Red Book



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Essential reading

The 4th Edition of the Red Book

1. How to use this document



Figure 1 – typical applications for fire-stopping systems

Fire-stopping is used for sealing apertures and imperfections of fit, or design tolerance between fire resisting walls, floors and ceilings to restrict the passage of fire and smoke. Fire-stopping products should generally have at least the fire resistance as the separating elements into which they are installed.

If you are involved in the specification, purchase, commissioning or maintenance of firestopping, this publication documents everything you need to know. You can use the document as a reference document as required, or you can read the whole document if you wish to gain a full insight into the topic.

There are many types of fire-stopping, some purpose made for specific applications. Figure 1 above illustrates the most common types which are described in more detail in Section 3. An understanding of the various properties of the different types of fire-stopping will enable correct selection of the most appropriate fire-stopping product/system.

- The main generic types of fire-stopping are described in Section 3
- How to select a suitable fire-stopping system is given in section 4
- Best practice guidance is covered in section 5
- Building regulations and other requirements are given in section 6
- How fire-stopping is fire tested is considered in section 7
- CE marking and third party certification of fire-stopping are dealt with in sections 8 & 9 respectively
- Rules for acceptance of Summary Data Sheets are given in section 11.

Essential reading

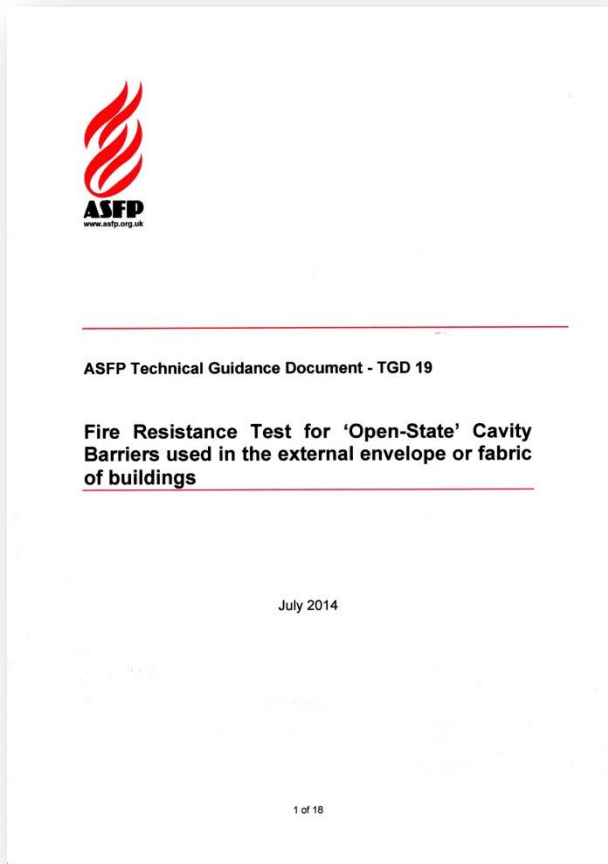
ASFP On-site guide to installing fire-stopping



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Essential reading



ASFP TGD 19 FIRE TEST METHOD FOR CAVITY BARRIERS INCLUDING 'OPEN STATE'

- Complete & published in late 2014
- Used as a model for the CEN fire test method
- Number of manufacturers have done tests to it
- Aim is to correlate with Large scale test to be developed by CEN/EOTA

Essential reading

ASFP TGD 19 FIRE TEST METHOD FOR CAVITY BARRIERS INCLUDING 'OPEN STATE'

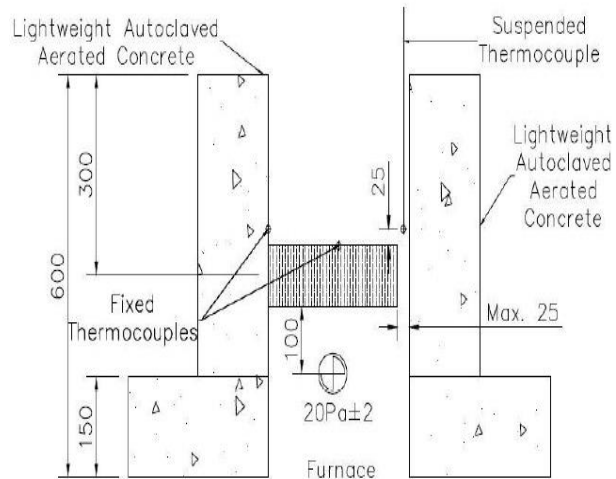


FIG 1c

- Complete & published in late 2014
- Used as a model for the CEN fire test method
- Number of manufacturers have done tests to it
- Aim is to correlate with Large scale test to be developed by CEN/EOTA

6.4.2.2 General test set up cross section (Timber frame to non-combustible cladding)

Essential reading

TGD 17 CODE OF PRACTICE FOR INSTALLING FIRESTOPPING

Aimed at Responsible Persons, Designers, Specifiers, those commissioning firestopping and managers of contracting companies



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Essential reading

TGD 17 CODE OF PRACTICE FOR INSTALLING FIRESTOPPING

Aimed at Responsible Persons, Designers, Specifiers, those commissioning firestopping and managers of contracting companies

ACTIVITY	RESPONSIBLE PARTY & OTHER PROVIDERS	CLAUSE
Liaise with CDM coordinator to facilitate good communication between team members from design through to handover	Responsible party selected to suit the requirements of the individual project. System designer	1.2, 2, 3.6, 3.7, 4.2, 4.4
Conduct site inspection to confirm scope of penetration sealing systems	Responsible party selected to suit the requirements of the individual project. System designer	1.2, 2, 3.3, 3.6, 3.7,
Purchase approved fire stopping, penetration seals systems	Responsible party selected to suit the requirements of the individual project. Fire stopping manufacturer	Appendix A
Establish a practical site installation programme, in sequence, to allow each party sufficient time and space to perform their individual activities	Responsible party to suit the requirements of the individual project Contractors installing separating elements, fire stopping	1.2, 3.5, 3.6, Appendix A
Provide operatives with detailed drawings and installation instructions to complete a compliant fire resisting installation	Responsible party selected to suit the requirements of the individual project Fire stopping manufacturer and design lead contractor	3.3, 3.5, 3.6, 3.9, 4.4, 5, Appendix B
Undertake all pre-handover checks including installation checklist	Fire stopping installer Fire stopping installation supervisor	4.1, 4.3, Appendix B
Complete all handover and witnessing activities including the completion of the handover register	Fire stopping installation supervisor and the project CDM coordinator Fire stopping installer	4.1, 4.3, Appendix B

A building is for life!

The simple fact is that passive fire protection works!



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A building is for life!

The simple fact is that passive fire protection works!



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A building is for life!



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A building is for life!



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A building is for life!

The simple fact is that passive fire protection works!



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To Sum Up

What conclusions can we draw from this short presentation?

When it comes to fire protection,
there's nothing wrong with thinking
outside of the box.

Provided you understand the
consequences of getting it wrong!

Questions



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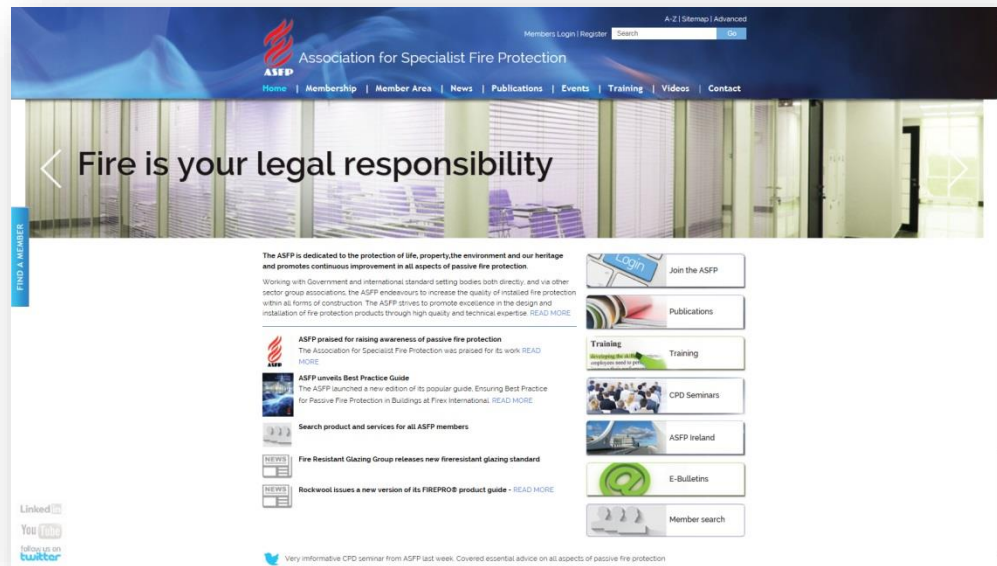
The Reality of Fire

Fire of polyurethane facade at Baku, Azerbaijan

<http://int.search.tb.ask.com/search/video.jhtml?searchfor=fa%C3%A7ade+fires+video&cb=HJ&pg=GGmain&p2=%5EHJ%5Exdm005%5EYYA%5Egb&n=781b898f&qid=0ebeb3204d14e7fa5314211d35341ba&ss=sub&pn=1&st=bar&ptb=EAA6D2E8-6D49-46C0-9FBD-6D2FE321951F&tpr=&si=CL6PxZS4xsYCFUzKtAodTAACJw&vidOrd=2&vidId=GnKiuKWEI0A>

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