ASFP Ireland - Fire Safety Certification

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Fires can be devastating with serious consequences
Fires in Ireland

- **Total No. of Fires**: Decreasing trend from 1998 to 2006.
- **Total No. Domestic**: Similar decreasing trend.
- **Fatalities**: Steady increase from 1998 to 2006.
- **Cost, Millions Euros**: Steady increase from 1998 to 2006.

Source: Fire Investigators Association of Ireland
Fires in the United Kingdom
Fires in the United Kingdom for 2007

• Fire deaths in the U.K. down by 10% to 443 (60% were accidental dwelling fire deaths) (DCLG).

• The cost of fire damage in the U.K. in 2008 rose by 16% compared to 2007, to a record £1.3billion (ABI).
Fire example: a fire in a timber framed building in London (July 2006)
Fire example: clothing warehouse, Lutterworth, Leicestershire (November 2005)
The worst scenario...loss of life!
Fire example: Penhallow Hotel, Cornwall (August 2007)
Fire example: Lakanal House, Camberwell, London (July 2009)
Why is there so much devastation when a fire occurs, sometimes resulting in loss of life?
Fire Compartmentation

(“The spread of fire within a building can be restricted by sub-dividing it into compartments separated from one another by walls and/or floors of fire resisting construction” – Approved Document B to the Building Regulations).
An incomplete gypsum wallboard compartment wall above a suspended ceiling system
An incomplete corner junction in a gypsum wallboard partition
A gypsum wallboard partition with a fully exposed head track
An incomplete head and corner junction in a gypsum wallboard partition
Interruption of the deflection head by unsealed steel conduits at the top of a partition
Inadequately fixed gypsum wallboard (wedge-fix) over an opening below a fire doorset
Incomplete compartmentation above a duct/damper – the partition steel frame is fully exposed
Missing layers in the partition and wallboard strips removed to allow for services
Incomplete gypsum wallboard partition above two steel ducts
Compartmentation under a raised floor comprising plywood and batt sealed with expanded polyurethane foam
Services through compartmentation below a raised access floor sealed with expanded polyurethane foam
Concealed spaces or cavities in the construction of a building provide a ready route for smoke and flame spread...as any spread is concealed, it presents a greater danger than would a more obvious weakness in the fabric of the building” – Approved Document B to the Building Regulations).
A rock wool cavity barrier with no vertical edge fix, minimal overlap at the head and no joint stitching.
A glass cloth cavity barrier with service penetrations sealed with aluminium foil tape
Inadequately installed cavity barrier screwed to a coated batt and the gypsum wallboard partition
Fire Rated Ducting

(“Where air handling ducts pass through fire resisting separating elements the integrity of those elements should be maintained…by using fire resisting ductwork” - Approved Document B to the Building Regulations).
Rock wool insulation attached to a kitchen extract duct using glue and self-adhesive pins for a 2 hour rating
An out-of-line fire damper with coated batt protection - not mechanically fixed
Fire Dampers

(“Where air handling ducts pass through fire resisting separating elements the integrity of those elements should be maintained…by using fire dampers”)

“Fire dampers should be situated within the thickness of the fire separating elements and be securely fixed” – Approved Document B to the Building Regulations).
A fire damper secured to the other side of the partition leaving the void of the partition fully exposed
An out-of-line fire damper in a gypsum wallboard partition and no mechanical fix
An out-of-line fire damper in a gypsum wallboard partition sealed with low density rock wool and no mechanical fix
A fire damper through a gypsum wallboard partition sealed with expanded polyurethane foam
Fire Doorsets

(“A door…which, together with its frame and furniture as installed in a building, is intended (when closed) to resist the passage of fire and/or gaseous products of combustion” – Approved Document B to the Building Regulations).
A fire doorset held open using a fire extinguisher
Excessive leaf-to-leaf gap
Incorrect positioning of intumescent seals in the frame
Unprotected letter box opening in this 30 minute flat front entrance doorset
The gap between the doorframe and the supporting construction must be adequately sealed.
Damaged and misaligned meeting edge of a double-leaf doorset
Structural Steel Protection

(“The building shall be designed and constructed so that, in the event of a fire, its stability will be maintained for a reasonable period” – Approved Document B to the Building Regulations).
Underthickness of the intumescent paint on the lower inner flange of a steel beam
Structural steel perimeter column not paint protected in the external facing web area
Incompatibility of the intumescent paint with the substrate causing massive delamination
Unsuitable weather conditions during application
Unsuitable weather conditions during application
Column-to-beam intersection sealed with expanded polyurethane foam
An intumescent paint protected ‘Fire Call Point’
Penetration Sealing Systems

(“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” – Approved Document B to the Building Regulations).
An unsealed opening in a gypsum wallboard partition below a raised access floor
An inadequately installed coated rock wool batt in a gypsum wallboard partition
Inadequately installed coated rock wool batt around cables and cable tray in a gypsum wallboard partition
Coated rock wool batt and mastic around a duct in a block wall
A coated rock wool batt (face fixed) and expanded foam around cable trays in a lightweight partition
Bags removed from the gypsum wallboard partition and laying in a wire cable tray
A bag used to seal a wire cable tray in a gypsum wallboard partition
Bags used to seal the top of a gypsum wallboard partition
An expanded polyurethane foam used to seal around a wire cable tray in a plasterboard wall.
An expanded polyurethane foam used to seal around cables in a riser passing beneath a partition
Insulated air-conditioning pipes sealed with expanded polyurethane foam
Services passing through a riser floor sealed with expanded polyurethane foam.
A pink- and yellow-coloured expanded polyurethane foam used to seal around a plastic pipe
An intumescent pipe collar installed upside down around a plastic pipe
Insulated air-conditioning pipes through a gypsum plasterboard partition
A gypsum wallboard pattress at the lower edge of a steel trunking
A gypsum wallboard pattress around insulated air-conditioning pipes
A gypsum wallboard pattress in the web of a steel beam sealed with expanded polyurethane foam
ASFP Advisory Notice: ‘Using Polyurethane Foams’
What Can Be Done?
Approved Document B to the Building Regulations

A guidance document for England & Wales, with recommendations such as:

- ‘Third party accreditation and registration of installers of systems, materials, products or structures provide a means of ensuring that installations have been conducted by knowledgeable contractors to appropriate standards, thereby increasing the reliability of the anticipated performance in fire.’
Third Party Independent Certification Schemes
Voluntary certification services from Warrington Certification Ltd

- certifire: For manufacturers
- firas: For installation contractors
- fracs: For fire risk assessors
Product Certification
Use third party certificated products and systems covered by a certification scheme, such as…
CERTIFIRE

• An independent third party product conformity body.
• Operates to EN 45011.
• Accredited by UKAS.
CERTIFIRE

• An independent third party certification scheme for fire products and systems.

• Assuring performance, quality, reliability and traceability.

• Recognized by regulatory authorities worldwide.
CERTIFIRE Process

• Initial type testing.
• Design appraisal against Technical Schedules.
• (Certificate of quality management systems to ISO 9001).
• Inspection and surveillance of factory production control.
• Audit testing.
Samples are taken from the factory production line.
• For manufacturers CERTIFIRE offers the opportunity to differentiate products and processes from non-certified equivalents thus helping to access markets worldwide.

• Gives the regulator, specifier, customer and end-user confidence with regards to the stated fire performance of the products and systems.
BWF-CERTIFIRE label found on a certificated doorset system
• Using certificated products correctly installed provides a powerful demonstration that due diligences have been served.
Installer Certification
• Many manufacturing companies can demonstrate both that a product is manufactured under a quality management system....

• ....and that it will perform its fire protection function.
A large scale fire test on a system

A small scale fire test on a material
• However, on site the product certification will be worthless if the product/system has been incorrectly installed…as we have already seen.
Another example of an incorrect penetration sealing system installation
Use third party certificated **installers** covered by a certification scheme, such as…
FIRAS
• An independent third party installer certification body.
• Operates to EN 45011.
• Accredited by UKAS.
FIRAS

- Developed originally in 1994 for the installation of fire resisting glazing in collaboration with the Glass and Glazing Federation.

- FIRAS is the certification scheme for installer companies of passive and active (sprinklers) fire systems.

- Currently 157 passive companies (in all areas) and 24 sprinkler companies
FIRAS

- FIRAS involves random inspections of on-site installations as well as annual office audits and competence assessment of the workforce.
A penetration sealing system in a block wall
The ‘Shard’ Tower, London
Steel beams used to support floors in the ‘Shard’ Tower, London
Risk Assessor Certification
U.K. Fire Safety Legislation

• Current UK fire safety legislation has changed the way buildings are assessed for fire safety requirements.

• Regulatory Reform (Fire Safety) Order 2005 (RRO), effective from October 2006.

• Covers all buildings except dwellings, underground mines, anything that floats, flies, or runs on wheels, offshore installations, building sites or the military.
Fire Safety Risk Assessment Documents
U.K. Fire Safety Legislation

• Looks after the fire requirements of a building once the building is occupied.

• The identification and management of fire safety through a ‘Risk Assessment’ approach has replaced the prescriptive method of compliance and the issue of fire certificates.
U.K. Fire Safety Legislation

• It is the responsibility of a designated ‘Responsible Person’ to ensure that a ‘Fire Risk Assessment’ has been completed...

• ...and that it is suitable and sufficient for the purpose of protecting the life safety of those relevant persons in and around the building.
Peoples perception of risk can be very different!
U.K. Fire Safety Legislation

- Normally the designated ‘Responsible Person’ will not be an expert in fire safety hence will have to appoint a ‘Competent Person’ to undertake this assessment.
Five steps to a Fire Safety Risk Assessment

<table>
<thead>
<tr>
<th>Step</th>
<th>Task</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Identify fire hazards&lt;br&gt;Identify:&lt;br&gt;- sources of ignition; &lt;br&gt;- sources of fuel; and &lt;br&gt;- sources of oxygen.</td>
</tr>
<tr>
<td>2</td>
<td>Identify people at risk&lt;br&gt;Identify:&lt;br&gt;- people in and around the premises; and &lt;br&gt;- people who are especially at risk.</td>
</tr>
</tbody>
</table>
| 3    | Evaluate, remove or reduce, and protect from risk<br>- Evaluate the risk of a fire starting.  
- Evaluate the risk to people from a fire.  
- Remove or reduce fire hazards.  
- Remove or reduce the risks to people from a fire.  
- Protect people by providing fire precautions. |
| 4    | Record, plan, inform, instruct, and train<br>- Record any major findings and action you have taken.  
- Discuss and work with other responsible people.  
- Prepare an emergency plan.  
- Inform and instruct relevant people.  
- Provide training. |
| 5    | Review<br>- Review your fire-risk assessment regularly.  
- Make changes where necessary. |

Remember to review your fire-risk assessment regularly.
U.K. Fire Safety Legislation

• To undertake a full Fire Risk Assessment a knowledge of both passive and active fire systems is required by the Fire Risk Assessor.
Assessors can come from many different backgrounds
U.K. Fire Safety Legislation

- Unscrupulous Fire Risk Assessors understand that potential clients are not knowledgeable about Fire Risk Assessment and therefore they are easily able to sell themselves as experts.
Special Offer: “Get a free fire risk assessment when you order a vermin extermination”
A social housing company employed a Fire Risk Assessment firm to assess their large portfolio of buildings for a bargain price. To save money they used an on-line street search website to pinpoint the buildings and assessed them without leaving their office.
Case Study 2

• Two hotels in Mansfield, Nottinghamshire.

• The hotelier (the Responsible Person) was jailed for 8 months and ordered to pay costs.

• The hotelier: guilty of 15 offences under the Regulatory Reform Order.
  • A failure to ensure effective means of escape with doors leading into corridors not being fire resisting or having self-closers fitted.
  • Failure to maintain equipment such as the fire alarm, emergency lighting and fire fighting equipment.
  • Locked fire exit doors; missing fire door and non-fire rated window.
  • Exit routes obstructed by combustible materials.
Case Study 2, continued

- “Fire Risk Assessor jailed in landmark prosecution”
- An independent Fire Risk Assessor was also jailed for 8 months and ordered to pay costs.
- Risk Assessor: guilty of 2 offences under the Regulatory Reform Order.
  - Failing to provide a suitable and sufficient fire risk assessment for each hotel.
Case Study 2, continued

• “Competence to provide fire safety advice could be checked through references, training and qualifications and checking whether the person is registered or accredited with an appropriate third party body” - Nottinghamshire Fire & Rescue Service.
Use third party certificated fire risk assessors covered by a certification scheme, such as…
Fire Risk Assessors Certification Scheme (FRACS)

• FRACS is currently the only third party certification scheme that proves a fire risk assessors technical competence.

• It provides a powerful demonstration that a Responsible Person has satisfied due diligence when appointing a Fire Risk Assessor.

(Diligence: the care or attention expected by the law in doing something such as fulfilling the terms of a contract)
Fire Risk Assessors Certification Scheme

FRACS (Individuals)
• A quality assurance certification scheme for individuals who wish to provide fire risk assessment services.

FRACS (Company)
• A quality assurance certification scheme for companies who offer fire risk assessment services.

FRACS (Internal)
• A third party certification scheme for occupational fire risk assessors.
Fire Risk Assessors Certification Scheme

• An independent and objective evidence gathering exercise that proves a Fire Risk Assessor has the required technical skills to complete a Fire Risk Assessment.
FRACS - Tests the Assessors ‘Output’

Requirements for the scheme

• Initial assessment of submitted documentation showing previous work.
• Table top exercise.
• Technical interview: question & answer session.
• Examination.
• Surveillance.
• Certification of the successful candidate.
Fire Risk Assessors Certification Scheme

• FRACS certified Fire Risk Assessors are listed on the Warrington Certification’s register of competent Fire Risk Assessors - a valuable reference for a Responsible Person who needs to commission a fire risk assessment.

(www.warringtoncertification.com)
Complimentary Certification Schemes

CERTIFIRE
Product

FRACS
Risk Assessor

FIRAS
Installer
Summary

- Fire Risk Assessment required: Responsible Person appoints a Fire Risk Assessor.
- The assessor is a member of a UKAS certified scheme (FRACS).
- Remedial works required – Responsible Person appoints contractor.
- Contractor is 3rd party certified (FIRAS) as per Regulatory Reform Order guidance.
- Product is 3rd party certified (CERTIFIRE) as per Regulatory Reform Order guidance.

If the building is correctly risk assessed and all remedial work is carried out, then...
Thank you!

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