Passive Fire Protection

Expert Witness View and Cases







ABOUT THE PRESENTER

Peter van Gorp

- Principal at HKA based in the Dubai office.
- Fire, Life Safety and Loss Prevention Engineer with 30 years' experience of which 20 years in the ME.
- In loss prevention and fire engineering in building construction, industrial and oil and gas projects.
- Last years of which have been fulltime undertaking dispute resolution



Fire Safety Experts role
Fire Safety
Case Studies



WHAT KIND OF ISSUES DOES A FIRE EXPERT WITNESS OPINE ON?

A TYPICAL EXAMPLE

A fire happened at a building façade of a tower. Why did the fire spread? Were the materials wrongly specified? Or was the façade badly installed?

Owner blames the contractor The contractor blames the designer

Who is right? Are there other elements to be considered? And were they foreseeable?

Where does responsibility lie?



THE ROLE OF THE EXPERT WITNESS

- An Expert Witness has a duty to help the court on matters within their expertise.
- This duty overrides any obligation to the person from whom experts have received instructions or by whom they are paid.
- The expert's opinion should be unbiased and independent.
- The expert's client is unable to influence the expert's opinion which must be impartially based on the facts presented to the expert.
- The expert's Client (through its lawyers) can, however, influence the <u>scope</u> of the expert's opinion through the nature and focus of the instruction that the lawyer gives to the expert.

THE ROLE OF THE EXPERT WITNESS

- The expert opinion should consider all facts presented to the Expert whether these facts support their Client's interests or not.
- The expert should differentiate between facts and assumptions used when drawing an opinion.
- The expert should not reach an opinion and then hold rigidly to it when confronted with new data which is contradictory to that opinion.

EVIDENCE – THE EXPERT'S REPORT



THE EXPERT'S REPORT

Clear, logical, readable

Illustrate, where possible

Distinguish between fact and opinion

Fully reference and use appendices



Technical Experts

An expert report should be able to be understood by an intelligent 11-year-old!

Fire Safety

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HKA Fire Expertise – type of services



Fire Expert – Areas of expertise

- Building Fire and Life Safety
- Industrial Oil & Gas
- Passive fire protection fire stopping, cladding
- Fire protection systems (Sprinklers, Foam systems, Fire pumps,...)
- Fire detection and alarm systems
- Fire Investigations
- Fire Fighting
- Fire Modelling
- > Most of our fire experts have the required expertise in most of the areas

The Fire Safety Problem

- Lack of awareness amongst project stakeholders
- Continuous change in legislation
 - Façade fire safety changes in UK
 - NFPA Every 3 years update on codes
- Change in authority requirements and approval process
- Coordination with other engineering disciplines

CASE STUDIES

 Fire Engineering company certifying Passive Fire Protection

Incompatible fire stopping used on plastic CPVC sprinkler pipes

• External wall cladding cases in UK



Fire Engineering company certifying Passive Fire Protection

- Fire engineer acts as the third party verifying PFP on a large industrial complex
- When works are almost completed it appears that there is defective PFP
- Issues are:
 - Fire dampers were not compliant
 - Fire dampers were not installed properly
 - Large drop rods
 - Not supported properly
 - Not installed as per their listing
 - Workmanship issues with Fire rated ductwork (smoke extract)



Fire Engineering company certifying <u>Passive Fire Protection (2)</u>

- Basis of conflict:
 - Fire Engineer appeared to have only checked the firestopping, sealants around wall penetrations.
 - Contract said that Fire engineer had to certify the Passive fire protection







Fire Engineering company certifying <u>Passive Fire Protection (3)</u>

- Consequences:
 - A lot of rework, removing pipes and ducts in congested false ceiling areas.
 - Delay in the completion date resulting in delay costs



Incompatible fire stopping used on plastic CPV sprinkler pipes

- Sprinkler pipe started leaking at the location where pipe leads through wall.
- Incompatible mastic has been used that starts reacting with the plastic pipe causing leaks
- Who is at fault, should the contractor have been aware of mastics not being incompatible with CPVC sprinkler pipes.
- Prove of what mastic type had been used and can it be demonstrated that the use of the incompatible mastic was widespread.
- Consequence sprinkler system out of service making the building unsafe



Incompatible fire stopping used on plastic CPV sprinkler pipes (2)

- Remediation cost either only the parts where the sprinkler passes through the walls and where mastic has been used, or replacing the entire sprinkler system
- Case 1: Building owner vs D&B contractor
 - D&B Contractor was responsible for the sprinkler installation as well as the firestopping.
 - Sprinkler contractor should have been aware of issues related to CPVC pipes and incompatible mastic



Incompatible fire stopping used on plastic CPV sprinkler pipes (3)

- Case 2: Building owner vs Fire Stopping contractor
 - Should fire stopping contractors have been aware of the issues?
 - Raise to another issue of not having a proprietary fire stopping system demonstrating that the proposed fire stopping maintains the required fire resistance.



Cladding Issues in UK

- Aftermath of Grenfell fire
- Banking and Insurance EWS1 Form
- Result lots of claims going back 20 years
- PAS 9980 assessment
- Upgrades in regulations (Approved Document B) - No combustible materials in "important buildings"
- Class 0 vs Non Combustible class A
- Full Scale fire tests BS 8414-1/2 (BR135)



AGILE. COLLABORATIVE. CONFIDENT. INNOVATIVE. PASSIONATE.

