



POCKET GUIDE FOR FIRE TEST REPORTS AND ASSESSMENTS

ABOUT THIS GUIDE.....

This document is published by the Fire Test Study Group Ltd (FTSG) and is endorsed by those organisations listed below, through the Industry Enforcement Authority Liaison Group (IEALG).

FTSG Ltd

The Fire Test Study Group Ltd constitutes those UKAS accredited testing laboratories in the UK which undertake fire tests mainly for building control. The organisation has defined objectives and membership criteria and produces resolutions which are recognised nationally.

The laboratories have agreed to adopt and be bound by the resolutions subject to certain conditions and to indicate in their reports (where applicable) that FTSG resolutions have been adopted in performing the test.

IEALG

The Industry / Enforcement Authority Liaison Group was constituted to provide a forum to discuss the issues surrounding needs of the various enforcement authorities with respect to the level and quality of documentation used to support products in their end use condition. The Group brings together representatives of industry and the enforcement authorities with the aim of developing ways of alleviating product misuse and misleading claims regarding product performance.

The IEALG has representatives from the following organisations:

- Department of the Environment, Transport and the Regions (DETR)
- Home Office (HO)
- Institute of Building Control (IBC)
- Institute of Trading Standards Administration (ITSA)
- Chief and Assistant Chief Fire Officers Association (CACFOA)
- Passive Fire Protection Federation (PFPF)
- Construction Products Association (CPA)
- Loss Prevention Certification Board (LPCB)
- FTSG
- Warrington Fire Research Certification (incorporating Certifire and FIRAS)

ARE YOU APPROVING PRODUCTS THAT ARE UNSAFE IN FIRE?

Building Control Officers, Architects and other end-users responsible for ensuring that installed products are fit for purpose, are frequently presented with test evidence to demonstrate the fire performance of products. However, the evidence submitted often does not match the product or, it is installed in a different way from that covered by the report.

Approval of constructions that may behave poorly in fire could contribute to a real fire and gives less responsible manufacturers, who have done little to prove their products performance an unfair advantage over those who have.

This document will help you judge the evidence presented. An FTSG member (usually the laboratory that did the test or assessment) can confirm if the evidence is satisfactory for the claims made for the product.

Remember, the evidence only covers the items tested. Any variation is only covered if included in the Test Report or a subsequent Assessment Report. Approval of any variations outside of these is your responsibility.

INDEPENDENT CERTIFICATION SCHEMES

The following is taken from Approved Document B:

“There are many UK product certification schemes. Such schemes certify compliance with the requirements of a recognised document which is appropriate to the purpose for which the material is to be used. Materials which are not so certified may still conform to a relevant standard. Many certification bodies which approve such schemes are accredited by UKAS.

Since the fire performance of a product, component or structure is dependent upon satisfactory site installation and maintenance, independent schemes of certification and registration of installers and maintenance firms of such will provide confidence in the appropriate standard of workmanship being provided.”

The existence of independent product certification schemes and installer accreditation schemes gives confidence to end-users and enforcement authorities alike. The main function of this document is to give guidance to end-users and enforcement authorities where the product being installed is not covered by such schemes. Currently, this applies to the majority of products installed.

WHAT TO LOOK FOR...

Supporting evidence usually comes in two forms:

- **Test Reports** These are documents reporting how a material, product or structure has performed when tested to a particular standard. They can be quite long.
- **Assessments** These are documents giving an opinion on how a material, product or structure would perform if it were to be tested to a particular standard. They tend to be much shorter.

For both types of evidence you should check the following:-

- **Relevance** Check that the Test Report or Assessment submitted is relevant to the product as installed. Guidance on deciding on the relevance of supporting evidence is given in the following sections for reaction to fire and fire resistance tests.
- **Completeness** Check that all the pages are present.
- **Appropriateness** Check the test method given in the Test Report or Assessment is appropriate for the product as installed.

- **Ad-hoc tests** Ad-hoc tests are used when there is no British Standard for testing that particular product e.g. penetration seals. They should not be used in other cases.
- **Indicative tests** Indicative tests are generally used for small scale or product development type tests. Indicative tests should *never* be used for approval.
- **Age** Does the test report have any time limitations in it? A reasonable guide for acceptance is 10 years for fire resistance reports and 5 years for reaction to fire reports.

Assessments currently contain a statement that they should be reviewed after an appropriate period of time. Check if this has been done.

INSTALLED PRODUCT

Differences between the installed product and the evidence put forward to support it often mean that the test evidence does not cover the end-use situation. In these circumstances ask the manufacturer for further evidence of the product's performance relevant to its installation.

If you are unsure whether you need further justification, ask the laboratory that undertook the test. FTSG laboratories will confirm if the evidence submitted is a) relevant to the product as installed and b) covers the end-use in question.

REACTION TO FIRE

For products such as wall and ceiling linings, which may be required to satisfy certain reaction to fire requirements (e.g. Class 1, Class 0), certain attributes should be checked to ensure that the product as installed complies with the test evidence.

The following may affect fire performance:-

- **Substrates** *change of thickness, density, type*

For example a manufacturer having achieved a Class 1 result on a fire retardant decorative melamine laminate bonded to a Class 1 chipboard seeks to use the same test evidence in support of using the laminate bonded to ordinary plywood. The reduction in density and flammability performance of the desired substrate means that such a combination is highly unlikely to achieve Class 1.

- **Facings** *change of thickness, density, type*
- **Composites** *change of adhesives*
- **Coatings** *change of coverage rates, number of coats*
- **Mechanical** *changes to the end-use condition of a product e.g. tests of a lining material bonded to a substrate being incorrectly used to justify the same lining when used stretched over a frame.*

FIRE RESISTANCE – Size, Orientation, Installation, Components

Forms of construction – walls, floors, partitions which may be required to satisfy periods of fire resistance (e.g. 30 minutes, 60 minutes etc).

For products which form constructions, certain of the following attributes should be checked to ensure that the product as installed complies with the test evidence. The following may affect fire performance:-

- **Size** *The product should have been tested at full size*

This is usually in a 3m x 3m furnace for walls and a 4m x 3m furnace for floors. Tests carried out in small scale furnaces (e.g. 1m x 1m) can only be used for small products such as small glazed windows, access panels etc and cannot be used to support structures larger than those tested.

If the product is installed at much larger size than that tested

Example 1 - a rolling shutter will need further evaluation (usually by calculation) before the product may be approved.

Example 2 - a sheet of plasterboard that has been subjected to an indicative fire resistance test in a small scale furnace will not justify its use at full scale because the small scale test cannot evaluate:-

- **Joints** – often the weakest part of the construction, these are generally weaker at full size
- **Shrinkage** – which will be much greater at full scale
- **The method of fixing the board at the periphery** – which may be affected by shrinkage
- **The influence of incorporating any rigid framework to support the board**
- **The influence of thermally induced distortion**

All of these factors can only be evaluated at full scale.

- **Orientation/Installation** *Tests carried out in the horizontal orientation do not cover the vertical and vice versa.*
- **Components** *Testing of components indicates the performance of the component but does not determine the effect of incorporating it into the full specimen. A link back to the full test usually by assessment is required.*

Example - a suspended ceiling protecting a structural floor will often include light fittings. The ceiling system alone will need to be tested to the appropriate standard (BS 476:Part 23) to achieve a rating. The effect of including a light fitting could substantially change the overall performance of the grid system and/or provide less insulation to the cavity above. Data on the performance of a fitting in ceiling derived from an indicative test (1m x 1m) can be used only with a valid Assessment based on full-scale test data.

FIRE RESISTANCE – Symmetry – Construction - Materials

- **Symmetry** *The direction of fire resistance provided by the test evidence must cover that of the installed product.*

Example - a manufacturer supplying a glazed screen carries out a test to BS 476: Part 22: 1987 clause 10. The specimen is oriented in the furnace to represent a particular site condition. That test evidence cannot be used if the screen is required to resist fire from either side.

When testing asymmetrical constructions they should be tested from both directions unless the most onerous direction can be clearly identified. The fire resistance of many constructions is highly dependent on the direction of fire attack in the test.

- **Construction** *Changes to the construction, however small, may affect the fire resistance of the product and must be justified by test or assessment*

Example - a test report describing a timber door leaf tested in a timber frame cannot be used to substantiate the performance of the same leaf installed in a steel frame due to the different thermal properties of the two materials. Timber shrinks in fire, causing the head and base of both leaf and frame to bow towards the heat, i.e. the leaf and frame move in the same direction. However, when the timber leaf is hung in a steel frame, the hot face of the steel frame expands, causing it to bow in the opposite direction to the leaf. Consequently, it is highly likely that the head of the leaf will bow completely out of the frame causing a significantly premature integrity failure. Furthermore, the greater thermal conductivity of steel may require the use of uprated intumescent protection to combat the effects of increased charring at the leaf edges.

- **Materials** *Changes in materials used in the construction will affect its fire resistance and must be justified by test or assessment*

- **General** change of thickness, density, type
- **Composites** change of adhesives
- **Coatings** change of coverage rates, number of coats
- **Mechanical** size, type and centres of fixings

Variations in any of the items below may be significant. If in doubt you should go back to the manufacturer and seek further evidence to justify the performance of the product.

