

ASFP position on Assessments and Technical Evaluations in Lieu of Fire Testing.

1. Introduction

During 2018/19, there has been a great deal of discussion regarding assessments in Lieu of Fire testing and Engineering Judgements. As part of their post Grenfell actions, the Government undertook a consultation exercise on Assessments in Lieu of Fire testing in the Spring of 2018. This culminated in publication of their findings in December 2018 and subsequent amendment to Advisory Document B of the Building Regulations.

The current situation is that Assessments and Technical Evaluations are used in a wide variety of occasions, and by necessity, will remain an important part of the construction process. The purpose of this advisory document is to explain the circumstances where it is not appropriate to use an assessment, and to consider how assessments should be carried out where one is needed. A guide to each type of assessment is also included.

2. Occasions where assessments are inappropriate

The December 2018 amendments to Approved Document B have a legal basis, as they were passed via a statutory instrument through the Houses of Parliament. These amendments made it quite clear that with only a few exemptions, external walls of High-Risk Residential Buildings (HRRBS) were to be constructed solely from non-combustible materials. Furthermore, assessments could not be used to justify the use of a combustible cladding or insulation material as part of an external wall.

For buildings which are not HRRBS, assessments for variations to external wall systems tested to BS8414 can only be undertaken following the guidelines of the recently published BS9414 standard <https://is.gd/nRHj7A>

The outcome of the Government consultation also deemed that assessments were inappropriate, in cases where there was insufficient or inappropriate data to justify the assessment outcome. Assessments **must always** be based on suitable test evidence for the specific performance characteristic under review. Where the expansion of the scope of application is sought i.e. reaction to fire, fire resistance or smoke control test, evidence on the same or similar product tested in a suitable configuration. Therefore, by the same token, assessments **must never** be written without suitable test evidence which can be referenced as the foundation for any expansion of scope. For

example, equivalent reaction to fire performance cannot be used to justify a product switch in a fire-resistance application.

3. Correct implementation of technical assessments

The Governments December 2018 response document indicates that there are still a number of areas where technical assessment of fire resistance performance is a necessary process. These are explored in more detail below:

3.1. Field of Application or ‘Global’ Assessments

An assessment may be undertaken to increase the scope of a test result or results where there are numerous changes; or where testing all the combinations and permutations is impractical, uneconomic and technically unnecessary.

Using fire doors as an example, the variations in size, configuration (single doors, double doors, single swing, double swing), ironmongery, intumescent protection, inclusion/changes of glazing, inclusion/deletion of side and over panels etc would soon result in hundreds of fire resistance tests for one basic design. In reality, these can be covered by a test programme featuring a number of combinations and permutations which can cover many of the variations required and an assessment, sometimes called a Field of Application or ‘global’ assessment can be used to interpolate ‘fill in the gaps’ and provide some extension to scope by extrapolation.

3.2. EXAP assessments

Technical Assessments may also be undertaken using an Extended Application or EXAP standard. An EXAP standard uses a combination of defined rules, calculations methods and agreed expert judgement to increase the field of application of the test result for a given product. BS9414 referred to above is an EXAP standard.

However, in many cases, EXAP standards give only a very narrow increase in the field of application and are inadequate for what is required in buildings. For example, the EXAP standard for fire-resisting ducts, only allows a very modest increase in duct size and cross section area and it is totally inadequate for buildings that are being constructed now and for those which have been built over the years. In such cases, assessments by test laboratories have been undertaken safely on much larger duct sizes and cross-sectional areas for many years. Such assessments undertaken by test laboratories and certification bodies will have followed the PFPF Guide to undertaking assessments referred to below.

3.3. Assessments where there is no test method or where a test is impossible

An assessment may also be necessary because there is no appropriate standard test method (such as looking at the interaction between two dissimilar construction systems (e.g. structural frame and compartmentation systems). It may also occur that a full-scale test is impossible (due to furnace size limits) or the practicality of testing every variation

of a particular theme e.g. firestopping penetrations). Test evidence must still however be used and referenced as the foundation for any assessment.

3.4. Technical Evaluations

When field conditions differ from original design or unanticipated construction hindrances are encountered and the field conditions cannot be easily or cost effectively be redesigned, design recommendations are typically made to propose alternative methods that ensure performance of the passive fire protection system is not compromised. Since these recommendations are not based upon identical designs as that which were fire tested, it is important that they be developed using sound technical principles.

These recommendations can be referred to as 'Technical Evaluations (TE)', although other terms may apply dependent upon local practice. Historically these have been referred to by many names, including 'Engineering Judgements (EJ)'. Whilst the development of these evaluations requires a Technical review, which may use engineering principles, the term 'Engineering Judgement' maybe misleading, unless carried out with the involvement of a licenced professional engineer.

There is a lot of confusion over 'Technical Evaluations' which are often undertaken by manufacturers on their own products, and 'assessments' as described earlier which are undertaken by test laboratories, certification bodies and other fire consultants. In fact, Technical Evaluations are assessments and the conflict of interest in an Technical Evaluation or assessment undertaken by the manufacturer concerned is usually very apparent. Notwithstanding this, many manufacturers are very reputable and can have more and better knowledge on the fire performance of their products than independent laboratories, certification bodies or other consultants. The PFPF guide referred to below allows Technical Evaluations provided that any conflict of interest is managed and apparent.

Any evaluation produced of this type should be limited to use on a single named project

3.5. Third party product certification and assessments

Third party product certification provides a guarantee of a product in that the certification process includes evaluation of the product's fitness for purpose, an audit of the manufacturer's records and factory production control, selection of product for fire testing, issuing of a certificate and labelling of the final product to ensure traceability. The ASFP supports third party product certification for all passive fire protection products and strongly encourages this amongst its membership and elsewhere.

Depending on the product/scheme being considered, the third-party certificate may include an appraisal or assessment of many of the combinations and permutations that are not specifically tested. In the example of fire doors given above the third-party certification bodies may use a test program of a number of fire tests supplemented by an in-house assessment to confer certification not only to the actual products variations tested, but to all the combinations and permutations as well. Assessments undertaken for third party certification currently follow the PFPF guide referred to below.

ASFP supports this approach over just using the 'global assessment' approach above because the products and its variations will be covered by the third-party certification process.

4. The PFPF guide to undertaking assessments

It is crucial that assessments for whatever purpose and however they are produced are undertaken in a professional and correct manner. The Passive Fire Protection Forum (PFPF), of which the ASFP is a founder member, have recently updated their guidance document

"Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence"

This document now reflects the outcomes of the Government's consultation process and Approved Document B amendments. It explains all the necessary steps that should be undertaken to ensure that an assessment is rigorous, transparent and undertaken by appropriate personnel. An assessment should be written so that any subsequent reviewer can understand the underpinning evidence, the assumptions made and the competence of the assessor in making the assessment.

The ASFP's position is that, should an assessment or engineering judgment be required, it should be written in compliance with the PFPF guide, linked above.

5. Design liability of Assessments or Technical Evaluations

An Assessment or Technical Evaluation expands the scope of tested system design(s) and should be based on conservative scientific principles and the state of the art. It should be written by a competent individual/organisation who accepts design liability in that the documented assessed system design will perform equally well should the design be subject to a test to the relevant test standard.

The above information is given in good faith and is correct at the time of writing. We are conscious that Government made certain remarks in the December 2018 consultation response to the effect that they will continue to monitor this situation and may look to legislate further in the coming months / years.

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