ADVISORY NOTE 28

Fire stopping of metal pipes, where flanges, valves or fittings fall within the insulation zone of a compartment wall penetration

INTRODUCTION

Pipework services passing through compartment walls and floors should maintain the same level of fire performance of the compartment including where applicable an integrity (E) and Insulation (I) rating

The thermal insulation (I rating) of the pipe is achieved when the surface temperature of the pipe/ pipe insulation does not increase by 180^0 C for the time period of a fire resistance test. (BS EN 1366-3 Fire resistance tests for service installations).

These tests can include fittings such as flanges or valves within the service penetration seal, which can include insulation up to 500mm from the wall. However, typically they do not, meaning that there may not be test evidence available and as such installing fittings within the fire seal should be avoided. The presence of flanges close to the supporting construction can also make installation of the service penetration seal difficult.

In order to achieve compliance, it is strongly advised that BS EN1366-3 manufacturer tested and approved fire stopping solutions with an equivalent fire rating are installed. It is also essential they are installed by competent individuals and evidenced as being installed correctly.

Where it isn't possible to install tested and approved fire stopping solutions or where there is a deviation, it will be necessary to obtain a technical evaluation to demonstrate the installation meets the required fire performance rating.

Figure 1 Typical sample used in EN 1366-3:2009 Fire resistance tests for service installations

TECHNICAL EVALUATIONS

In her report 'Building a Safer Future' Dame Judith Hackitt recommended that the government restrict the use of Assessments in Lieu of Tests (AILOTs) and require that all AILOTs be used appropriately and carried out by competent individuals.

There are two key types of assessment that need to be considered. First, there are assessments written around rules contained within published test standards such as BS EN 1366-3 or Extended Application standards (EXAPs). These rules give some very clear interpretation over which scenarios can be claimed using testing as a basis for justification. The rules are published within the test or EXAP standard.

These standards and the rules within are reviewed and updated through well documented BSI / CEN committees.

The second route is a less formal technical evaluation. These technical evaluations are needed in several scenarios. There may be no appropriate test data (such as the design and installation of insulation to metal pipes where flanges, valves or fittings fall within the 500mm zone of a compartment wall penetration). Test evidence must still, however, be used and referenced as the foundation for any assessment.

ASFP Advisory Note 17 gives more detail of situations where assessments and technical evaluations can be used, and where an evaluation would be inappropriate. Guidance on how assessments and technical evaluations should be carried out is given in the PFPF technical assessment guide. An

assessment produced in line with the PFPF technical assessment guide should be written such that any other party could review the underpinning results, the logic behind any conclusion and details of the competence of the assessors involved.

Assessments and technical evaluations should be based on suitable test evidence for the specific performance characteristic under review.

Assessments and technical evaluations should not 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.

Technical evaluations can be undertaken by test laboratories, certification bodies, other fire consultants and / or manufacturers (on their own products).

The PFPF technical assessment guide allows technical evaluation provided that any conflict of interest is managed and apparent. Any technical evaluation produced for a scenario encountered on a construction site should be limited to use on a single named project.

RECOMMENDATIONS

1. Designers and co-ordinators are advised to ensure that the 500mm zone either side of a compartment wall or floor is clear of all flanges, valves or fittings.

2. Should this be unavoidable then a technical evaluation should be sought.

3. This should be carried out at the design stage and not at construction stage.

The key to a successful and more importantly, compliant fire stopping of service penetrations is a collaborative approach from the beginning.

The recently published 'Firestopping of service penetrations, a best practice guide' provides a structured approach to the issue. It recommends 9 golden rules which are a significant change from construction practices. Key messages include:

- Consideration of passive fire stopping at design stage
- Only use tested and approved fire stopping solutions
- Agree roles and responsibilities early
- The coordination team should include M&E contractor, partition contractor, fire stopping specialist and fire engineer.

Firestopping of Service Penetrations, Best Practice Guide

Passive Fire Protection Forum Guide to undertaking technical assessments of the fire performance of construction products based on fire test evidence can be downloaded here.

Association for Specialist Fire Protection Advisory Note 17 ASFP position on assessments and technical evaluations in lieu of fire testing data can be downloaded here.

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