Fire resistance of service penetrations; ceiling-mounted air valves, vents and extractor fans; and recessed light fittings in timber and metal joist floors

(February 2024) (First issue)

Applicable sites

Warranty sites registered with NHBC

Applicable regions

This Technical Guidance Note applies to England, Wales, Scotland and Northern Ireland

Background

Penetration Seals

BS EN 1366-3:2021 Fire resistance tests for service installations. Penetration seals provides a method of testing and assessing the contribution of a penetration seal (e.g. intumescent pipe collar) to the fire resistance of fire-separating elements when they have been penetrated by a service.

It contains guidance on the direct field of application for fire tests carried out on fire-resistant penetration seals installed to rigid walls and rigid floors (concrete and masonry), and flexible walls (lightweight plasterboard partitions). However, it does not contain any guidance on the application of test results to flexible floors (timber or metal joist floors). As a result, fire tests conducted on fire-resistant penetration seals installed to timber or metal joist floors are only applicable to the specific tested construction and cannot directly be used to justify similar proposed constructions where there are variations in materials, components or details – an extended field of application assessment covering the proposed construction would be required.

Ceiling-mounted air valves, vents and extractor fans; and recessed light fittings

BS EN 1366-3 does not provide guidance on the testing of partial penetrations through flexible floors, such as those formed by ceiling-mounted air valves, vents and extractor fans; and recessed light fittings. However, they can be tested as part of a loaded floor system to *BS EN 1365-2:2014 Fire resistance tests for loadbearing elements. Part 2: Floors and roofs* or *BS 476-21:1987 Fire tests on building materials and structures. Methods for determination of the fire resistance of loadbearing elements of construction*. Fire resistance tests on loaded floor systems are only applicable to the tested construction, within the limitations of the field of direct application, and cannot be used to justify proposed constructions where there are variations in materials, components or details – an extended field of application assessment covering the proposed construction would be required.

Key technical considerations

Where ceilings of intermediate floors in houses or compartment floors in flats/apartments are perforated or penetrated by services such as recessed light fittings (downlighters); ceiling-mounted air valves, vents and extractor fans; and pipes, the floor construction should still achieve the required period of fire resistance.

Fire resistance of service penetrations; ceiling-mounted air valves, vents and extractor fans; and recessed light fittings in timber and metal joist floors

(February 2024) (First issue)

When installing such ancillary products and/or services, including their fire-stopping elements and intumescent seals used to maintain the fire resistance of the floor, one of the following should be met:

- fire test evidence and/or extended field of application assessments that support the use of such product/systems in the particular type of floor being considered, or
- products and systems with a satisfactory assessment by an appropriate independent technical approvals authority accepted by NHBC covering the particular type of floor being considered, or
- a proprietary floor system with satisfactory assessment by an appropriate independent technical approvals authority accepted by NHBC which includes the use of specific floor type and ancillary products which has been demonstrated to be satisfactory through testing and assessment, and are to be used within the limitations of the certification.

The following supporting evidence may be used:

- Penetration seals (such as intumescent pipe collars) should be tested to either BS EN 1366-3, or as part of a loaded floor system to BS EN 1365-2 or BS 476-21. The tested products, materials and systems should be the same as those being proposed on the project, within the limitations of the field of direct application. Alternative guidance for protecting pipe penetrations through floors can be found in the relevant national Building Regulations.
- Ceiling-mounted air valves, vents and extractor fans; and recessed light fittings should be tested as part of a loaded floor system to BS EN 1365-2 or BS 476-21. The tested products, materials and systems should be the same as those being proposed on the project, within the limitations of the field of direct application.
- An extended field of application assessment may be considered appropriate or acceptable in some circumstances, where they are produced to the relevant British or European Standards (such as BS EN 15725) and/or to the PFPF Guide to Undertaking Technical Assessments of Fire Performance of Construction Products Based on Fire Test Evidence covering the products, materials and systems being proposed on applications slightly different to that undertaken during the fire test.

Further guidance on electrical installations and their potential impact on fire resistance can be found in the Electrical Safety First Best-Practice Guide 5 Issue 3.

Note: When installing recessed light fittings, insulation should be kept back from the light fitting to safely disperse the build-up of heat around the driver/transformer and lamp.

Transition Arrangements

For all plots starting or at DPC level as of 1st September 2024, fire-resistant penetration seals and ceiling-mounted air valves, vents and extractor fans should either have suitable fire test evidence, an extended field of application assessment, or satisfactory assessment by an independent technical approvals authority accepted by NHBC. In all cases, the fire test evidence, extended field of application assessment or independent technical approval should be appropriate for the products, materials and systems being proposed.

Guidance on the fire-resistance requirements for recessed light fittings is already in place and is not subject to these transitional arrangements.

NHBC

NHBC, NHBC House, Davy Avenue, Knowlhill, Milton Keynes, Bucks MK5 8FP
Tel: 0344 633 1000 Web: nhbc.co.uk

HB3109 01/24 W010CA