

KNOWLEDGE SHARE: 004

TITLE: PROXIMITY OF APERTURES FOR SERVICE PENETRATIONS ABOVE DOORS

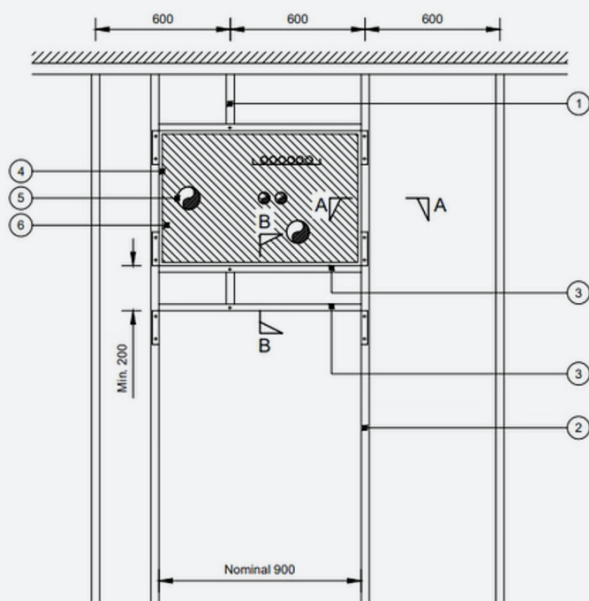
OVERVIEW OF THE PROBLEM

The proximity of service apertures in walls is defined in the test standard BS EN 1366-3:2021 Fire Resistance Tests for Service Installations; Penetration Seals.

It states that the dimension between the aperture edge of a penetration seal and any other penetration type (e.g., door, fire damper, fire resisting duct etc., and any other aperture where the penetration is not tested to BS EN 1366-3:2021) in a building element shall be minimum 200mm.

Manufacturers of flexible wall systems (e.g., plasterboard partitions) may require different minimum dimensions when considering apertures for penetration seals and doors, which could be more onerous than the 200mm requirement as stated in BS EN 1366-3.

Services which penetrate fire resisting compartment walls above doors may require multiple apertures because combined services (e.g., fire resisting ducts or dampers with pipework and/or electrical services) cannot be installed and sealed in the same aperture. As a result of requiring multiple apertures, it is possible that the minimum separating distances discussed above may not be achievable, potentially resulting in spatial coordination issues.



Framework elevation (1:20)
Opening shown nominal 900 x 600mm

Drawing courtesy of British Gypsum showing 200mm minimum separation between door and service aperture metal framing elements. Not shown are the aperture lining boards which increase the effective separating dimension beyond 200mm.

(British Gypsum Best Practice Guidance – Openings Within Fire Rated Systems Feb 2024)

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WHY IS THIS A PROBLEM?

Slab to slab heights which will limit the dimension from the top of a door aperture to the soffit are set at an early stage in the design process, usually before the detailed design of the services and penetration seals are considered. Accordingly, it may not be possible to incorporate the minimum spatial requirements discussed above.

This could result in instances where compliance may not be possible without additional design changes, assessments, or ad-hoc testing.

Large and multiple apertures in a flexible wall system may also impact the robustness of the construction. For example, if service apertures interrupt door jambs there may be a requirement to install additional supporting steel which could result in delays and additional costs if, indeed, a solution can be found.

RECOMMENDATIONS

It is recommended that when spatially planning buildings, more focus should be given to the positioning of penetration seals and apertures in conjunction with wall manufacturers requirements.

[See MEP Services Penetration Seals Best Practice Design and Specification](#)