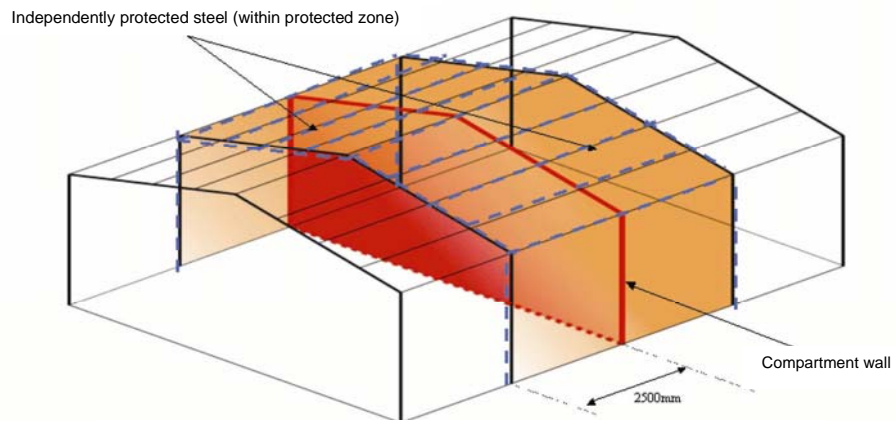


FPA Design Guide: Protected Zone – Compartment wall parallel to ridge line

Introduction:

FPA Design Guide for the fire protection of buildings.

The FPA Design Guide is a document aimed at protecting businesses against disruption and loss of critical stock and machinery due to fire. It is published by the Fire Protection Association, in association with the InFiReS fire research group.



FPA Design Guide: Protected Zone – Compartment wall perpendicular to ridge line

In 2000, the LPC published the most recent edition of Design Guide for the Fire Protection of Buildings. This was a major work of reference for those most closely concerned with the design and construction of industrial and commercial buildings.

Now published by the FPA, the Design Guide informs architects and designers about the business risk management issues which relate to the fire protection of buildings, issues which supplement in very important ways the life safety requirements contained in the principal legislative controls (Approved Document B). Within the document, there is information on extent of the zone, fire ratings etc expected by insurers and the industry as a whole.

The FPA has subsequently published a number of separate guides covering specific topics including the Design Guide for the protection of buildings - Protected Zone (2004). This is available through the FPA website at <http://www.fpadownloads.co.uk>

Promat SUPALUX® Technology

As a product designed to protect against fire, SUPALUX® calcium silicate technology developed by Promat is highly specialist, yet very simple to install. Protected zones are often suspended above head height as a lining to the roof, the lightweight nature of Promat SUPALUX® means that it is ideally suited to the application.

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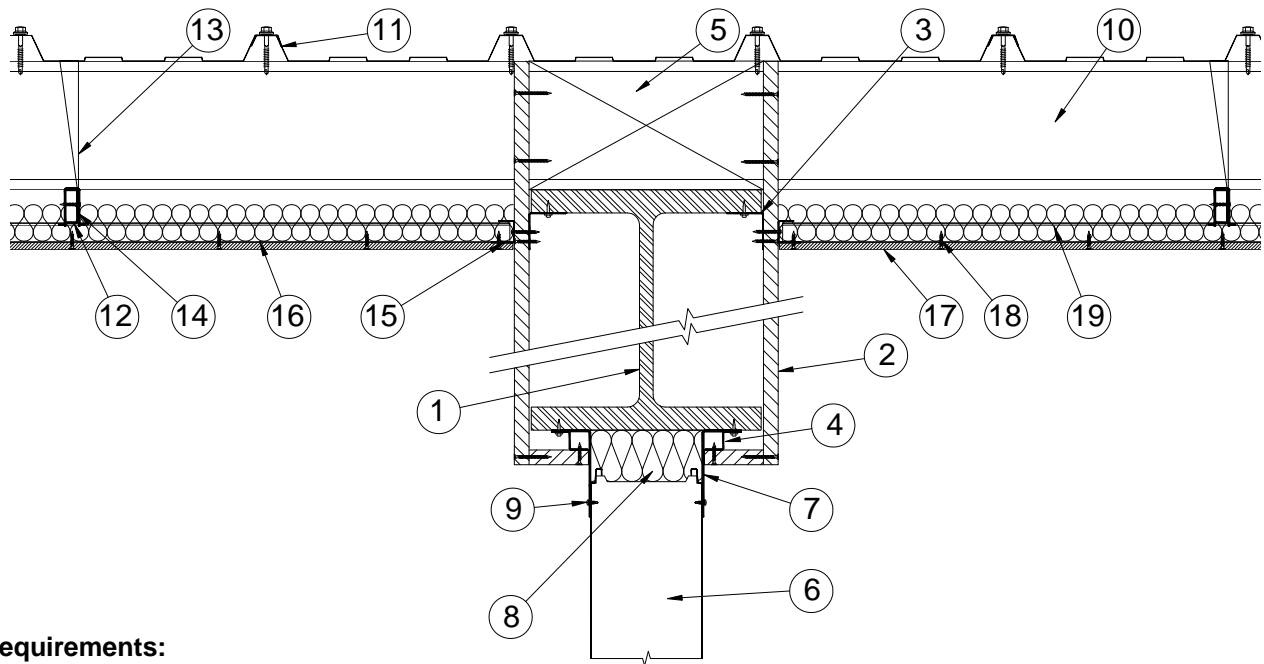
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Requirements:

A protected zone forms an integral part of the fire protection detail at the head of a separating fire wall. In order for this to function correctly it must work in conjunction with a number of other specific details that are outlined below.

- The fire resistance of the separating or compartment wall
- The deflection head detail connecting the wall to the supporting beam
- The structural steel protection of the supporting beam
- The maintenance of the fire resistance across, and above the beam position
- The formation of the protected zone for the prescribed distance either side of the fire wall

Note: the protected zone is not designed to provide the required fire protection to the structural steel beam, nor is it designed to maintain the fire resistance across or above the beam position.

General Assembly:

1. The construction is located around the main supporting structural element (1). The structural steel beam is fire protected using VERICULUX® for *at least* the same fire resistance period as the DURAWALL® barrier below it (6). In addition, the VERICULUX® fire protection (2) must also maintain *the fire separation* (fire compartmentation) across the beam, and this must continue up past the purlins (10) to the actual roof cladding (11). (PROMATECT®-250 may alternatively be used to protect the steel and provide compartmentation, but the *angle* fixing method will be required.)
2. Refer to the Promat Fire Protection Handbook for VERICULUX® or PROMATECT®-250 board fixings, and extending the casing to meet the roof lining.
3. A minimum of 20mm VERICULUX® (2) will normally be required to provide the 60min fire protection to the steel section *and* to maintain the required 60 minutes fire separation across the head of the barrier. (Contact Promat Technical Services for confirmation of board thickness required).
4. The compartment separating wall comprises Promat DURAWALL® composite panels (6), comprising steel faced panels, with a non-combustible rock wool core, and are fully certified and comply with LPCB 1181, and 1208, and are also tested to BS 476: Part 22: 1987. The exact specification for this will depend upon the span of the supporting framework. (Contact Promat Technical services for further details – DURAWALL® can also provide up to 240 minutes fire resistance).

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5. A deflection head detail will normally be incorporated where the DURAWALL® barrier meets the structural beam, and the VERMICULUX® beam cladding is therefore screw fixed to 25mm x 25mm x 25mm x 0.7mm light gauge galvanised angles **(4)** that are shot fired to the beam - and to the barrier. Refer to the DURAWALL® manual for details.
6. The deflection head incorporates slotted head angles **(7)** and low density rock wool packing and is fastened using stainless steel self tapping screws.

Construction of the Protected Zone:

7. The SUPALUX® protected zone membrane is supported by the roof purlins **(10)** at maximum 1.8m centres, and abuts the VERMICULUX® steel protection cladding **(2)**. Gypframe MF6 perimeter channel **(15)** 20 x 28 x 30mm x 0.5mm, is fastened through the VERMICULUX® and into the supporting angle at the top beam flange **(3)**. *(The protected zone membrane must not be directly supported by the beam cladding).*
8. MF7 primary support channel **(12)** 15 x 45 x 0.9mm thick suspended from purlins at max. 610mm centres using 25mm x 0.55mm thick Gypframe MF8 strap hangers **(3)**. MF7 channels rested on top flange of Gypframe MF6 perimeter channel at nominal 610 centres.
9. MF8 strap hangers **(13)** fixed to purlins using 38mm Ejoy Tec screws. Hangers fixed to MF7 primary grid system 2 x 32mm drywall screws.
10. Gypframe MF5 ceiling sections **(12)** 80 x 26 x 0.5mm at max. 610mm centres on underside of primary grid, connecting to MF7 Gypframe using MF9 connecting clips **(14)** and engaging into MF6 perimeter channel.
11. 9mm SUPALUX® ceiling **(17)** fixed to MF5 channel using 25mm drywall screws **(18)** at 200mm centres.

Note: 9mm SUPALUX® 100mm wide cover strips fixed behind transverse joints using 32mm drywall screws at 200 mm centres, (fastened on both sides of the joint).

12. Rock wool insulation **(19)** 50mm thick x minimum 35 kg/m³ laid over Supalux® boards, insulation butted up to MF 5 ceiling sections.
13. *If a vertical return upstand is incorporated to close the protected zone back up to the roof lining, then a layer of 9mm SUPALUX® fastened to steel sections, together with 100mm wide cover strips at any transverse joints is used. Boards are cut to fit up between the purlins and are fitted flush to underside of roof. The protected zone should normally be made at the next structural element. However in the case of a separating wall that is *parallel* to the purlins, then it may terminate at the next appropriate purlin position.*
14. Board fixed at base to angle fixed to MF5 section and also at top to MF7 channel **(12)** spanning between, and fastened to the purlins. Maximum drop 600mm. The vertical rock wool **(14)** is retained in position using 1mm iron wire.
15. All gaps, abutments, air and smoke paths to be fire stopped, and sealed with PROMASEAL® Intumescent Sealant.

Note: The protected zone detail is only applicable to roof coverings that will not in themselves, contribute to fire spread. For confirmation of this, consult with the roof manufacturer.

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