



Self-supporting ceiling membrane construction – installed with access only from below

INTRODUCTION

In order to provide for fire resistance to fire from both above and below a self-supporting membrane ceiling, a facing board of SUPALUX® is normally required on both the upper and lower surfaces of the ceiling channels.

However, there are situations where installing the upper facing sheet is impossible due to inadequate access or where access is only possible from below. Such situations may be found for example at the head of protected shafts, or to the underside of steel stair cases.

In these situations, the inability to install the upper facing sheet is compensated by an increase in the minimum requirement of the rock wool insulation layer as detailed in the following construction.

CONSTRUCTION

The following construction may be used to provide 120 minutes fire integrity and insulation in accordance with the criteria of BS 476: Part 22: 1987 to fire from above or below.

1. Promat SUPALUX® boards, 12mm thick (square edged).
2. Promat SUPALUX® fillets, 75mm x 12mm thick. The thickness of Promat SUPALUX® fillets on underside of the perimeter angles may be reduced by 3mm to maintain an even surface for the main ceiling boards.

3. C-channel purlins (see table to right) positioned at maximum 610mm centres. Expansion gap is left at both ends of the C-channels.
4. Perimeter steel angle, nominally 75mm x 50mm, fastened to wall around perimeter of ceiling, through the 50mm leg, with minimum M6 x 50mm long all steel fixing anchors at 300mm nominal centres. See table for angle thickness.
5. M4 x 38mm long self-tapping screws fixed at 200mm centres on facing board and M4 x 25mm long self-tapping screws at 500mm centres on coverstrip to purlins.
6. M6 x 50mm long steel expansion bolts at 300mm centres.
7. Concrete or brickwall.
8. Rock wool, minimum 2 x 50mm x 100kg/m³ joints staggered by 300mm between layers.

NOTE: Ceiling spans of 3m and over require the three layers of rock wool to ensure that the full depth of the channel is in-filled.

Ceiling span (m)	C Channel purlin (mm)	Perimeter angle thickness (mm)	Expansion gap at each end (mm)
Up to 1.6	100x44x1.0	1.0	12
1.8	100x44x1.0	2.0	12
2.0	100x44x1.0	2.0	12
2.2	100x44x1.0	2.0	15
2.4	100x44x1.2	2.0	15
2.6	100x44x1.6	2.0	15
2.8	100x44x1.9	2.0	18
3.0	150x44x1.2	2.0	18
3.2	150x44x1.2	3.0	18
3.4	150x44x1.6	3.0	23
3.6	150x44x1.6	3.0	23
3.8	150x44x1.9	3.0	23
4.0	150x44x1.9	3.0	23

AUTHORITY: PROMAT RECOMMENDATION - BASED ON IN-HOUSE KNOWLEDGE AND TECHNICAL EXPERIENCE

