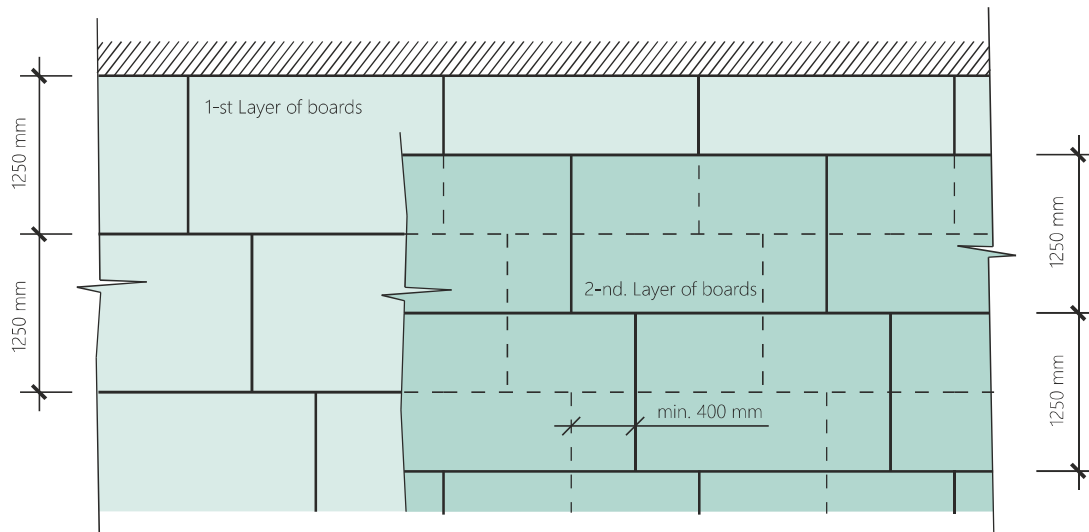


When applying a two-layer ceiling panel construction the second (external) layer must always be overlapped pursuant to the following schematic drawing:



8.4 Horizontal Constructions - Ceilings and Floors (Fire from Above)

8.4.1 Introduction

Horizontal constructions (ceiling, roof, floor constructions) are most often afflicted by fire stress from below. The required fire resistance is most often achieved in these cases by use of ceilings (solution described in Chapter 7.3 Horizontal constructions – ceilings).

Using CETRIS® cement bonded particleboards it is also possible to achieve the fire resistance of horizontal constructions to fire stress from above. This fire load is characteristic especially for ceiling and floor constructions that form horizontal divisions between storeys.

The ceiling/floor construction (steel load-bearing construction) – with fire stress from above

Schematic drawing of the construction	Cladding thickness CETRIS® d (mm)	Axial distance of load-bearing profiles ¹ (mm)	Mineral wool		Ceiling type	Fire resistance ²
			Thickness (mm)	Density (kg/m ³)		
	22	625	80	25	Galvanised sheet metal 0,55 mm	REI 45 / RE 60
	22	625	80	25	Particleboard 10 mm	
	22	625	80	25	Cardboard 12,5 mm	
	18	420	80	25	Galvanised sheet metal 0,55 mm	

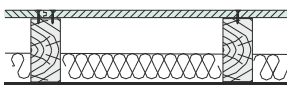
Notes to the table

1) The test was performed with steel I profiles 140 with the span of 4 m.

2) Classification of limit fire resistance pursuant to EN 13 501-2, constructions tested pursuant to EN 1365-1 and EN 1364-2 with reduced vertical load with the intensity of 100 kg/m².



The ceiling/floor construction (wooden load-bearing construction) – with fire stress from above


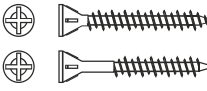

Schematic drawing of the construction	Cladding thickness CETRIS® d (mm)	Axial distance of load-bearing profiles ¹ (mm)	Mineral wool		Ceiling type	Fire resistance ²
			Thickness (mm)	Density (kg/m ³)		
	22	625	80	25	Wooden laths 50x30 mm for fixture of any ceiling	REI 45 / RE 30
	2x12	625	80	25		

Notes to the table:

1) The test was performed with wooden prisms 80 by 140 mm (spruce logs) with the span of 4 m.

2) Classification of limit fire resistance pursuant to EN 13 501-2, constructions tested pursuant to EN 1365-1 and EN 1364-2 with reduced vertical load with the intensity of 100 kg/m².

Materials for execution of fire structures

Description	Visualisation	Note
CETRIS® BASIC, or PD (PDB) board Cement bonded particleboard, smooth surface, cement grey. Basic format 1,250x3,350 mm. Density 1320±70 kg/m ³		Thickness according to the fire resistance requirements
crew 4.2x45, 55 mm Counter-sunk, self-tapping screws		For anchoring CETRIS® boards to the load-bearing construction.
Heat-insulation Mineral or rock wool (Isover Orstrop of thickness 80 mm, density 25 kg/m ³)		It is necessary to observe the thickness and volume mass according to the specification in the composition. Reaction to fire class A1.

8.4.2 General assembly principles

For complete principles for floor construction assembly, see Chapter 6 Floor Systems.

Main principles stressed in this context:

- Maximum spacing of screws anchoring CETRIS® boards to beams must not exceed 300 mm. The minimum distance from the edge is 25 mm. The screw must be at least 20 mm longer than the thickness of the fixed board (steel construction) or 30 mm (wooden construction). When laying two layers of CETRIS® boards each layer needs to be anchored separately.
- In the case of ceiling/floor constructions CETRIS® boards are laid tightly – without gaps. CETRIS® PD (or PDB) floor boards must be glued in their tongue and groove joints with a dispersion glue – such as Uzin MK 33, Henkel Ponal etc. When using CETRIS® boards without treated edges (tongue and groove) the joints off the supports must be supported with CETRIS® tape of the same thickness. The minimum width of the tape is 100 mm, maximum spacing of screws anchoring the strip 200 mm.
- The boards must be laid to avoid cross joints – with a minimum overlap of 625 mm. The minimum size of the finally cut board is

250 mm. CETRIS® boards are always laid with the longer edge perpendicular to the beams. The ceiling cavity filling – mineral wool – must be laid across the ceiling area in the prescribed thickness of the layer.

- All joints – between the ceiling and the walls – must be sealed with mineral wool.

