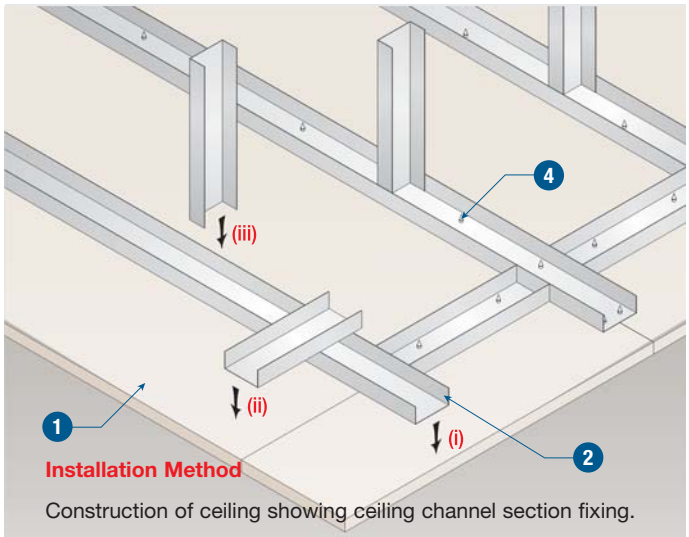


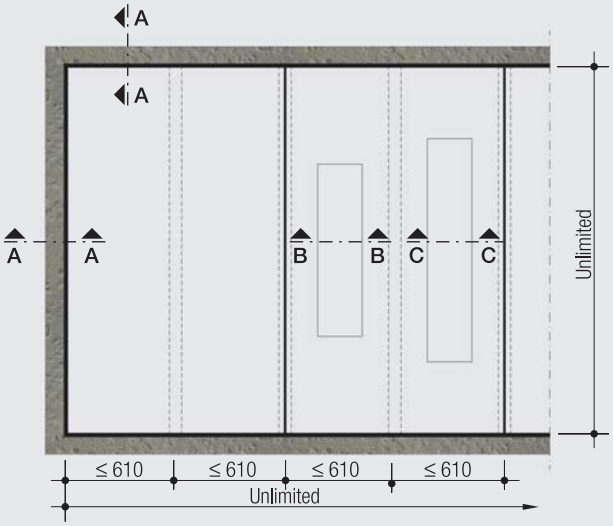
Installation Method

Construction of ceiling showing ceiling channel section fixing.

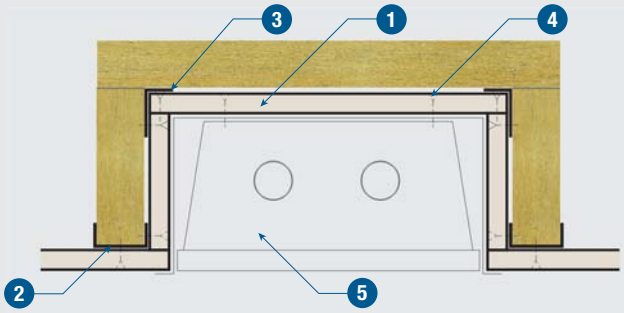
TECHNICAL DATA

1. **PROMATECT®-H boards, thickness commensurate with fire resistance performance required**
2. **Ceiling channel section 50mm x 27mm x 0.6mm to form grid at 610mm x 1220mm spacing**
3. **Mild steel angle 50mm x 30mm x 0.6mm thick**
4. **M4 self-tapping screws at nominal 200mm centres**
5. **Recessed light fitting**
6. **PROMATECT®-H access panel with edge reinforced by 0.6mm thick G.I. channel**
7. **M6 steel anchor bolt at nominal 500mm centres**
8. **PROMATECT®-H block 50mm x 50mm**

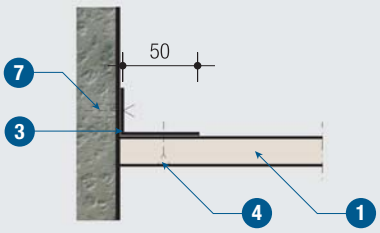
NOTE: PROMATECT® ceilings can provide an aesthetic appearance. Painting or other decorative surface treatment can be applied if necessary. See webpage for details.



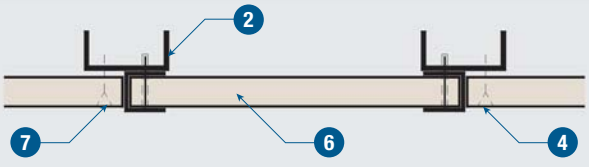
Detail 1 Plan

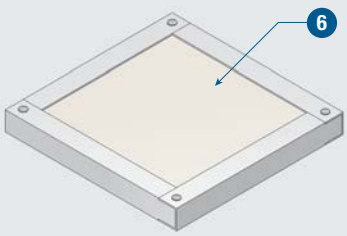


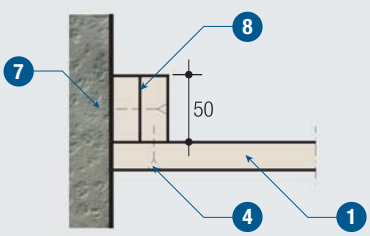
Detail 4 Recessed light fitting detail (Section B-B)



Detail 2 Wall connection (Section A-A)







Detail 3 Alternative wall connection (Section A-A)

Detail 5 Access panel (Section C-C)

Fire Testing Methods

Concrete floors should normally be tested or assessed in accordance with BS 476: Part 21 and require to satisfy the three failure criteria of loadbearing capacity, integrity and insulation when exposed to fire from below. Floors protected with a suspended ceiling should be tested or assessed to BS 476 :Part 23. BS 476: Part 8 is generally acceptable for those systems tested or assessed before 1 January 1988. The systems detailed in this section satisfy the above requirements, however some concrete structures can be exposed to more onerous heating conditions e.g. in tunnels. (see Tunnel Fire Protection on webpage).

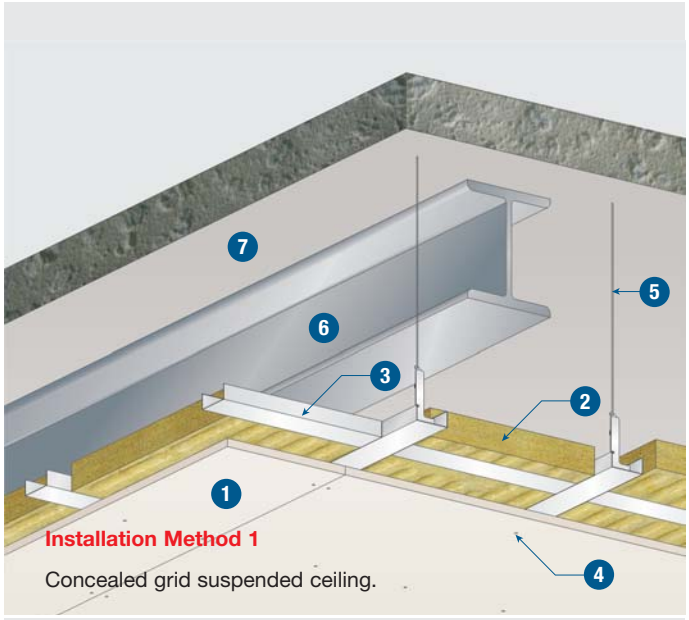
Design Considerations

The following points are some of the factors which should be considered when determining the correct specification to ensure a concrete floor will provide the required fire performance:

1. **Concrete Density**
   Density not only affects the concrete's strength but also its insulation properties and susceptibility to spalling when exposed to fire.
2. **Concrete Moisture Content**
   Depending on the concrete type, concrete can spall when exposed to fire if its moisture content is greater than 2-3%.
3. **Concrete Thickness & Cover To Reinforcing Bars**
   The overall slab thickness will contribute to the strength and insulation of the structure, but the concrete cover to the lowest reinforcing bars is also critical. The concrete slab may need upgrading if inadequate cover has been provided.
4. **Supporting Steelwork**
   Care should be taken that any structural steel supporting the concrete slab is adequately protected against fire.
5. **Other Factors**
   The references made in the timber floor section to suspended ceilings, light fittings, service penetrations, cavity barriers and loading apply equally well to concrete floors.
6. **Type of Fire Exposure**
   Please contact your local Promat office for details.

The provisions of the building regulations lay down limitations on the use of fire protecting suspended ceilings in certain situations. Care should be taken therefore that the use of a suspended ceiling system is acceptable to the approval authorities.

As PROMATECT®-H ceiling panels are non-combustible, Class O materials, and materials of limited combustibility, the following systems should be acceptable providing the building regulations guidance on cavity barriers and access panels are followed.



Installation Method 1

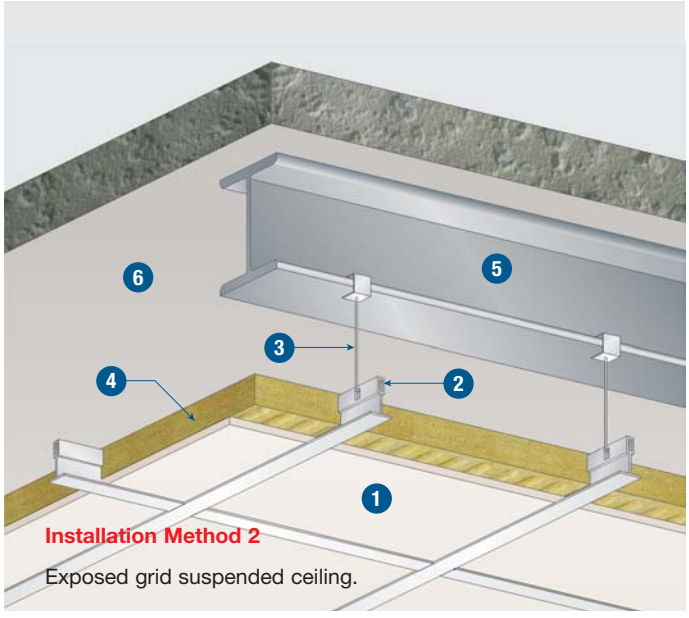
Concealed grid suspended ceiling.

TECHNICAL DATA

2 hours fire rating, loadbearing capacity (for steel beams above) in accordance with the criteria of BS 476: Part 23.

1. PROMATECT®-H boards, 12mm thick
2. Mineral wool, raw density ≥ 45 kg/m³, 50mm thick
3. Ceiling channel section 50mm x 27mm x 0.6mm at 610mm x 1220mm spacing
4. M4 self-tapping screws at nominal 200mm centres
5. Hanger rod at 1220mm centres
6. Structural steel beam
7. Concrete floor slab

NOTE: This ceiling is mainly for the protection of steel beams. Please consult Promat for its application



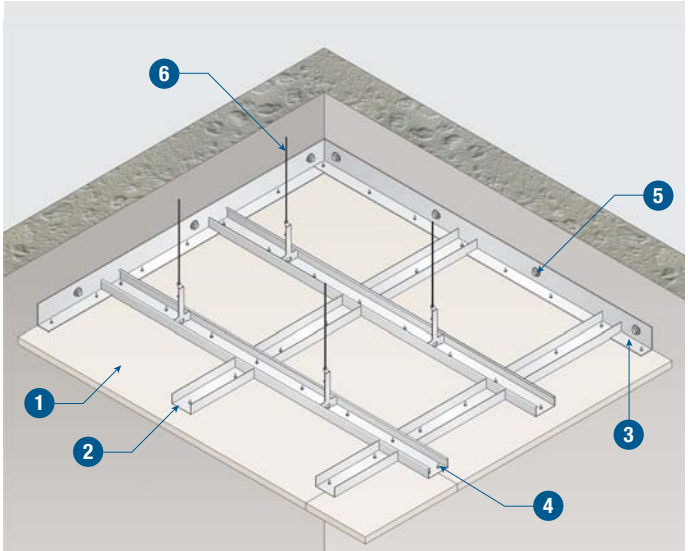
Installation Method 2

Exposed grid suspended ceiling.

TECHNICAL DATA

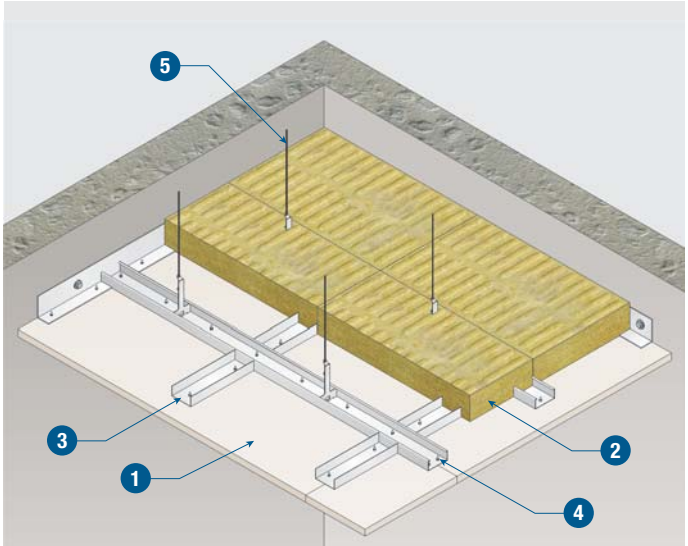
1/2 hour and 1 hour fire rating, loadbearing capacity (for steel beams above) in accordance with the criteria of BS 476: Part 23.

1. PROMATECT®-H ceiling panels, 6mm thick by 1195mm x 595mm or 595mm x 595mm located at least 200mm from underside of steel beam
2. Fire rated exposed grid tee system, main tees at 600mm centres
3. Galvanised wire hangers or steel angles minimum 2mm diameter, at maximum 1220mm centres
4. Mineral wool 30mm x 60 kg/m³ fitted between the tees, only required for 1 hour fire protection
5. Structural steel beam
6. Concrete floor slab



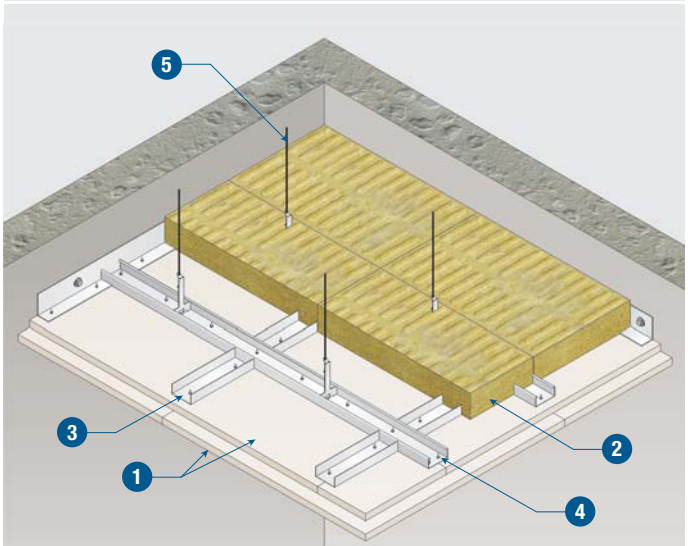
Installation Method 3

Concealed grid suspended ceiling (single layer).



Installation Method 4

Concealed grid suspended ceiling with mineral wool (single layer).



Installation Method 5

Concealed grid suspended ceiling with mineral wool (double layers).

All systems detailed within this page allow for the protection to, or from, services contained within the ceiling void. These systems will also provide protection to steel beams in accordance with the criteria of BS 476: Part 23: 1987 where exposure to fire is from below.

TECHNICAL DATA

4 hours fire rating, integrity in accordance with the criteria of BS 476: Part 22.

1. **PROMATECT®-H boards, 9mm thick**
2. **Ceiling channel section 50mm x 27mm x 0.6mm at 610mm x 1220mm spacing**
3. **Steel angle 30mm x 50mm x 0.6mm thick**
4. **M4 self-tapping screws at nominal 200mm centres**
5. **M6 steel anchor bolt at nominal 600mm centres**
6. **Hanger rod at 1220mm centres**

NOTE: PROMATECT® ceilings can provide an aesthetic appearance. Painting or other decorative surface treatment can be applied if necessary. See webpage for details.

TECHNICAL DATA

1 hour fire rating, integrity and insulation in accordance with the criteria of BS 476: Part 22 with fire from above or below.

1. **PROMATECT®-H boards, 9mm thick**
2. **Mineral wool, raw density ≥ 100 kg/m³, 80mm thick or raw density ≥ 80 kg/m³, 100mm thick**
3. **Ceiling channel section 50mm x 27mm x 0.6mm at 610mm x 1220mm spacing**
4. **M4 self-tapping screws at nominal 200mm centres**
5. **Hanger rod at 1220mm centres, stress on hanger should not exceed 10 N/mm²**

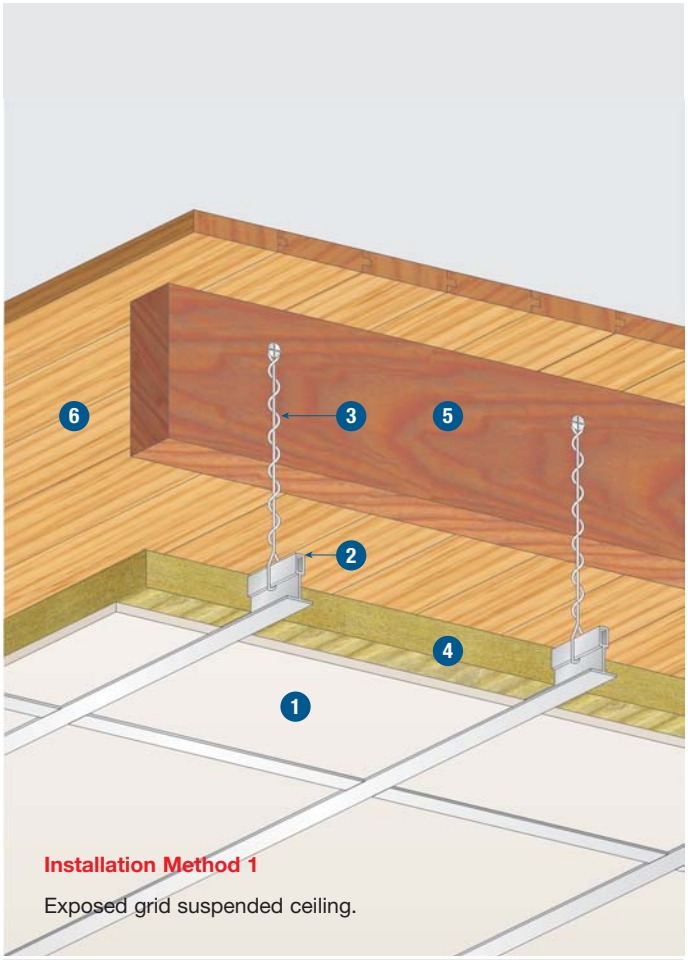
NOTE: Provides additional protection against the risk from fire to life and property by the inclusion of the insulation criteria within this construction. The boards shall be fixed at staggered joints.

TECHNICAL DATA

2 hours fire rating, integrity and insulation in accordance with the criteria of BS 476: Part 22 with fire from above or below.

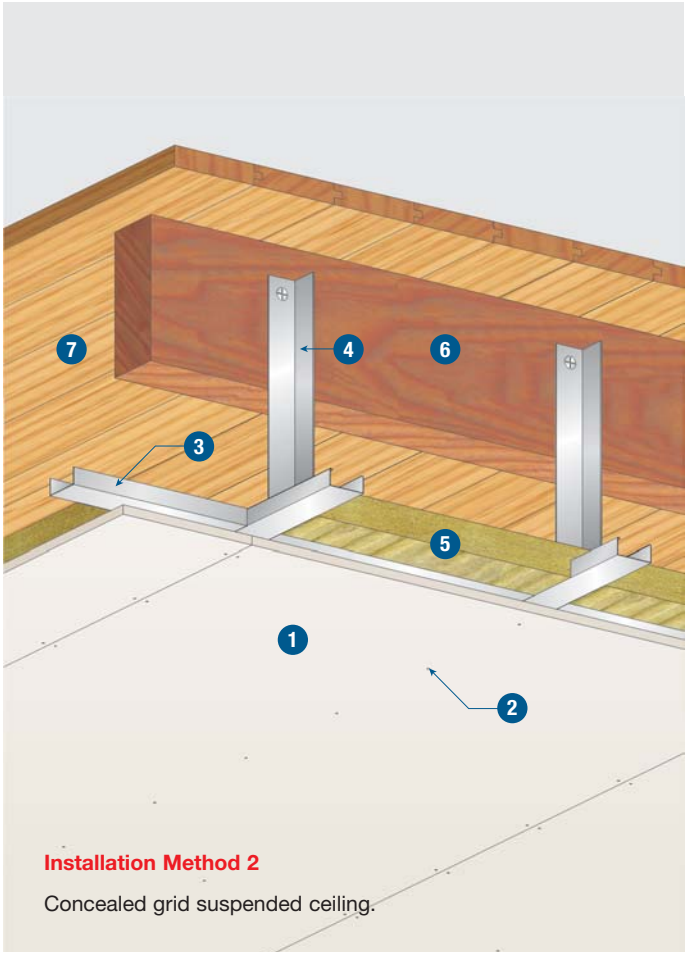
1. **PROMATECT®-H boards, 2 layers of 9mm thick**
2. **Mineral wool, raw density ≥ 100 kg/m³, 80mm thick or raw density ≥ 80 kg/m³, 100mm thick**
3. **Ceiling channel section 50mm x 27mm x 0.6mm at 610mm x 1220mm spacing**
4. **M4 self-tapping screws at nominal 200mm centres**
5. **Hanger rod at 1220mm centres, stress on hanger should not exceed 10 N/mm²**

NOTE: Provides additional protection against the risk from fire to life and property by the inclusion of the insulation criteria within this construction. The boards shall be fixed at staggered joints.



Installation Method 1

Exposed grid suspended ceiling.



Installation Method 2

Concealed grid suspended ceiling.

The provisions of the building regulations lay down limitations on the use of fire protecting suspended ceilings in certain situations. Care should be taken therefore that the use of a suspended ceiling system is acceptable to the approval authorities.

As PROMATECT®-H ceiling panels are non-combustible, Class O materials, and materials of limited combustibility, the following systems should be acceptable providing the building regulations guidance on cavity barriers and access panels are followed.

TECHNICAL DATA

1/2 hour and 1 hour fire rating, loadbearing capacity, integrity and insulation in accordance with the criteria of BS 476: Part 21.

1. **PROMATECT®-H ceiling panels, 6mm thick by 1195mm x 595mm or 595mm x 595mm located at least 200mm from underside of joists**
2. **Fire rated exposed grid tee system, main tees at 600mm centres**
3. **Galvanised wire hangers, minimum 2mm diameter at maximum 1220mm centres. Galvanised steel angle is also suitable. Secure hangers to sides of joists using 38mm nails or screws located at least 100mm above joist base**
4. **For 1 hour fire rating only**
   Mineral wool 30mm x 60 kg/m³ fitted between tees
5. **Timber joists, minimum 225mm x 38mm at maximum 610mm centres**
6. **T & G timber flooring, minimum 18mm**

TECHNICAL DATA

1 hour fire rating, loadbearing capacity, integrity and insulation in accordance with the criteria of BS 476: Part 21.

1. **PROMATECT®-H 12mm, maximum panel size 2438mm x 1219mm. Panels to be located at least 200mm below underside of timber joists**
2. **Self-tapping screws 25mm at nominal 300mm centres**
3. **Fire rated concealed channel system**
   Main runner channels at 610mm centres, cross runner channels 1220mm centres. System includes expansion joint in main runners at approximately 3m centres
4. **Rigid hangers at maximum 1220mm centres secured to sides of joists using 38mm nails or screws located at least 100mm above joist base**
5. **Mineral wool 50mm x 45 kg/m³ placed above panels and grid members**
6. **Timber joists, minimum 225mm x 38mm at maximum 610mm centres**
7. **T & G timber flooring, minimum 18mm thick**