

Cavity fire barriers

Fire separation within concealed spaces



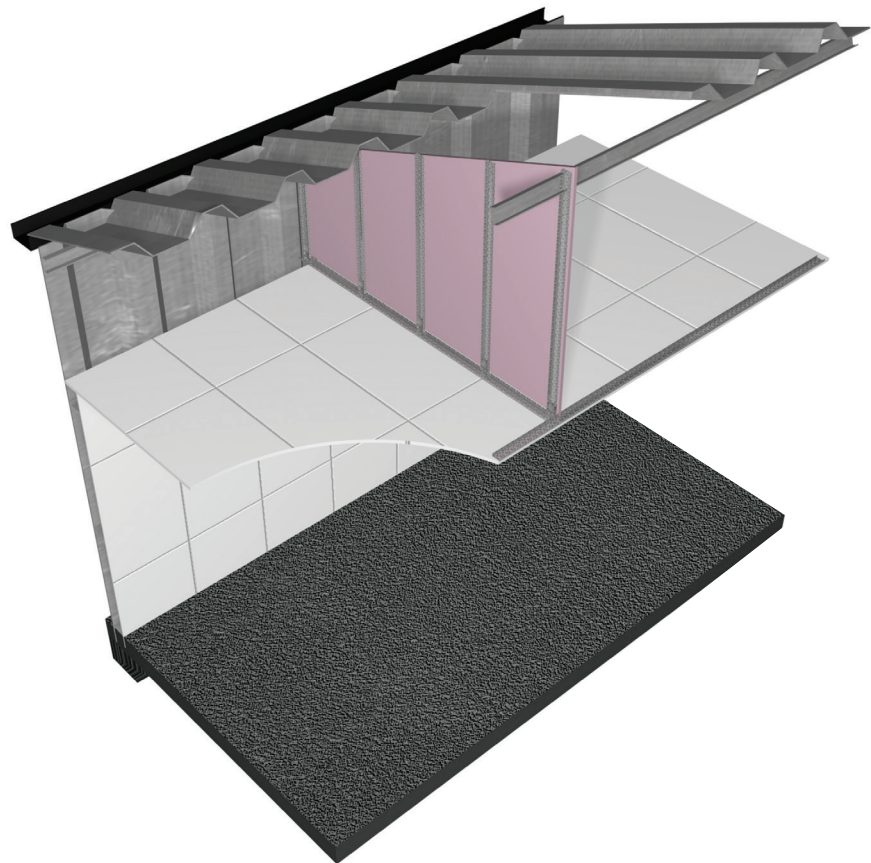
Cavity fire barriers

Regulatory requirements demand that cavities and concealed spaces, in the structure or fabric of a building, are sub-divided or sealed by means of cavity barriers or fire-stopping to restrict the hidden spread of smoke and flames. This is of prime importance since many buildings are honeycombed with concealed cavities and voids within the roofs, floors, and walls.



Key benefits

- Cavity barrier performance options to match partition performances up to 60 minutes fire resistance
- Fire separation is maintained throughout the life of the building due to the board lining being mechanically fixed
- High level of component commonality with **GypWall** partition systems



Cavity fire barriers performance

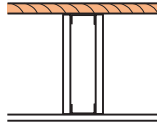
Cavity fire barriers typical applications

For details of when to specify fire resistance using EN
 ▶ Refer to C02. S01. P18



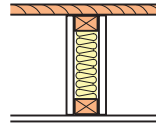
Table 1a – Solutions to satisfy the requirements of BS EN 1364-1: 1999

①



Gypframe 48 S 50 'C' Stud framework with studs at 600mm centres. Linings each side, as in table, fixed using Gyproc Drywall Screws at 300mm centres. Fire-stopping material, e.g. stone mineral wool to the perimeter as necessary.¹

②



63mm x 38mm timber stud framework with studs at 600mm centres. Linings each side, as in table, fixed using Gyproc Drywall Screws at 300mm centres. 25mm Isover Acoustic Roll in the cavity. Fire-stopping material, e.g. stone mineral wool to the perimeter as necessary.¹

Detail	Board type	Lining thickness mm	Fire resistance		System reference
			Integrity minutes	Insulation minutes	
①	Gyproc WallBoard	1 x 15	30	30	A206002
②	Gyproc WallBoard	1 x 15	30	30	A026010
①	Glasroc F MULTIBOARD	1 x 12.5	60	60	G106010

¹ Refer to construction details 1 and 2.

NB The fire resistance and sound insulation performances are for imperforate partitions, with all joints taped and filled, or skimmed according to Gyproc's recommendations. The quoted performances are achieved only if Gyproc and Isover components are used throughout, and the Company's fixing recommendations are strictly observed. Any variation in the specifications should be checked with Gyproc.

Cavity fire barriers design

Planning – key factors

The maximum distance between barriers must be appropriate to the location of each cavity. Also, due consideration must be given to the class of surface exposed within the cavity.

It is also important that smoke and flames are restricted from passing from any cavity in a building element directly into a room or another cavity. Therefore, a cavity must be closed by a cavity barrier at every junction with another cavity. Any cavity contained within an element is also required to be closed by a cavity barrier around the perimeter of any opening through the element. The closure of cavities may already be provided by the construction itself, e.g. where a Gyproc partition system prevents the continuation of cavities at a 'T' junction.

Smoke and flames must also be restricted from by-passing any building elements that are required to have fire resistance. Any cavity crossing the edges or ends of a fire resistant element should have a cavity barrier provided in the same plane as the element, refer to construction details 3 and 4. There are certain exceptions to this requirement, such as cavities in floors and roofs where the ceilings provide a minimum of 30 minutes fire resistance in addition to satisfying other stipulated requirements.

Cavity barriers must maintain their performance during the life of a building, taking account of any possible building movement due to subsidence, shrinkage, or thermal change. In addition, the possible failure of its fixings or adjacent construction in the event of a fire, and the collapse in a fire of any permitted services penetrating the cavity barrier, should be considered.



Important information

Fixings through the cavity barrier framework into the structural soffit must be capable of supporting the weight of the entire cavity barrier construction.

Gyproc ceiling solutions are not intended to provide any support to the cavity barrier.

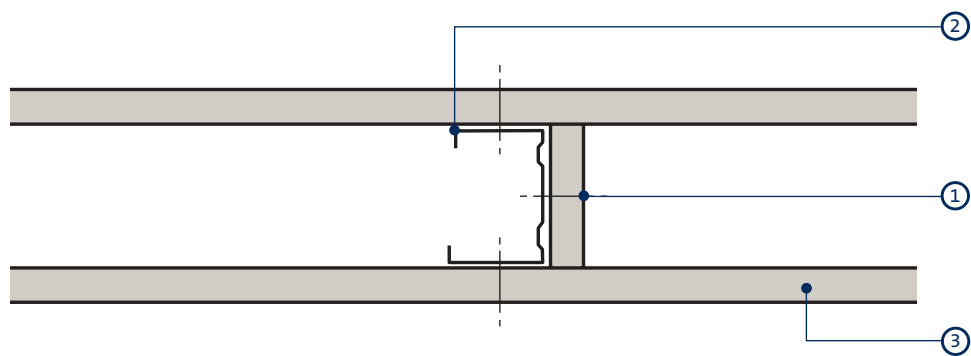
Fire stopping

A cavity barrier must be tightly fitted to a rigid construction, or, if it abuts against slates, tiles, corrugated sheeting, or other construction to which it cannot be so fitted, then it must be suitably fire-stopped at the junction. Refer to construction details 1 - 2, which show fire-stopping solutions using stone mineral wool.

Any services running through a fire cavity barrier should be fire-stopped using suitable materials, shown by test to maintain the fire resistance within that construction.

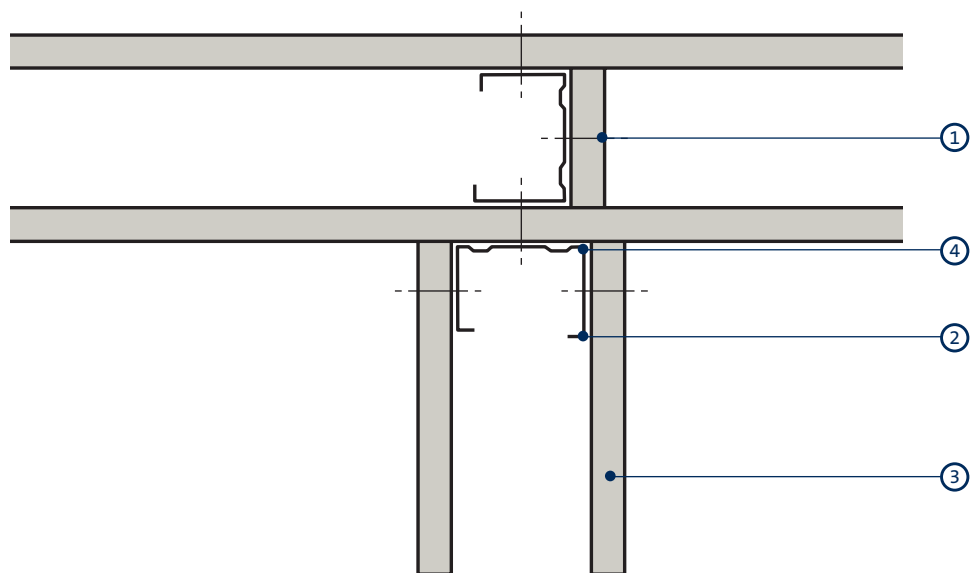
Cavity fire barriers construction details

1



Sub-division or partition cavity

2

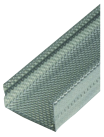


Cavity barrier at 'T' junction of partitions

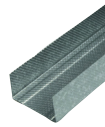
- 1 Gyproc plasterboard or Glasroc F specialist board forming cavity fire barrier
- 2 Gypframe 'C' Stud
- 3 Gyproc plasterboard
- 4 Gyproc Sealant

Cavity fire barriers system components

Gypframe metal components



Gypframe 'C' Studs (48 S 50, 60 S 50, 70 S 50, 70 S 60, 92 S 50, 92 S 60, 92 S 10, 146 S 50)
Vertical stud designed to receive fixing of board.



Gypframe Folded Edge Standard Floor & Ceiling Channels (50 FEC 50, 62 FEC 50, 72 FEC 50, 94 FEC 50, 148 FEC 50)
Standard floor and ceiling channels for retaining Gypframe studs at floor and ceiling junctions.



Gypframe FEA1 Steel Angle
Steel angle providing framing stability and board support.

Timber Framing (by others)
To suit.

Board products



Gyproc WallBoard
Standard gypsum plasterboard.



Gyproc FireLine¹
Gypsum plasterboard with fire resistant additives.



Gyproc Moisture Resistant
Gypsum plasterboard with moisture resistant additives in the core and special green lining paper for easy recognition.



Glasroc F MULTIBOARD
Non-combustible glass-reinforced gypsum board.

¹ Also available in Moisture Resistant (MR) version. MR boards are specified in intermittent wet use areas.

Fixing products



Gyproc Drywall Screws
Corrosion resistant self-tapping steel screws for fixing board-to-timber and board-to-metal framing less than 0.8mm thick.



Gyproc Jack-Point Screws
Corrosion resistant self-tapping steel screws for fixing board to metal framing 0.8mm thick and greater ('I' stud 0.6mm thick and greater).



Gyproc Collated Drywall Screws
Corrosion resistant self-tapping steel screws for fixing board-to-timber and board-to-metal framing less than 0.8mm thick.



Gyproc Wafer Head Drywall Screws
Corrosion resistant self-tapping steel screws for fixing metal to metal framing less than 0.8mm thick.



Gyproc Wafer Head Jack-Point Screws
Corrosion resistant self-tapping steel screws for fixing board to metal framing 0.8mm thick and greater.

Cavity fire barriers system components (continued)

Insulation products



Isover Acoustic Roll

Glass mineral wool for enhanced acoustic performance.

Stone Mineral Wool (by others)

For fire stopping.

Cavity fire barriers installation overview

The procedure for fixing timber or metal framing to the ceiling / structure, and for fixing Gyproc and specialist boards to form the cavity barrier, is in line with Gyproc's normal drylining recommendations.

▶ Refer to **GypWall** metal stud partitions, or timber stud partitions and separating / compartment walls in the current **Gyproc Installation Guide**, available to download from gyproc.ie



Additional information

For full installation details, refer to the **Gyproc Installation Guide**, available to download from gyproc.ie