

Cavity fire barriers



This section includes updated information, added since it was first published in July 2009. Please see the WHITE BOOK update document for details.
Last updated 05/07/2010

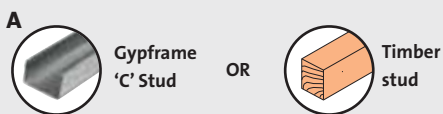
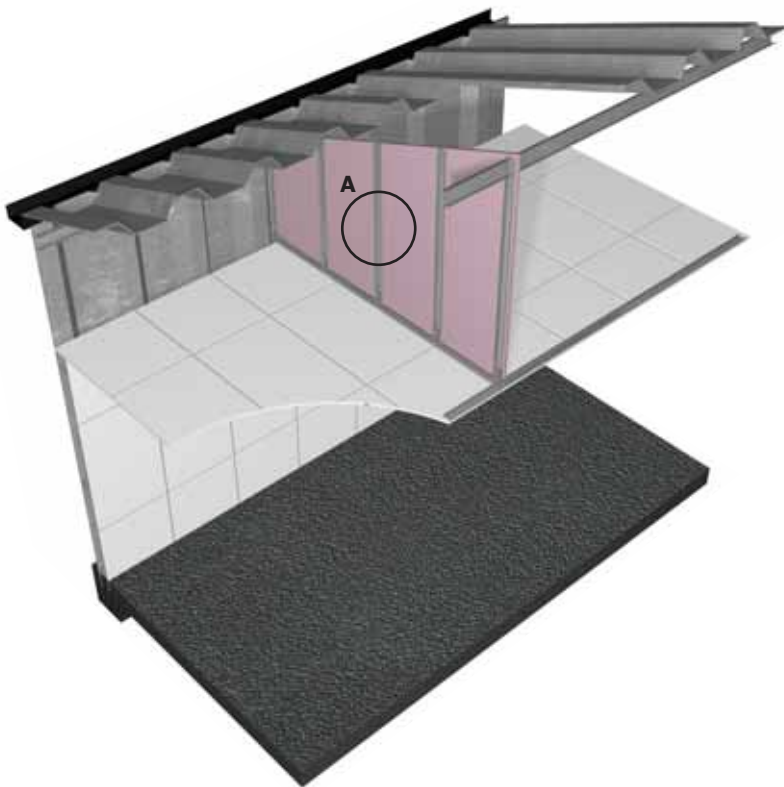


Berkeley Homes,
Royal Arsenal, Woolwich

Cavity fire barriers

30 - 60 mins

Building Regulations require 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 facts

- Required by Building Regulations Approved Document B
- Metal or timber frame to suit
- Provides up to 60 minutes fire integrity
- Built in-situ or pre-formed to match the application

Applications


Designed for the sub-division of cavities in a wide range of situations.


Sector


- ✓ Office / commercial
- ✓ Education
- ✓ Custodial
- ✓ High-rise multi-occupancy
- ✓ Retail
- ✓ Healthcare
- ✓ Housing
- ✓ Auditoria
- ✓ Sport and leisure
- ✓ Industrial
- ✓ Apartment buildings


System components

Framing products


	Gypframe 48 S 50 'C' Stud	Length 2400, 2700, 3000mm 3600mm
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
	Gypframe Standard Floor & Ceiling Channels 50 C 50	Channel available in 3600mm only.
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
	Gypframe GA1 Steel Angle	Length 2900mm
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	Timber framing (by others)	Length To suit
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Board products


	Gyproc WallBoard¹	Thickness 15mm	Width 1200mm
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	Gyproc FireLine¹	Thickness 12.5mm	Width 1200mm
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	Glasroc F MULTIBOARD	Thickness 6, 10, 12.5mm	Width 1200mm
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¹ Moisture resistant boards are specified in intermittent wet use areas, e.g. shower cubicles.


Fixing and finishing products


	Gyproc Drywall Screws	For fixing boards to Gypframe metal framing less than 0.8mm thick ('I' studs less than 0.6mm thick).
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	Gyproc Drywall Timber Screws	For a positive direct fix of boards to timber joists.
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Insulation products

	Isover Cavity Barrier	Cavity closure in external walls. Available in widths to suit.
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	Isover APR 1200	25mm, for improved acoustic performance.
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	Stone mineral wool (by others)	For fire-stopping.
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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 British Gypsum's normal drylining recommendations. Please refer to **GypWall classic** metal stud partitions, or timber stud partitions and separating / compartment walls in the current British Gypsum **SITE BOOK**, available to download from www.british-gypsum.com

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 British Gypsum 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, see **Construction details – 3 - 5**. 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.

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. See **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.

Isover cavity barriers

Designed to restrict the spread of smoke and flames, and also to minimise flanking noise transmission in concealed cavities in masonry, timber frame and steel frame constructions.

Isover cavity barriers are available in two standard widths:

- 100mm for standard fire-stopping and noise reduction applications.
- 300mm for party wall / external wall cavity junctions and where a higher performance is required.

A self-adhesive range of cavity barriers are available specifically for steel frame wall construction.

Fire performance

Due to the non-combustible nature of glass mineral wool, Isover cavity barriers will provide up to 100 minutes fire-resistance in a concealed cavity.

Acoustic performance

Isover cavity barriers aid compliance with flanking noise aspects within the following acoustic regulations:

- Building Regulations Approved Document E
- Robust Details (England & Wales)
- Section 5 (Scotland)

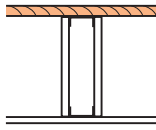
Performance ▶ Refer to section 3 - Basic principles of system design)

EN

Table 1 - Cavity fire barriers typical applications
Solutions to satisfy *BS EN 1364-1: 1999*

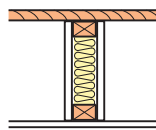


1



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 Timber Screws at 300mm centres. 25mm Isover APR 1200 in the cavity. Fire-stopping material, e.g. stone mineral wool to the perimeter as necessary.¹

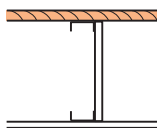
Detail	Board type	Lining thickness mm	Fire resistance		System reference
			Integrity minutes	Insulation minutes	
1	WallBoard	15	30	30	A206002
2	WallBoard	15	30	30	A026010
1	Glasroc F MULTIBOARD	12.5	60	60	G106010

BS

Table 2 - Cavity fire barriers typical applications
Solutions to satisfy *BS 476: Part 8 or 22: 1987*

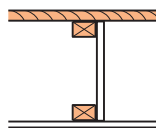


1



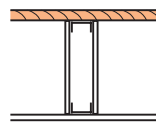
Gypframe 48 S 50 'C' Stud framework with studs at 600mm centres. Linings, as in table, fixed using Gyproc Drywall Screws at 300mm centres. Fire-stopping material, e.g. stone mineral wool to the perimeter as necessary.¹

2



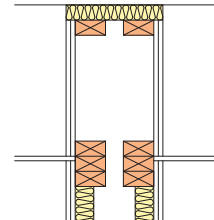
75mm x 50mm timber stud framework with studs at 600mm centres. Linings, as in table, fixed using Gyproc Drywall Timber Screws at 300mm centres. Fire-stopping material, e.g. stone mineral wool to the perimeter as necessary.¹

3



Gypframe 48 S 50 metal '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

4



Robust Detail E-WT-1 roof junction detail (pitched roof with no room-in-the-roof). Linings as in table.

Detail	Board type	Lining thickness mm	Fire resistance		System reference
			Integrity minutes	Insulation minutes	
1	Glasroc F MULTIBOARD	10	30	15	G110001
2	Glasroc F MULTIBOARD	10	30	15	G110002
2	FireLine	12.5	30	15	E106002
3	Glasroc F MULTIBOARD	6 (both sides)	30	15	G110003
4	WallBoard	2 x 12.5 (both sides)	60	60	RD ²

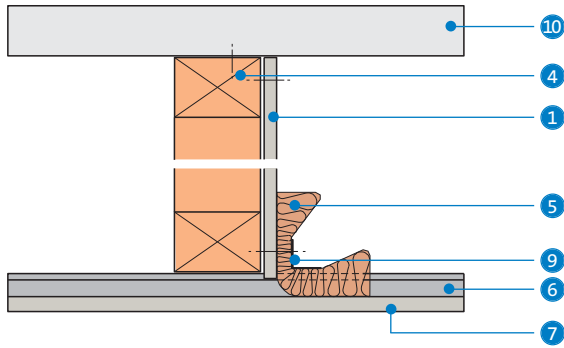
¹ See Construction details – 1 - 2.

² RD = Approved Robust Detail specification E-WT-1. For more information, visit www.robustdetails.com

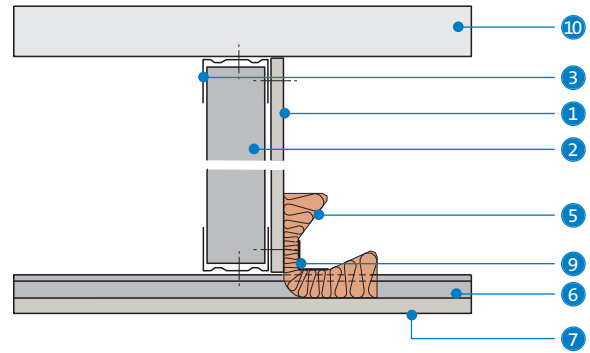
NB The fire resistance and sound insulation performances are for imperforate partitions, walls and ceilings incorporating boards with all joints taped and filled, or skimmed according to British Gypsum's recommendations. The quoted performances are achieved only if British Gypsum components are used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

Construction details

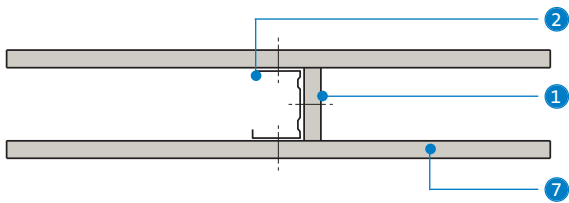
1 Sub-division of ceiling void using timber framed cavity barrier



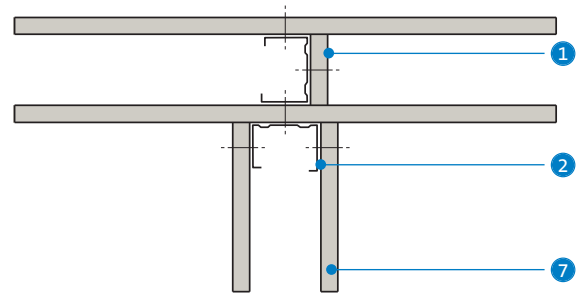
2 Sub-division of ceiling void using Gypframe metal framed cavity barrier



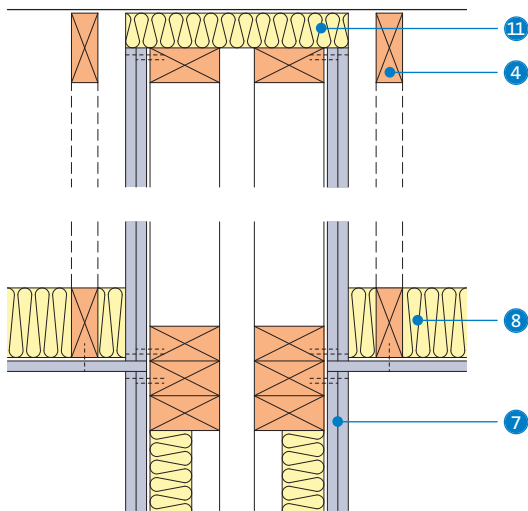
3 Sub-division or partition cavity



4 Cavity barrier at 'T' junction of partitions



5 Timber frame Robust Detail E-WT-1 roof junction – pitched roof with no room-in-the-roof



- 1 Gyproc or Glasroc F specialist board forming cavity fire barrier
- 2 Gypframe 'C' Stud
- 3 Gypframe Standard Floor & Ceiling Channel
- 4 Timber framing
- 5 Stone mineral wool fire-stopping
- 6 Proprietary grid ceiling

- 7 Gyproc plasterboard
- 8 Isover insulation
- 9 Gypframe GA1 Steel Angle
- 10 Concrete soffit
- 11 Isover Cavity Barrier