

# FireCase

## Identification

Protect structural steel columns and beams with our frameless encasement systems.

FireCase is a frameless structural steel encasement system that provides fire protection to a wide range of universal steel beam, column and joist sizes. Installation is quick and easy, owing to the ability to fix Glasroc F FireCase together without the need for additional framing. The Glasroc F FireCase lining provides a smooth, robust surface, which is capable of achieving the required performance without the application of finish.

Passive fire protection is a vital component of any fire safety strategy. It safeguards people's lives and limits the financial impact of damage to buildings and their contents. The protection of the superstructure from fire is especially important, as the whole building's stability depends on its integrity being maintained.

Our steel protection systems provide fire protection to structural steel columns, beams and joists and are able to accept standard methods of finishing; tape and joint or Thistle skim plaster, to match surrounding elements. An aesthetic finish is not necessary with the FireCase system to maintain its fire performance.

This system can be skim finished with ThistlePro® PureFinish which contains ACTIVair®. ACTIVair makes indoor air healthier by eliminating up to 70% of formaldehyde present in indoor air.



### Why specify FireCase?

Frameless encasement system that minimises the space needed to provide fire protection to structural steel

FireCase systems give your building the protection of our **SpecSure®** lifetime warranty

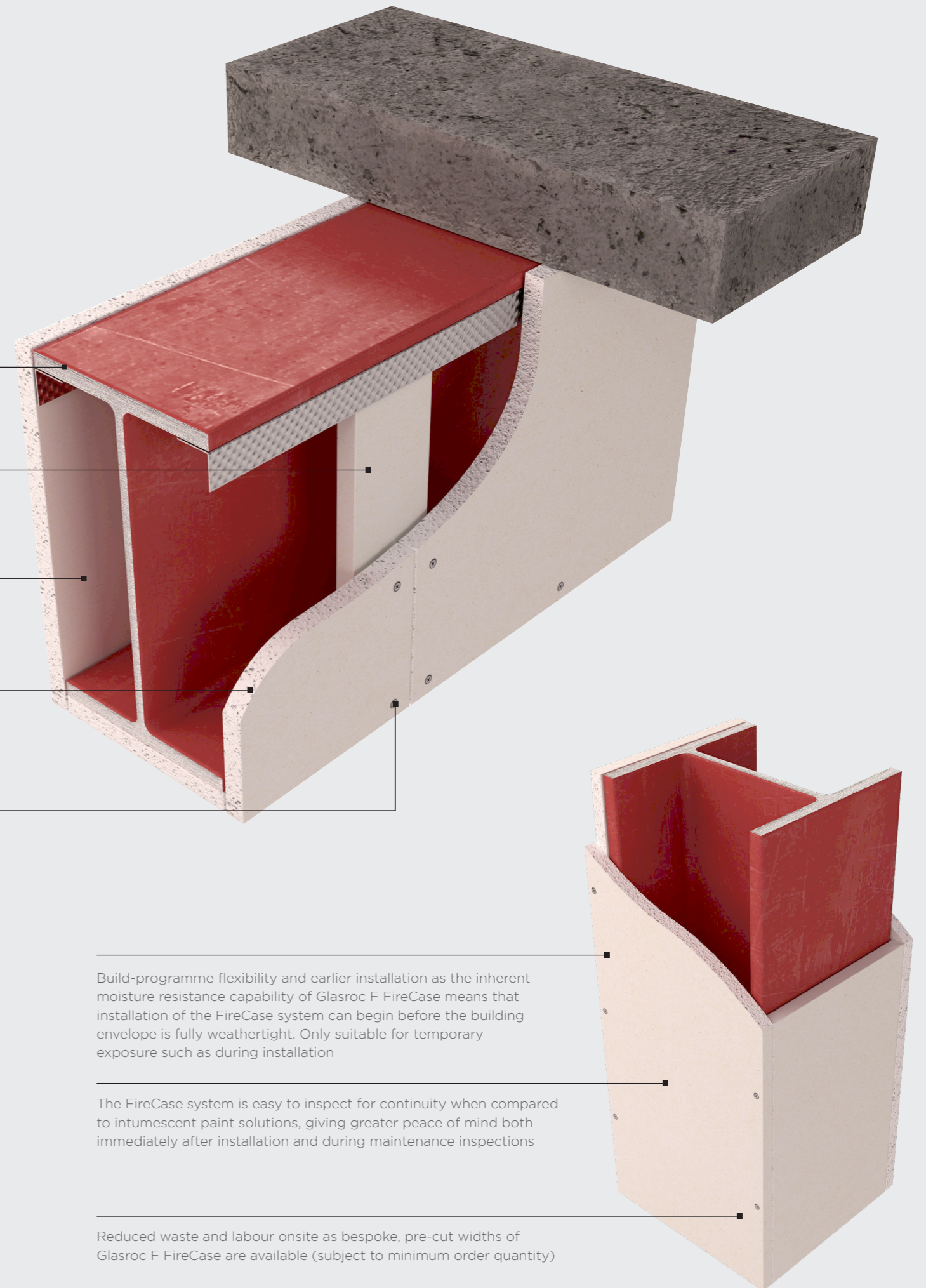
Fire protection performance from 30 - 120 mins to a wide range of universal steel beam, column and joist sizes

High levels of acoustic and thermal insulation can be maintained with detailing of abutments between GypWall partition systems and FireCase encasements

Reduced installation time as Glasroc F FireCase boards can be screw-fixed together without the need for additional framing



There are specifications within this system that qualify for our **SpecSure®** warranty. For more information see [british-gypsum/specsure](https://www.british-gypsum.com/specsure)



Build-programme flexibility and earlier installation as the inherent moisture resistance capability of Glasroc F FireCase means that installation of the FireCase system can begin before the building envelope is fully weathertight. Only suitable for temporary exposure such as during installation

The FireCase system is easy to inspect for continuity when compared to intumescent paint solutions, giving greater peace of mind both immediately after installation and during maintenance inspections

Reduced waste and labour onsite as bespoke, pre-cut widths of Glasroc F FireCase are available (subject to minimum order quantity)

# FireCase

## Design considerations

FireCase encasement systems are suitable for protecting structural steel sections with a section factor  $A/V$  ( $H_p/A$ ) up to  $260m^{-1}$ . Calculations are based on box protection to three or four sides, as required.

They will also protect universal column and beam sections described in BS EN 10365:2017, as well as many types of joist section.

### Lining selection

Follow the procedure below to determine the required board thickness:

1. Ascertain whether protection is needed on three or four sides of the section.
2. Find out what period of fire protection is required.
3. Refer to the White Book Specification Selector on [british-gypsum.com](http://british-gypsum.com) to determine the required board thickness.

### Partition to structural steelwork junctions

When designing room layouts, separated by sound insulating walls abutting structural steelwork, consider the potential loss of acoustic performance through the steelwork. Refer to Building acoustics, in system design principles on [british-gypsum.com](http://british-gypsum.com)

Figures 13 to 16 show typical details for partitions specified with a requirement of  $R_w$  50dB. Although these details refer to structural steel column abutments, similar principles apply when abutting structural steel beams.

We recommend all design details are checked by an Acoustic Consultant, particularly the performance via the flanking structure.

### Finishing

Treat Glasroc F FireCase joints using Gyproc Joint Tape embedded in Gyproc QuickSand. Reinforce external angles or corners with Gyproc Drywall Metal Angle Bead, embedded in Gyproc QuickSand. Reinforce joints and apply Thistle BoardFinish, ThistlePro DuraFinish or Thistle MultiFinish if a plaster finish is needed. Other jointing materials or systems may not be compatible with Glasroc F FireCase board.

### Looking for performance selection tables?

We're committed to providing technical information that is transparent, clear, accurate, and always up-to-date. So you can rely on it when making decisions at any stage of the design, specification, installation, use, maintenance and disposal process.

All performance data is now available to view and download on our website.

[british-gypsum.com/firecase](http://british-gypsum.com/firecase)

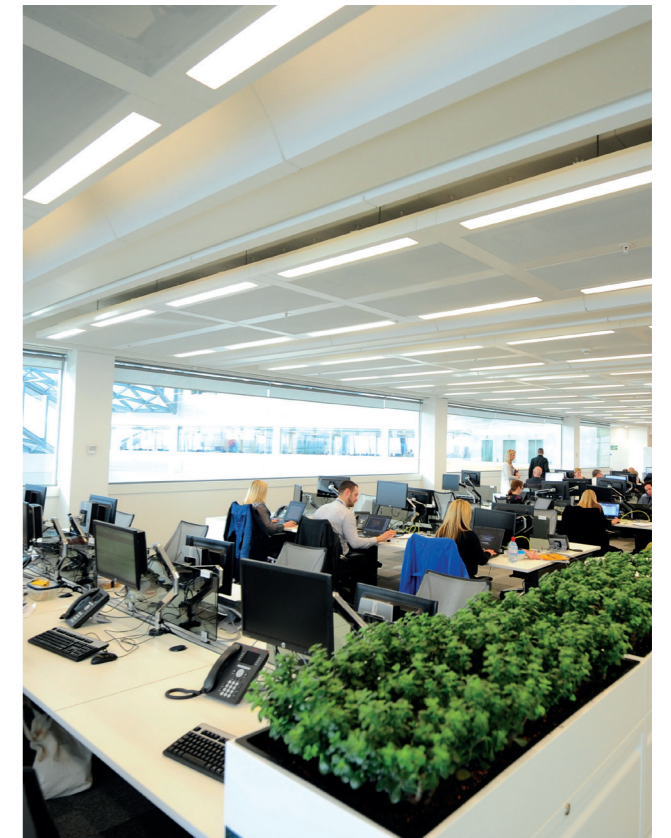


Table 1: Glasroc F FireCase fixings

Board thickness (mm)	Min. fixing length	
	Board-to-board fixing	Board-to-metal fixing
15	Glasroc F FireCase Screws 40mm	Glasroc F FireCase Screws 40mm
20	Glasroc F FireCase Screws 50mm	Glasroc F FireCase Screws 40mm
25	Glasroc F FireCase Screws 58mm	Glasroc F FireCase Screws 40mm
30	Glasroc F FireCase Screws 70mm	Glasroc F FireCase Screws 40mm
15 + 20	Glasroc F FireCase Screws 40mm and 50mm	Glasroc F FireCase Screws 40mm and 50mm

### Important notes

- Jointing and finishing is not a requirement of meeting the specified fire protection.
- Board joints/abutments must be a flush fit.
- All joints should be staggered by a minimum 600mm.
- Where steel section web dimensions exceed 600mm, additional support will be needed to provide a fixing background for the encasement lining.
- Where partitions abut a FireCase column or beam encasement and maintaining acoustic performance is important, use either:
  - Isover insulation within the web space. Refer to construction details 14 and 15 on page 3.13 and 3.14, or
  - Additional framing, Isover insulation and Gyproc plasterboard lining. Refer to construction detail 16 on page 3.14.
- For further information please refer to Technical Support on [british-gypsum.com](http://british-gypsum.com)



# FireCase

## Design considerations (continued)

Table 2: Section factor A/V (Hp/A) of universal beams

Beam/column/ joist dimension orientation		A / V values		Universal beams serial size of steel (mm x mm x kg/m)		A / V values		Universal beams serial size of steel (mm x mm x kg/m)	
D	B	3 sided encasement	4 sided encasement	D	B	3 sided encasement	4 sided encasement	D	B
1016	305	40	45	457	191	60	65		
	305	40	50		191	70	80		
	305	45	55		191	85	100		
	305	50	60		191	90	105		
	305	55	65		191	100	115		
	305	65	75		191	105	125		
	305	70	80		191	115	135		
	305	80	90		191	130	150		
914	419	45	55		152	105	120		
	419	50	60		152	115	130		
	305	60	65		152	125	145		
	305	65	75		152	140	160		
	305	75	85		152	160	180		
	305	80	95		406	95	110		
838	292	70	80		178	105	125		
	292	80	90		178	115	140		
	292	90	100		178	130	155		
	267	70	85		178	145	170		
	267	80	95		140	140	160		
	267	95	110		140	160	185		
	267	105	120		140	190	215		
686	254	75	90		171	105	125		
	254	85	95		171	120	145		
	254	90	105		171	135	160		
	254	100	115		171	150	180		
610	305	50	60		127	165	195		
	305	70	80		127	195	225		
	305	80	95		305	115	140		
	229	80	95		165	135	160		
	229	90	105		165	150	185		
	229	100	115		127	120	145		
	229	110	130		127	140	160		
	178	110	125		127	155	180		
	178	120	135		102	175	200		
	178	130	150		102	200	230		
533	312	40	50		102	225	255		
	312	50	65		254	120	150		
	312	60	75		146	140	170		
	312	75	90		146	165	200		
	210	75	85		102	175	200		
	210	85	95		102	190	225		
	210	95	110		102	220	255		
	210	100	115		203	145	180		
	210	110	125		133	170	210		
	210	120	140		102	175	205		
	165	115	130		178	190	230		
	165	130	145		152	195	235		
	165	145	165		127	200	245		

Table 3: Section factor A/V (Hp/A) of universal columns

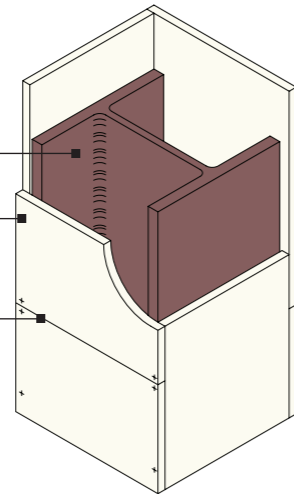
Beam/column/ joist dimension orientation		A / V values		Universal beams serial size of steel (mm x mm x kg/m)		A / V values		Universal beams serial size of steel (mm x mm x kg/m)	
D	B	3 sided encasement	4 sided encasement	D	B	3 sided encasement	4 sided encasement	D	B
356	406	15	20						
	406	20	25						
	406	20	30						
	406	25	35						
	406	30	35						
	406	30	45						
	406	40	50						
	368	45	60						
	368	50	65						
	368	55	75						
	368	65	90						
305	305	30	40						
	305	35	45						
	305	40	50						
	305	50	65						
	305	55	70						
	305	60	85						
	305	75	100						
254	254	40	50						
	254	50	65						
	254	60	75						
	254	70	90						
	254	80	110						
203	203	45	55						
	203	45	60						
	203	55	70						
	203	60	80						
	203	70	95						
	203	80	110						
	203	95	125						
	203	105	140						
152	152	75	100						
	152	85	115						
	152	100	135						
	152	120	160						
	152	155	210						

# FireCase

## Construction details

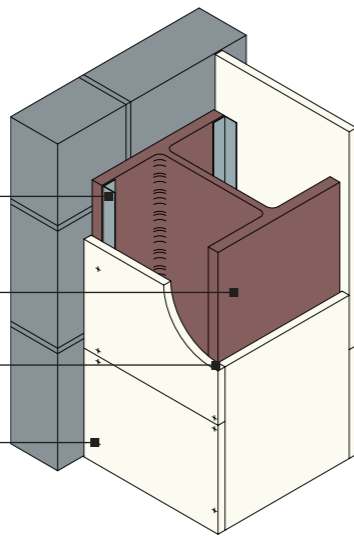
### 1. Four-sided column encasement Single layer

- Structural steel
- Glasroc F FireCase fixed together with Glasroc F FireCase Screws
- Board joints staggered by min. 600mm between adjacent sides



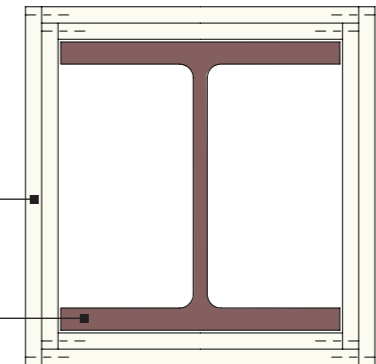
### 2. Three-sided column encasement Incorporating steel angles - single layer

- Gypframe FEA1 Steel Angle suitably fixed to column flange at 600mm centres
- Structural steel
- Board joints staggered by min. 600mm between adjacent sides
- Glasroc F FireCase fixed together with Glasroc F FireCase Screws



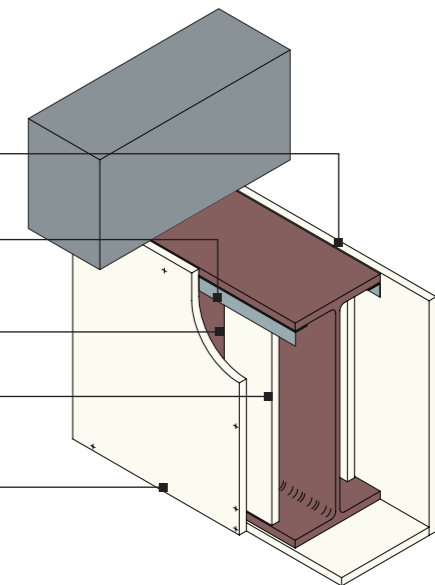
### 3. Four-sided column encasement Double layer

- Glasroc F FireCase fixed together with Glasroc F FireCase Screws
- Structural steel



### 4. Three-sided beam encasement Incorporating steel angles - single layer

- Board joints staggered by min. 600mm between adjacent sides
- Gypframe FEA1 Steel Angle suitably fixed to column flange at 600mm centres
- Structural steel
- 60mm wide Glasroc F FireCase backing strip (for single layer systems only)
- Glasroc F FireCase fixed together with Glasroc F FireCase Screws



# FireCase

## Construction details

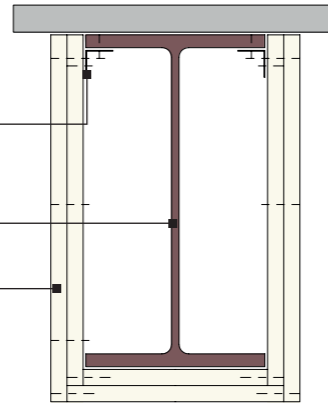
### 5. Three-sided beam encasement

Incorporating steel angles - double layer

Gypframe FEA1 Steel Angle suitably fixed to beam flange at 600mm centres

Structural steel

Glasroc F FireCase fixed together with Glasroc F FireCase Screws

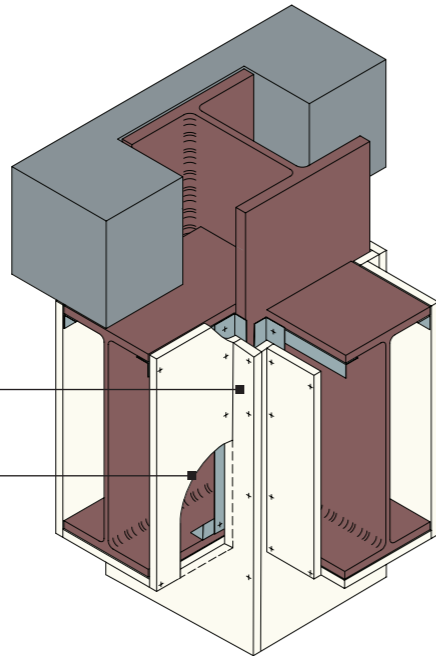


### 6. Column and beam junction

Incorporating steel angles - single layer

Beam encasement boards butted tight to column encasement

Column encasement boards cut around penetrations



### 7. Column encasement and partition junction

BS 5234 Heavy and Severe Duty

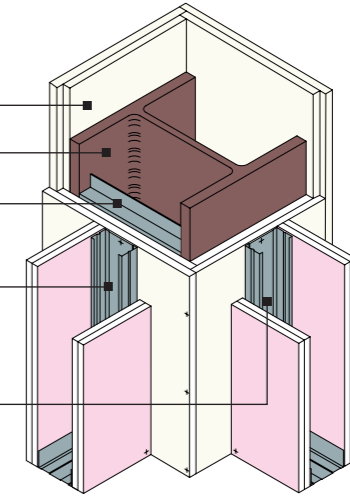
FireCase encasement

Structural steel

Suitable size Z-section (by others) fixed between column flanges at 600mm centres

Gypframe 'C' Stud suitably fixed through Glasroc F FireCase to Z-sections (in two lines for studs wider than 92mm)

Gypframe 'C' Stud / Channel suitably fixed through Glasroc F FireCase to structural steel at 600mm centres (in two lines staggered by 300mm for 92mm or 146mm studs)



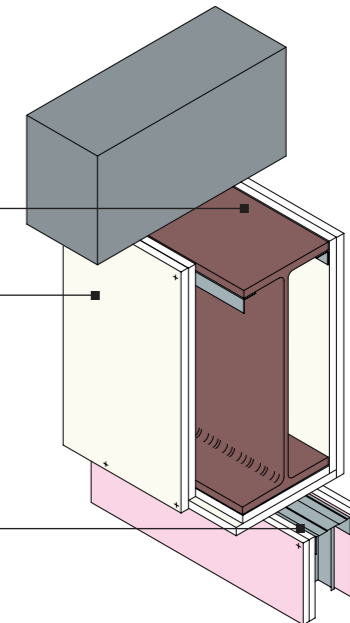
### 8. Beam encasement and partition junction

BS 5234 Heavy and Severe Duty

Structural steel

FireCase encasement

Gypframe 'C' Stud suitably fixed through Glasroc F FireCase to beam (in two lines staggered by 300mm for 92mm or 146mm studs)

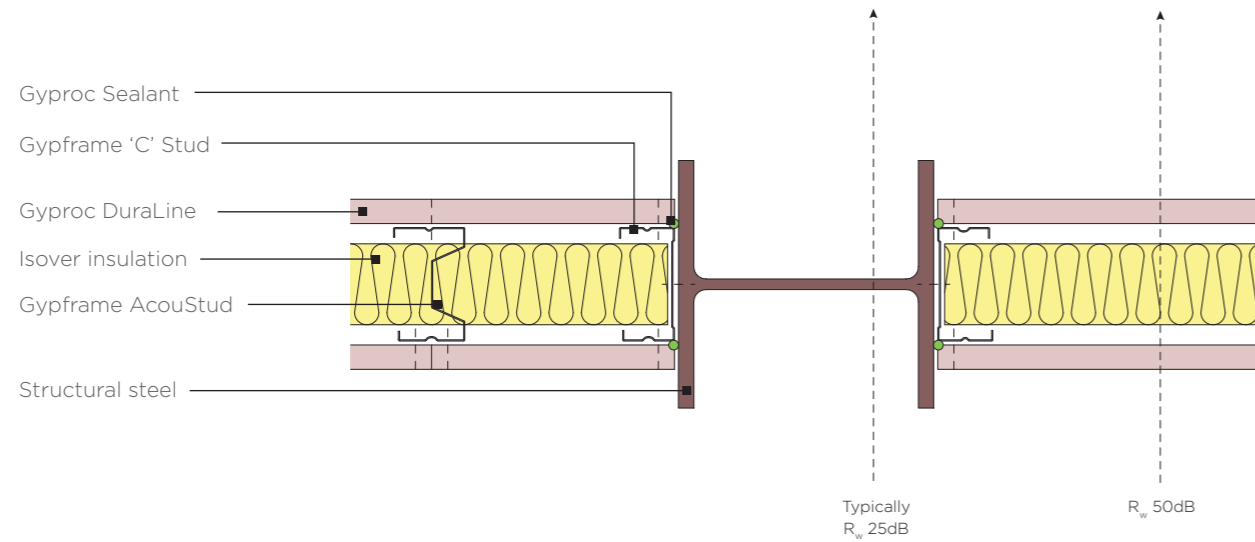


\* Partitions are non-fire rated unless suitable size Z-sections are used (see construction detail 8, above)

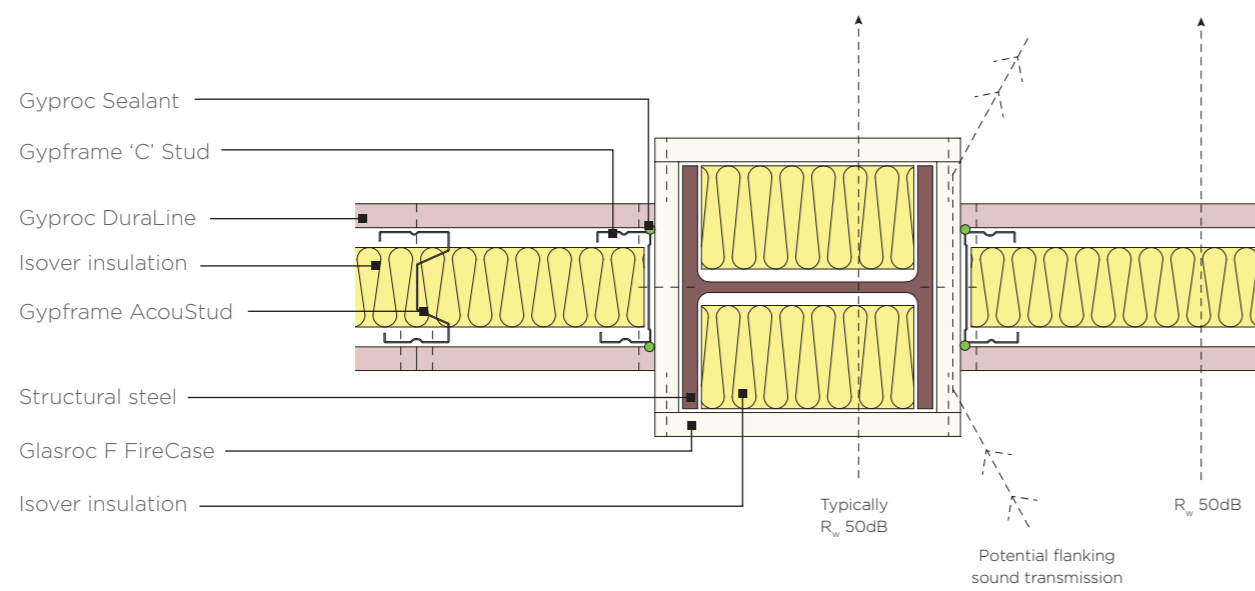
# FireCase

## Construction details

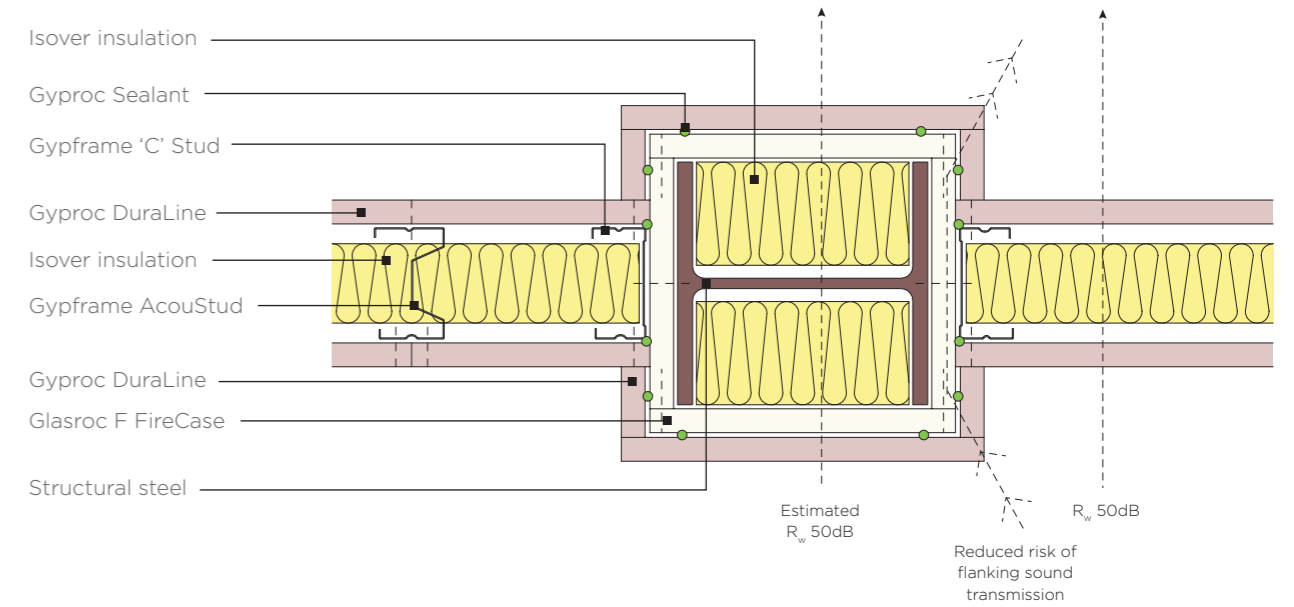
### 11. Exposed/painted steel column



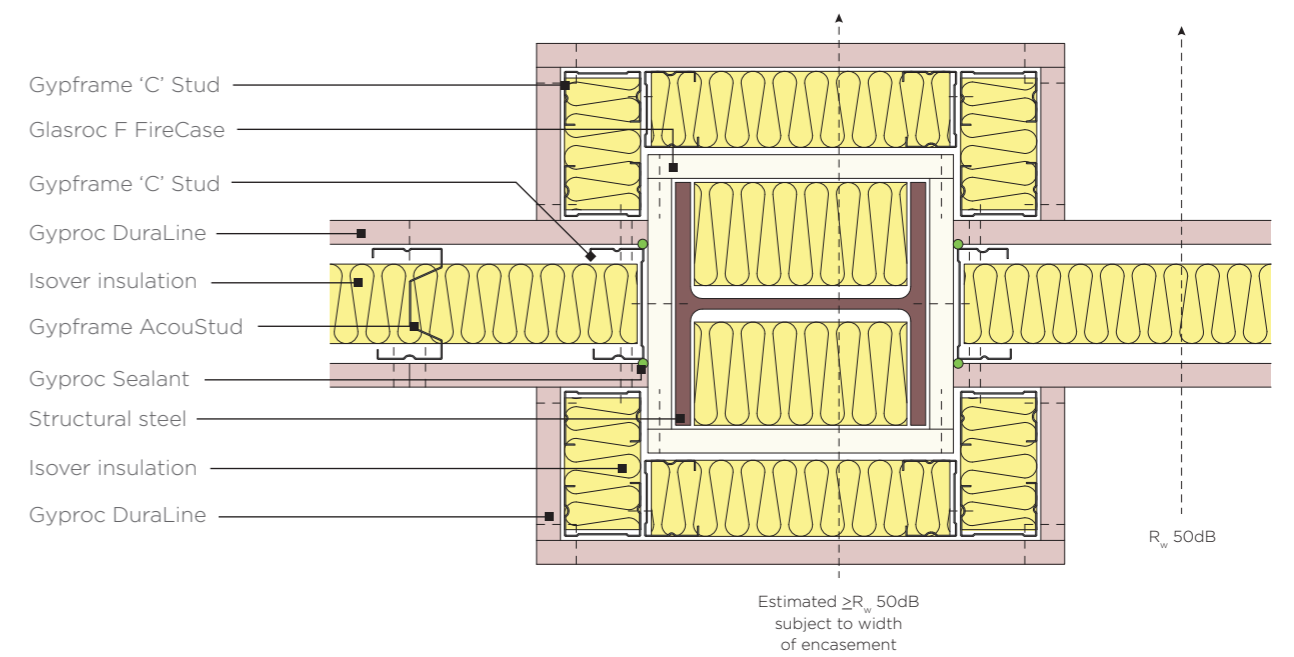
### 12. Encased steel column



### 13. Encased steel column with additional plasterboard lining



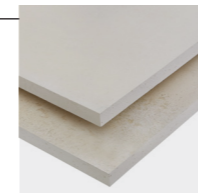
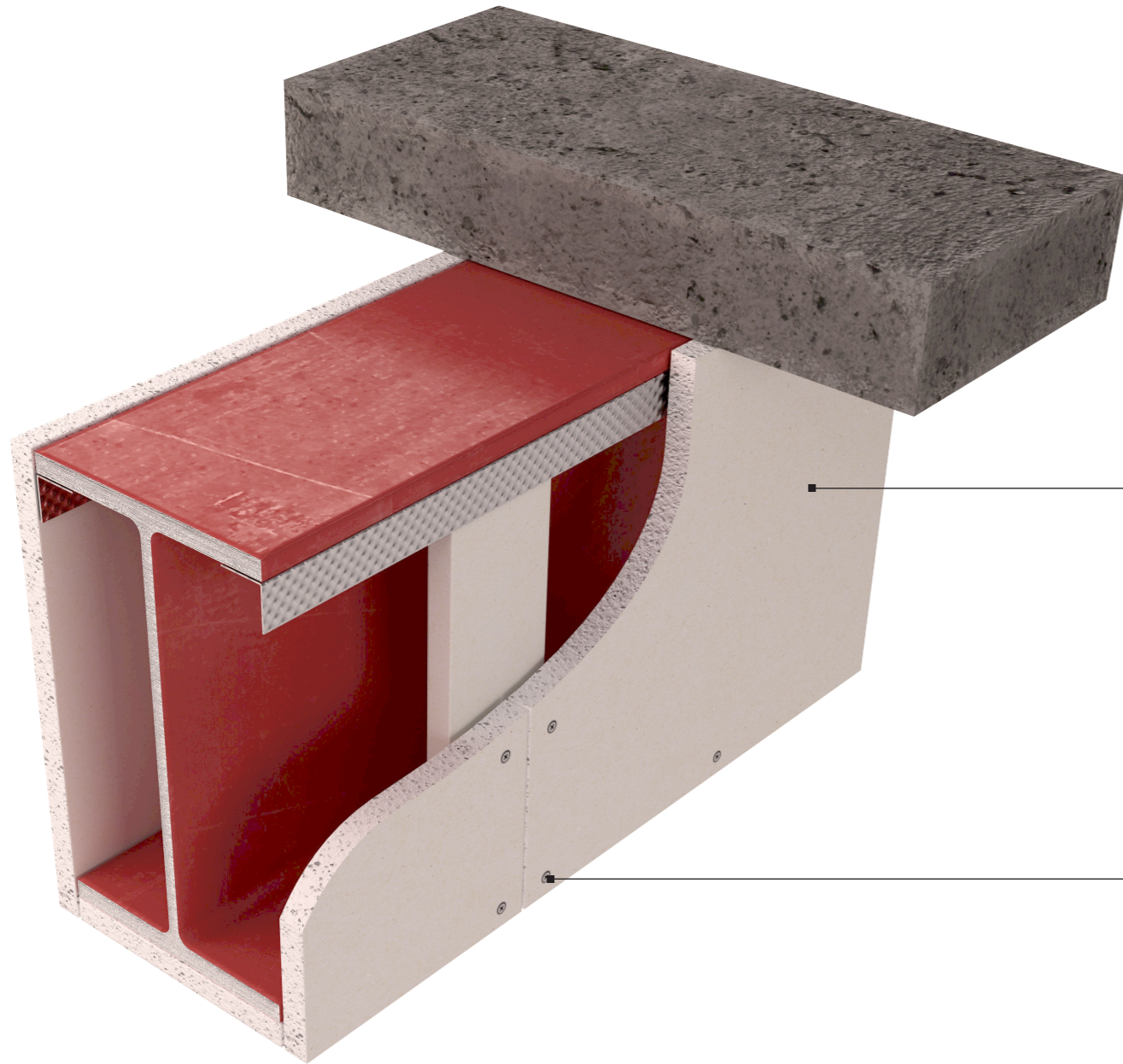
### 14. Encased steel column with additional framing, insulation and plasterboard lining



# FireCase

## System components

Protect structural steel columns and beams with our frameless encasement systems.



### Glasroc F FireCase

Glasroc F FireCase is a high performance, Class A1, non-combustible glass reinforced gypsum board. Use it as part of the FireCase frameless structural steel encasement system. This product is also suitable for installation in semi-exposed areas before the building envelope is complete.



### Glasroc F FireCase Screws

Corrosion resistant self-tapping steel screws with a unique countersunk cross head design. Specifically designed for board-to-board fixing of Glasroc F FireCase board in the FireCase system. The unique head design countersinks into the board allowing easy finishing.

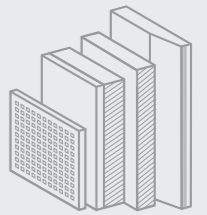


There are specifications within this system that qualify for our **SpecSure** warranty. For more information see [british-gypsum.com/specsure](http://british-gypsum.com/specsure)

Careful product choice is central to maintaining system integrity, performance requirements as well as eligibility for our **SpecSure** warranty. **Ensure an optimum standard of build by considering...**

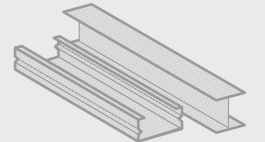
### What are you fixing?

Our specialist, high-performance gypsum boards provide excellent protection for structural steel columns and beams. See [british-gypsum.com](http://british-gypsum.com) for more details.



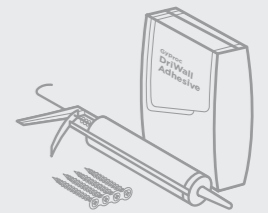
### What are you fixing to?

Our Gyframe metal profiles provide a strong and versatile structure for protective encasement systems. See [british-gypsum.com](http://british-gypsum.com) for more details.



### What are you fixing with?

Our fixings offer guaranteed compatibility with our systems, and are rigorously tested to meet the highest quality standards. See [british-gypsum.com](http://british-gypsum.com) for more details.



**Where defined performance requirements are required see our White Book Specification Selector on [british-gypsum.com](http://british-gypsum.com)**

# FireCase Installation

The information below is intended to be a basic description of how the system is built.



1 For two or three-sided protection to steel beams or columns, secure Gypframe FEA1 Steel Angles to both sides of the wall / soffit flange using appropriate fixings.



2 Cut Glasroc F FireCase boards to width and use Glasroc F FireCase Screws to fix to the Gypframe FEA1 Steel Angles.



3 Where Glasroc F FireCase boards abut fix together with Glasroc F FireCase Screws. For four-sided protection to steel columns, Glasroc F FireCase boards are positioned and fixed board to board using Glasroc F FireCase Screws.



4 To seal the joints of single layer steel beam encasements, install additional strips of Glasroc F FireCase behind the ends of the fascia board.