

# 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 column, joists and beam sizes - both solid and castellated. 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 surface which does not rely on finishes to achieve the specified performance.

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, joists and beam sizes - both solid and castellated - 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

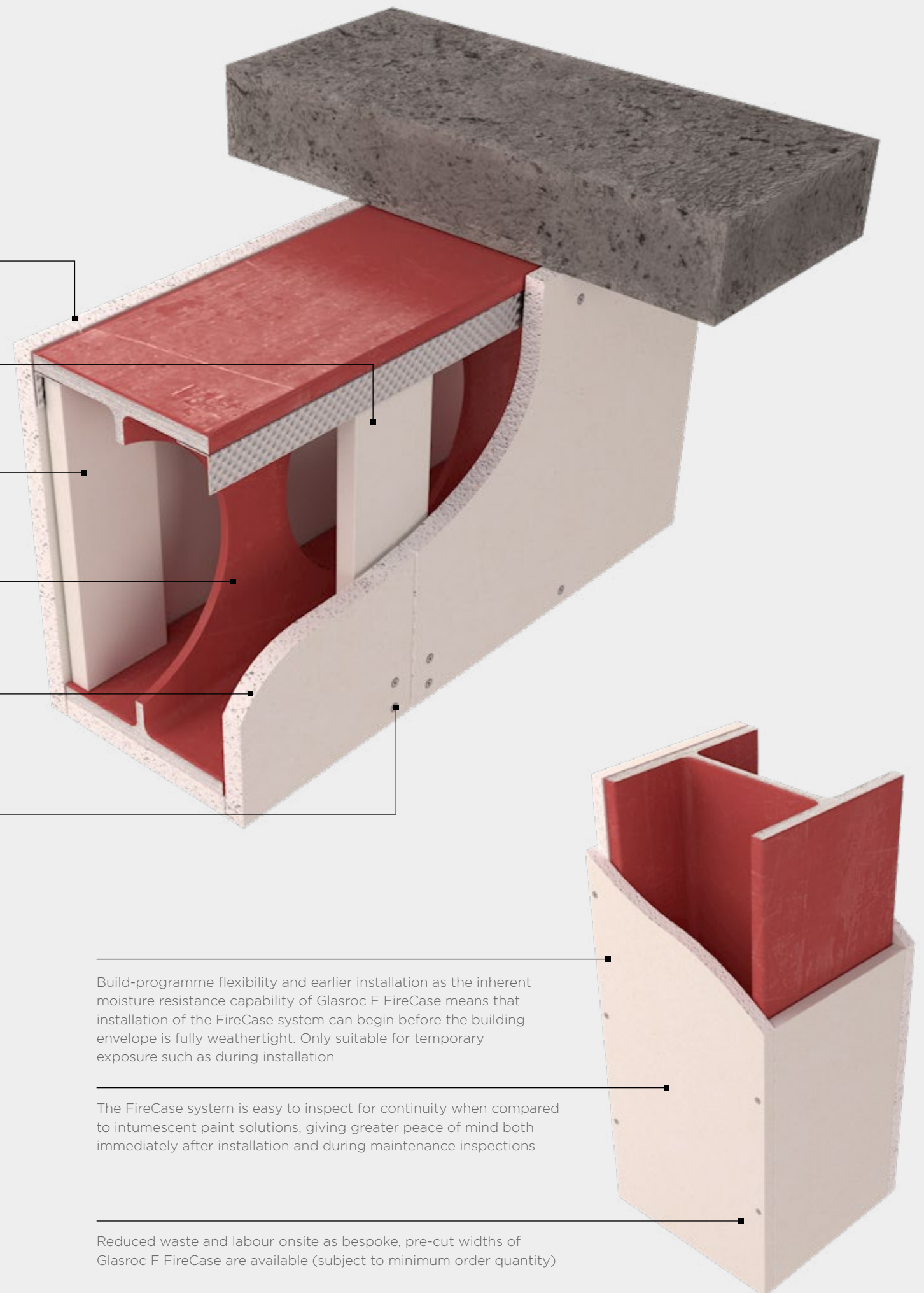
Tested fire protection performance on both solid and castellated steel beams

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**



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 (Hp/A) up to 260m<sup>-1</sup>. 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 to determine the required board thickness.
  4. For castellated sections follow the above procedure, but add 20% to the lining thickness, and scale this up to the next board thickness. Claims compliant with Yellow Book 5th Edition 20% rule (YB4.2) assessment method.

### 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**

Figures 11 to 14 show typical details for partitions specified with a requirement of R<sub>w</sub> 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**



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.
- Ensure that fascia board-to-soffit board edge fixings are secured into the centre of the Glasroc F FireCase soffit board to meet 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 12 and 13 on page 3.15 and 3.16, or
  - Additional framing, Isover insulation and Gyproc plasterboard lining. Refer to construction detail 14 on page 3.16.
- Structural steel beam format such as solid or castellated, needs to be taken into account when specifying to required performance requirements.
- For further information please refer to Technical Support on **british-gypsum.com**



# FireCase

## Design considerations (continued)

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

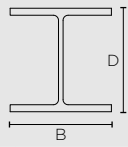
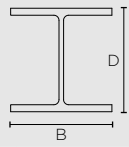
<div>Beam/column/ joist dimension orientation</div> 									
Universal beams serial size of steel (mm x mm x kg/m)			A / V values		Universal beams serial size of steel (mm x mm x kg/m)			A / V values	
			3 sided encasement	4 sided encasement				3 sided encasement	4 sided encasement
D	B	Mass/m	m <sup>-1</sup>	m <sup>-1</sup>	D	B	Mass/m	m <sup>-1</sup>	m <sup>-1</sup>
1016	305	487	40	45	457	191	161	60	65
	305	438	40	50		191	133	70	80
	305	393	45	55		191	106	85	100
	305	349	50	60		191	98	90	105
	305	314	55	65		191	89	100	115
	305	272	65	75		191	82	105	125
	305	249	70	80		191	74	115	135
	305	222	80	90		191	67	130	150
914	419	388	45	55	152	82	105	120	120
	419	343	50	60		74	115	130	130
	305	289	60	65		67	125	145	145
	305	253	65	75		60	140	160	160
	305	224	75	85		52	160	180	180
	305	201	80	95	406	178	85	95	110
838	292	226	70	80		178	74	105	125
	292	194	80	90		178	67	115	140
	292	176	90	100		178	60	130	155
762	267	197	70	85		178	54	145	170
	267	173	80	95		140	53	140	160
	267	147	95	110		140	46	160	185
	267	134	105	120		140	39	190	215
686	254	170	75	90	356	171	67	105	125
	254	152	85	95		171	57	120	145
	254	140	90	105		171	51	135	160
	254	125	100	115		171	45	150	180
610	305	238	50	60	127	39	165	195	195
	305	179	70	80		33	195	225	225
	305	149	80	95	305	165	54	115	140
	229	140	80	95		165	46	135	160
	229	125	90	105		165	40	150	185
	229	113	100	115		127	48	120	145
	229	101	110	130		127	42	140	160
	178	100	110	125		127	37	155	180
	178	92	120	135		102	33	175	200
533	178	82	130	150		102	28	200	230
	312	273	40	50		102	25	225	255
	312	219	50	65	254	146	43	120	150
	312	182	60	75		146	37	140	170
	312	151	75	90		146	31	165	200
	210	138	75	85		102	28	175	200
	210	122	85	95		102	25	190	225
	210	109	95	110		102	22	220	255
	210	101	100	115	203	133	30	145	180
	210	92	110	125		133	25	170	210
	210	82	120	140		102	23	175	205
	165	85	115	130	178	102	19	190	230
	165	75	130	145	152	89	16	195	235
	165	66	145	165	127	76	13	200	245

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

<div>Beam/column/ joist dimension orientation</div> 									
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)			A / V values	
			3 sided encasement	4 sided encasement				3 sided encasement	4 sided encasement
D	B	Mass/m	m <sup>-1</sup>	m <sup>-1</sup>	D	B	Mass/m	m <sup>-1</sup>	m <sup>-1</sup>
356	406	634	15	20	305	305	283	30	40
	406	551	20	25		305	240	35	45
	406	467	20	30		305	198	40	50
	406	393	25	35		305	158	50	65
	406	340	30	35		305	137	55	70
	406	287	30	45		305	118	60	85
	406	235	40	50		305	97	75	100
	368	202	45	60	254	254	167	40	50
	368	177	50	65		254	132	50	65
	368	153	55	75		254	107	60	75
305	368	129	65	90		254	89	70	90
	305	283	30	40	203	254	73	80	110
	305	240	35	45		203	127	45	55
	305	198	40	50		203	113	45	60
	305	158	50	65		203	100	55	70
	305	137	55	70		203	86	60	80
	305	118	60	85		203	71	70	95
	305	97	75	100		203	60	80	110
254	254	167	40	50		203	52	95	125
	254	132	50	65		203	46	105	140
203	254	107	60	75	152	152	51	75	100
	254	89	70	90		152	44	85	115
	254	73	80	110		152	37	100	135
	203	127	45	55		152	30	120	160
	203	113	45	60		152	23	155	210
	203	100	55	70					
	203	86	60	80					
	203	71	70	95					
152	203	60	80	110					
	203	52	95	125					
	203	46	105	140					
	152	51	75	100					

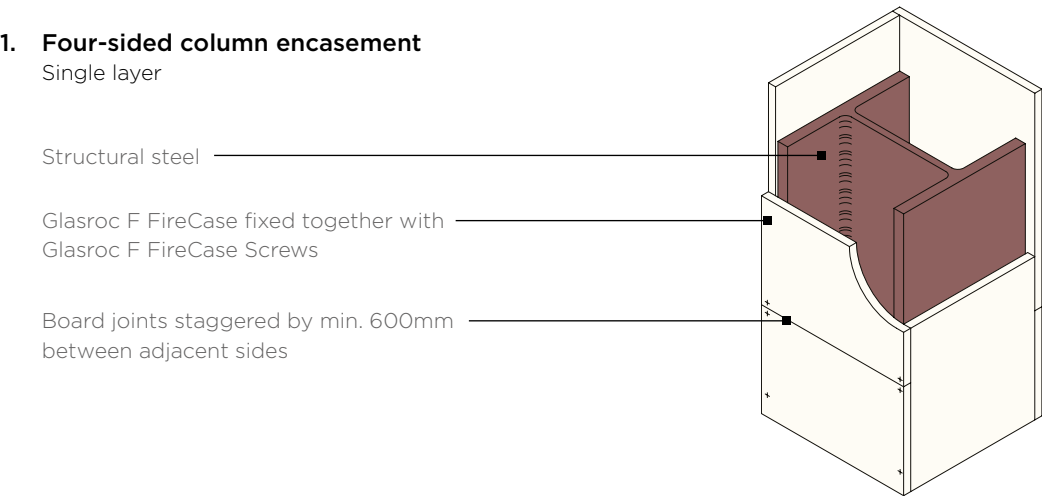


# FireCase

## Construction details

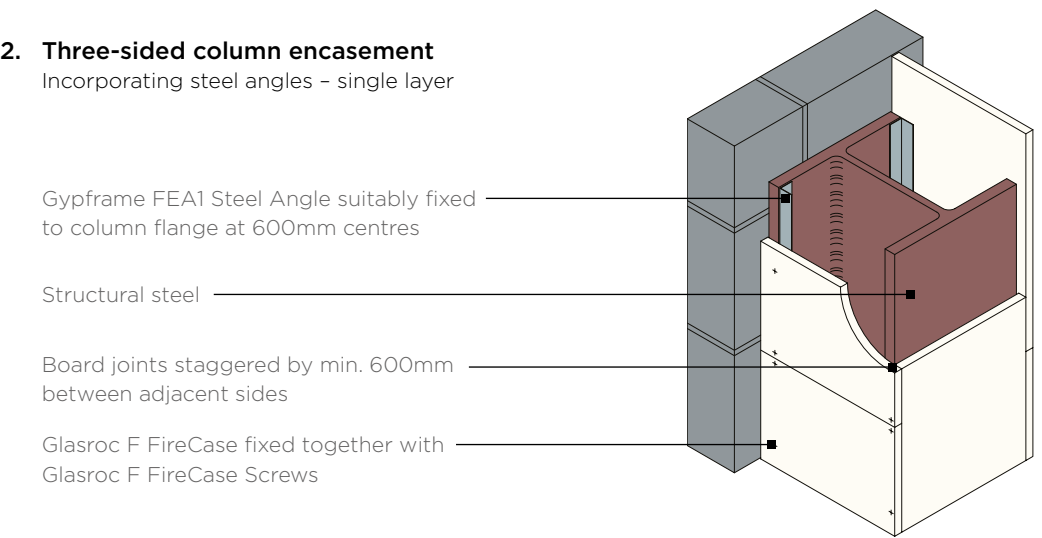
### 1. Four-sided column encasement

Single layer



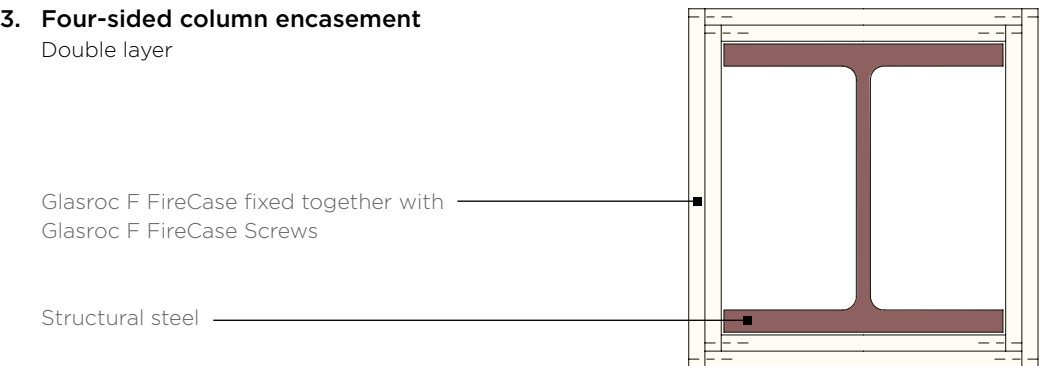
### 2. Three-sided column encasement

Incorporating steel angles – single layer



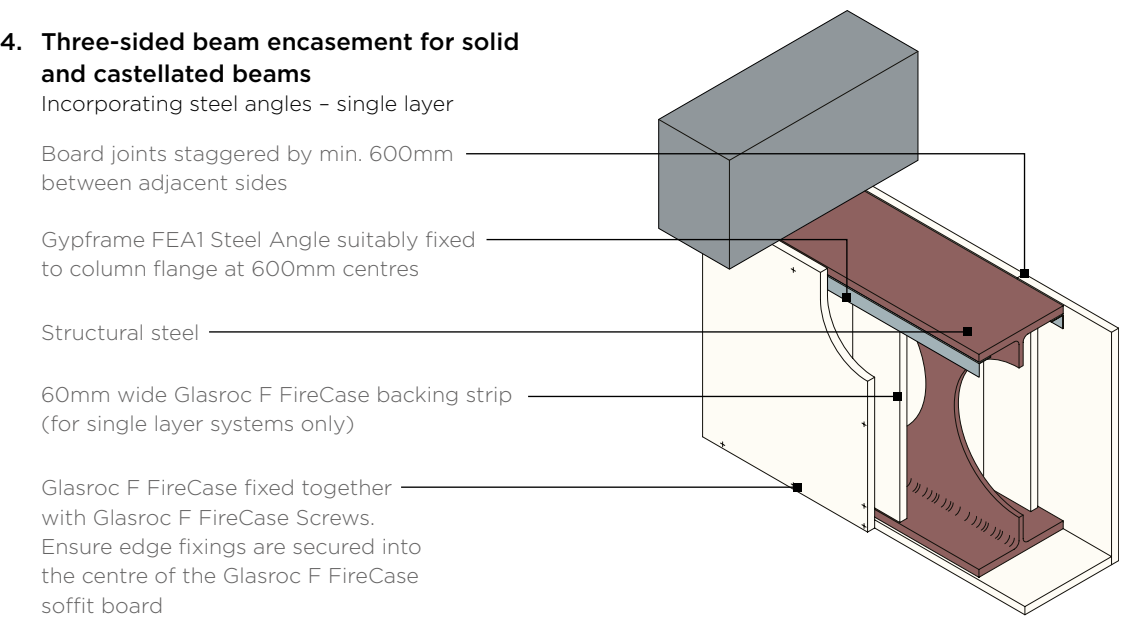
### 3. Four-sided column encasement

Double layer



### 4. Three-sided beam encasement for solid and castellated beams

Incorporating steel angles – single layer



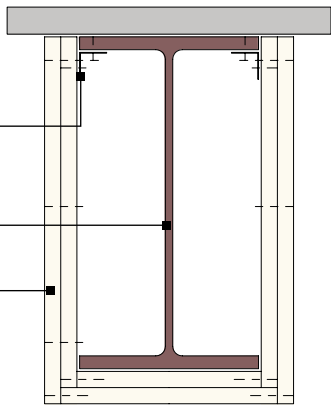
# FireCase

## Construction details

### 5. Three-sided beam encasement

Incorporating steel angles – double layer

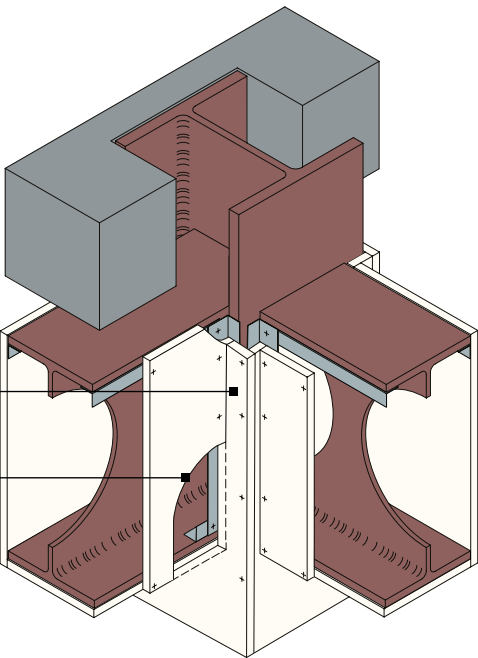
- Gypframe FEA1 Steel Angle suitably fixed to beam flange at 600mm centres
- Structural steel
- Glasroc F FireCase fixed together with Glasroc F FireCase Screws. Ensure edge fixings are secured into the centre of the Glasroc F FireCase soffit board



### 6. Column and beam junction for solid and castellated beams

Incorporating steel angles – single layer

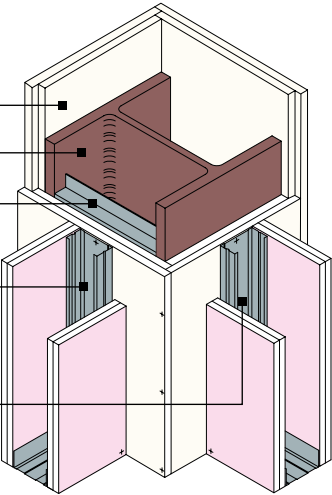
- Beam encasement boards butted tight to column encasement
- Column encasement boards cut around penetrations



### 7. Column encasement and partition junction

BS 5234 Heavy and Severe Duty

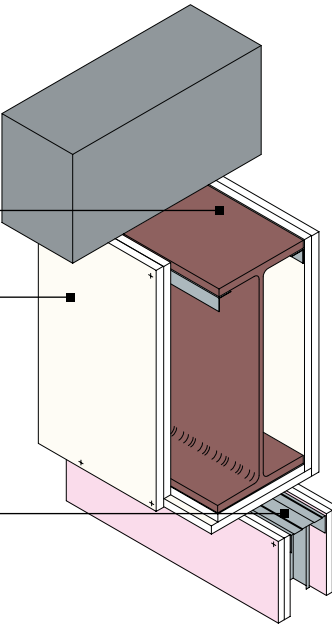
- FireCase encasement
- Structural steel
- Suitable size Z-section (by others) fixed between column flanges at 600mm centres
- Gypframe 'C' Stud suitably fixed through Glasroc F FireCase to Z-sections (in two lines for studs wider than 92mm)
- Gypframe 'C' Stud / Channel suitably fixed through Glasroc 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)

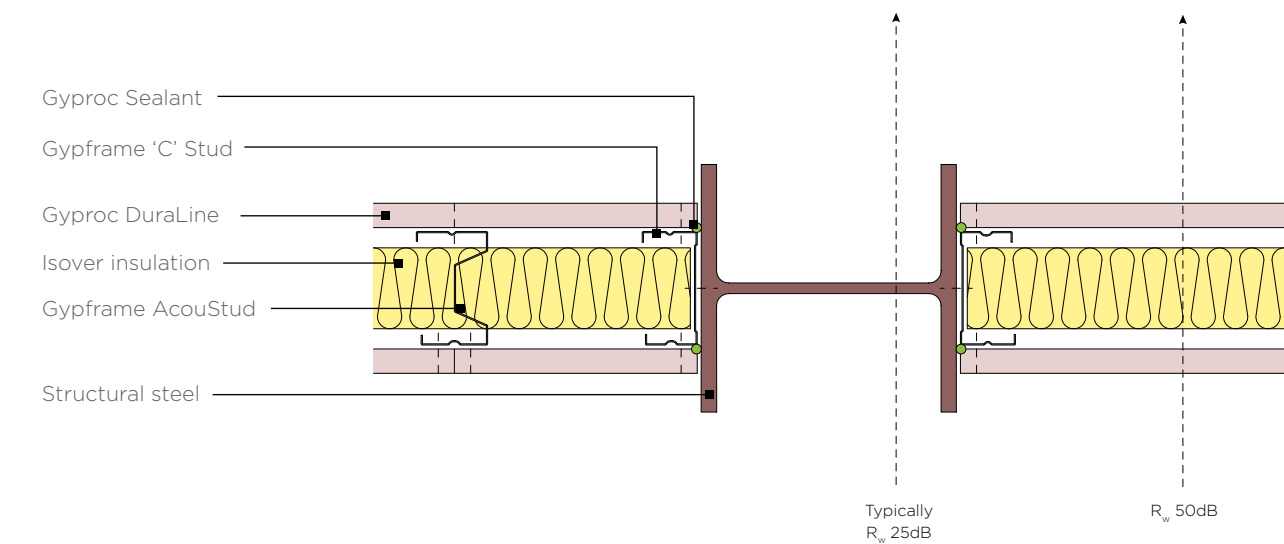


\* Partitions are non-fire rated unless suitable size Z-sections are used (see construction detail 8, above)

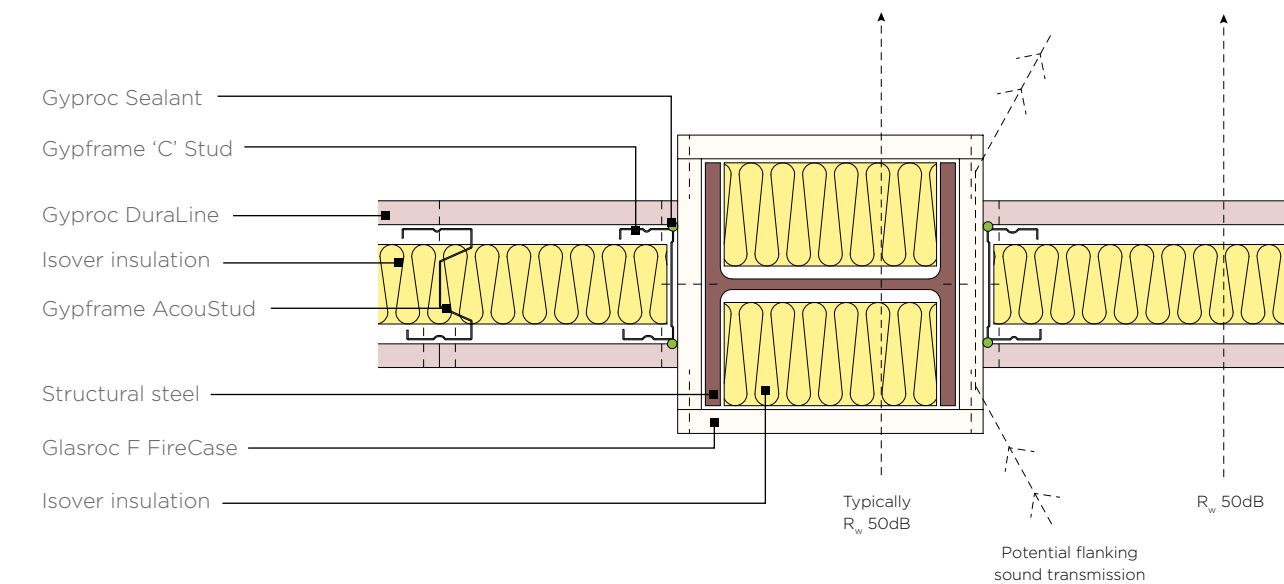
# FireCase

## Construction details

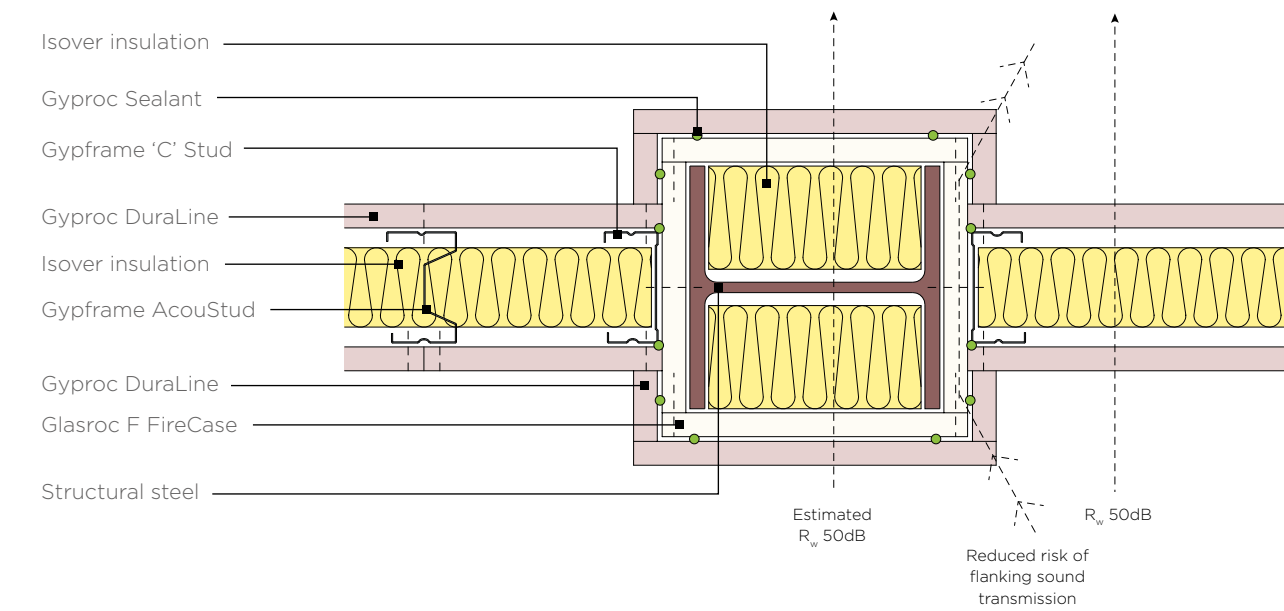
11. Exposed/painted steel column



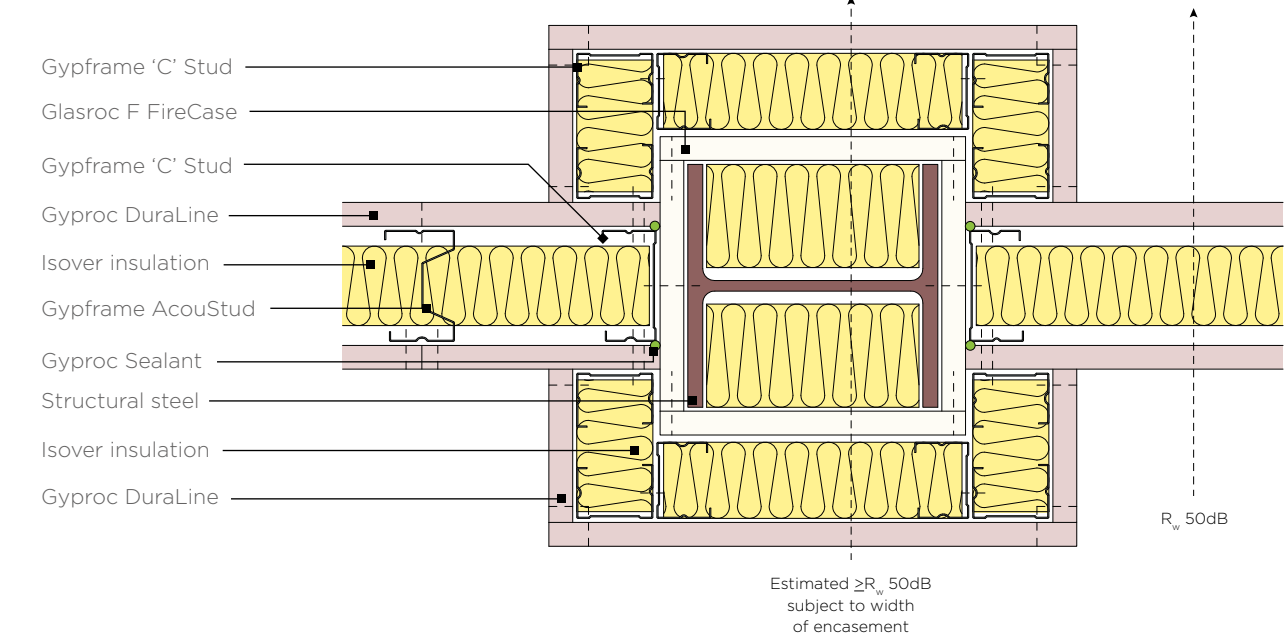
12. Encased steel column



13. Encased steel column with additional plasterboard lining



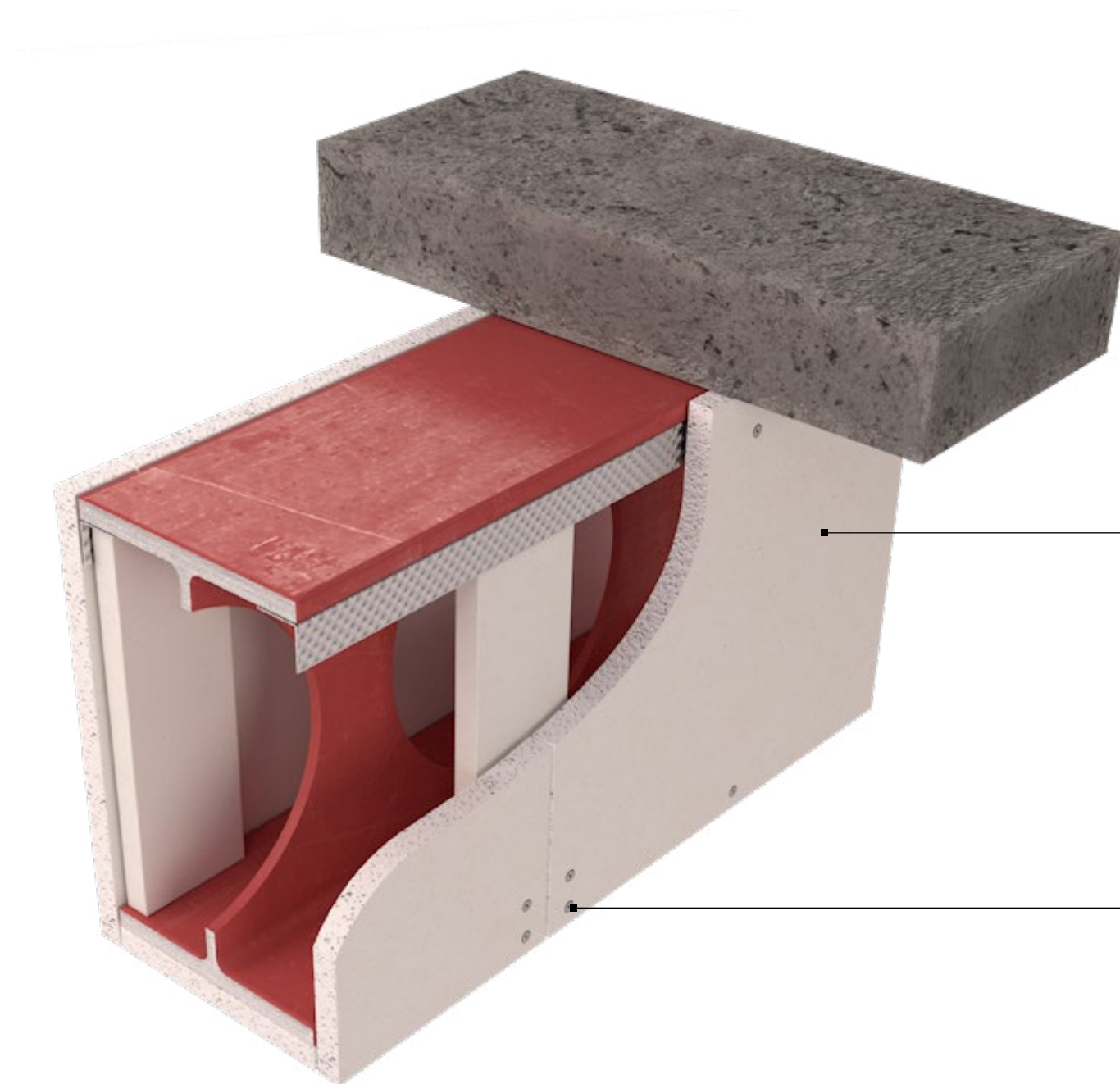
14. Encased steel column with additional framing, insulation and plasterboard lining



# 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.

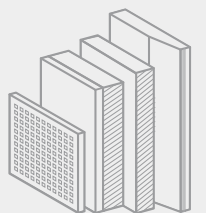


There are specifications within this system that qualify for our **SpecSure**® warranty. For more information see [british-gypsum.com/specsure](https://british-gypsum.com/specsure)

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...**

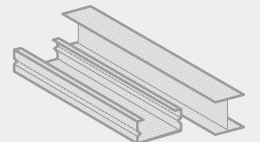
### What are you fixing?

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



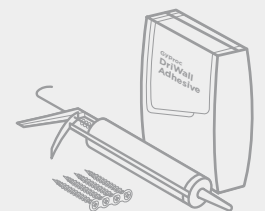
### What are you fixing to?

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



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

# FireCase

## Installation

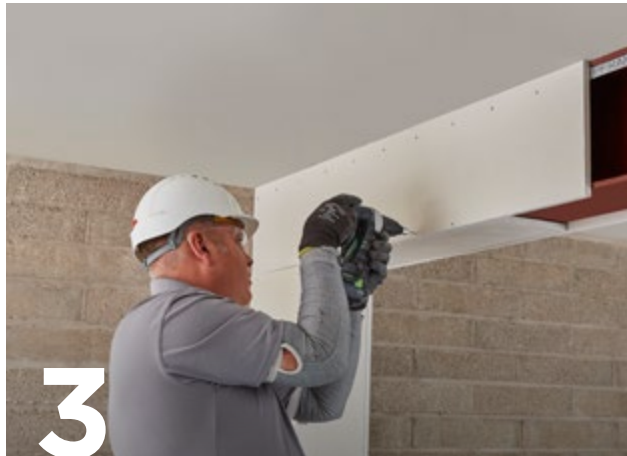
The information below is intended to be a basic description of how the system is built.



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.



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



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. Ensure that board-to-board edge fixings are secured into the centre of the Glasroc F FireCase soffit board.



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