siniat

drywall manual

encasements section

version **1.0.1**

publication date: July 2022

etex inspiring ways of living

For ease of download, the Siniat Drywall Manual has been split into separate volumes with their own page numbering.

Encasements section
This section has had no change since it was first published in December 2018.

Revision history

Version	Date of publish
1.0.0	December 2018
1.0.1	July 2022: Rebranded and compiled as a new section

Please check that this is the current version by visiting the Siniat website. For archived versions please contact technical services.

Version: **1.0.1**
Published: **July 2022**

Technical services
technical.siniat@etexbp.co.uk

encasement systems

GTEC Encasement fire protection offers rapid installation of fire protection around columns and beams using plasterboard for installation in dry environments.

Version: **1.0.1**
Published: **July 2022**

System performance tables

GTEC encasement systems 3

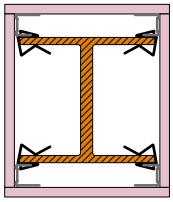
GTEC encasement systems 7

System performance tables

GTEC encasement systems

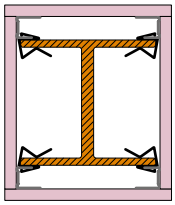
System Ref.	Component

RCE 001



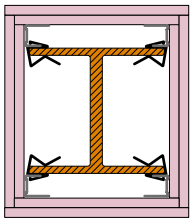
Facing: 1x 12.5mm GTEC Fire or Megadeco Board
Framing: GTEC Edge Channel and CB Clips at 600mm Centres
Fire resistance columns: 30 minutes up to 280 Hp/A factor, 60 minutes up to 280 Hp/A Factor
Fire resistance beams: 30 minutes up to 280 Hp/A factor, 60 minutes up to 115 Hp/A Factor

RCE 002



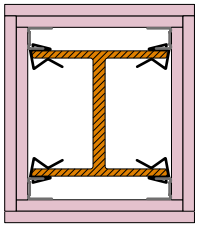
Facing: 1x 15mm GTEC Fire or Megadeco Board
Framing: GTEC Edge Channel and CB Clips at 600mm Centres
Fire resistance columns: 90 minutes up to 105 Hp/A factor
Fire resistance beams: 60 minutes up to 280 Hp/A factor, 90 minutes up to 50 Hp/A Factor

RCE 003



Facing inner layer: 1x 12.5mm GTEC Fire or Megadeco Board
Facing outer layer: 1x 12.5mm GTEC Fire or Megadeco Board
Framing: GTEC Edge Channel and CB Clips at 600mm Centres
Fire resistance Columns: 90 minutes up to 280 Hp/A factor, 120 minutes up to 140 Hp/A Factor
Fire resistance Beams: 90 Minutes up to 280 Hp/A Factor

RCE 005



Facing inner layer: 1x 15mm GTEC Fire or Megadeco Board
Facing outer layer: 1x 15mm GTEC Fire or Megadeco Board
Framing: GTEC Edge Channel & CB Clips at 600mm Centres
Fire resistance Columns: 120 Minutes up to 235 Hp/A factor
Fire resistance Beams: 120 Minutes up to 180 Hp/A Factor

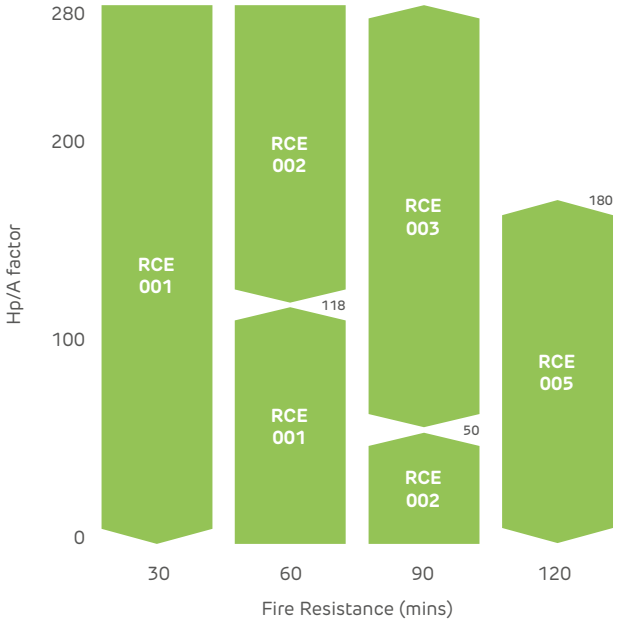
Note: encasement systems tested to BS 476-21

Fire protection performance notes

- Performance values are for imperforate, jointed systems using Siniat GTEC components (metal studs and tracks, boards, metal accessories, screws and finishing systems) and specified insulation quilt material (type, thickness and density) and installed to Siniat specification and installation guides.
- Maximum heights depend on deflection criteria and applied air pressure.

Universal beams with box encasement

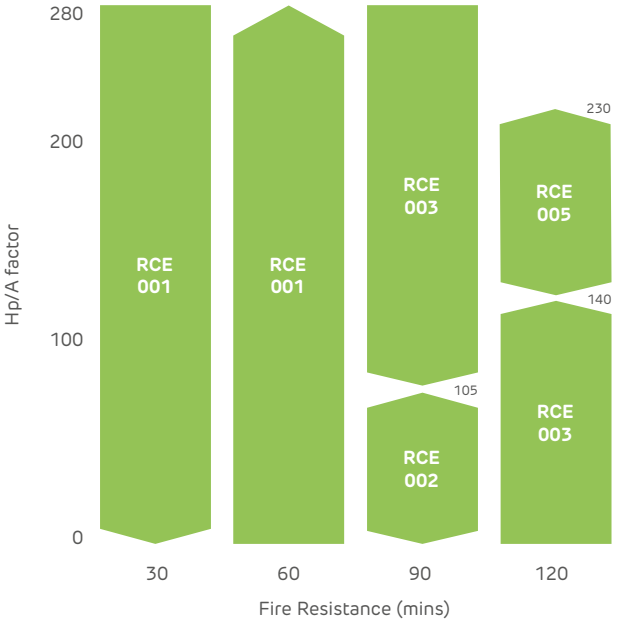
Size of steelwork (mm)	Mass per metre (kg)	Section factor Hp/A m^{-1} 3 sides	4 sides
914 x 419	388	45	55
	343	50	60
914 x 305	289	60	65
	253	65	75
	224	75	85
	201	80	95
838 x 292	226	70	80
	194	80	90
	176	90	100
762 x 267	197	70	85
	173	80	95
	147	95	110
686 x 254	170	75	90
	152	85	95
	140	90	105
	125	100	115
610 x 305	238	50	60
	179	70	80
	149	80	95
610 x 229	140	80	95
	125	90	105
	113	100	115
	101	110	130
533 x 210	122	85	95
	109	95	110
	101	100	115
	92	110	125
	82	120	140
457 x 191	98	90	105
	89	100	115
	82	105	125
	74	115	135
	67	130	150
457 x 152	82	105	120
	74	115	130
	67	125	145
	60	140	160
	52	160	180
406 x 178	74	105	125
	67	115	140
	60	130	155
	54	145	170
406 x 140	46	160	185
	39	190	220
356 x 171	67	105	125
	57	125	145
	51	135	165
	45	155	185
356 x 127	39	170	195
	33	195	225



Size of steelwork (mm)	Mass per metre (kg)	Section factor Hp/A m^{-1} 3 sides	4 sides
305 x 165	54	115	140
	46	130	160
	40	150	180
305 x 127	48	125	145
	42	140	160
	37	155	180
305 x 102	33	175	200
	28	200	225
	25	225	260
254 x 146	37	140	170
	31	160	200
254 x 102	28	170	200
	25	190	220
	22	215	250
203 x 133	30	145	180
	25	165	210
203 x 102	23	175	210
172 x 102	19	190	230
152 x 89	16	190	235
127 x 76	13	195	240

Universal columns with box encasement

Size of steelwork (mm)	Mass per metre (kg)	Section factor Hp/A m^{-1} 3 sides	4 sides
356 x 406	634	15	20
	551	20	25
	467	20	30
	393	25	35
	340	30	35
	287	30	45
	235	40	50
	202	45	60
356 x 368	177	50	65
	153	55	75
	129	65	90
305 x 305	283	30	40
	240	35	45
	198	40	50
	158	50	65
	137	55	70
	118	60	85
	97	75	100
254 x 254	167	40	50
	132	50	65
	107	60	75
	89	70	90
	73	80	110
203 x 203	86	60	80
	71	70	95
	60	80	110
	52	95	125
	46	105	140
152 x 152	37	100	135
	30	120	160
	23	155	205



Steel Joists with box encasement

Size of steelwork (mm)	Mass per metre (kg)	Section factor Hp/A m^{-1} 3 sides	4 sides
254 x 203	81.85	70	90
254 x 114	37.20	130	155
203 x 152	52.09	85	105
152 x 127	37.20	90	120
127 x 114	29.76	100	130
127 x 114	26.79	110	140
114 x 114	26.79	100	135
102 x 102	23.07	105	140
89 x 89	19.35	105	145
76 x 76	12.65	140	185

Example of use
Beam = 610mm x 305mm x 179kg/m
Exposed on four sides
Hp/A = 80m-1

Choice of systems
Up to 60mins = RCE001
Up to 90mins = RCE003
Up to 120mins = RCE005

system guidance

GTEC **encasement systems**

The GTEC encasement fire protection system provides high levels of fire resistance to structural I-section columns and beams, delaying the loss of strength in steel which occurs at temperatures over 550°C.

The system uses push-fit GTEC CB Clips to secure GTEC Edge Channel to the steel. GTEC Fire Core Boards, Fire Boards, and other high performance boards as detailed in the performance tables, are fixed to the edge channel to protect columns and beams.

Excellent fire performance is achieved by holding the boards off the columns on a strong metal frame.

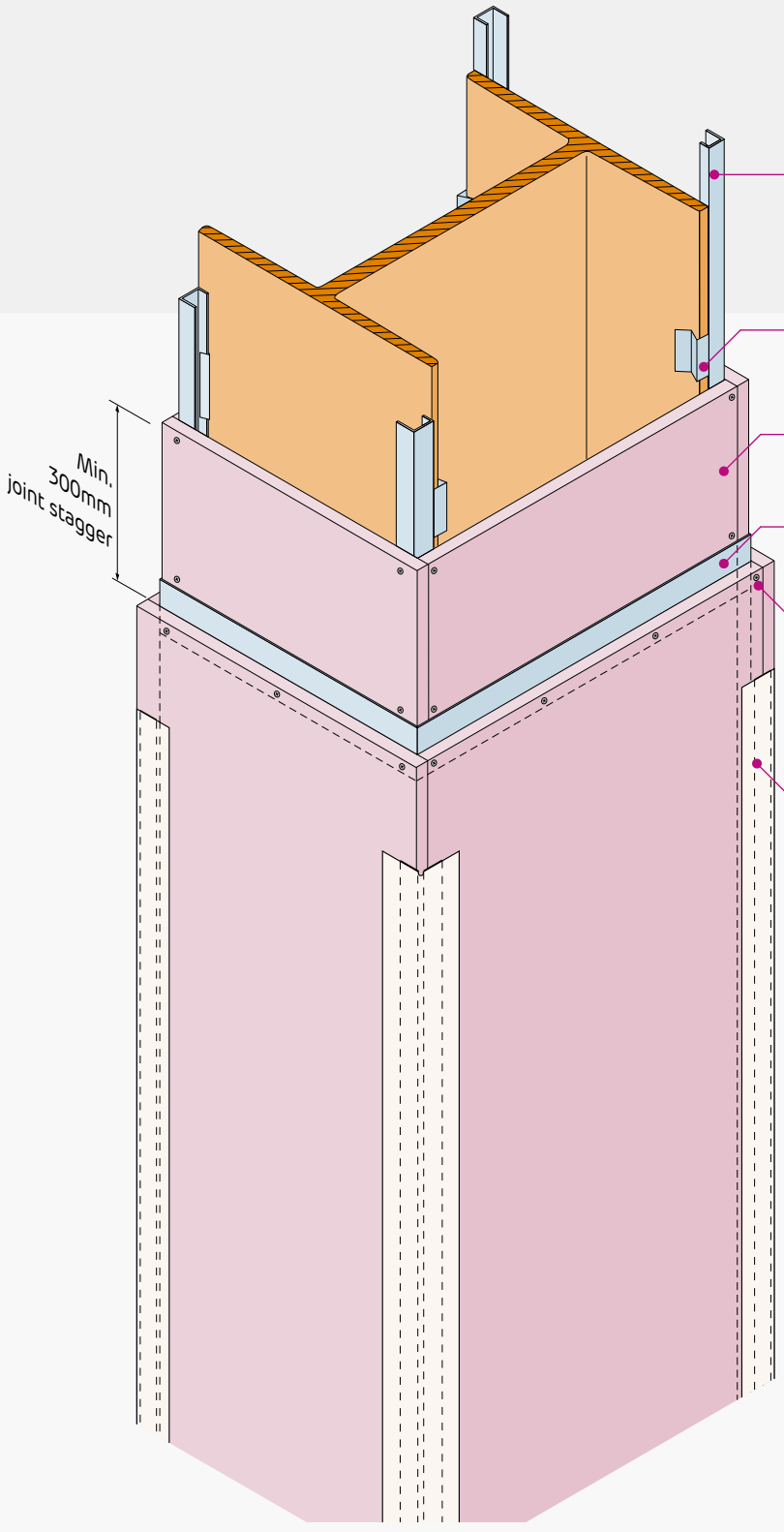
Where to use:

- The system is used in commercial multi-storey construction to ensure structural safety during fire. The range of impact resistant boards compatible with the system enables use in high traffic areas.

Features	Benefits
Uses GTEC Fire Board	Economical and effective
Fully tested	Allows use of Hp/A factors, giving performance to a range of column and beam dimensions
Fully dry installation	Efficient to install
Friction fit frame installation	Efficient to install. Allows differential movement during fire
Simple frame design	Requires no specialist equipment
Plasterboard finish	Flat, easy to decorate, surface. Suitable for use with GTEC Partitions, Ceilings and Linings

Version: **1.0.1**
Published: **July 2022**

Technical services
technical.siniat@etexbp.co.uk



GTEC Edge Channel
push fit into **GTEC CB Clip**

GTEC CB Clip
at 600mm centres

GTEC Board
to suit required performance

GTEC Flat Strap
to reinforce joint

screw fix plasterboard
at max. 300mm centres
(Min.2 per board edge)

GTEC Corner 90º External / GTEC Flex Tape to reinforce corner joints

system components

Boards

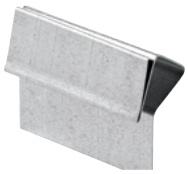
GTEC Fire Board
A fire resistant plasterboard.

Fix

GTEC Drywall Screws (as appropriate)
For connecting plasterboard and metal components.

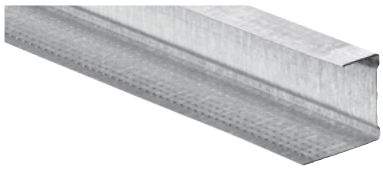
See annex a1: taping and jointing

Frame



GTEC CB Clip
Steel clip for connecting channels to structural steelwork.

CB17, CB27



GTEC Edge Channel
Steel channel to provide metal frame and bearing surface for plasterboard.

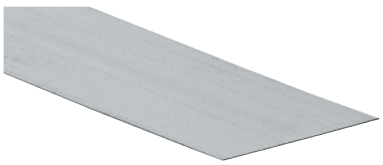
MFCE26

GTEC Metal Angle
Multi-purpose galvanised metal section.

MFC2525, MFC2550, MFC2330

GTEC Fixing Channel
Provide support for plasterboard joints and fixtures.

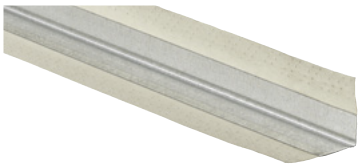
MFIX



GTEC Flat Strap
Provide support for plasterboard joints and fixtures.

FS50/RX, FS90/W

Finishing



GTEC Corner and Edge beads
Corner and edge reinforcement.

Siniat Joint Tape
Joint reinforcement in conjunction with GTEC Jointing Compounds.

GTEC Intumescent Acoustic Sealant
Perimeter sealing to restrict smoke, sound and fire penetration to achieve quoted performances.

Siniat Compounds
To finish joints between boards and bed corner beads prior to decorating. Ensures system performance.

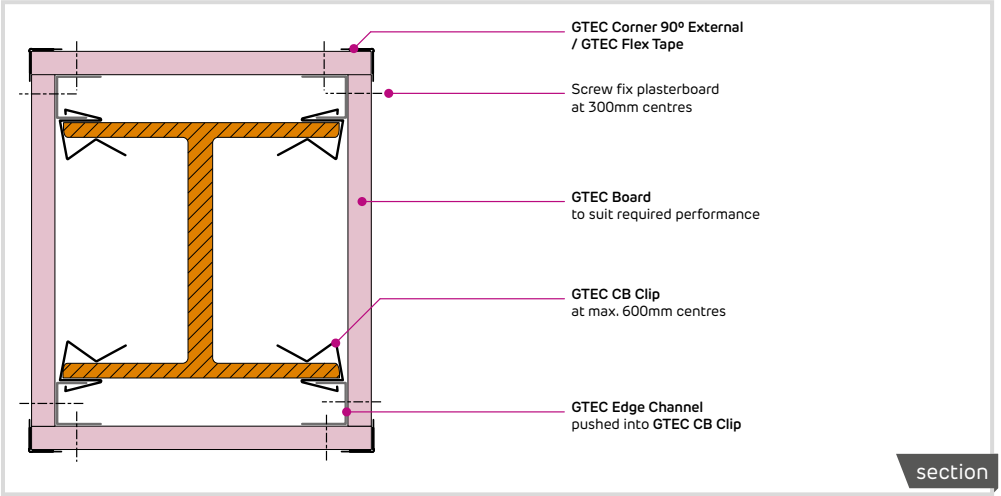
See annex b: product reference

GTEC Sealer
To seal plasterboard prior to decoration.

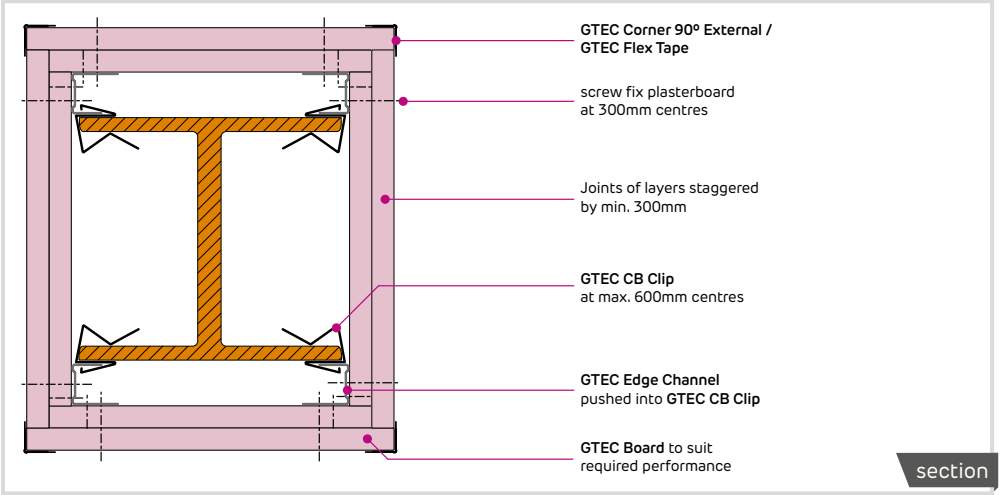
System guidance

Frame

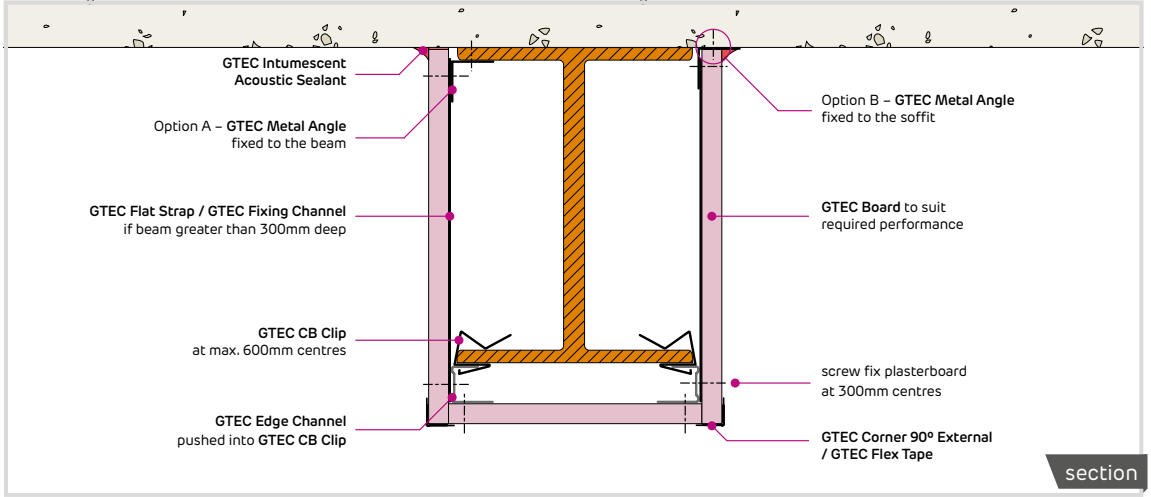
FP-EN-101P-Column encasement – single layer



FP-EN-102P-Column encasement – double layer

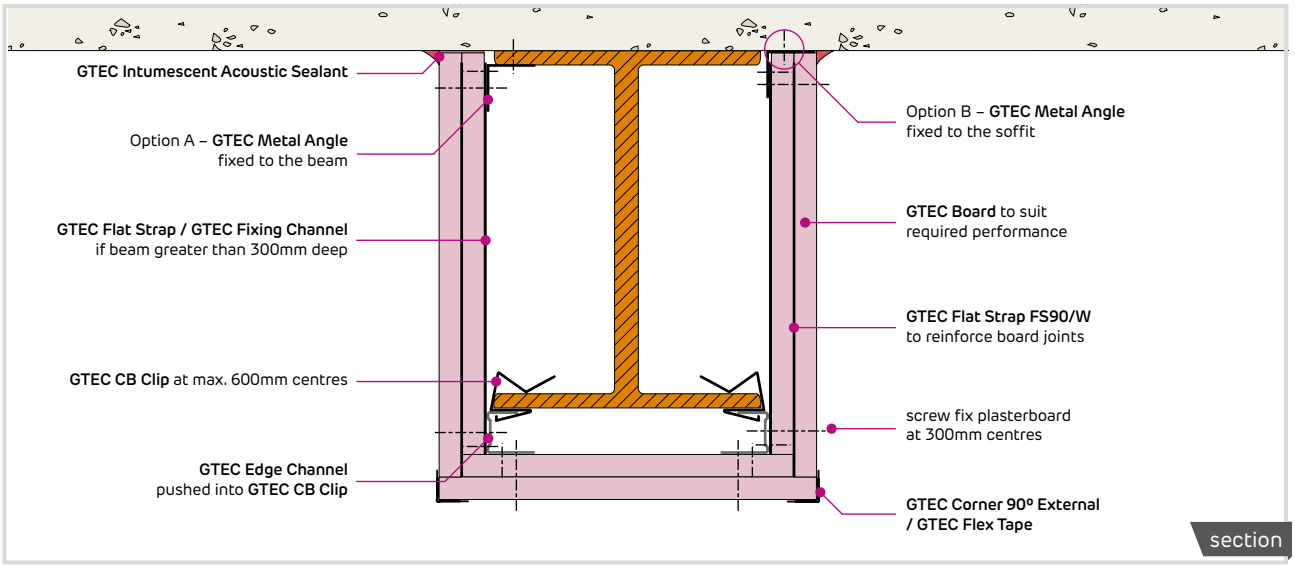


FP-EN-103S-Single boarded beam encasement



Frame

FP-EN-104S-Double boarded beam encasement



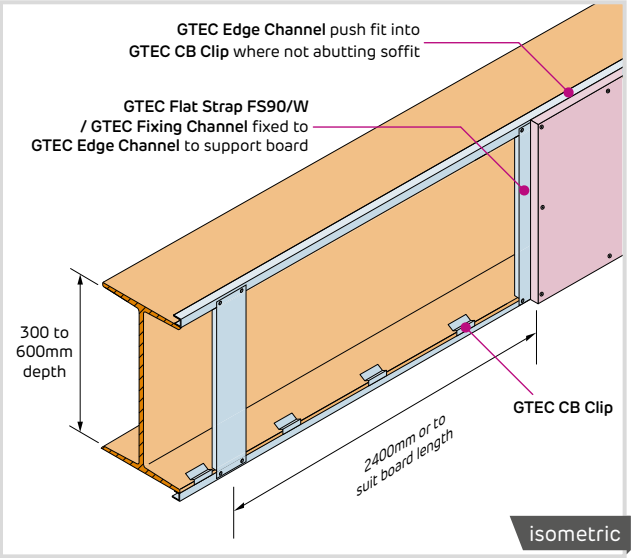
- Select GTEC CB Clips to suit flange thickness of steel to be protected:

GTEC CB Clip	To fit flange size:
CB 17	7-17mm
CB 27	17-27mm

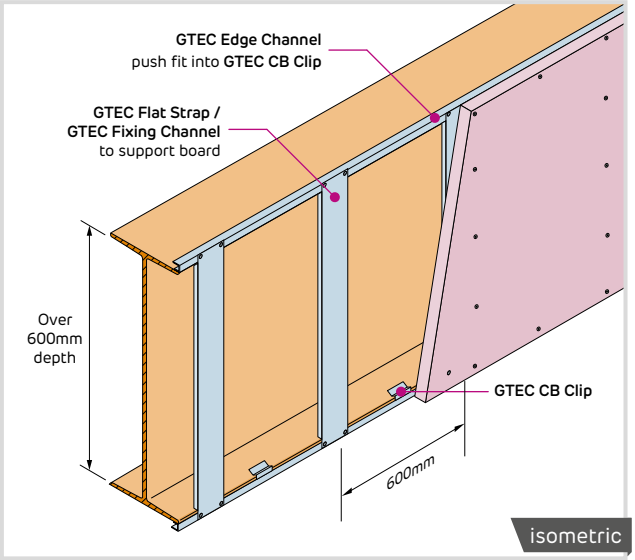
- TEC CB Clips to be friction fitted to flanges of steel at maximum 600mm centres beginning at 150mm from both ends of steel.
- GTEC Edge Channel to be friction fitted into GTEC CB Clips along length of steel.
- Where steel abuts structure GTEC Metal Angle to be fixed to structure or shot fired to inside of steel flange with appropriate fixings, and following guidance of steel designer, to provide substrate for plasterboard.

Boarding

FP-EN-201M-300-600mm beam board reinforcement



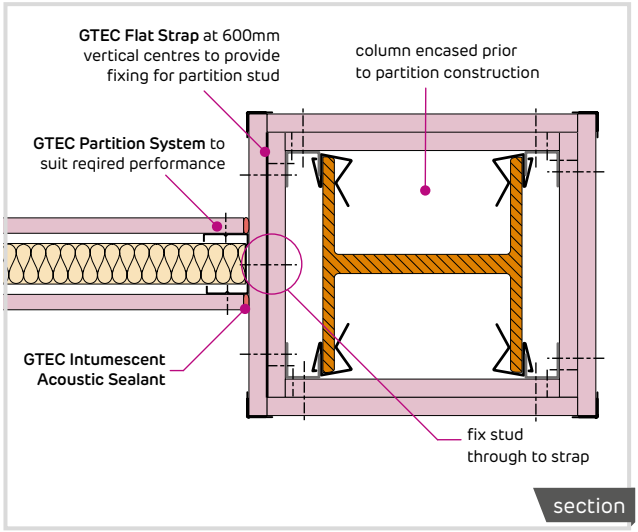
FP-EN-202M-Over 600mm beam board reinforcement



- Select GTEC Boards by consulting System Performance Tables and Hp/A tables to achieve required performance.
- GTEC Board to be fixed to GTEC Edge Channel, GTEC Metal Angle and any reinforcement at maximum 300mm centres using appropriate GTEC Drywall Screws (see annex a1: taping and jointing). Fixing positions to be staggered on next boarding layer. Minimum 2 screws per board edge.
- Where flange/web dimension exceeds 300mm all plasterboard joints along beam/column to be reinforced with GTEC Flat Strap or GTEC MFIX Channel.
- Where flange/web dimension exceeds 600mm provide reinforcement to board with GTEC Flat Strap or GTEC MFIX fixed to GTEC Edge Channel at maximum 600mm centres and at board joints.

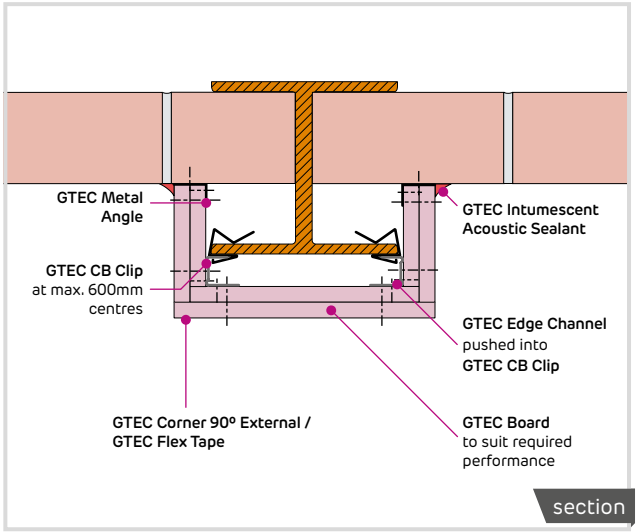
Corners and junctions

FP-EN-501P-Junction partition to column (non-acoustic)



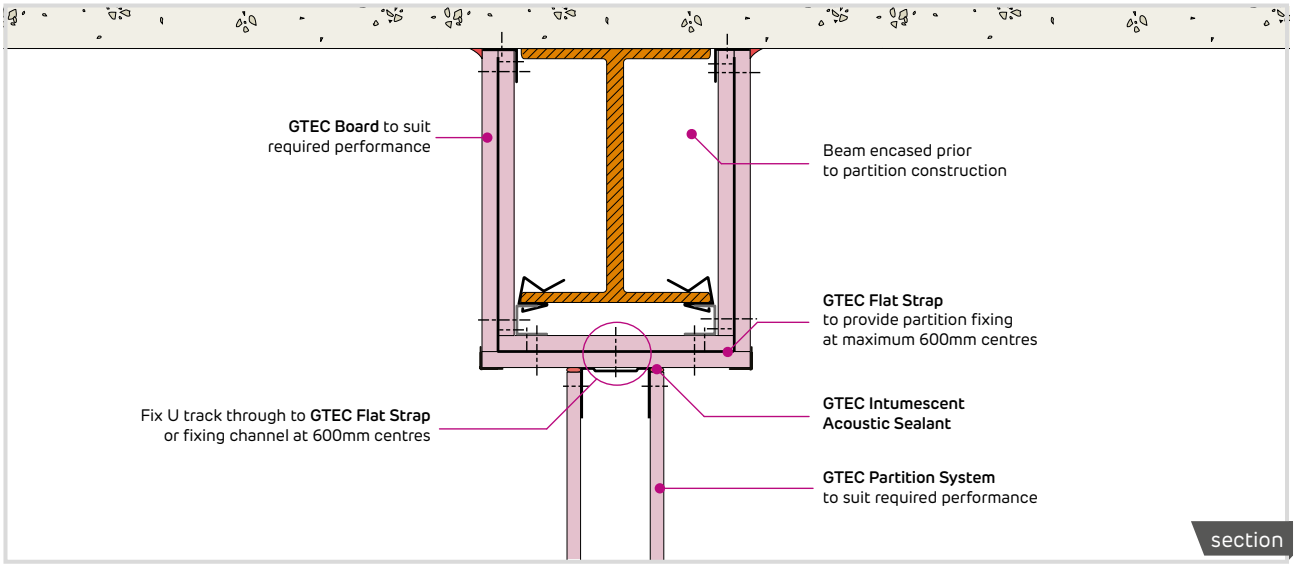
- For bespoke acoustic junction partition to column details, please contact Technical Services.

FP-EN-503S-Column in masonry wall



- Provide GTEC Flat Strap as reinforcement for abutting partitions at 600mm centres behind final layer of encasement board. Studs or tracks to be fixed through to reinforcement.

FP-EN-504S-Junction of partition along beam (non-acoustic)



Head deflection

- GTEC Encasement systems are designed to move with beam deflection. Partitions meeting beams liable to deflection to be detailed according to guidance in the partitions systems section.

Penetrations

- Penetrations must not be made through GTEC Encasement systems.

Fixtures

- Fixtures to be supported by structure and not supported by GTEC Encasement systems.

Finishing

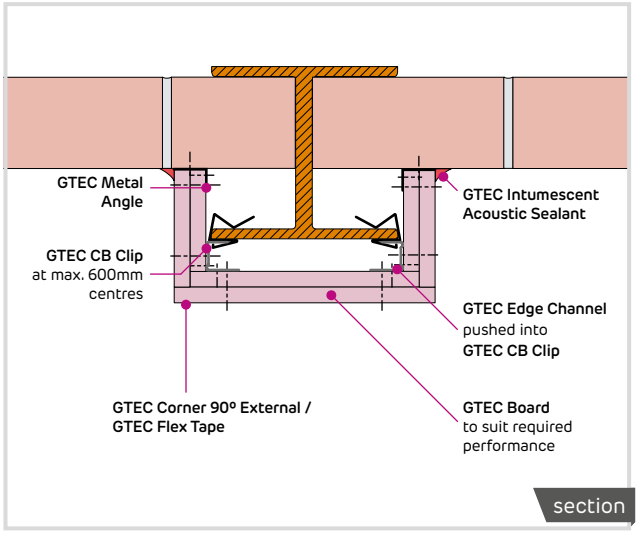
- All corners to be reinforced with GTEC Corner 90.
- All board joints to be taped, jointed or finished according to guidance in annex a1: taping and jointing to achieve system performances.
- GTEC Finish materials appropriate to board type to be used.

System continuity

- Bead of GTEC Intumescent Acoustic Sealant to be applied to perimeter of all runs and in all other locations specified in Construction Detail Drawings.
- GTEC Intumescent Acoustic Sealant to seal all other acoustic or air paths to prevent fire/smoke spread and acoustic transmission.
- Full, imperforate system continuity must be maintained to achieve rated performances.

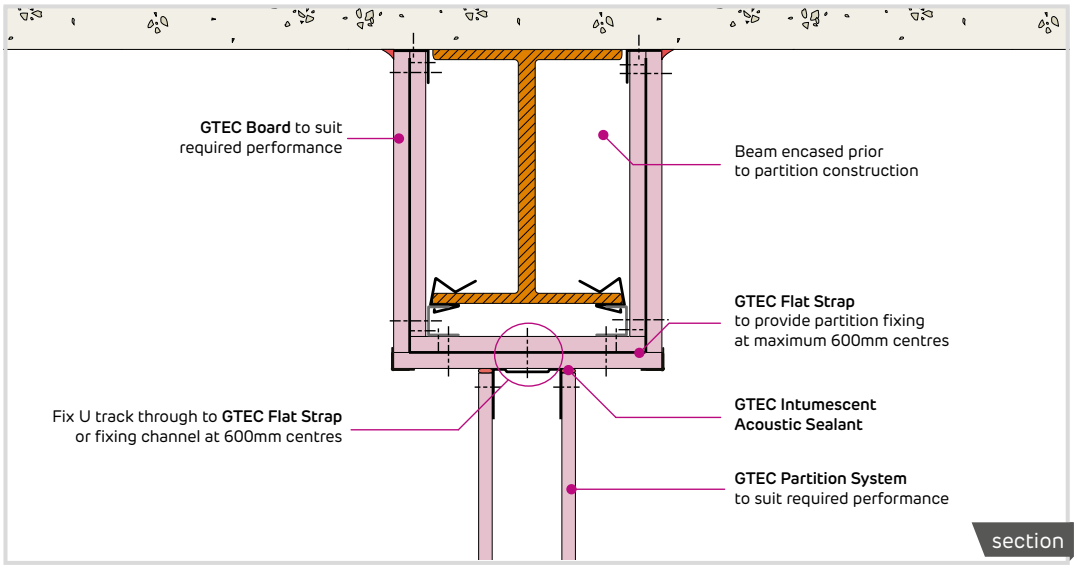
Corners and junctions continued

FP-EN-503S-Column in masonry wall



- Provide GTEC Flat Strap as reinforcement for abutting partitions at 600mm centres behind final layer of encasement board. Studs or tracks to be fixed through to reinforcement.

FP-EN-504S-Junction of partition along beam (non-acoustic)



Technical services
Technical advice and project enquiries.
0800 145 6033 or 01275 377 789
technical.siniat@etexbp.co.uk

GB orderline
For placing orders, delivery enquiries and local stockists etc.
0800 373 636
orderline@etexbp.co.uk

Ireland orderline
For placing orders, delivery enquiries and local stockists etc.
+353 (0)162 03114
irelandorders@etexbp.com

Literatureline
For Siniat literature.
literatureline@etexbp.co.uk

Wasteline direct
Plasterboard waste management enquiries.
01275 377 579
wasteline@etexbp.co.uk

Etex Building Performance Limited
Marsh Lane, Easton-in-Gordano,
Bristol, BS20 0NE

+44 (0)1275 377 773
siniat.co.uk

CI/SfB | | Rf7 | |

0530-SIN V1.1.0/07/2022