

Technical Guidance Notes to common issues

Maximum system heights

British Gypsum systems are designed to provide a range of fire resistance performances based on modern fire test methods. The maximum height of a system will vary according to the fire resistance performance, and these are made available via our on-line White Book Specification Selector. If the partition or lining system is required to provide fire resistance, its constructed height must not exceed the maximum fire-state height indicated in the White Book Specification Selector. It should not be assumed that the cold state height is still valid in the fire state.

However, we are aware that in some situations a project may require a specification without the need for the fire resistance. In this case it is acceptable to refer to the cold-state maximum heights which are based on the following principles;

BS 5234-2 does not contain a consistent methodology for establishing the performance of a partition in terms of height. British Gypsum along with other members of the Gypsum Products Development Association have adopted a methodology which is based on the level of lateral deflection under a given uniformly distributed load (UDL). Under this criterion the maximum lateral deflection of the partition should not exceed $L/240$ (where L is the partition height) when the partition is uniformly loaded to 200Pa.

We utilise a UKAS accredited test laboratory to evaluate partition system heights against this performance criterion. The test evidence comes from a full-scale test procedure where the test specimen is subjected to a UDL and the induced lateral deflection recorded. From this procedure, it is possible to establish the cold-state maximum height for British Gypsum systems.

Reducing the centres of metal studs within GypWall partition systems in order to achieve greater heights can have a detrimental effect on the sound insulation performance of the system, typically by up to R_w 3dB. The effect may vary depending on the precise specification, e.g. board type, number of board layers, stud size and type, insulation within stud cavity. For guidance on a particular specification please contact British Gypsum Technical Support Team.

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Maximum system heights

GypWall Single Frame metal stud partition recommended maximum heights (mm) – based on a limiting deflection of L/240 at 200Pa. Applicable to non fire-rated or BS 476:Part 22 fire-rated constructions only (not applicable to EN 1364-1)

STUD	BOARDING EACH SIDE	600mm CENTRES	600mm BOXED	400mm CENTRES	400mm BOXED	300mm CENTRES	300mm BOXED
48 S 50	1 x 12.5mm	2500	2800	2900	3200	3100	3500
	1 x 15mm	2800	3000	3100	3300	3300	3600
	2 x 12.5mm	3400	3600	3600	3800	3800	4000
	2 x 15mm	3700	3800	3900	4000	4000	4200
48 I 50	1 x 12.5mm	2900	-	3400	-	3700	-
	1 x 15mm	3100	-	3500	-	3800	-
	2 x 12.5mm	3700	-	3900	-	4200	-
	2 x 15mm	3900	-	4200	-	4400	-
60 S 50	1 x 12.5mm	3200	3400	3500	3800	3800	4200
	1 x 15mm	3400	3600	3700	4000	4000	4300
	2 x 12.5mm	4100	4300	4300	4600	4600	4800
	2 x 15mm	4400	4500	4600	4800	4800	5000
60 I 50	1 x 12.5mm	3600	-	4000	-	4400	-
	1 x 15mm	3800	-	4200	-	4500	-
	2 x 12.5mm	4400	-	4700	-	5000	-
	2 x 15mm	4600	-	4900	-	5200	-
60 I 70	1 x 12.5mm	4100	-	4600	-	5000	-
	1 x 15mm	4200	-	4700	-	5100	-
	2 x 12.5mm	4700	-	5100	-	5500	-
	2 x 15mm	4900	-	5300	-	5600	-
70 S 50	1 x 12.5mm	3600	3900	4000	4300	4300	4700
	1 x 15mm	3800	4100	4200	4500	4500	4900
	2 x 12.5mm	4600	4800	4900	5100	5100	5400
	2 x 15mm	4900	5100	5100	5300	5300	5600
70 S 60	1 x 12.5mm	3800	4100	4200	4600	4500	5000
	1 x 15mm	4000	4300	4400	4700	4700	5100
	2 x 12.5mm	4700	4900	5000	5300	5200	5600
	2 x 15mm	5000	5200	5200	5500	5500	5800
70 AS 50	1 x 12.5mm	3800	4200	4300	4700	4600	5100
	1 x 15mm	4000	4400	4500	4800	4700	5200
	2 x 12.5mm	4700	5000	5000	5300	5300	5700
	2 x 15mm	5000	5200	5300	5600	5500	5900
70 I 50	1 x 12.5mm	4100	-	4600	-	5000	-
	1 x 15mm	4300	-	4700	-	5100	-
	2 x 12.5mm	4900	-	5300	-	5600	-
	2 x 15mm	5200	-	5500	-	5800	-
70 I 70	1 x 12.5mm	4600	-	5100	-	5600	-
	1 x 15mm	4700	-	5300	-	5700	-
	2 x 12.5mm	5300	-	5700	-	6100	-
	2 x 15mm	5500	-	5900	-	6300	-
92 S 50	1 x 12.5mm	4500	4800	4900	5400	5300	5800
	1 x 15mm	4700	5100	5200	5600	5500	6000
	2 x 12.5mm	5700	5900	6000	6300	6200	6600
	2 x 15mm	5900	6100	6200	6500	6400	6800

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GypWall Single Frame metal stud partition recommended maximum heights (mm) – based on a limiting deflection of L/240 at 200Pa. Applicable to non fire-rated or BS 476:Part 22 fire-rated constructions only (not applicable to EN 1364-1)

STUD	BOARDING EACH SIDE	600mm CENTRES	600mm BOXED	400mm CENTRES	400mm BOXED	300mm CENTRES	300mm BOXED
92 S 60	1 x 12.5mm	4700	5000	5200	5600	5600	6100
	1 x 15mm	4900	5300	5400	5800	5800	6300
	2 x 12.5mm	5800	6000	6100	6500	6500	6900
	2 x 15mm	6000	6200	6300	6700	6600	7000
92 AS 50	1 x 12.5mm	4700	5100	5200	5700	5700	6200
	1 x 15mm	4900	5300	5400	5700	5800	6400
	2 x 12.5mm	5800	6100	6200	6500	6500	6900
	2 x 15mm	6000	6300	6400	6700	6700	7000
92 S 10	1 x 12.5mm	5300	5800	6000	6600	6500	7200
	1 x 15mm	5500	6000	6100	6700	6600	7300
	2 x 12.5mm	6200	6600	6700	7200	7200	7700
	2 x 15mm	6400	6800	6900	7400	7300	7800
92 I 90	1 x 12.5mm	6000	-	6800	-	7400	-
	1 x 15mm	6200	-	6900	-	7500	-
	2 x 12.5mm	6800	-	7400	-	7900	-
	2 x 15mm	6900	-	7500	-	8000	-
146 S 50	1 x 12.5mm	6200	6800	6900	7600	7500	8300
	1 x 15mm	6500	7000	7200	7800	7700	8400
	2 x 12.5mm	7600	8000	8100	8600	8500	9100
	2 x 15mm	7900	8200	8300	8800	8700	9300
146 AS 50	1 x 12.5mm	6600	7100	7300	8000	8000	8800
	1 x 15mm	6800	7400	7600	8200	8200	8900
	2 x 12.5mm	7800	8200	8400	8900	8900	9500
	2 x 15mm	8100	8500	8600	9100	9100	9700
146 I 80	1 x 12.5mm	7900	-	8900	-	9700	-
	1 x 15mm	8100	-	9000	-	9800	-
	2 x 12.5mm	8800	-	9600	-	10400	-
	2 x 15mm	9000	-	9800	-	10500	-
146 TI 90	1 x 12.5mm	8300	-	9400	-	10300	-
	1 x 15mm	8400	-	9500	-	10400	-
	2 x 12.5mm	9200	-	10100	-	10900	-
	2 x 15mm	9400	-	10300	-	11100	-

Notes:

In all GypWall Single Frame systems, it is recommended that for heights between 4200mm and 8000mm, the Gypframe Deep Flange Floor & Ceiling Channel is used. Gypframe Extra Deep Flange Floor & Ceiling Channel is used for heights above 8000mm. Additional consideration needs to be given if there is a deflection head requirement.

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Maximum system heights

GypLyner Independent maximum heights for Gypframe 'I' Studs at 600mm centres – non-fire rated systems only – based on a limiting deflection of L/240 at 200Pa.

STUD TYPE	12.5MM BOARDS MAXIMUM HEIGHTS		15MM BOARDS MAXIMUM HEIGHTS		GYPROC THERMALINE LAMINATES
	SINGLE mm	DOUBLE mm	SINGLE mm	DOUBLE mm	SINGLE mm
Gypframe 48 I 50	2400	2700	2400	2800	2400
Gypframe 60 I 50	2400	3000	2700	3300	2400
Gypframe 60 I 70	3000	3600	3300	3900	3000
Gypframe 70 I 70	3600	4200	3900	4300	3600
Gypframe 92 I 90	5100	5700	5400	5800	5100
Gypframe 146 I 80	6900	7200	7200	7500	6900

GypLyner Independent maximum heights for Gypframe 'I' Studs at 400mm centres – non-fire rated systems only

STUD TYPE	12.5MM BOARDS MAXIMUM HEIGHTS		15MM BOARDS MAXIMUM HEIGHTS		GYPROC THERMALINE LAMINATES
	SINGLE mm	DOUBLE mm	SINGLE mm	DOUBLE mm	SINGLE mm
Gypframe 48 I 50	2700	3100	2700	3300	2700
Gypframe 60 I 50	2700	3400	3100	3900	2700
Gypframe 60 I 70	3400	4100	3800	4500	3400
Gypframe 70 I 70	4100	4800	4500	5000	4100
Gypframe 92 I 90	5800	6500	6200	6600	5800
Gypframe 146 I 80	7900	8200	8200	8600	7900

GypLyner Independent maximum heights for Gypframe 'I' Studs at 300mm centres – non-fire rated systems only

STUD TYPE	12.5MM BOARDS MAXIMUM HEIGHTS		15MM BOARDS MAXIMUM HEIGHTS		GYPROC THERMALINE LAMINATES
	SINGLE mm	DOUBLE mm	SINGLE mm	DOUBLE mm	SINGLE mm
Gypframe 48 I 50	3000	3400	3000	3600	3000
Gypframe 60 I 50	3000	3800	3400	4300	3000
Gypframe 60 I 70	3800	4500	4200	4900	3800
Gypframe 70 I 70	4500	5200	4900	5500	4500
Gypframe 92 I 90	6400	7100	6800	7200	6400
Gypframe 146 I 80	8700	9000	9100	9500	8700

Notes:

In all GypLyner Independent systems, it is recommended that for heights between 4200mm and 8000mm, the Gypframe Deep Flange Floor & Ceiling Channel is used. Gypframe Extra Deep Flange Floor & Ceiling Channel is used for heights above 8000mm. Additional consideration needs to be given if there is a deflection head requirement.