The Building Test Centre
Fire Acoustics Structures

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Assessment Number **BTC 17344 LC**

A LETTER OF CONFORMITY TO ASSESS THE EQUIVALENCE OF THE ACOUSTIC PERFORMANCE FOR A BRITISH GYPSUM GYPWALL CLASSIC PARTITION CLAD WITH 12.5mm GLASROC H TILEBACKER INSTEAD OF 12.5mm GYPROC WALLBOARD (ON ONLY ONE OR ON BOTH SIDES OF THE PARTITION)

Assessment Date: 27th April 2011

www.btconline.co.uk

Applicant: **British Gypsum**
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DETAILS OF THE REQUEST

It is required to assess for equivalent airborne sound insulation performance if tested in accordance BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997 of a British Gypsum Gypwall Classic 'C' Stud partition if 12.5mm Gyproc Wallboard is replaced (on only one or on both sides of the partition) with 12.5mm Glasroc H Tilebacker. This equivalence in acoustic performance is required to be assessed for a variety of different stud sizes, variety of different insulation options within the cavity and to include single layer cladding on both sides of the partition or double layer cladding on both sides of the partition. The request has been made on the behalf of British Gypsum

General partition description

The test specimen was constructed in the aperture having an overall opening of 2400mm (high) x 3600mm (wide)

Framework

Gypframe Folded Edge Standard Floor & Ceiling Channels (see table 1 for combinations) screw fixed at 600mm centres to the head and base of the test aperture using 32mm Gyproc drywall screws.

Gypframe 'C' Studs (see table 1 for combinations) positioned at either end of the head and base channel, one screw fixed to one side of the test aperture at 600mm centres using 32mm Gyproc drywall screws; the other end remaining free.

Gypframe 'C' Studs (see table 1 for combinations) studs positioned between the head and base channel at 600mm centres

	Combination 1	Combination 2	Combination 3	Combination 4
Channel	50C50	72C50	94C50	148C50
Stud	48S50	70S50	92S50	146S50

Table 1. Channels & studs used in combination for Gypwall Classic Partition

Insulation

Isover APR 1200 insulation to be inserted into the cavity as described by the variations in Table 2.

Variation 1	Variation 2	Variation 3
No Insulation	One layer of 25mm	One layer of 50mm

Table 2. Variations of insulation with the Gypwall Classic Partition

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Cladding

The framework clad with a single or double layer on both sides of the partition with any combination of 12.5mm Glasroc H Tilebacker or 12.5mm Gyproc Wallboard

For single layer of board specimens:
The boards were screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 25mm Gyproc drywall screws.

For double layer of board specimens:
The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25mm Gyproc drywall screws.

The outer layer of boards was screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 36mm Gyproc drywall screws.

Joints

All vertical joints were staggered between layers. All joints were taped and the perimeter sealed with Gyproc Sealant.

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THE ASSESSORS

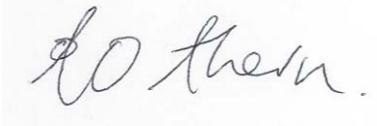
The Building Test Centre operates as an independent accredited test house for the construction industry. The Building Test Centre has unrivalled experience in the development of drywall systems. The Building Test Centre is UKAS accredited under No. 0296 for fire resistance, reaction to fire, acoustic and structural testing. The Building Test Centre is wholly owned by British Gypsum Limited a major manufacturer of building products.

ASSESSMENT AUTHORISATION

Assessment Author

James Stonell
AMIOA
Technologist

Reviewing Assessor



Alexandra Ahern
B.Eng, MIOA
Section Manager

This assessment is not valid unless it incorporates the Declaration by Applicant form duly signed by the applicant.

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TEST EVIDENCE

The test evidence used in this assessment has been used under the authorisation of the test report owner and has been used with their permission (see pages 32 and 33). Furthermore, the test evidence has been reviewed by The Building Test Centre to ensure that the test reports are still valid.

All test evidence is presented in its original format, including figure and table numbers.

BTC 17302 A

AN ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TESTING TO BS EN ISO 140-3:1995 ON A BRITISH GYPSUM PARTITION CLAD WITH A SINGLE LAYER OF 12.5MM GLASROC H TILEBACKER EACH SIDE.

The test specimen was constructed in an aperture having an overall opening of 2400mm (high) x 3600mm (wide).

Gypframe 50FEC50 Floor and Ceiling channels were fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 48S50 'C' studs were positioned between the head and base channels at each end of the aperture and fixed using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 48S50 'C' studs were positioned between the head and base channels at 600mm centres.

The framework was clad with a single layer of 12.5mm Glasroc H Tilebacker each side.

The boards were screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 25mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints were taped and the perimeter sealed with Gyproc Sealant.

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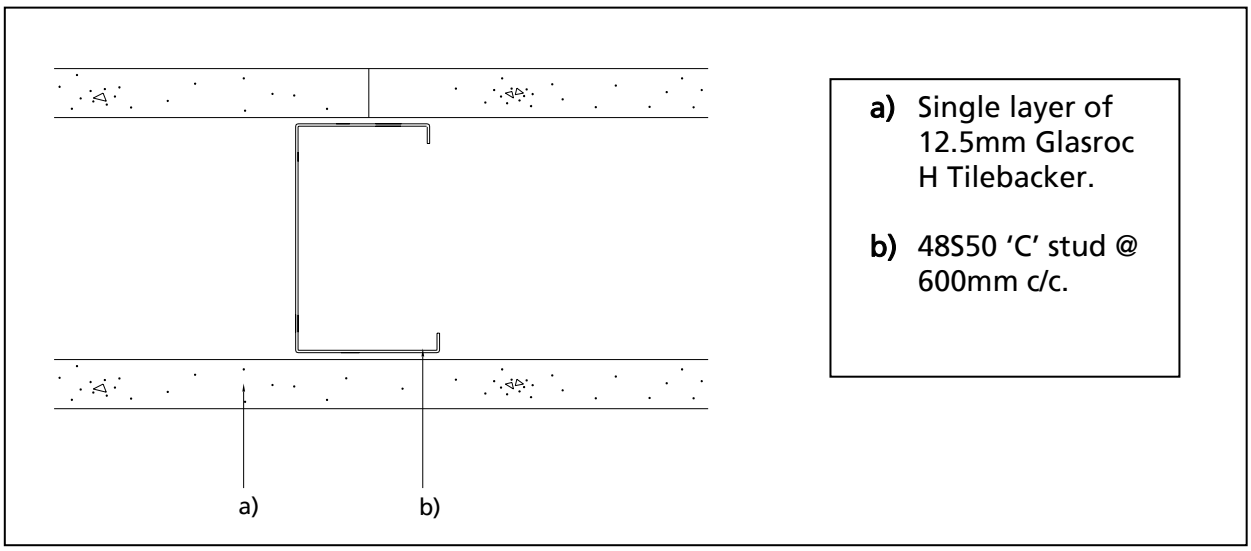

Figure 1. Horizontal cross section view of the partition.

Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H17302A	Single layer of 12.5mm Glasroc H Tilebacker each side	36 (-2; -7) dB

The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 28th March 2011 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 2890 A

ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TEST TO BS 2750:PART 3 :1980 ON A 75mm GYPROC METAL STUD PARTITION INCORPORATING GYPROC 48S50 STUDS LINED EACH SIDE WITH A SINGLE LAYER 12.5mm GYPROC WALLBOARD

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Gyproc 50C50 channel was fixed at the head and base of the test aperture at 600mm centres. Gyproc 48S50 studs were set at 600mm centres between the head and base channel. The metal framework was clad both sides with a single layer of 12.5mm Gyproc wallboard (8.64 kg/m^2) (Board code: 1642435). The boards were fixed with 25mm Gyproc S point screws at 300mm centres around the perimeter and at intermediate stud positions. All joints were staggered with respect to each other and taped with Gyproc self adhesive tape. The perimeter of the partition was sealed with Gyproc sealant.

Weighted Airbourne Sound Reduction Index Rw = 34 dB

The test was carried out in accordance with BS 2750:Part3:1980 (1993) and rated in accordance with BS 5821:Part 1: 1984 (ISO 717/1- 1978). The test was carried out on the 2nd October 1995 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 17303 A

AN ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TESTING TO BS EN ISO 140-3:1995 ON A BRITISH GYPSUM PARTITION CLAD WITH A SINGLE LAYER OF 12.5MM GLASROC H TILEBACKER EACH SIDE AND 25MM ISOVER APR INSULATION IN THE CAVITY.

The test specimen was constructed in an aperture having an overall opening of 2400mm (high) x 3600mm (wide).

Gypframe 50FEC50 Floor and Ceiling channels were fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 48S50 'C' studs were positioned between the head and base channels at each end of the aperture and fixed using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 48S50 'C' studs were positioned between the head and base channels at 600mm centres.

25mm Isover APR insulation was placed within the cavity.

The framework was clad with a single layer of 12.5mm Glasroc H Tilebacker each side.

The boards were screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 25mm Gyproc drywall screws.

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All vertical joints were staggered between layers. All joints were taped and the perimeter sealed with Gyproc Sealant.

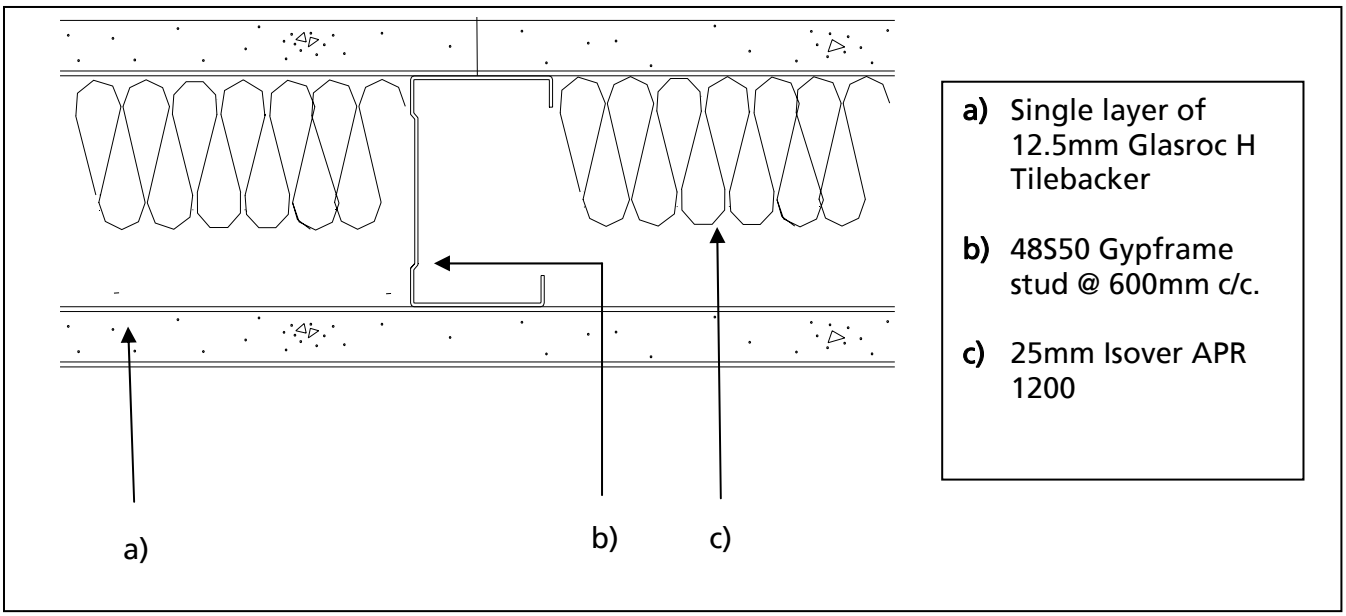

Figure 1 Horizontal cross section of the partition

Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H17303A	Single layer of 12.5mm Glasroc H Tilebacker, with 25mm Isover APR within the cavity	40 (-4; -10) dB

The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 28th March 2011 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 2891 A

ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TEST TO BS 2750:PART 3 :1980 ON A 75mm GYPROC METAL STUD PARTITION INCORPORATING GYPROC 48S50 STUDS LINED EACH SIDE WITH A SINGLE LAYER 12.5mm GYPROC WALLBOARD AND 25mm GYPGLASS 1200 IN THE CAVITY.

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Gyproc 50C50 channel was fixed at the head and base of the test aperture at 600mm centres. Gyproc 48S50 studs were set at 600mm centres between the head and base channel. The metal framework was clad both sides with a single layer of 12.5mm Gyproc wallboard (8.64 kg/m^2) (Board code: 1642435). The boards were fixed with 25mm Gyproc S point screws at 300mm centres around the perimeter and at intermediate stud positions. 25mm Gypglass 1200 (0.40 Kg/m^2) was paced in the cavity.

All board joints were staggered with respect to each other and taped with Gyproc self adhesive tape. The perimeter of the partition was sealed with Gyproc sealant.

Weighted Airbourne Sound Reduction Index Rw = 40 dB

The test was carried out in accordance with BS 2750:Part3:1980 (1993) and rated in accordance with BS 5821:Part 1: 1984 (ISO 717/1- 1978). The test was carried out on the 3rd October 1995 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 17304 A

AN ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TESTING TO BS EN ISO 140-3:1995 ON A BRITISH GYPSUM PARTITION CLAD WITH A DOUBLE LAYER OF 12.5MM GLASROC H TILEBACKER EACH SIDE.

The test specimen was constructed in an aperture having an overall opening of 2400mm (high) x 3600mm (wide).

Gypframe 50FEC50 Folded Edge Floor & Ceiling Channels were fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 48S50 'C' studs were positioned between the head and base channels at each end of the aperture and fixed using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 48S50 'C' studs were positioned between the head and base channels at 600mm centres.

The framework was clad with a double layer of 12.5mm Glasroc H Tilebacker each side.

The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25 mm Gyproc drywall screws.

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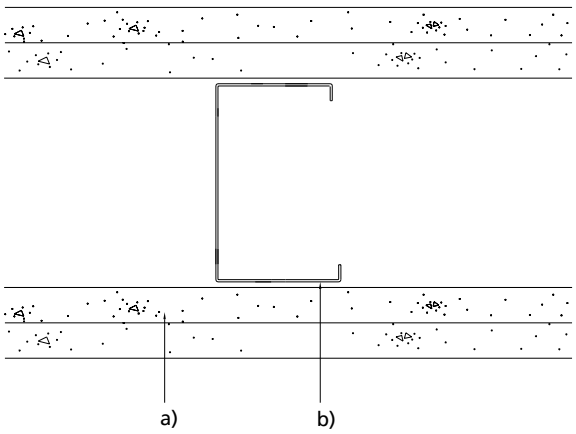
The outer layer of boards was screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints were taped and the perimeter sealed with Gyproc Sealant.



a) Double layer of 12.5mm Glasroc H Tilebacker

b) Gypframe 48S50 'C' stud @ 600mm c/c.

Figure 2. Horizontal cross section view through the partition.

Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H17304AA	Double layer of 12.5mm Glasroc Tilebacker.	44 (-3;-9)dB

The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 29th March 2011 at the Building Test Centre. The test was carried out on behalf of British Gypsum

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BTC 2889 A

ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TEST TO BS 2750:PART 3 :1980 ON A 100mm GYPROC METAL STUD PARTITION INCORPORATING GYPROC 48S50 STUDS LINED EACH SIDE WITH A DOUBLE LAYER 12.5mm GYPROC WALLBOARD.

Gyproc 50C50 channel was fixed at the head and base of the test aperture at 600mm centres. Gyproc 48S50 studs were set at 600mm centres between the head and base channel. The metal framework was clad both sides with a single layer of 12.5mm Gyproc wallboard (8.61 kg/m^2) (Board code: 1642435). The inner layer was fixed with 25mm Gyproc S point screws at 300mm centres around the perimeter of the boards. The outer layer boards were fixed with 36mm Gyproc S point screws at 300mm centres around the perimeter and at intermediate stud positions. All joints were staggered with respect to each other and taped with Gyproc self adhesive tape. The perimeter of the partition was sealed with Gyproc sealant.

Weighted Airbourne Sound Reduction Index Rw = 42 dB

The test was carried out in accordance with BS 2750:Part3:1980 (1993) and rated in accordance with BS 5821:Part 1: 1984 (ISO 717/1- 1978). The test was carried out on the 2nd October 1995 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 17305 A

AN ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TESTING TO BS EN ISO 140-3:1995 ON A BRITISH GYPSUM PARTITION CLAD WITH A DOUBLE LAYER OF 12.5MM GLASROC H TILEBACKER EACH SIDE WITH 25MM ISOVER APR INSULATION IN THE CAVITY.

The test specimen was constructed in an aperture having an overall opening of 2400mm (high) x 3600mm (wide).

Gypframe 50FEC50 Folded Edge Floor & Ceiling Channels were fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 48S50 'C' studs were positioned between the head and base channels at each end of the aperture and fixed using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 48S50 'C' studs were positioned between the head and base channels at 600mm centres.

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The framework was clad with a double layer of 12.5mm Glasroc H Tilebacker each side.

25mm Isover APR insulation was placed within the stud cavity.

The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25mm Gyproc drywall screws.

The outer layer of boards was screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints were taped and the perimeter sealed with Gyproc Sealant.

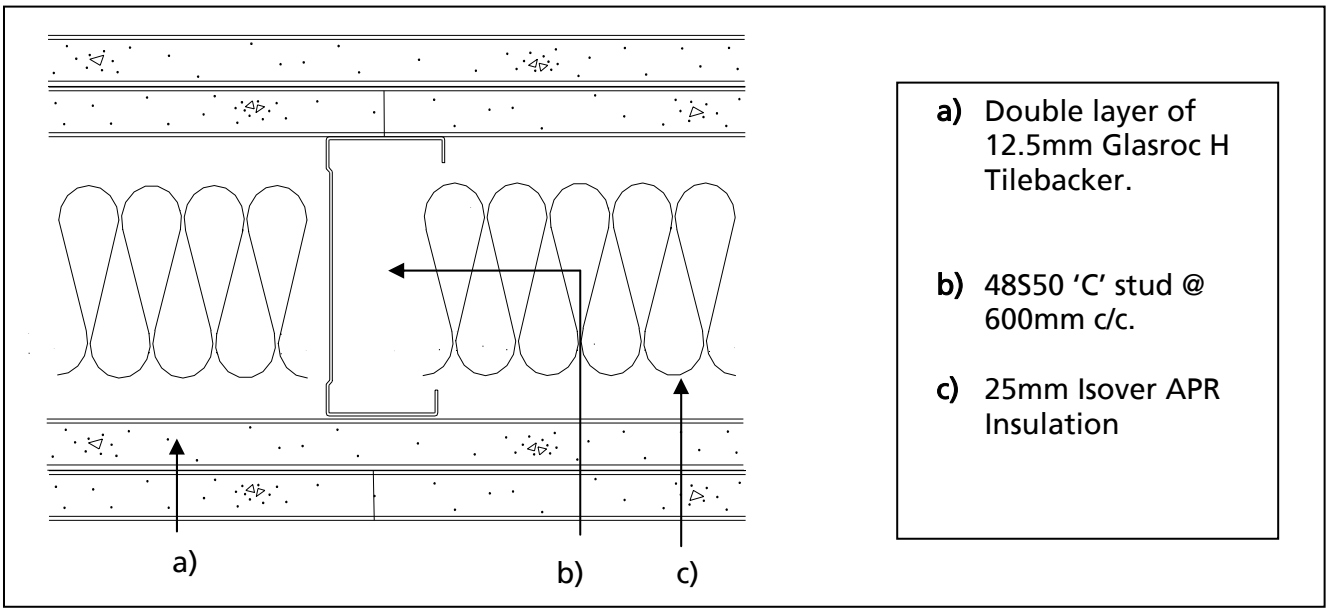

Figure 3. Horizontal cross section view through partition H17305AA

Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H17305AA	Single layer of 12.5mm Glasroc H Tilebacker with 25mm Isover APR insulation in the cavity	47 (-3; -10) dB

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The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 30th March 2011 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 17332 A

AN ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TESTING TO BS EN ISO 140-3:1995 ON A BRITISH GYPSUM PARTITION CLAD WITH A DOUBLE LAYER OF 12.5MM GYPROC WALLBOARD EACH SIDE WITH 25MM ISOVER APR INSULATION IN THE CAVITY (T10 - WB)

The test specimen was constructed in an aperture having an overall opening of 2400mm (high) x 3600mm (wide).

Gypframe 50FEC50 Folded Edge Standard Floor & Ceiling Channels were fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 48S50 'C' Studs were positioned between the head and base channels at each end of the aperture and fixed using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 48S50 'C' Studs were positioned between the head and base channels at 600mm centres.

25mm Isover APR insulation was placed within the stud cavity.

The framework was clad with a double layer of 12.5mm Gyproc Wallboard each side.

The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25mm Gyproc drywall screws.

The outer layer of boards was screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints were taped and the perimeter sealed with Gyproc Sealant.

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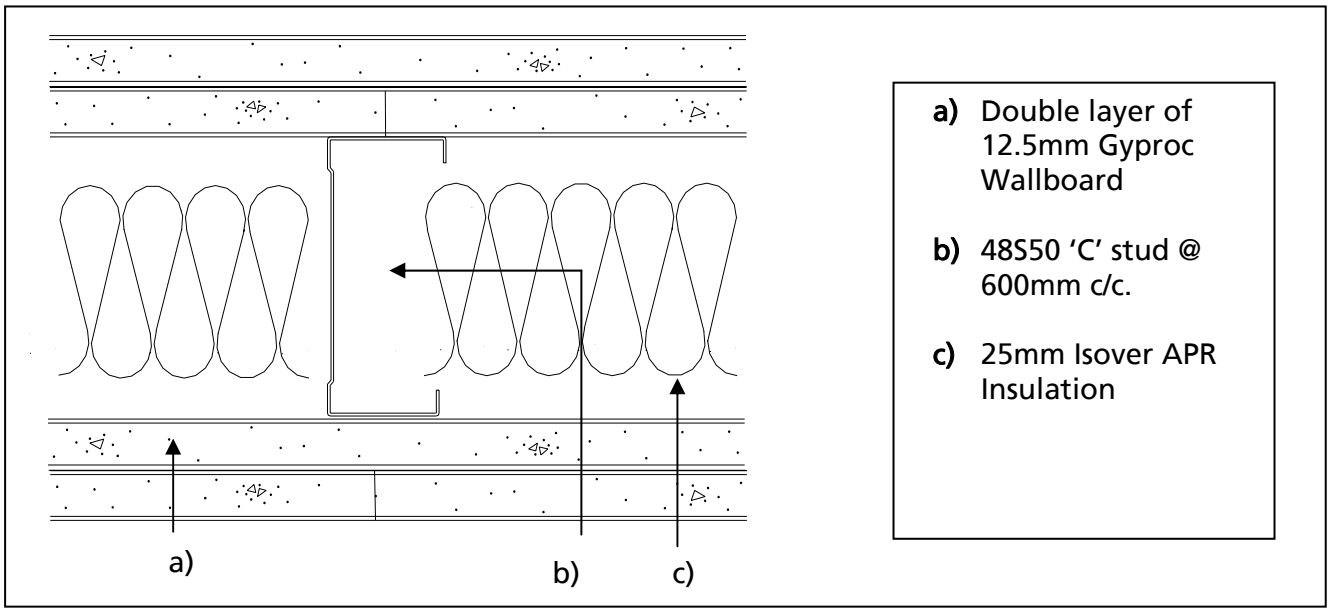

Figure 4 Horizontal cross section view of the partition

Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H17332AA	Double layer of 12.5mm Gyproc WallBoard on 48S50 'C' studs with 25mm Isover APR in the cavity	46 (-4: -11) dB

The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 14th April 2011 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 17328 A

AN ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TESTING TO BS EN ISO 140-3:1995 ON A BRITISH GYPSUM PARTITION CLAD WITH A SINGLE LAYER OF 12.5MM GLASROC H TILEBACKER EACH SIDE (T11).

Applicant: British Gypsum

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The test specimen was constructed in an aperture having an overall opening of 2400mm (high) x 3600mm (wide).

Gypframe 72FEC50 Folded Edge Floor & Ceiling Channels were fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 70S50 'C' studs were positioned between the head and base channels at each end of the aperture and fixed using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 70S50 'C' studs were positioned between the head and base channels at 600mm centres.

The framework was clad with a single layer of Glasroc H Tilebacker 12.5mm Glasroc H Tilebacker each side.

The boards were screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 25mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints were taped and the perimeter sealed with Gyproc Sealant.

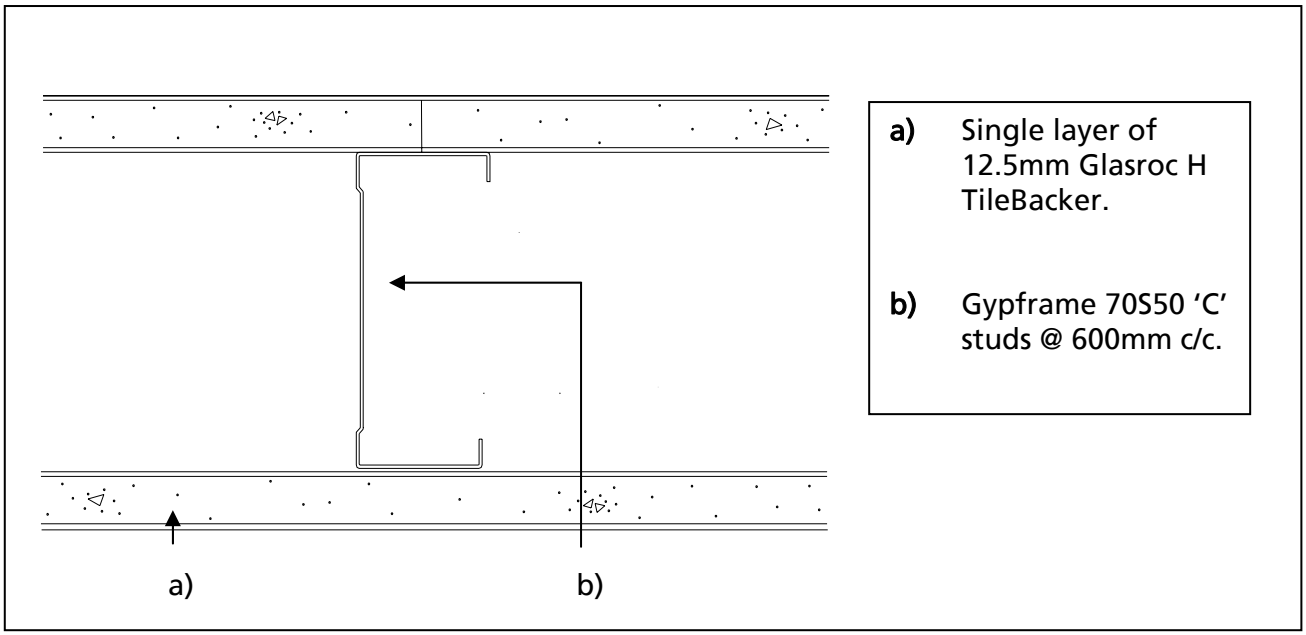

Figure 5. Horizontal cross section view thorough partition H17328AA

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Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H17328AA	Single layer of 12.5mm Glasroc H TileBacker	37 (-3; -9) dB

The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 11th April 2011 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 11862 A

SOUND INSULATION TEST TO BS EN ISO 140-3:1995 ON A GYPROC GYPWALL™ PARTITION CONSISTING OF A SINGLE LAYER OF 12.5mm GYPROC WALLBOARD (8Kg/m^2) USING 70S50 GYPROC STUDS.

Gyproc 72C50 metal channel was screw fixed at 300mm centres to the head and the base of the test aperture using 25mm Gyproc Drywall screws. Gyproc 70S50 studs were inserted between the head and base channels at 600mm centres. A single layer of 12.5mm Gyproc Wallboard was screw fixed to either side of the metal framework, screw fixed at 300mm centres around the perimeter and to the intermediate studs using 25mm Gyproc Drywall screws, The perimeter of the partition was sealed to the test aperture with Gyproc sealant. The board joints and screw heads were covered with adhesive tape.

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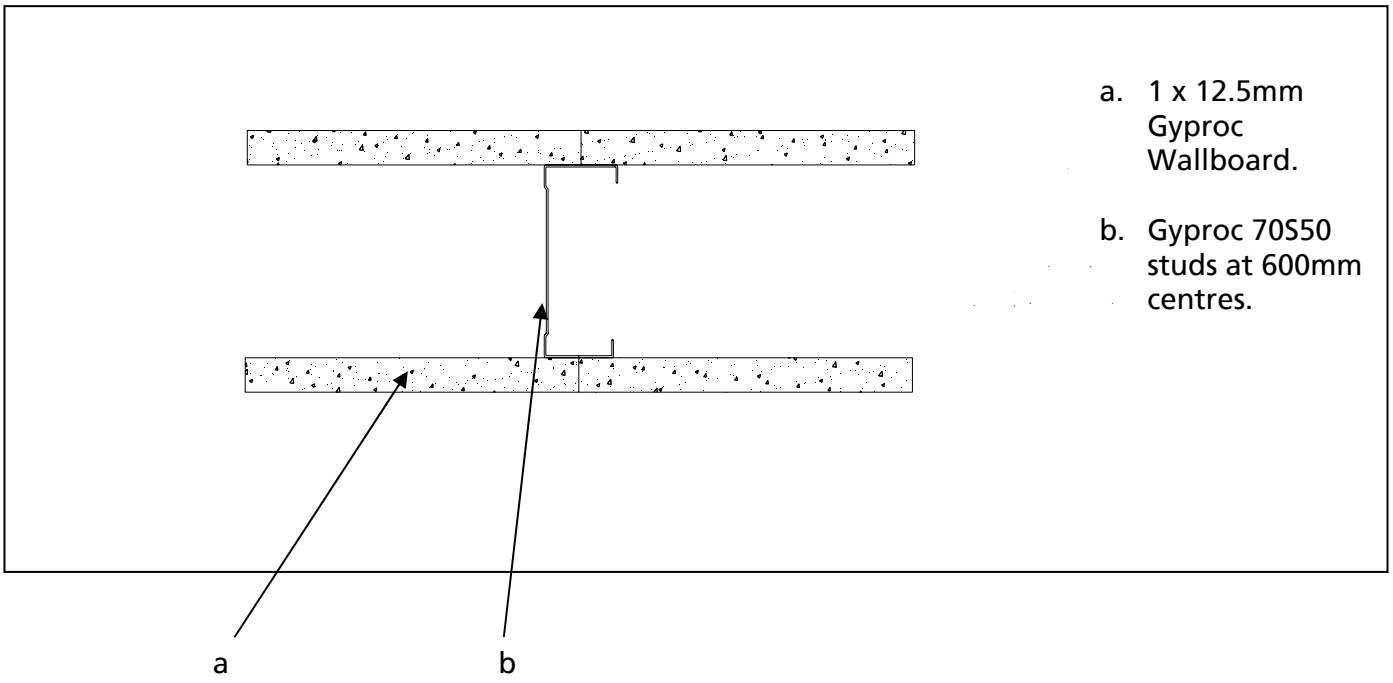

Figure 6. Cross-section through the partition.

Weighted Airborne Sound Reduction Index R_w (C; Ctr) = 36 (-2; -8) dB

The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 26th March 2002 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 17306 A

AN ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TESTING TO BS EN ISO 140-3:1995 ON A BRITISH GYPSUM PARTITION CLAD WITH A DOUBLE LAYER OF 12.5MM GLASROC H TILEBACKER EACH SIDE WITH 50MM ISOVER APR INSULATION IN THE CAVITY.

The test specimen was constructed in an aperture having an overall opening of 2400mm (high) x 3600mm (wide).

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Gypframe 72FEC50 Folded Edge Floor & Ceiling Channels were fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 70S50 'C' studs were positioned between the head and base channels at each end of the aperture and fixed using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 70S50 'C' studs were positioned between the head and base channels at 600mm centres.

The framework was clad with a double layer of 12.5mm Glasroc H Tilebacker each side.

50mm Isover APR insulation was placed within the stud cavity.

The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25mm Gyproc drywall screws.

The outer layer of boards was screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints were taped and the perimeter sealed with Gyproc Sealant.

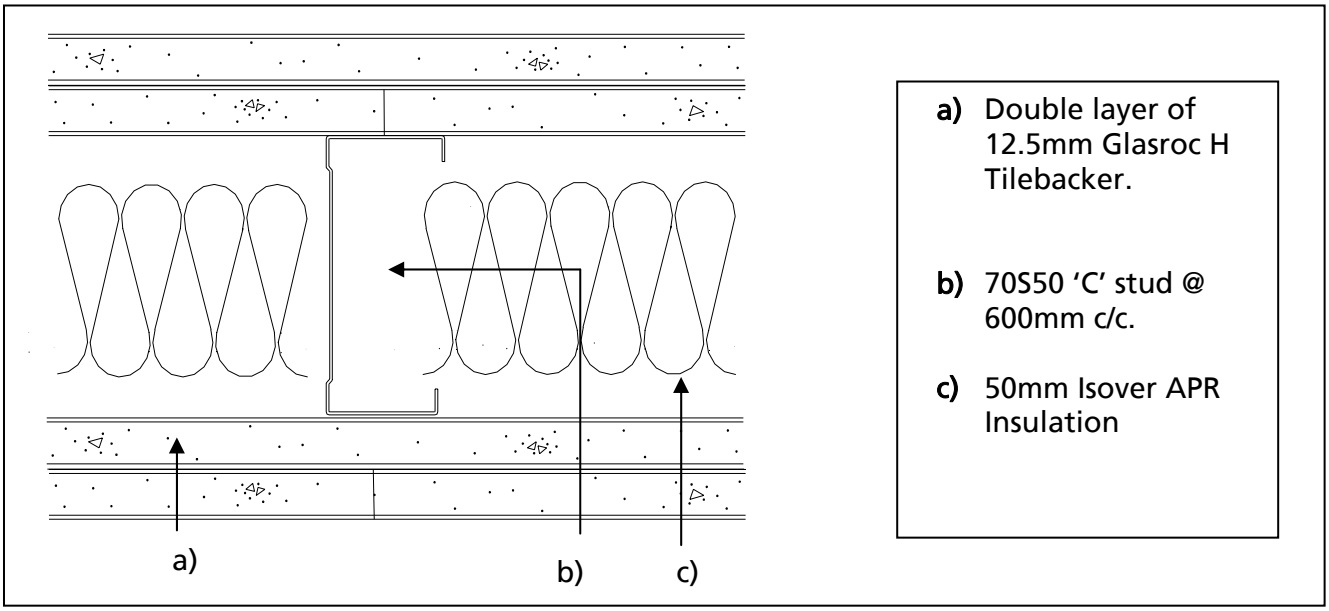

Figure 7. Horizontal cross section view through partition H17306AA

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Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H17306AA	Double layer of 12.5mm Glasroc H Tilebacker with 50mm Isover APR insulation in the cavity	50 (-2; -8) dB

The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 31st March 2011 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 2884 A

ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TEST TO BS 2750:PART 3 :1980 ON A 122mm GYPROC METAL STUD PARTITION INCORPORATING GYPROC 70S50 STUDS LINED EACH SIDE WITH A DOUBLE LAYER 12.5mm GYPROC WALLBOARD AND 50mm GYPGLASS 1200 IN THE CAVITY

Gyproc 72C50 channel was fixed at the head and base of the test aperture at 600mm centres. Gyproc 70S50 studs were set at 600mm centres between the head and base channel. The metal framework was clad both sides with a double layer of 12.5mm Gyproc wallboard (8.64 kg/m^2) (Board code: 16422435). The inner layer was fixed with 25mm Gyproc S point screws at 300mm centres around the perimeter of the boards. The outer layer boards were fixed with 36mm Gyproc S point screws at 300mm centres around the perimeter and at intermediate stud positions. 50mm Gypglass 1200 (0.76 kg/m^2) was placed in the cavity. All joints were staggered with respect to each other and taped with Gyproc self adhesive tape. The perimeter of the partition was sealed with Gyproc sealant.

Weighted Airbourne Sound Reduction Index Rw = 50 dB

The test was carried out in accordance with BS 2750:Part3:1980 (1993) and rated in accordance with BS 5821:Part 1: 1984 (ISO 717/1- 1978). The test was carried out on the 28th September 1995 at the Building Test Centre. The test was carried out on behalf of British Gypsum

Applicant: British Gypsum

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BTC 17307 A

AN ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TESTING TO BS EN ISO 140-3:1995 ON A BRITISH GYPSUM PARTITION CLAD WITH A DOUBLE LAYER OF 12.5MM GLASROC H TILEBACKER EACH SIDE.

The test specimen was constructed in an aperture having an overall opening of 2400mm (high) x 3600mm (wide).

Gypframe 148FEC50 Folded Edge Floor & Ceiling Channels were fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 146S50 'C' studs were positioned between the head and base channels at each end of the aperture and fixed using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 146S50 'C' studs were positioned between the head and base channels at 600mm centres.

The framework was clad with a double layer of 12.5mm Glasroc H Tilebacker each side.

The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25mm Gyproc drywall screws.

The outer layer of boards was screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints were taped and the perimeter sealed with Gyproc Sealant.

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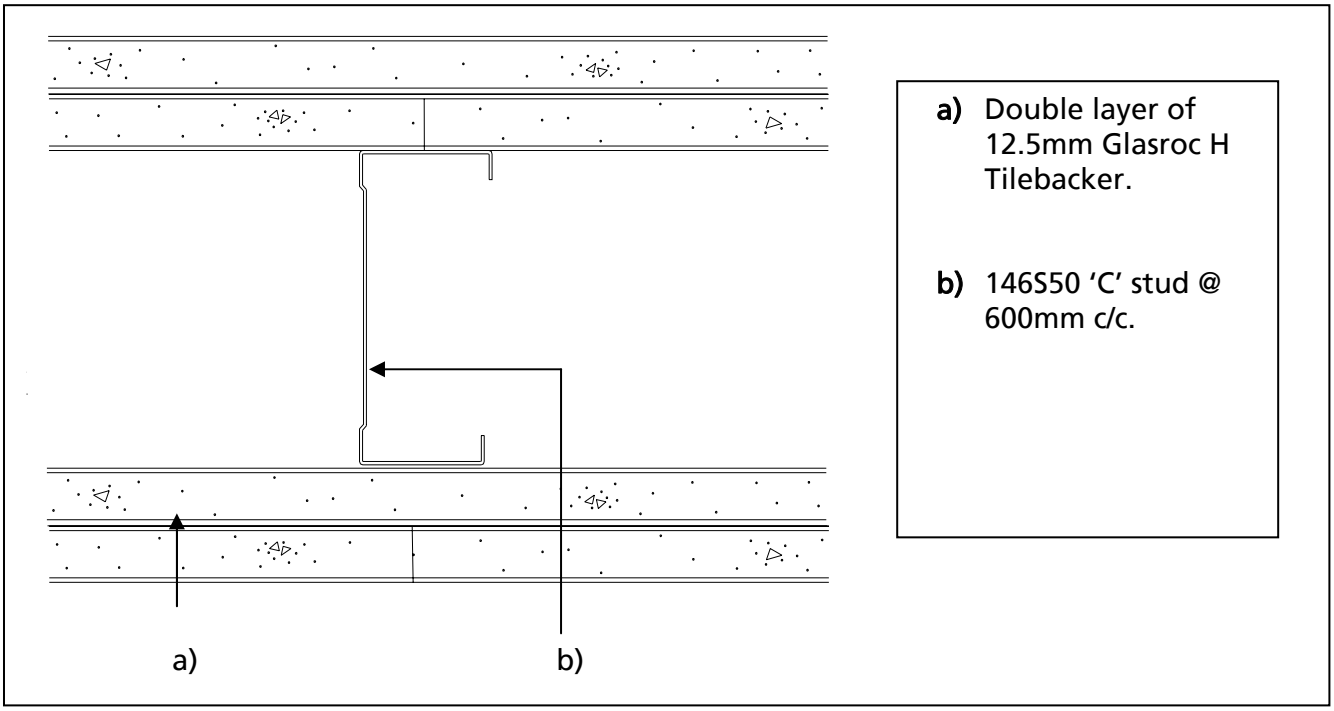

Figure 8. Horizontal cross section view through partition H17307AA

Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H17307AA	Double layer of 12.5mm Glasroc H Tilebacker each side	49 (-2; -5) dB

The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 1st April 2011 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 17331 A

AN ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TESTING TO BS EN ISO 140-3:1995 ON A BRITISH GYPSUM PARTITION CLAD WITH A DOUBLE LAYER OF 12.5MM GYPROC WALLBOARD EACH SIDE. (T13 - WB)

Applicant: British Gypsum

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The test specimen was constructed in an aperture having an overall opening of 2400mm (high) x 3600mm (wide).

Gypframe 148FEC50 Folded Edge Standard Floor & Ceiling Channels were fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 146S50 'C' Studs were positioned between the head and base channels at each end of the aperture and fixed using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 146S50 'C' Studs were positioned between the head and base channels at 600mm centres.

The framework was clad with a double layer of 12.5mm Gyproc Wallboard each side.

The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25mm Gyproc drywall screws.

The outer layer of boards was screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints were taped and the perimeter sealed with Gyproc Sealant.

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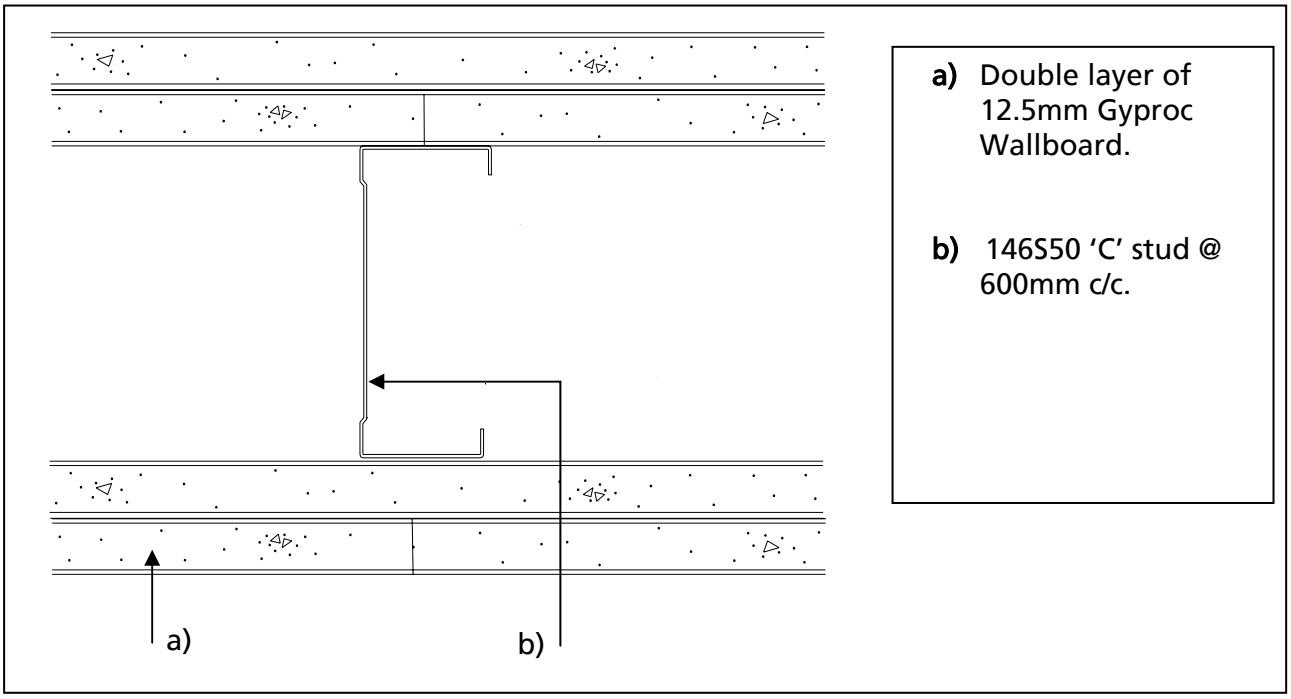

Figure 9 Horizontal cross section view of the partition

Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H17331AA	Double layer of 12.5mm Gyproc WallBoard on 146S50 'C' studs	48 (-2; -5) dB

The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 15th April 2011 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 17327 A

AN ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TESTING TO BS EN ISO 140-3:1995 ON A BRITISH GYPSUM PARTITION CLAD WITH A DOUBLE LAYER OF 12.5MM

Applicant: British Gypsum

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GLASROC H TILEBACKER EACH SIDE WITH 50MM ISOVER APR INSULATION IN THE CAVITY (T14).

The test specimen was constructed in an aperture having an overall opening of 2400mm (high) x 3600mm (wide).

Gypframe 148FEC50 Folded Edge Floor & Ceiling Channels were fixed to the head and base of the aperture using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 146S50 'C' Studs were positioned between the head and base channels at each end of the aperture and fixed using 25mm Gyproc drywall screw fixings spaced at 600mm centres.

Gypframe 146S50 'C' Studs were positioned between the head and base channels at 600mm centres.

50mm Isover APR insulation was placed within the stud cavity.

The framework was clad with a double layer of 12.5mm Glasroc H Tilebacker each side.

The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25mm Gyproc drywall screws.

The outer layer of boards was screw fixed around the perimeter of the board and the intermediate stud positions at 300mm centres using 36mm Gyproc drywall screws.

All vertical joints were staggered between layers. All joints were taped and the perimeter sealed with Gyproc Sealant.

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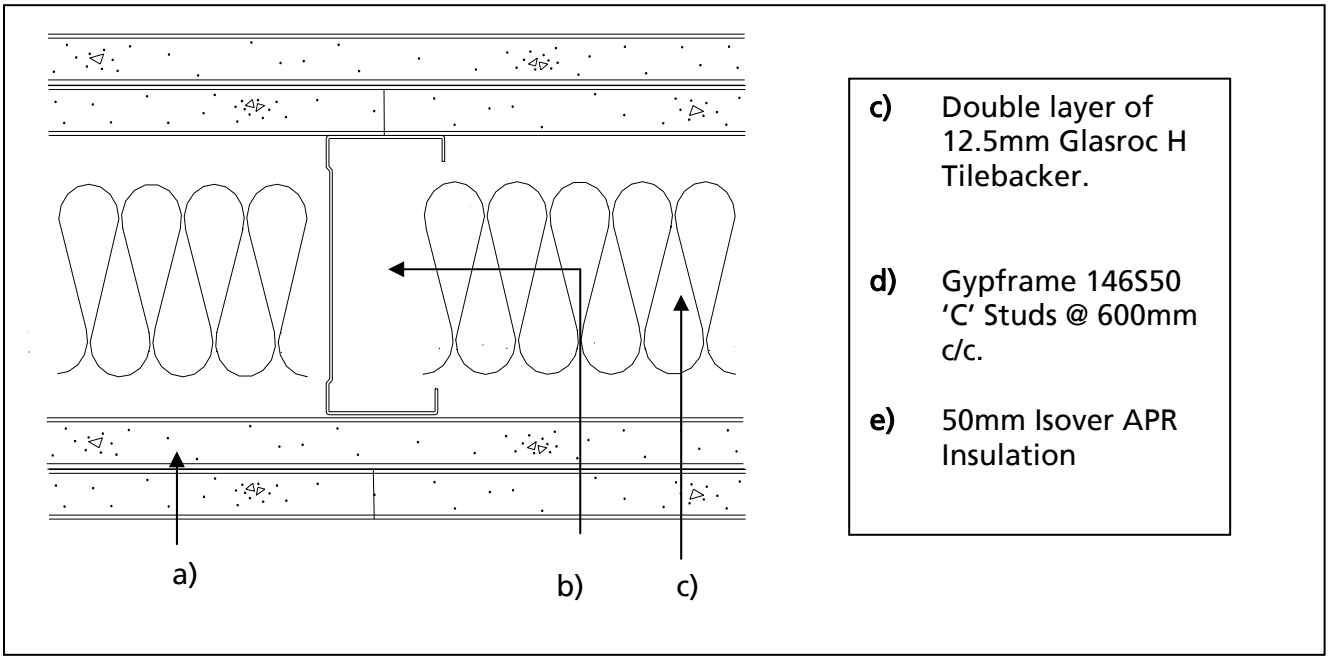

Figure 10. Horizontal cross section view thorough H17327AA

Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H17327AA	Double layer of 12.5mm Glasroc H Tilebacker each side with 50mm Isover APR insulation with in the cavity	52 (-2; -5) dB

The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 12th April 2011 at the Building Test Centre. The test was carried out on behalf of British Gypsum

BTC 11928 A

SOUND INSULATION TEST TO BS EN ISO 140-3:1995 ON A GYPROC GYPWALL™ PARTITION CONSISTING OF A DOUBLE LAYER OF 12.5mm GYPROC WALLBOARD USING 146S50 GYPROC STUDS ,INCORPORATING A 50mm ISOWOOL 1200 QUILT IN THE CAVITY.

Applicant: British Gypsum

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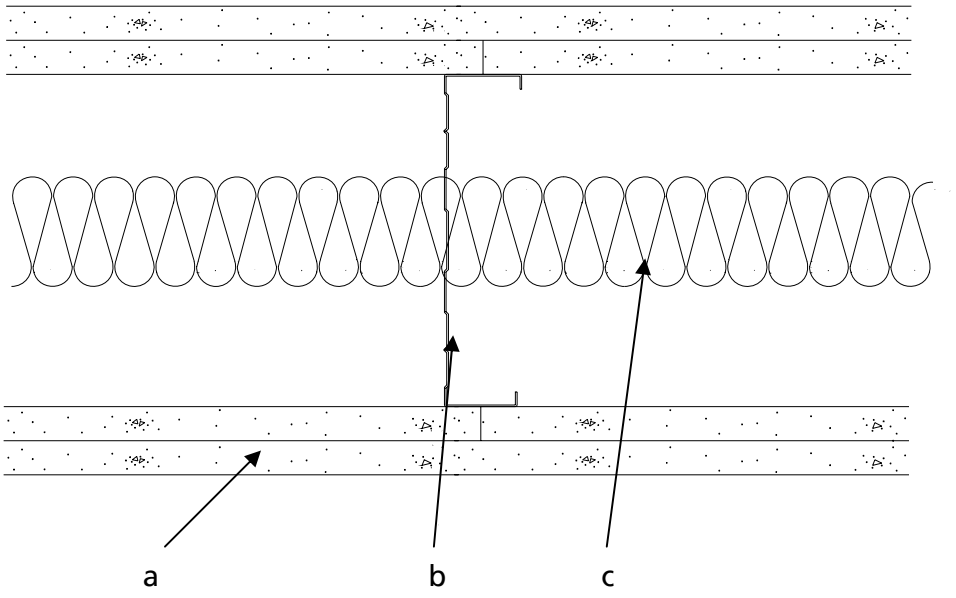
Gyproc 148C50 metal channel was screw fixed at 300mm centres to the head and the base of the test aperture using 25mm Gyproc Drywall screws. Gyproc 146S50 studs were inserted between the head and base channels at 600mm centres. A double layer of 12.5mm Gyproc Wallboard boards were screw fixed to either side of the metal framework. The inner layer was screw fixed at 300mm centres around the perimeter using 25mm Gyproc Drywall screws, and the outer layer was screw fixed with 36mm Gyproc Drywall screws at 300mm centres around the perimeter and at the intermediate stud positions. 50mm Isowool 1200 quilt was inserted inside the cavity of the partition. The perimeter of the partition was sealed to the test aperture with Gyproc sealant. The board joints and screw heads were covered with adhesive tape.



a. 2 x 12.5mm Gyproc Wallboard.

b. Gyproc 146S50 studs at 600mm centres.

c. 50mm Isowool 1200.

Figure 11. Cross-section through the partition.

Weighted Airborne Sound Reduction Index	R_w (C; Ctr) = 51 (-2; -5) dB

The test was carried out in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997. The test was carried out on the 3rd April 2002 at the Building Test Centre. The test was carried out on behalf of British Gypsum

Applicant: British Gypsum

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DISCUSSION

With lightweight steel stud partitions, the acoustic sound insulation performance is governed by the following key performance factors:

- surface density and composition of the cladding on both sides of the partition
- degree of structural connectivity between the two linings
- the width of the partition cavity
- amount and type of insulation with the cavity

The system described in the DETAILS OF REQUEST have not been subjected to a sound insulation test in accordance with BS EN ISO 140-3: 1995 (except for those used in supporting evidence)

The changes to the construction detailed under DETAILS OF REQUEST compared to the evidence supplied (see Table 3.) are:

- Variety of stud/channel combinations (See Table 1.) with a single layer Glasroc H Tilebacker both sides or only on one side with 12.5mm Wallboard on the other (to include a variety of insulation options – see Table 2.)
- Variety of stud/channel combinations (See Table 1.) with a double layer Glasroc H Tilebacker both sides or only on one side with 12.5mm Wallboard on the other (to include a variety of insulation options – see Table 2.)

			BTC Test Report of comparison tests	
Stud	No of cladding layers both sides	insulation	12.5mm Glasroc H Tilebacker	12.5mm Gyproc Wallboard
48S50	single	none	BTC 17302A	BTC 2890A
	single	25mm	BTC 17303A	BTC 2891A
	double	none	BTC 17304A	BTC 2889A
	double	25mm	BTC 17305A	BTC 17332A
70S50	single	none	BTC 17328A	BTC 11862A
	double	50mm	BTC 17306A	BTC 2884A
146S50	double	none	BTC 17307A	BTC 17331A
	double	50mm	BTC 17327A	BTC 11928A

Table 3. Summary of BTC Test Reports used as evidence for direct comparison

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		insulation		
Stud	No of cladding layers both sides	none	25mm	50mm
48S50	Single			**********
	double			**********
70S50	Single		++++	++++
	double	++++	++++	
92S50	Single	**********	**********	**********
	double	**********	**********	**********
146S50	Single	**********	**********	**********
	double		++++	

	Direct comparison test as evidence
	no direct comparison test as evidence
******	no current white book specification for 12.5mm wallboard
++++	In-between 2 extreme combinations which have direct comparison as evidence

Table 4. Summary of constructions to be assessed.

Overview of evidence supplied

For each stud/channel combination as defined in Table 1. a direct comparison test has been carried out between 12.5mm Glasroc H Tilebacker & 12.5mm Gyproc Wallboard for the lowest and highest Rw acoustic sound insulation performance specified in the current British Gypsum White Book (ie. Single layer partition with no insulation and double layer partition with maximum thickness of insulation). Two other comparative tests were also conducted for the 48S50 stud/channel combination to cover single layer partition with 25mm insulation and double layer partition with no insulation.

From inspection of the results in the Test Evidence (see Table 3. for comparative test reports), it can be seen that for all of the comparative tests given as evidence the Rw acoustic performance of 12.5mm Glasroc H Tilebacker has matched or exceeded the Rw acoustic performance of 12.5mm Gyproc Wallboard on the same system

Taking each of the key performance factors described above and considering the evidence:

Surface density and composition of the cladding

The acoustic Rw sound insulation performance would normally be improved by increasing the surface density and/ or changing the composition of the cladding. This has potential to be affected by replacing single or double layers of 12.5mm Gyproc Wallboard with 12.5mm Glasroc H Tilebacker on one or both sides of the partition. The tests of comparative single layer partition and double layer partition show no downgrade in Rw acoustic sound

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insulation performance by replacing 12.5mm Gyproc Wallboard on both sides of the partition with 12.5mm Glasroc H Tilebacker.

It is therefore likely that replacing the 12.5mm Gyproc Wallboard cladding with 12.5mm Glasroc H Tilebacker on only one side of the partition would match or exceed the Rw acoustic performance of 12.5mm Gyproc Wallboard on both sides of the same stud/channel combination with the same insulation option

Structural connectivity and width of partition cavity

The acoustic Rw sound insulation performance would normally be improved by increasing the partition cavity width and/or decreasing the structural connectivity. This could be potentially affected by changing the stud/channel combinations. From the Test Evidence there has been shown no downgrade in Rw acoustic sound insulation performance by replacing 12.5mm Gyproc Wallboard with 12.5mm Glasroc H Tilebacker.

As this covers stud/channel combinations on either side of the 92S50 system , it is likely that 12.5mm Glasroc H Tilebacker would match or exceed the Rw acoustic performance of 12.5mm Gyproc Wallboard if also tested on the 92S50 system

Amount and type of insulation

The tests of comparative single layer partition tests and double layer partition tests with various insulation options, and all have shown no downgrade in Rw acoustic sound insulation performance by replacing 12.5mm Gyproc Wallboard with 12.5mm Glasroc H Tilebacker.

It is therefore likely for all insulations options replacing the 12.5mm Gyproc Wallboard cladding with 12.5mm Glasroc H Tilebacker would match or exceed the Rw acoustic performance of 12.5mm Gyproc Wallboard on both sides of the same stud/channel combination with the same insulation option.

From the evidence above, it can be concluded that the construction described under DETAILS OF THE REQUEST would be likely to achieve at least the same Rw sound insulation performance as the identical Gypwall Classic partition clad just with 12.5mm Gyproc Wallboard on both sides if the partition was tested in accordance with BS EN ISO 140-3: 1995 and rated in accordance with BS EN ISO 717-1: 1997

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CONCLUSION

In view of the foregoing evidence, it is our opinion that if the constructions described under DETAILS OF THE REQUEST were subjected to a laboratory sound insulation test, in accordance with BS EN ISO 140-3: 1995 and BS EN ISO 717-1:1997 the stated wall construction would achieve:

Estimated minimum Sound insulation (Rw): Equal to the Rw of the identical GypWall Classic partition clad with just 12.5mm Gyproc Wallboard on both sides of the partitions.

LIMITATIONS

This assessment addresses itself solely to the ability of the partition system described to satisfy the criteria of the laboratory airborne sound insulation test and does not imply any suitability for use with respect to other unspecified criteria.

This assessment is issued on the basis of test data and information to hand at the time of issue. If contradictory evidence becomes available to the assessing authority the assessment will be unconditionally withdrawn and the applicant will be notified in writing. Similarly the assessment is invalidated if the assessed construction is subsequently tested since actual test data is deemed to take precedence over an expressed opinion. The assessment is valid initially for a period of five years after which time it is recommended that it be submitted to the assessing authority for re-appraisal. The opinions and interpretations expressed in this assessment are outside the scope of UKAS accreditation.

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DECLARATION BY THE APPLICANT

We confirm that the component or element of structure, which is the subject of this assessment, has not to our knowledge been subjected to a laboratory airborne sound insulation test to the Standards against which this assessment is being made.

We agree to withdraw this assessment from circulation should the component or element of structure be subjected to a laboratory airborne and impact sound insulation test to the Standards against which this assessment is being made.

We are not aware of any information that could adversely affect the conclusion of this assessment.

If we subsequently become aware of any such information we agree to ask the assessing authority to withdraw the assessment

Signed: …  ……. Print Name Adam Richardson

For and on behalf of British Gypsum

The Building Test Centre
Fire Acoustics Structures

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AUTHORITY FOR USE OF TEST EVIDENCE

Test Report Numbers: BTC 17302A, BTC 17303A, BTC 17304A, BTC 17305A, BTC 17328A, BTC 17306A, BTC 17307A, BTC 17327A, BTC 2890A, BTC 2891A, BTC 2889A, BTC 17332A, BTC 11862A, BTC 2884A, BTC 17331A, & BTC 11928A

We the undersigned agree to the above Test Reports and drawings being used as supporting evidence for the following assessment:

A LETTER OF CONFORMITY TO ASSESS THE EQUIVALENCE OF THE ESTIMATED ACOUSTIC PERFORMANCE FOR A BRITISH GYPSUM GYPWALL CLASSIC PARTITION CLAD WITH 12.5mm GLASROC H TILEBACKER INSTEAD OF 12.5mm GYPROC WALLBOARD (ON ONLY ONE OR ON BOTH SIDES OF THE PARTITION)

Assessment Client: British Gypsum

Signed: ..... Print Name Adam Richardson

Job Tile: Project Leader

Department Technical

For and on behalf of **British Gypsum**