

The Building Test Centre

Fire Acoustics Structures

The Building Test Centre
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Assessment Number **BTC 18388LC**

A letter of conformity for the estimation of the acoustic performance of a range of British Gypsum GypWall Classic partitions clad with a single layer of Gyproc SoundBloc F.

Assessment Date: 12th August 2013

www.btconline.co.uk

Applicant: **British Gypsum**
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Leicestershire
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Applicant: **British Gypsum**

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DETAILS OF THE REQUEST

It is required to assess that if 15mm Gyproc SoundBloc were to be replaced with 15mm Gyproc SoundBloc F in a single layer system it would give an equivalent airborne sound insulation performance, if tested in accordance with BS EN ISO 10140-2: 2010 and rated in accordance with BS EN ISO 717-1: 2013.

The range of single layer system constructions required to be assessed are stated in table below:

Channel Type	Stud Type	Stud Centres	Insulation Type
Gypframe 50FEC50	Gypframe 48S50	600mm	None
Gypframe 72FEC50	Gypframe 70S50	600mm	i) None ii) 25mm Isover APR
Gypframe 72FEC50	Gypframe 70AS50	600mm	i) None ii) 25mm Isover APR iii) 3 x 25mm Isover APR
Gypframe 94FEC50	Gypframe 92S50	600mm	i) None ii) 25mm Isover APR iii) 50mm Isover APR iv) 3 x 25mm Isover APR v) 100mm Isover APR
Gypframe 94FEC50	Gypframe 92AS50	600mm	i) None ii) 25mm Isover APR iii) 50mm Isover APR iv) 100mm Isover APR

Table 1. Range of single layer system constructions to be assessed

General system description

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

Gypframe floor and ceiling channels fixed to the head and base of the test aperture at 600mm centres using 25mm Gyproc drywall screws.

Gypframe studs positioned at either end of the head and base channel, screw fixed to the test aperture at 600mm centres using 25mm Gyproc drywall screws.

Gypframe studs were positioned between the head and base channels at 600mm centres.

Isover APR Insulation positioned within the cavity as described in Table 1.

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The framework clad with a single layer of 15mm Gyproc SoundBloc F on each side of the partition.

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

All vertical joints staggered between layers. All joints and screw heads taped and the perimeter taped and 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



Martin Lynch
AMIOA
Scientist

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 15 and 16. 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 18396A

An acoustic test report covering laboratory sound insulation testing to BS EN ISO 10140-2:2010 on a British Gypsum Gypwall Classic partition clad with a single layer of 15mm Gyproc SoundBloc F each side.

TEST CONSTRUCTION

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

Gypframe 72FEC50 Folded Edge Standard Floor and Ceiling Channels were fixed to the head and base of the test aperture at 600mm centres using 25mm Gyproc Drywall Screws.

Gypframe 70S50 'C' Studs were positioned between the head and base channels at each end of the aperture and fixed using 25mm Gyproc Drywall Screws 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 15mm Gyproc SoundBloc F 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 and screw heads were taped and the perimeter was taped and sealed with Gyproc Sealant.

Applicant: **British Gypsum**

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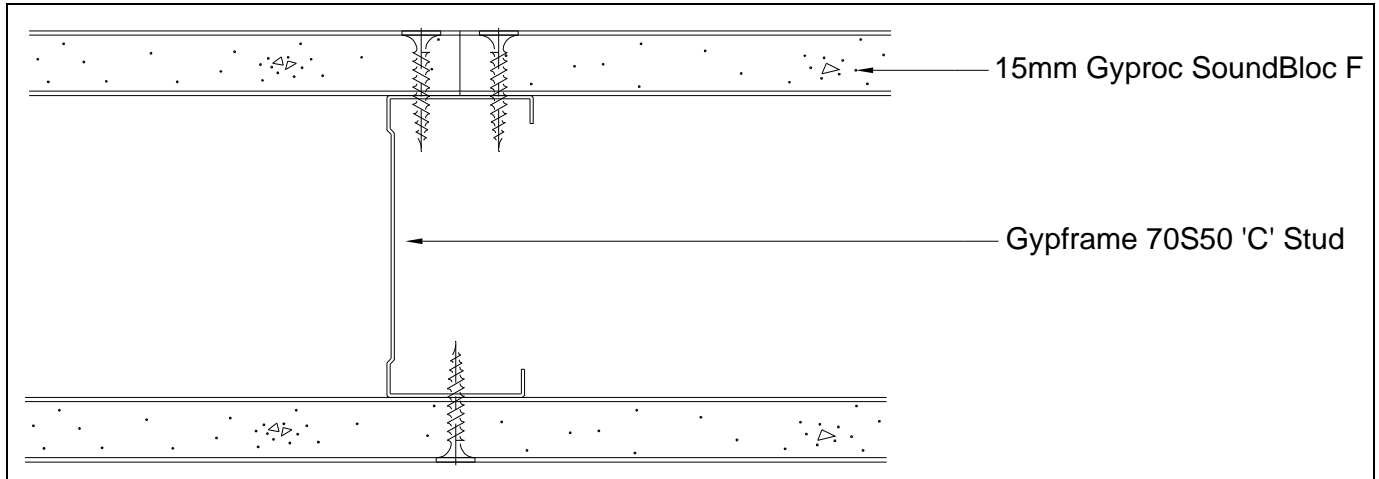


Figure 1. Cross sectional view through the test specimen.

TEST MATERIALS

Plasterboard

- i) Nominally 2400mm (long) x 1200mm (wide) x 15mm (thick) Gyproc SoundBloc F manufactured by British Gypsum, ex Kirkby Thore.

Surface density:	13.4kg/m ²
Average thickness:	15.3mm
Board Code:	26 207 13 11:41

The surface densities were calculated using the actual weight and size of a selection of the boards used in the test specimen.

Material dimensions were supplied by the customer.

Metal Components

- i) 0.5mm thick Gypframe 70S50 'C' Studs.
ii) 0.5mm thick Gypframe 72FEC50 Folded Edge Standard Floor and Ceiling Channels.

All metal components are manufactured from galvanised mild steel using the 'UltraSTEEL' process and supplied by British Gypsum.

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Fasteners

- i) 25mm Gyproc drywall screws.

All fasteners supplied by British Gypsum.

Miscellaneous Components

- i) Gyproc Sealant supplied by British Gypsum.
- ii) Joint tape supplied by The Building Test Centre.

TEST RESULTS

Test Code	Description	Weighted Airborne Sound Reduction Index R_w (C; Ctr)
H18396AA	Single layer of 15mm Gyproc SoundBloc F, on Gypframe 70S50 'C' studs.	42 (-4;-10) dB

The test was carried to BS EN ISO 10140-2:2010 and rated in accordance with BS EN ISO 717-1: 2013 on the 6th August 2013 at the Building Test Centre on behalf of British Gypsum.

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BTC 3207A

ACOUSTIC TEST REPORT COVERING LABORATORY SOUND INSULATION TEST TO BS EN ISO 140-3:1995 ON A 102mm GYPROC METAL STUD PARTITION INCORPORATING GYPROC 70S50 STUDS LINED EACH SIDE WITH A SINGLE LAYER OF 15mm GYPROC SOUNDdBLOC.

DESCRIPTION

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 single layer of 15mm Gyproc SoundBloc. 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 from side to side. Screwheads and joints were taped with Gyproc self adhesive tape. The perimeter of the partition was sealed with Gyproc sealant.

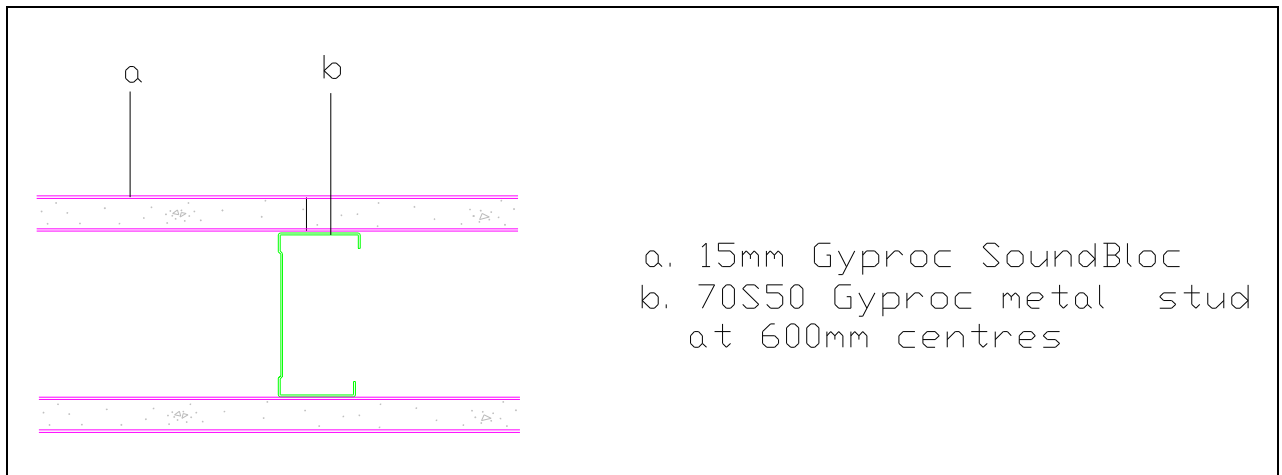


Figure 1: Section through test sample

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MATERIALS

Gyproc SoundBloc

Nominally 15mm (thick) x 1200mm (wide) x 2400mm (long) Gyproc SoundBloc manufactured by British Gypsum Ltd ex Kirkby Thore works.

Actual surface density:	12.81 kg/m ²
Actual thickness:	15.06mm
Board identification number:	272886 14:56
Nominal moisture content:	-

Surface density calculated using actual weight of all the boards used in the test specimen.

Metal components

- (i) Gyproc 70S50 metal studs and 72C50 channel manufactured using the Ultrasteel process from hot dipped galvanised mild steel nominally 0.5mm thick.

All metal components supplied by British Gypsum Limited.

Fasteners

25mm Gyproc S point screws.

All fasteners supplied by British Gypsum Limited.

RESULTS

Weighted Airborne Sound Reduction Index R_w (C;Ctr) = 42 (-2;-8) dB

The test was carried to BS EN ISO 140-3: 1995 and rated in accordance with BS 5821: Part 1: 1984: (draft ISO 717/1 :1995) on the 25th February 1997 at the Building Test Centre on behalf of British Gypsum Limited.

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System Data From British Gypsum White Book (11th Edition)

System Type	Partition Thickness	Gypframe Stud Type	Stud Centres (mm)	Board Type	Insulation Type	Sound Insulation (Rw)	System Reference
GypWall CLASSIC	80	48S50	600	15mm Gyproc SoundBloc	None	39	A206153
GypWall CLASSIC	102	70S50	600	15mm Gyproc SoundBloc	None	42	A206165
GypWall CLASSIC	102	70S50	600	15mm Gyproc SoundBloc	25mm Isover APR	47	A206197
GypWall CLASSIC	102	70AS50	600	15mm Gyproc SoundBloc	None	42	A206A165
GypWall CLASSIC	102	70AS50	600	15mm Gyproc SoundBloc	25mm Isover APR	48	A206A253
GypWall CLASSIC	102	70AS50	600	15mm Gyproc SoundBloc	3 x 25mm Isover APR	50	A206A252
GypWall CLASSIC	124	92S50	600	15mm Gyproc SoundBloc	None	44	A206261
GypWall CLASSIC	124	92S50	600	15mm Gyproc SoundBloc	25mm Isover APR	49	A206262
GypWall CLASSIC	124	92S50	600	15mm Gyproc SoundBloc	50mm Isover APR	50	A206263
GypWall CLASSIC	124	92S50	600	15mm Gyproc SoundBloc	3 x 25mm Isover APR	52	A206233
GypWall CLASSIC	124	92S50	600	15mm Gyproc SoundBloc	100mm Isover MR	51	A206264
GypWall CLASSIC	124	92AS50	600	15mm Gyproc SoundBloc	None	45	A206A281
GypWall CLASSIC	124	92AS50	600	15mm Gyproc SoundBloc	25mm Isover APR	50	A206A282
GypWall CLASSIC	124	92AS50	600	15mm Gyproc SoundBloc	50mm Isover APR	51	A206A283
GypWall CLASSIC	124	92AS50	600	15mm Gyproc SoundBloc	100mm Isover MR	52	A206A284

Table 2. British Gypsum White Book System Data

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DISCUSSION

The DETAILS OF REQUEST gives a range of constructions where a variety of metal frame and insulation systems are clad with a single layer of 15mm Gyproc SoundBloc F, and it is required to assess the whole range for sound insulation performance equivalent to currently claimed for the same range of metal frame and insulation systems clad with 15mm Gyproc SoundBloc. The change in board cladding is the only difference between the systems in DETAILS OF REQUEST and the existing performance claims for Gyproc SoundBloc.

When comparing the surface densities of the different boards we can see a slight increase to 13.4kg/m^2 for Gyproc SoundBloc F (BTC 18396A) compared to 12.81kg/m^2 for 15mm Gyproc SoundBloc (BTC 3207A). Based on the change in board being the only difference in the partition system, mass law indicates that the Gyproc SoundBloc F systems should match or exceed the performance of the equivalent Gyproc SoundBloc system.

Considering a direct comparison of the boards on their own, an equivalent performance is seen on a single layer partition clad with 15mm Gyproc SoundBloc F (BTC 18396A) compared to the same system clad with 15mm Gyproc SoundBloc (BTC 3207A).

For the other partition configurations given in DETAILS OF REQUEST there are no other changes required in framework, fixings or insulation compared to Gyproc SoundBloc systems stated in The British Gypsum White Book (11th Edition). It is therefore reasonable to assume both corresponding partition systems would achieve equivalent performance, as there are no other potential factors from connectivity or cavity effects.

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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 tests, in accordance with BS EN ISO 10140-2: 2010 and BS EN ISO 717-1:2013 the stated constructions would achieve:

Estimated minimum Sound insulation (Rw) would achieve equivalent sound insulation (Rw) performance of the equivalent construction if clad with 15mm Gyproc SoundBloc.

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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 opinions and interpretations expressed in this assessment are outside the scope of UKAS accreditation.

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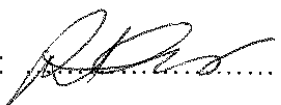
DECLARATION BY THE APPLICANT

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 and impact 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 ROB EVANS

For and on behalf of

BRITISH GYPSUM

Applicant: **British Gypsum**

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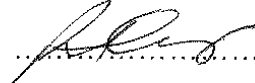
AUTHORITY FOR USE OF TEST EVIDENCE

Test Report Numbers: BTC18396, BTC 3207A

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

A letter of conformity for the estimation of the acoustic performance of a range of British Gypsum GypWall Classic partitions clad with a single layer of Gyproc SoundBloc F.

Assessment Client:

Signed: 

Print Name *Rob Evans*

Job Title: *PROJECT LEADER*

Department *TECHNICAL*

For and on behalf of

BRITISH GYPSUM

Applicant: **British Gypsum**