

Assessment Number **BTC 20800FA**

A FIRE TEST ASSESSMENT ON A BRITISH GYPSUM
GYPWALL QUIET IWL TWIN FRAME PARTITION
CLAD EACH SIDE WITH AN OUTER LAYER OF
12.5mm GYPROC HABITO AND AN INNER LAYER OF
12.5mm GYPROC SOUNDBLOC INCORPORATING
ISOVER ACOUSTIC PARTITION ROLL IN THE CAVITY
CONDUCTED IN ACCORDANCE WITH F.T.S.G.
RESOLUTION No. 82 /PPPF GUIDE.

Assessment Date: 21st January 2019

www.btconline.co.uk

Applicant: **British Gypsum**
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A FIRE TEST ASSESSMENT ON A BRITISH GYPSUM GYPWALL QUIET IWL TWIN FRAME PARTITION CLAD EACH SIDE WITH AN OUTER LAYER OF 12.5mm GYPROC HABITO AND AN INNER LAYER OF 12.5mm GYPROC SOUNDBLOC INCORPORATING ISOVER ACOUSTIC PARTITION ROLL IN THE CAVITY CONDUCTED IN ACCORDANCE WITH F.T.S.G. RESOLUTION No. 82 /PFPF GUIDE.

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DETAILS OF THE REQUEST

It is required to assess the following constructions for fire resistance performance if tested in accordance with BS EN 1364-1: 2015.

The specimen was constructed in a refractory concrete lined steel restraint test frame with an opening of 3000 mm (high) x 3000 mm (wide).

Gypframe 50FEC50 Folded Edge Standard Floor and Ceiling Channels were fixed to the head and base of the test aperture at 600mm centres using 60mm fire resistant fixings.

Gypframe 48I50 'I' Studs were positioned at 600mm centres between the channels. The right hand stud viewed from the unexposed face was not fixed to the perimeter of the test frame, and the gap between the stud and the frame lining was filled with a 25mm thick rock mineral fibre gasket.

At the left-hand edge a Gypframe 48S50 'C' Stud was used to fix the partition to the test frame, using 60mm fire resistance fixings at 600mm centres.

A second framework using the same components and fixing details was located to create the twin frame and a final partition thickness of 200mm. The Gypframe 48I50 'I' Studs were located at 600mm centres parallel with the first set of framework studs.

Thermocouples were added to the studs at mid height on the web, hot and cold flanges of the central two studs on both the exposed frame and unexposed frame.

50mm Isover APR 1200 was placed within the stud cavity

Both the unexposed face and exposed face of the specimen were clad with an inner layer of 12.5mm Gyproc SoundBloc and an outer layer of 12.5mm Gyproc Habito.

The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25mm British Gypsum Drywall Screws.

The outer layer of boards was screw fixed around the perimeter of the board and intermediate stud positions at 300mm centres using 35mm British Gypsum High Performance Screws.

All vertical joints were staggered between layers, with a full board at the free end of the exposed face. A horizontal joint was positioned at 2400mm from the base on the outer layer boards and at 600mm from the base on the inner layer boards, on both faces of the specimen. A Gypframe GFS1 Fixing Strap was used behind the horizontal outer layer board joint.

Applicant: **British Gypsum**

All external board joints were taped and filled using Gyproc Paper Joint Tape and Gyproc Joint Filler as appropriate. All screw heads were spotted using Gyproc Joint Filler.

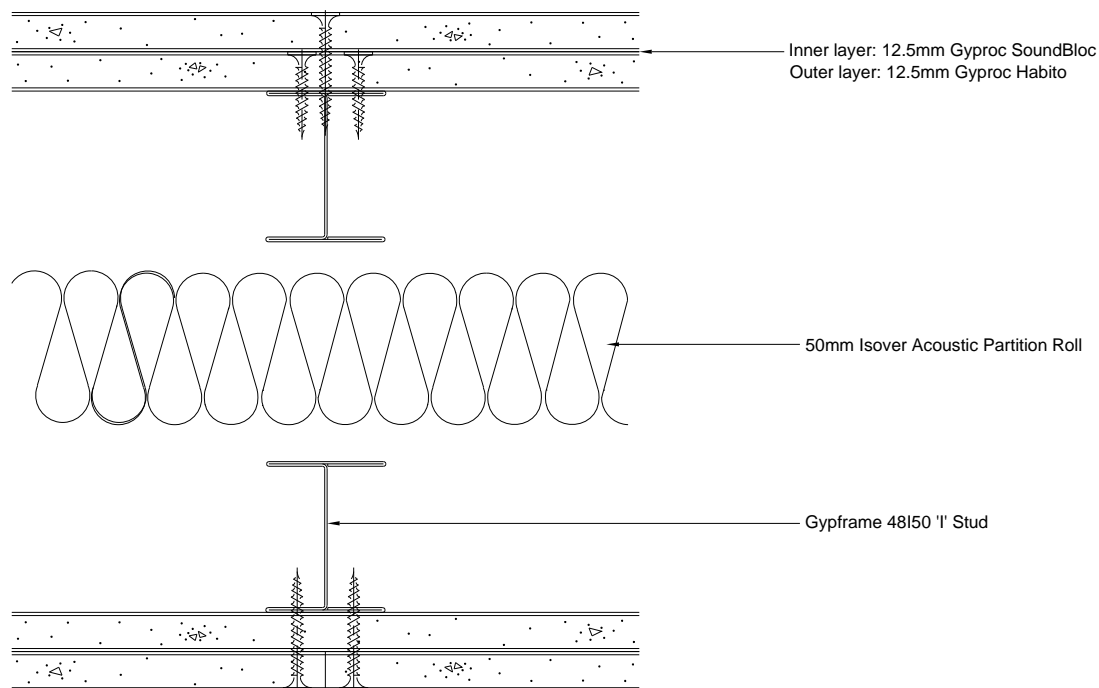


Figure 1 – Cross section view of specimen.

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 a major manufacturer of building products.

The Building Test Centre is a founder member of the Fire Test Study Group an organisation comprising the UKAS accredited fire test laboratories conducting fire testing in the UK primarily for building control approval. The aim of the group is to ensure a common interpretation of test standards by all laboratories.



ASSESSMENT AUTHORISATION

Assessment Author

A handwritten signature in blue ink, appearing to read 'P Miller', is written over a light blue grid background.

Paul Miller
BSc. (Hons.),
Fire Test Manager

Reviewing Assessor

A handwritten signature in blue ink, appearing to read 'A Richardson', is written over a light blue grid background.

Adam Richardson
BSc. (Hons.)
BTC Manager

Assessment Date 21st January 2019

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

Applicant: **British Gypsum**

ASSESSMENT AMENDMENTS

Page	Amendments	Date

Report Amendments Author

Name
Role

Amendments Authorised by

Name
Role

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 16 and 17). Furthermore, the test evidence has been reviewed in accordance with Annex D of the PFPF guide to ensure that the test reports are still valid.

BTC 20740F

A FIRE RESISTANCE TEST ON A BRITISH GYPSUM GYPWALL QUIET IWL TWIN FRAME PARTITION CLAD WITH AN OUTER LAYER OF 12.5MM GYPROC HABITO AND INNER LAYER OF 15MM GYPROC SOUNDBLOC F EACH SIDE WITH 50MM ISOVER APR 1200 INSULATION IN THE CAVITY, CONDUCTED IN ACCORDANCE WITH BS EN 1364-1: 2015

The specimen was constructed in a refractory concrete lined steel restraint test frame with an opening of 3000 mm (high) x 3000 mm (wide).

Gypframe 50FEC50 Folded Edge Standard Floor and Ceiling Channels were fixed to the head and base of the test aperture at 600mm centres using 60mm fire resistant fixings.

Gypframe 48I50 'I' Studs were positioned at 600mm centres between the channels. The right hand stud viewed from the unexposed face was not fixed to the perimeter of the test frame, and the gap between the stud and the frame lining was filled with a 25mm thick rock mineral fibre gasket.

At the left-hand edge a Gypframe 48S50 'C' Stud was used to fix the partition to the test frame, using 60mm fire resistance fixings at 600mm centres.

A second framework using the same components and fixing details was located to create the twin frame and a final partition thickness of 200mm. The Gypframe 48I50 'I' Studs were located at 600mm centres parallel with the first set of framework studs.

Thermocouples were added to the studs at mid height on the web, hot and cold flanges of the central two studs on both the exposed frame and unexposed frame.

50mm Isover APR 1200 was placed within the stud cavity.

Both the unexposed face and exposed face of the specimen were clad with an inner layer of 15mm Gyproc SoundBloc F and an outer layer of 12.5mm Gyproc Habito.

The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25mm British Gypsum Drywall Screws.

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The outer layer of boards was screw fixed around the perimeter of the board and intermediate stud positions at 300mm centres using 40mm British Gypsum High Performance Screws.

All vertical joints were staggered between layers, with a full board at the free end of the exposed face. A horizontal joint was positioned at 2400mm from the base on the outer layer boards and at 600mm from the base on the inner layer boards, on both faces of the specimen. A Gypframe GFS1 Fixing Strap was used behind the horizontal outer layer board joint.

All external board joints were taped and filled using Gyproc Paper Joint Tape and Gyproc Joint Filler as appropriate. All screw heads were spotted using Gyproc Joint Filler.

The tested construction achieved the following results:

Insulation	126 minutes
Integrity	150 minutes

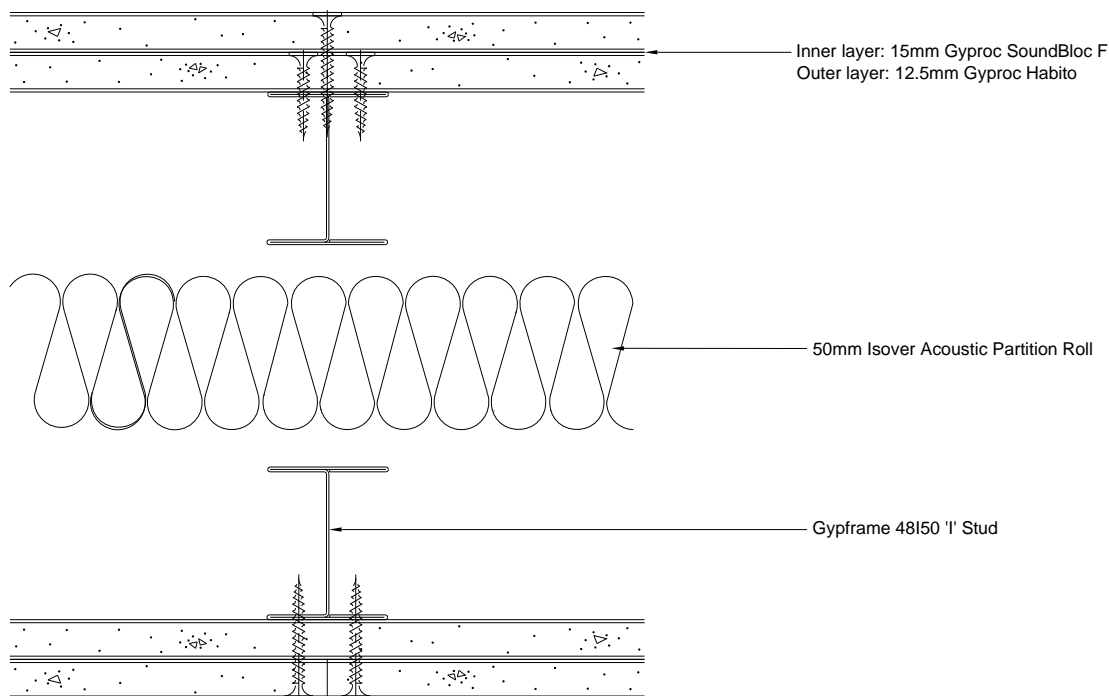


Figure 2 – Cross section of specimen.

The test was carried out in accordance with BS EN 1364-1: 2015 taking into account Fire Test Study Group standard interpretations where appropriate. The test was carried out on the 15th November 2018 at the Building Test Centre, UKAS accreditation No. 0296. The test was carried out on behalf of British Gypsum.

BTC 20160F

A FIRE RESISTANCE TEST ON A BRITISH GYPSUM GYPWALL QUIET IWL TWIN FRAME PARTITION CLAD WITH AN INNER LAYER OF 12.5MM GYPROC HABITO AND AN OUTER LAYER OF 12.5MM GYPROC SOUNDBLOC EACH SIDE WITH 50MM ISOVER APR 1200 INSULATION IN THE CAVITY, CONDUCTED IN ACCORDANCE WITH BS EN 1364-1: 2015

The specimen was constructed in a refractory concrete lined steel restraint test frame with an opening of 3000 mm (high) x 3000 mm (wide).

Gypframe 50FEC50 Folded Edge Standard Floor and Ceiling Channels were fixed to the head and base of the test aperture at 600mm centres using 60mm fire resistant fixings.

Gypframe 48I50 'I' Studs were positioned at 600mm centres between the channels. The right hand stud viewed from the unexposed face was not fixed to the perimeter of the test frame, and the gap between the stud and the frame lining was filled with a 25mm thick rock mineral fibre gasket.

At the left-hand edge a Gypframe 48S50 'C' Stud was used to fix the partition to the test frame, using 60mm fire resistance fixings at 600mm centres.

A second framework using the same components and fixing details was located to create the twin frame and a final partition thickness of 200mm. The Gypframe 48I50 'I' Studs were located at 600mm centres parallel with the first set of framework studs.

50mm Isover Acoustic Partition Roll 1200 insulation was placed within the stud cavity.

Thermocouples were added to the studs at mid height on the web, hot and cold flanges of the central two studs on both the exposed frame and unexposed frame.

The framework was clad with an inner layer of 12.5mm Gyproc Habito and an outer layer of 12.5mm Gyproc SoundBloc.

The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25mm British Gypsum High Performance Fixings.

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The outer layer of boards was screw fixed around the perimeter of the board and intermediate stud positions at 300mm centres using 35mm British Gypsum Drywall Screws.

All vertical joints were staggered between layers, with a full board at the free end of the exposed face. A horizontal joint was positioned at 2400mm from the base on the outer layer boards and at 600mm from the base on the inner layer boards, on both faces of the specimen. A Gypframe GFS1 Fixing Strap was used behind the horizontal outer layer board joint.

All external board joints were taped and filled using Gyproc Paper Joint Tape and Gyproc Joint Filler as appropriate. All screw heads were spotted using Gyproc Joint Filler.

The tested construction achieved the following results:

Insulation
 Integrity

99 minutes
 110 minutes

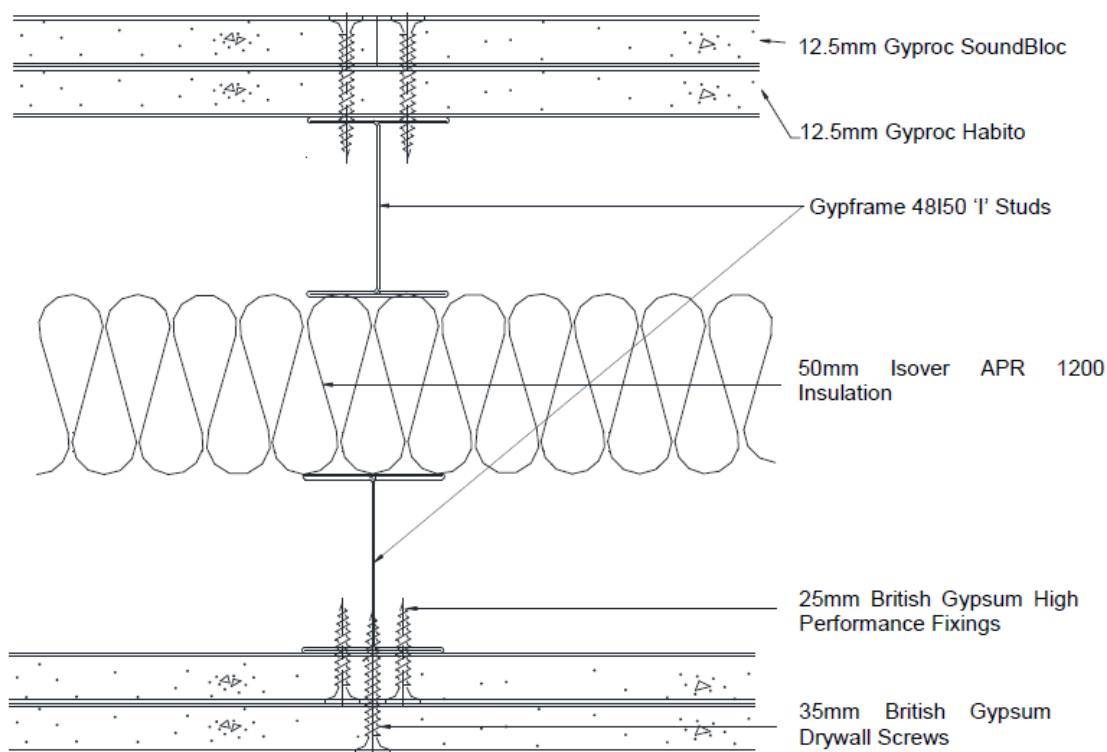


Figure 3 – Cross section of specimen

Applicant: **British Gypsum**

The test was carried out in accordance with BS EN 1364-1: 2015 taking into account Fire Test Study Group standard interpretations where appropriate. The test was carried out on the 24th July 2017 at the Building Test Centre, UKAS accreditation No. 0296. The test was carried out on behalf of British Gypsum.

BTC 20188F

A FIRE RESISTANCE TEST ON A BRITISH GYPSUM GYPWALL QUIET IWL TWIN FRAME PARTITION CLAD WITH AN INNER LAYER OF 12.5MM GYPROC HABITO AND AN OUTER LAYER OF 15MM GYPROC SOUNDBLOC F EACH SIDE WITH 50MM ISOVER APR 1200 INSULATION IN THE CAVITY, CONDUCTED IN ACCORDANCE WITH BS EN 1364-1: 2015

The specimen was constructed in a refractory concrete lined steel restraint test frame with an opening of 3000 mm (high) x 3000 mm (wide).

Gypframe 50FEC50 Folded Edge Standard Floor and Ceiling Channels were fixed to the head and base of the test aperture at 600mm centres using 60mm fire resistant fixings.

Gypframe 48I50 'I' Studs were positioned at 600mm centres between the channels. The right hand stud viewed from the unexposed face was not fixed to the perimeter of the test frame, and the gap between the stud and the frame lining was filled with a 25mm thick rock mineral fibre gasket.

At the left-hand edge a Gypframe 48S50 'C' Stud was used to fix the partition to the test frame, using 60mm fire resistance fixings at 600mm centres.

A second framework using the same components and fixing details was located to create the twin frame and a final partition thickness of 200mm. The Gypframe 48I50 'I' Studs were located at 600mm centres parallel with the first set of framework studs.

50mm Isover Acoustic Partition Roll 1200 insulation was placed within the stud cavity.

Thermocouples were added to the studs at mid height on the web, hot and cold flanges of the central two studs on both the exposed frame and unexposed frame.

The framework was clad with an inner layer of 12.5mm Gyproc Habito and an outer layer of 15mm Gyproc SoundBloc F each side.

The inner layer of boards was screw fixed around the perimeter of the board at 300mm centres using 25mm British Gypsum High Performance Fixings.

Applicant: **British Gypsum**

The outer layer of boards was screw fixed around the perimeter of the board and intermediate stud positions at 300mm centres using 35mm British Gypsum Drywall Screws.

All vertical joints were staggered between layers, with a full board at the free end of the exposed face. A horizontal joint was positioned at 2400mm from the base on the outer layer boards and at 600mm from the base on the inner layer boards, on both faces of the specimen. A Gypframe GFS1 Fixing Strap was used behind the horizontal outer layer board joint.

All external board joints were taped and filled using Gyproc Paper Joint Tape and Gyproc Joint Filler as appropriate. All screw heads were spotted using Gyproc Joint Filler.

The tested construction achieved the following results:

Insulation	122 minutes
Integrity	140 minutes

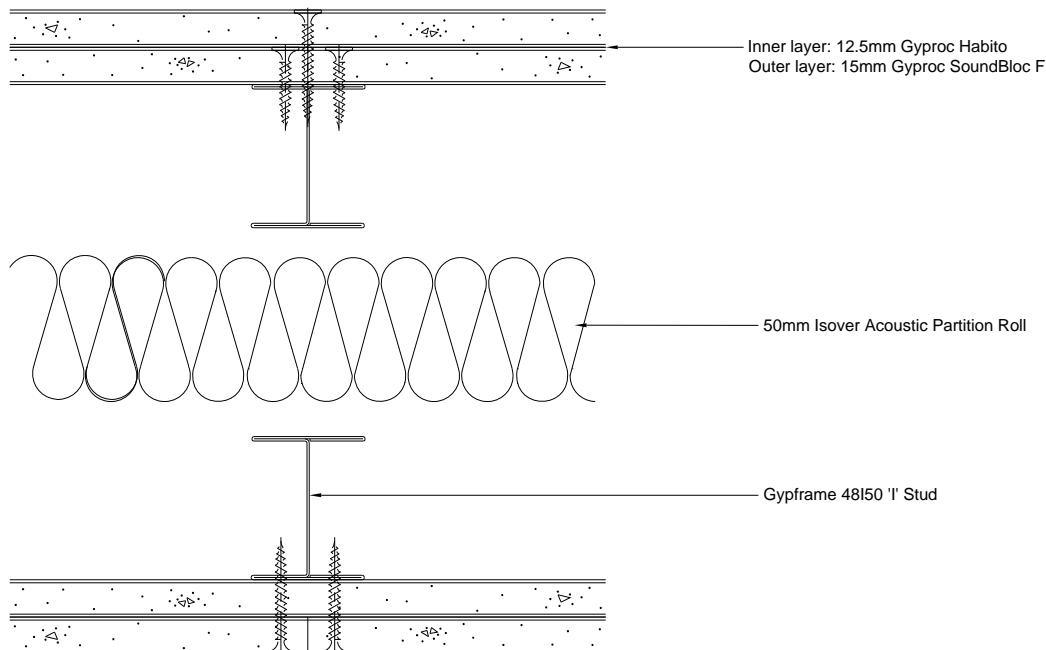


Figure 4. Cross-section of partition specimen

The test was carried out in accordance with BS EN 1364-1: 2015 taking into account Fire Test Study Group standard interpretations where appropriate. The test was carried out on the 15th August 2017 at the Building Test Centre, UKAS accreditation No. 0296. The test was carried out on behalf of British Gypsum.

Applicant: **British Gypsum**

DISCUSSION

With non-loadbearing lightweight steel stud constructions, the duration of fire performance is governed by the level of protection offered by the exposed face and unexposed face linings and the support provided to these linings by the steel framework and fixings.

The construction described under DETAILS OF THE REQUEST varies from the tested construction detailed in test reports BTC 20740F, BTC 20160F & BTC 20188F. The variations are:

	Requested construction	Tested construction (BTC20740F)	Tested construction (BTC20160F)	Tested construction (BTC20188F)
1. Stud size	Twin frame comprising 48I50 I studs	Twin frame comprising 48I50 I studs	Twin frame comprising 48I50 I studs	Twin frame comprising 48I50 I studs
2. Plasterboard Linings	1 x 12.5mm Gyproc SoundBloc (inner layer) 1 x 12.5mm Gyproc Habito (outer layer)	1 x 15mm Gyproc SoundBloc F (inner layer) 1 x 12.5mm Gyproc Habito (outer layer)	1 x 12.5mm Gyproc Habito (inner layer) 1 x 12.5mm Gyproc SoundBloc (outer layer)	1 x 12.5mm Gyproc Habito (inner layer) 1 x 15mm Gyproc SoundBloc F (outer layer)
3. Test Standard	BS EN 1364-1: 2015	BS EN 1364-1: 2015	BS EN 1364-1: 2015	BS EN 1364-1: 2015
4. Height	2.8m	3m	3m	3m
5. Insulation	50mm APR	50mm APR	50mm APR	50mm APR
6. Partition width	200mm	200mm	200mm	200mm
7. Insulation and integrity performance	90 minutes	126 minutes 150 minutes	99 minutes 110 minutes	122 minutes 140 minutes

Applicant: **British Gypsum**

Plasterboard linings

The proposal is to change the configuration of the board lining such that the 12.5mm Gyproc Habito becomes the outer layer and the inner layer becomes 12.5mm Gyproc SoundBloc. The layers would be fixed to the metal framework using the same type of screw fixing but the lengths would be adjusted to mirror the new configuration; in all cases the minimum thread penetration through the stud would remain at 10mm.

To show no downgrade in fire resistance performance would occur two tests were conducted using the same components but with the lining configurations swapped. The system selected to demonstrate the effect of the change of configuration had a target fire resistance performance in excess of 120 minutes. This was the most onerous system with respect to fire resistance performance duration and thus any differences in performance due to the change in board layer configuration would be highlighted.

Comparing the results from BTC 20740F (inner layer 15mm Gyproc SoundBloc F; outer layer 12.5mm Gyproc Habito) and BTC 20188F (inner layer 12.5mm Gyproc Habito; outer layer 15mm Gyproc SoundBloc F) there was no downgrade in fire resistance performance; the tests achieved performances of 126 minutes and 122 minutes respectively.

For the proposed system, it is reasonable to assume that swapping the board configuration in BTC 20160F from an inner layer of 12.5mm Gyproc Habito and an outer layer of 12.5mm Gyproc SoundBloc to an inner layer of 12.5mm Gyproc SoundBloc and an outer layer of 12.5mm Gyproc Habito there will be no decrease the fire performance of the tested construction.

Framework changes

For the proposed system the framework comprises the same components and overall dimensions of the system tested in BTC 20160F. As shown above, the change in board configuration will not have any detrimental effect on the insulation and integrity performance of the system.

Change in Height

The height of the proposed construction is limited to the tested height of 3000mm

CONCLUSION

In view of the foregoing evidence, it is our opinion that if the constructions described under DETAILS OF THE REQUEST were subjected to fire resistance testing, in accordance with BS EN 1364-1: 2015, they would provide the following periods of fire:

Proposed system	Period of fire resistance	
	Insulation:	90 minutes
	Integrity:	90 minutes

LIMITATIONS

This assessment addresses itself solely to the ability of the partition system described to satisfy the criteria of the fire resistance 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.

DECLARATION BY THE APPLICANT

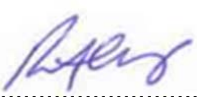
We the undersigned confirm that we have read and complied with the obligations placed on us by FTSG Resolution No. 82.

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 fire test to the Standard 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 fire test to the Standard 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 NameRob Evans.....

For and on behalf of British Gypsum.

AUTHORITY FOR USE OF TEST EVIDENCE

Test Report Numbers: BTC 20740F, BTC 20160F and BTC 20188F

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

A FIRE TEST ASSESSMENT ON A BRITISH GYPSUM GYPWALL QUIET IWL TWIN FRAME PARTITION CLAD EACH SIDE WITH AN OUTER LAYER OF 12.5mm GYPROC HABITO AND AN INNER LAYER OF 12.5mm GYPROC SOUNDBLOC INCORPORATING ISOVER ACOUSTIC PARTITION ROLL IN THE CAVITY CONDUCTED IN ACCORDANCE WITH F.T.S.G. RESOLUTION No. 82 /PFPF GUIDE.

Assessment client: British Gypsum

Signed:  Print NameRob Evans.....

Job Title:Principal Scientist.....

Department:Technical.....

For and on behalf of British Gypsum.

Applicant: **British Gypsum**