



Assessment Number **BTC 16371FA**

A FIRE TEST ASSESSMENT TO BS EN 1364-1:1999. ON A 5M GYPWALL PARTITION OF 146 AS 50 STUDS INCORPORATING A DOUBLE LAYER 15mm GYPROC SOUNDBLOC AND ISOVER APR 1200 IN THE CAVITY CONDUCTED IN ACCORDANCE WITH F.T.S.G. RESOLUTION No. 82 /PFPF GUIDE.

Assessment Date: 29<sup>th</sup> April 2009

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Applicant: **British Gypsum**  
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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 1364-1:1999.

Lightweight non-loadbearing metal stud partitions, which consists essentially of:

Gypframe 148 C 50 channels were fixed to the head and base of the test aperture at 600mm centres with 60mm Hilti Hus fixings. Gypframe 146 AS 50 studs were positioned at 600mm centres between the channels. The right hand stud viewed from unexposed face was not fixed to the perimeter test frame, but the gap between the stud and the lining was filled with a 50mm Rockwool Firebatt gasket. The left hand edge of the specimen was fixed to the test frame using a Gypframe 146 AS 50 stud fixed with 60mm Hilti Hus fixings at 600mm centres.

The framework was lined on both sides with a double layer of 15mm Gyproc SoundBloc. The inner layer was fixed around the perimeter with 25mm Gyproc Drywall screws at 300mm centres. The outer layer was fixed around the perimeter and within the field of the board with 42mm Gyproc Drywall screws. All boards were staggered between layers.

25mm (or greater) Isover APR 1200 was installed in the cavity.

Horizontal joints were positioned 2700mm from the base for the outer layers on both the exposed and unexposed faces of the construction. Horizontal joints were positioned 300mm from the base for the inner layers on both the exposed and unexposed faces of the construction. A Gypframe GFS1 fixing strap was used behind the horizontal board joints in the outer layers.

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

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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 and 0296SI 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



**Paul Miller**  
BSc (Hons.),  
*Fire Resistance Laboratory Supervisor*

Reviewing Assessor



**Philip Barnes**  
*BTC Manager*

Assessment Date                      29<sup>th</sup> April 2009.

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 (see Pages 9 and 10). 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 12033F (reviewed 14<sup>th</sup> March 2009 BTC 16353 F)**

**A FIRE RESISTANCE TEST ON A 5m HIGH X 3m WIDE GYPROC GYPWALL PARTITION INCORPORATING A DOUBLE LAYER OF 12.5mm GYPROC SOUNDBLOC EACH SIDE OF 70S50 STUDS, CONDUCTED IN ACCORDANCE WITH BS EN 1364-1:1999.**

The specimen was constructed in a refractory concrete lined steel restraint frame having an opening of 5000mm high x 3000mm wide.

Gypframe 72DC60 channel was fixed to the head and base of the test aperture at 600mm centres with 60mm Hilti Hus fixings. Gypframe 70S50 studs were positioned at 600mm centres between the channels. Each 5000mm length of stud comprised of one full 3000mm length plus a second length 2600mm long, overlapped by 600mm and fixed together using two Gyproc Wafer head screws, two to each flange. The right hand stud viewed from the unexposed face was not fixed to the perimeter test frame, but the gap between the stud and the lining was filled with a 50mm Rockwool Firebatt gasket. The left hand stud was fixed to the test frame at 600mm centres with 60mm Hilti Hus fixings.

The framework was lined both sides with a double layer of 12.5mm Gyproc SoundBloc board. The inner layer boards were fixed around the perimeter only, using 25mm Gyproc Drywall screws at 300mm centres. The outer layer boards were fully fixed to all the studs and channels using 36mm Gyproc Drywall screws at 300mm centres. Full width boards were positioned on the outer layer on the exposed face adjacent to the free edge. All vertical board joints were staggered.

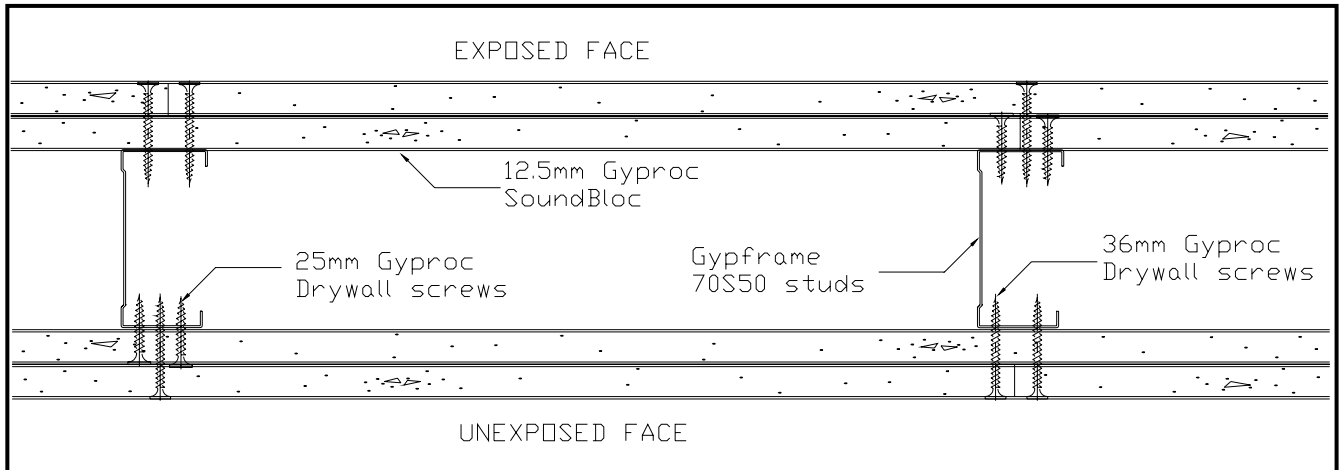
Horizontal joints were positioned 3000mm from the base for the outer layer on both the exposed and unexposed faces of the construction. Horizontal joints were positioned 2400mm from the base for the inner layers on both the exposed and unexposed faces of the construction. Gypframe GFS1 fixing strap was used behind the horizontal board joints on the outer layers.

All outer layer joints were taped and filled using Gyproc Paper Joint Tape and Gyproc Joint Filler. All screw heads were spotted using Gyproc Joint Filler.

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**DRAWING: DETAILS OF TEST EVIDENCE**



**Fig. 1 Horizontal Cross Section**

The tested construction achieved the following results:

|            |             |
|------------|-------------|
| Integrity  | 100 minutes |
| Insulation | 87 minutes  |

The test was carried out in accordance with BS EN 1364-1:1999, taking into account Fire Test Study Group standard interpretations where appropriate. The test was carried out on the 12<sup>th</sup> May 2002 at the Building Test Centre, UKAS accreditation No. 0296. The test was carried out on behalf of British Gypsum.

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## 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 report BTC12033. The variations are:

|   | Requested construction            | Tested construction (BTC12033 F) |
|---|-----------------------------------|----------------------------------|
| 1. Steel studs                          | Gypframe 146A550                  | Gypframe 70S50                   |
| 2. Cavity Width                         | 146mm                             | 70mm                             |
| 3. Insulation and integrity performance | 90 minutes                        | 87 minutes                       |
| 4. Insulation                           | 25mm (or greater) Isover APR 1200 | None                             |
| 5. Board thickness                      | 2 x 15mm Gyproc SoundBloc         | 2 x 12.5mm Gyproc SoundBloc      |

### Steel Studs

Agreed UK assessment rules (Fire Test Study Group Resolutions) allow changes in stud size and shape, provided the proposed stud has increased bending stiffness and provided that the overall thickness of the partition is not reduced and the stud gauge is not decreased.

This rule was agreed, based on the combined testing experience of the members (testing laboratories) of the Fire Test Study Group.

### Cavity Width

Increases in cavity depth and stud stiffness are allowed under the direct field of application for non-loadbearing partitions (test standard BS EN 1364-1: 1999).

### Insulation and integrity

The DETAILS OF REQUEST requires 90 minutes insulation and integrity with the metal stud framework lined with two layers of 15mm Gyproc SoundBloc to both sides and includes 25mm (or greater) Isover APR 1200 in the cavity. In the test BTC12033F, the framework is lined with a double layer of 12.5mm Gyproc SoundBloc and no insulation in the cavity and is

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tested at 5000mm high. Considering the above and that BTC12033F achieved 87minutes against that of the DETAILS OF REQUEST where 90 minutes insulation is required the additional 10mm overall thickness of the lining and inclusion of 25mm (or greater) insulation it is reasonable to assume that a performance gain of three minutes is easily achievable.

The construction proposed under DETAILS OF REQUEST satisfies the above requirements. Therefore BTC 12033F provides accurate representation of the insulation and integrity performance of the partitions described under DETAILS OF REQUEST.

### **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 1364-1:1999, they would provide the following periods of fire:

|                    |                   |
|--------------------|-------------------|
| <b>Integrity:</b>  | <b>90 minutes</b> |
| <b>Insulation:</b> | <b>90 minutes</b> |

### **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.

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## 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 Name: Matthew J Sexton

For and behalf of British Gypsum.

**AUTHORITY FOR USE OF TEST EVIDENCE**

Test Report Numbers: BTC 12033F

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

**A FIRE TEST ASSESSMENT TO BS EN 1364-1:1999. ON A 5M GYPWALL PARTITION OF 146 AS 50 STUDS INCORPORATING A DOUBLE LAYER 15mm GYPROC SOUNDBLOC AND ISOVER APR 1200 IN THE CAVITY CONDUCTED IN ACCORDANCE WITH F.T.S.G. RESOLUTION No. 82 /PFPF GUIDE.**

Assessment client: British Gypsum

Signed:  Print Name: Matthew J Sexton

Job Title: Systems Development Manager

Department: Technical

For and behalf of **British Gypsum**

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