



The Building Test Centre

Fire Acoustics Structures

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Assessment Number **BTC 371SA**

**STRUCTURAL ASSESSMENT ON A 48mm STUD
PARTITION INCORPORATING A SINGLE LAYER OF
12.5mm GLASROC MULTI-BOARD EACH SIDE.**

Assessment Date: 13 March 2002

Applicant: **British Gypsum Limited**
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TITLE

STRUCTURAL ASSESSMENT ON A GYPROC 48mm STUD PARTITION INCORPORATING A SINGLE LAYER OF 12.5mm GLASROC MULTI-BOARD EACH SIDE.

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FORWARD

The Building Test Centre have been requested to assess the performance of a Gyproc 48mm stud partition system incorporating a single layer of 12.5mm Glasroc Multi-Board on each side, to BS 5234: Part 2: 1992, at a partition height of 2500mm

REPORT AUTHORISATION

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DETAILS OF REQUEST

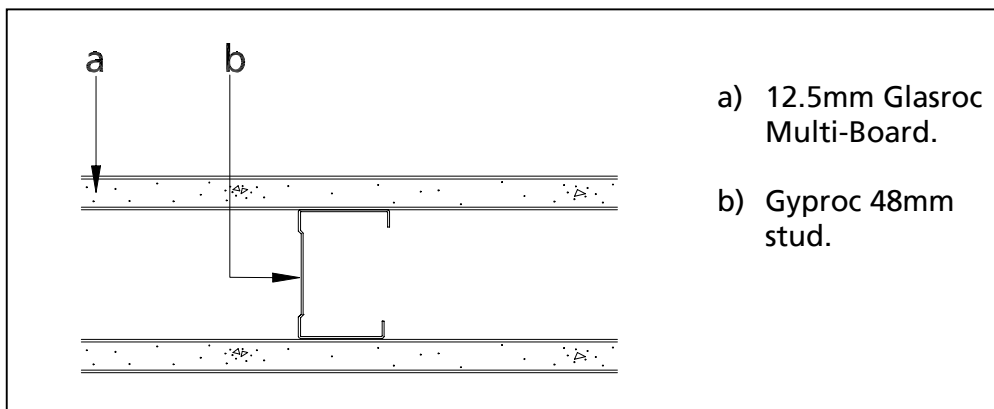
The Building Test Centre have been requested to assess the performance of a Gyproc 48mm stud partition system incorporating a single layer of 12.5mm Glasroc Multi-Board on each side, to BS 5234: Part 2: 1992, at a partition height of 2500mm

Gyproc 48mm stud partition system incorporating a single layer of 12.5mm Glasroc Multi-Board

See Figure 1 for a detailed section through the partition.

Gyproc 48mm studs are placed into head and base tracks at 600mm centres. The metalwork is then clad each side with a single layer of 12.5mm Glasroc Multi-Board. The boards on each side are staggered.

Figure 1: Section Through Partition



DISCUSSION

The system described above has not been subjected to a laboratory BS 5234 test and therefore has no grading. Using relevant test evidence this assessment intends to grade the system according to BS 5234: Part 2: 1992.

There are three main limiting factors to consider when testing to BS5234: Part 2. They are:

- The stiffness of the partition (BS 5234: Annex A)
- The perforation of the board when impacted using a small hard body. (BS 5234: Annex D)
- The door detail. (BS 5234: Annex F)

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The stiffness of the partition (BS 5234: Annex A)

In the Building Test Centre's experience of structural testing, it is usually the case that when a partition of this configuration is tested for stiffness at its approximate cold state height (based on L/240 – 200Pa criteria) then severe duty can be achieved. This can be seen by looking at a similar test specimen (BTC 10077S) to the one above. Its cold state height according to BTC 1445S is 4900mm and it was tested to 4500mm and achieved severe duty. The cold state height of the proposed partition is given in BTC 102LC.

The perforation of the board when impacted using a small hard body. (BS 5234: Annex D)

When looking at perforations in the same position on different systems, made up of the same board types on different size studs, it is the Building Test Centre's experience, that perforation of the board is dependent on the board only. Therefore as the test described below (BTC 1259S) got a severe duty with a 12.5mm board, it is reasonable to assume that a partition with the same thickness on a 48mm stud would also gain severe duty.

The door detail. (BS 5234: Annex F)

This is not a problem if a severe door detail is used as described in the British Gypsum White book, section a20 page 58.

Other Annexes of BS 5234

In the Building Test Centre's experience, the overall height or thickness of the partition are not limiting factors when considering the other annexes of BS 5234 (annex B, C, E). Therefore, the results obtained in test report BTC 1259S can be extrapolated to the proposed detail.

TEST EVIDENCE

BTC 1259S

The test was conducted on a Gyproc 70S50 metal stud, clad each side with a single layer of 12.5mm Glasroc Multi-Board, element height 2.7m.

Result = The overall grade for this partition system is severe duty.

For a full result consult the full test report.

The test was conducted fully in accordance with BS 5234: Part 2: 1992, by The Building Test Centre, UKAS No. 0296, on behalf of British Gypsum Limited.

BTC 10077S

The test was conducted on a Gyproc 70I50 metal stud, clad each side with a single layer of 12.5mm Gyproc Duraline, element height 4500mm.

Result = The overall grade for this partition system is severe duty.

For a full result consult the full test report.

The test was conducted fully in accordance with BS 5234: Part 2: 1992, by The Building Test Centre, UKAS No. 0296, on behalf of British Gypsum Limited.

BTC 102LC

48S50 studs at 600mm centres lined each side with Glasroc Multi-Board – RECOMMENDED MAXIMUM HEIGHTS (RMH).

Result = 1 x 12.5mm Multi-Board RMH = 2520mm (estimated)

The letter of conformity was written by The Building Test Centre, UKAS No. 0296, on behalf of British Gypsum Limited.

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BTC 1445S

The test was conducted on a Gyproc 70I50 metal stud, clad each side with a single layer of 12.5mm Gyproc Duraline, element height 4.2m.

Result = The Recommended Maximum Height = 4900mm

For a full result consult the full test report.

The test was conducted to an in-house test procedure, by The Building Test Centre, UKAS No. 0296, on behalf of British Gypsum Limited.

CONCLUSION

In view of the foregoing it is our opinion that if the detail described above were to be tested to BS 5234: Part 2: 1992 at or below its cold state height of 2520mm, then the grading for that partition would be severe duty.

LIMITATIONS

This assessment addresses itself solely to the ability of the external wall system described to maintain the sound insulation performance of two deemed to satisfy construction types. The assessment does not imply any suitability for use with respect to others 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 two 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.

THE BUILDING TEST CENTRE

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 Limited a major manufacturer of building products.

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CIRCULATION SHEET - BTC 371SA

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Customer: **British Gypsum Limited**
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General content checked by _____

AUTHORISATION

Assessment prepared by:	N DANGERFIELD	Date: 13 March 2002
Assessment checked by:		Date: _____
Report issued by:	_____	Date: _____