



The Building Test Centre

Fire Acoustics Structures

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Report Number BTC 13478F

A FIRE RESISTANCE TEST ON A BRITISH GYPSUM GYPWALL PARTITION CLAD WITH A SINGLE LAYER OF 15mm GYPROC SOUNDBLOC EACH SIDE OF GYPFRAME 92S50 STUDS AND 3 LAYERS OF 25mm ISOWOOL 1200 IN THE CAVITY, CONDUCTED IN ACCORDANCE WITH BS EN 1364-1: 1999.

Test Date: 26th August 2004

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Customer: British Gypsum Limited
East Leake
Loughborough
Leicestershire
LE12 6HX

Customer: British Gypsum Limited

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A FIRE RESISTANCE TEST ON A BRITISH GYPSUM GYPWALL PARTITION CLAD WITH A SINGLE LAYER OF 15mm GYPROC SOUNDBLOC EACH SIDE OF GYPFRAME 92S50 STUDS AND 3 LAYERS OF 25mm ISOWOOL 1200 IN THE CAVITY, CONDUCTED IN ACCORDANCE WITH BS EN 1364-1: 1999.

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FIELD OF DIRECT APPLICATION _____ **34**

Customer: **British Gypsum Limited**

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FOREWORD

This test report details a fire resistance test conducted on a sheet and stud partition system. The test sponsor was British Gypsum Limited.

The test specimen was installed by British Gypsum Limited. The construction of the specimen took place between the 18th and 19th August 2004. British Gypsum Limited designed the partition system and selected the materials for the test specimen.

The test was carried out on the 26th August 2004.

This report details the method of construction, the test conditions and the results obtained when the specific element of construction described herein was tested following the procedures outlined in EN 1363-1, and where appropriate EN 1363-2. Any significant deviation with respect to size, construction details, loads, stresses, edge or end conditions other than those allowed under the field of direct application in EN 1364-1 is not covered by this report.

Because of the nature of fire resistance testing and the consequent difficulty in quantifying the uncertainty of measurement of fire resistance, it is not possible to provide a stated degree of accuracy of the result.

REPORT AUTHORISATION

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TEST CONSTRUCTION

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

Gypframe 94C50 Standard Floor & Ceiling Channels were fixed to the head and base of the test aperture at staggered 600mm centres with 60mm fire resistant fixings. Gypframe 92S50 'C' 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, and the gap between the stud and the frame lining was filled with a 25mm rock mineral fibre gasket. At the left-hand end a Gypframe 92S50 'C' Stud was used to fix the partition to the test frame with 60mm fire resistant fixings at staggered 600mm centres.

Three layers of 25mm Isowool Acoustic Partition Roll (1200) was positioned in the partition cavity.

The framework was lined both sides with a single layer of 15mm Gyproc SoundBloc fixed around the perimeter and within the field of the board with 25mm Gyproc drywall screws at 300mm centres. All vertical joints were staggered.

Horizontal joints were positioned 2700mm from the base on both the exposed and unexposed faces of the construction. A Gypframe GFS1 Fixing Strap was used behind the horizontal board joint.

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

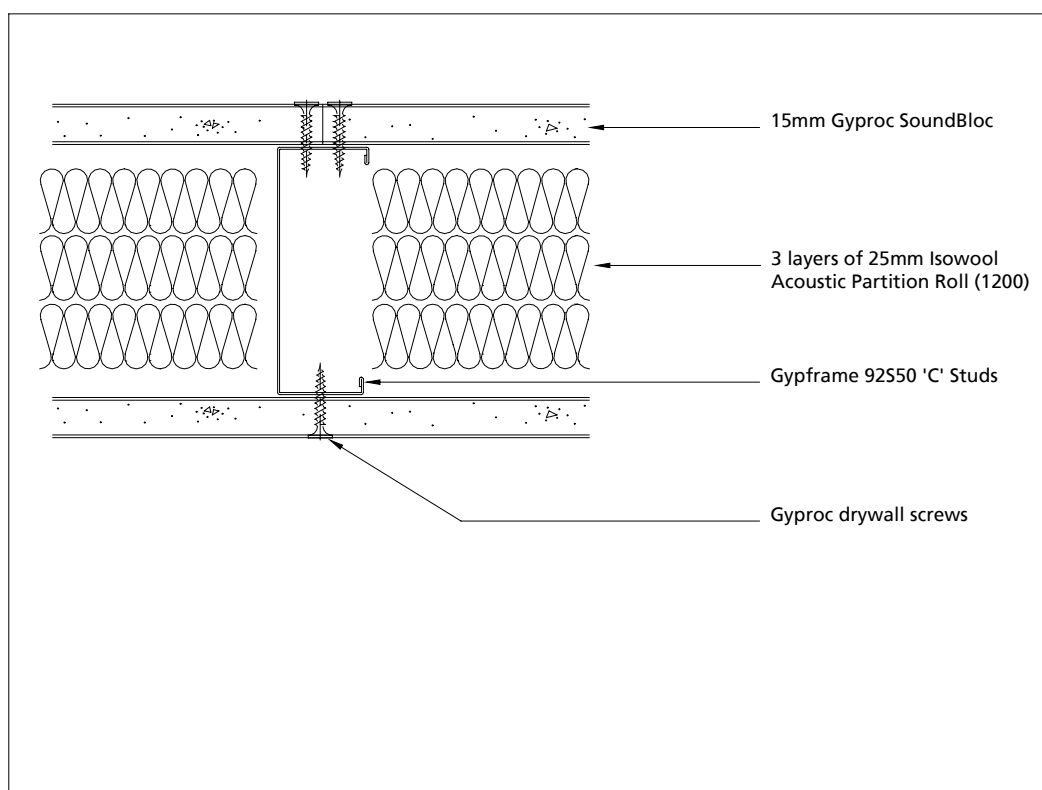


Figure 1. Cross-section of partition specimen.

The descriptions of individual components making up the test specimen were provided by the customer and were checked for accuracy wherever possible.



TEST MATERIALS

Gyproc SoundBloc

Nominally, 3000mm (long) x 1200mm (wide) x 15mm (thick), Gyproc SoundBloc plasterboard manufactured and supplied by British Gypsum Limited, ex East Leake works.

Actual surface density:	12.77kg/m ² .
Actual thickness:	14.76mm.
Board identification numbers:	18 192 4 08:22
Actual moisture content:	0.55%.

The surface density and thickness was calculated using the actual weight and size of a selection of the boards used in the test specimen. The moisture content of the plasterboard used in construction was established from measurements made using samples dried to a constant weight in an oven at 40°C.

Metal components

- i) Gypframe 92S50'C' Studs manufactured from galvanised mild steel using the 'UltraSTEEL' process.
- ii) Gypframe 94C50 Standard Floor & Ceiling Channel manufactured from galvanised mild steel using the 'UltraSTEEL' process.
- iii) Gypframe GFS1 Fixing Strap.

All metal components supplied by British Gypsum Limited.

Insulation

Nominally 25mm (thick) Isowool Acoustic Partition Roll (1200) glass mineral wool manufactured and supplied by British Gypsum – Isover Limited.

Measured density:	21.67kg/m ³
Measured surface density:	0.54kg/m ²

The density was calculated using the insulation roll used in the test specimen.

Fasteners

- i) 25mm Gyproc drywall screws supplied by British Gypsum Limited.
- ii) 60mm fire resistant fixings.

Customer: **British Gypsum Limited**

Miscellaneous components

- i) Gyproc Paper Joint Tape.
- ii) Gyproc Joint Filler.

All miscellaneous components were supplied by British Gypsum Limited.

TEST PROCEDURE

The test was conducted fully in accordance with BS EN 1364-1:1999. The specimen was subjected to fire from one side, as specified in BS EN 1364-1:1999. As the test specimen is considered to be symmetrical one test is adequate to cover the fire resistance performance in both directions.

The test procedure used was EN 1364-1 Issue 2.

The ambient temperature at the commencement of the test was 20°C.

The furnace pressure was set to control at 18 ± 2 Pa positive with respect to atmosphere, at the top of the specimen, except during the first 5 minutes of the test.

The allowable tolerances are ± 5 Pa from 5 minutes to 10 minutes and ± 3 Pa from 10 minutes onwards. It is of the opinion of the laboratory that the variations in the furnace pressure exceeding the tolerances stated in BS EN 1363-1:1999 have not unduly influenced the results of this test. Furnace pressure data is shown on page 15.

The test conditions did not meet the full requirements of BS EN 1363-1:1999 as the test frame stiffness did not fully comply. The test centre is of the opinion that this deviation from the documented method will not unduly effect the result of the test.



TEST RESULTS

The requirements of the standard were satisfied for the following periods:

Integrity:	Sustained flaming	66 minutes (no failure test discontinued at the request of the customer)
	25mm Gap gauge	66 minutes
	6mm Gap gauge	65 minutes
	Cotton pad	64 minutes
Insulation:		58 minutes

The test was terminated at 66 minutes at the request of the customer.

LIMITATIONS

The specification and interpretation of fire test methods are the subject of ongoing development and refinement. Changes in associated legislation may also occur. For these reasons it is recommended that the relevance of test reports over 5 years old should be considered by the user. The laboratory that issued the report will be able to offer, on behalf of the legal owner, a review of the procedures adopted for a particular test to ensure that they are consistent with current practices, and if required may endorse the test report.



TEST DATA

Observations

Observers: Unexposed face J McLavy
Exposed face P Cao

Time		Observations
hrs	mins	
		All observations refer to exposed face unless otherwise stated.
	0	Test started.
	5	The jointing material and face paper had started to char.
	10	The jointing material and face paper continued to char.
	15	The left-hand vertical joint had opened to approximately 1-2mm. The right-hand vertical joint had opened to approximately 1-2mm. The horizontal joint had opened to approximately 2-3mm.
	20	The left-hand vertical joint had opened to approximately 5-8mm. The right-hand vertical joint had opened to approximately 5-8mm. The horizontal joint had opened to approximately 5-8mm.
	25	The left-hand vertical joint had opened to approximately 10-12mm. The right-hand vertical joint had opened to approximately 10-12mm. The horizontal joint had opened to approximately 10-12mm. Vertical cracks approximately 1-2mm wide had developed along the centre lines of the lower and upper left-hand boards. Vertical cracks approximately 1-2mm wide had developed along the centre lines of the lower and upper centre boards. A horizontal crack approximately 1-2mm wide had developed across the lower left-hand board at approximately 1000mm height.
	30	No visible change to the specimen. <i>Unexposed face</i> No visible change to the specimen.



Time		Observations
hrs	mins	
		All observations refer to exposed face unless otherwise stated.
	35	The horizontal joint had opened to approximately 12-15mm.
	40	The lower centre board had peeled into furnace by approximately 50mm adjacent to the horizontal joint. <i>Unexposed face</i> No visible change to the specimen.
	45	No visible change to the specimen.
	48	<i>Unexposed face</i> The jointing material had discoloured at the screw head positions on the left-hand vertical joint at approximately 2700mm height. The jointing material had discoloured at the screw head positions on the horizontal joint at mid-width.
	50	The lower right-hand board had peeled into furnace by approximately 50mm adjacent to the right-hand vertical joint.
	54	<i>Unexposed face</i> The jointing material had discoloured at the screw head positions on the left-hand vertical joint at approximately 900-2700mm height. The jointing material had discoloured at the screw head positions on the right-hand vertical joint at approximately 900mm height.
	55	A section of the lower centre board approximately 1000mm x 1200mm had fallen into the furnace.
	56	<i>Unexposed face</i> Discolouration had developed on the left-hand vertical joint at approximately 2400-2700mm height.



Time		Observations
hrs	mins	
		All observations refer to exposed face unless otherwise stated.
	57	<i>Unexposed face</i> Discolouration had developed on the top left-hand corner of the lower centre board. A slight glow was visible on the left-hand vertical joint at approximately 2400-2700mm height.
	58	<i>Unexposed face</i> INSULATION FAILURE. The temperature rise of the thermocouple No. 31 and thermocouple No. 32 exceeded 180°C.
	59	<i>Unexposed face</i> Discolouration had developed on the centre line of the lower centre board at approximately 1200-1500mm height. Discolouration had developed on the left-hand vertical joint at approximately 1200-2700mm height.
1	00	A further section of the lower centre board approximately 1000mm x 1200mm had fallen into the furnace. A section of the lower left-hand board approximately 2000mm x 600mm had fallen into the furnace. <i>Unexposed face</i> A cotton pad was used on the left-hand vertical joint / horizontal joint junction but did not glow or ignite.
1	01	<i>Unexposed face</i> A cotton pad was used on the left-hand vertical joint at approximately 2600mm but did not glow or ignite. Discolouration had developed on the centre line of the lower left-hand board at approximately 2400-2700mm height.



Time		Observations
hrs	mins	
		All observations refer to exposed face unless otherwise stated.
1	02	<i>Unexposed face</i> A glow was visible on the left-hand vertical joint at approximately 2100-2700mm height. A glow was visible on the horizontal joint at approximately mid-width. A cotton pad was used on the left-hand vertical joint at approximately 1500mm but did not glow or ignite.
1	03	<i>Unexposed face</i> A cotton pad was used on the left-hand vertical joint / horizontal joint junction but did not glow or ignite.
1	04	<i>Unexposed face</i> INTEGRITY FAILURE. The cotton pad glowed when used on the left-hand vertical joint at approximately 2600mm height. Discolouration had developed on the right-hand vertical joint at approximately 1200-2700mm height.
1	05	No visible change to the specimen. <i>Unexposed face</i> A glow was visible on the left-hand vertical joint at approximately 1200-2700mm height. FURTHER INTEGRITY FAILURE. The 6mm x 150mm gap gauge entered the furnace through the left-hand vertical joint at approximately 2400-2700mm height.
1	06	<i>Unexposed face</i> FURTHER INTEGRITY FAILURE. The 25mm gap gauge entered the furnace through the left-hand vertical joint at approximately 2100mm height. TEST TERMINATED at the request of the customer.

Furnace Temperature Graph

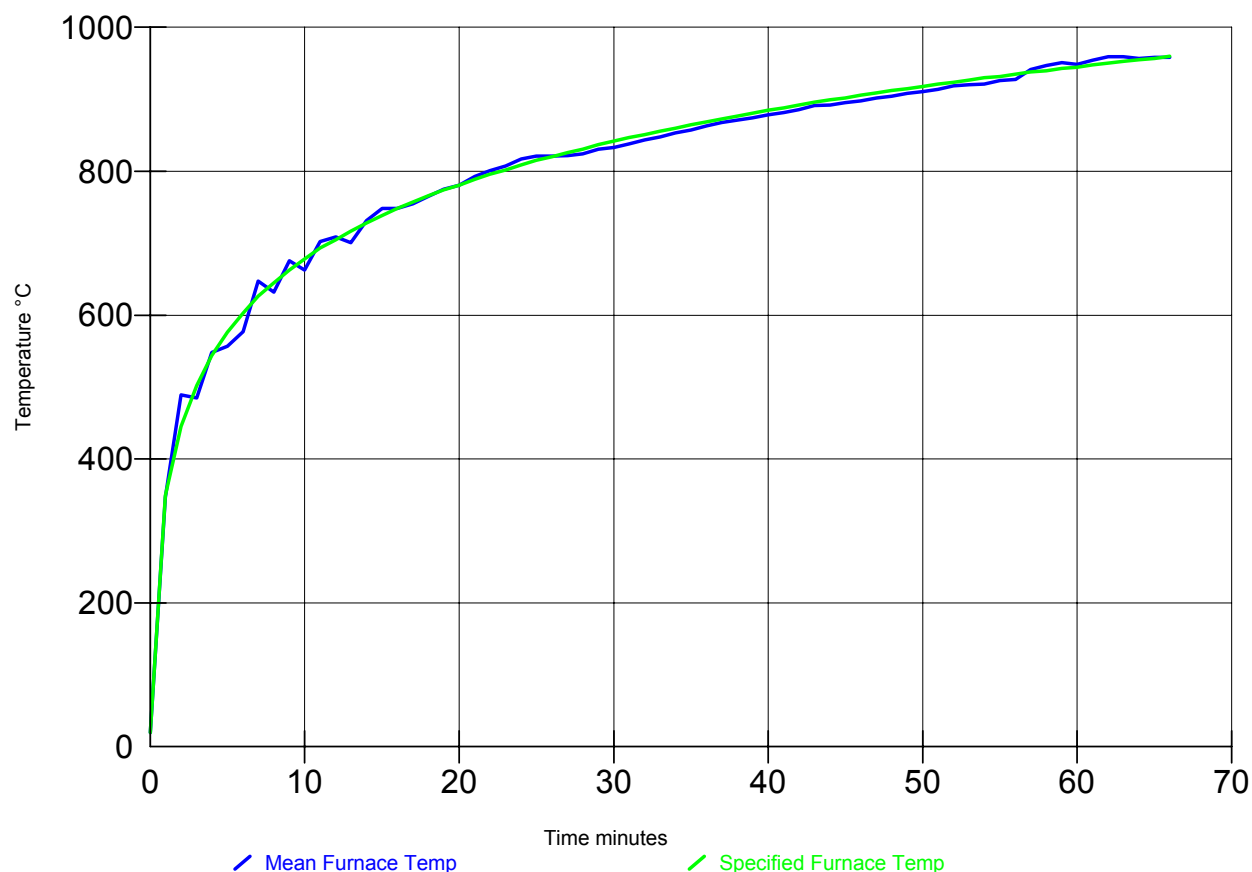


Figure 2. Furnace temperature graph.



Furnace Pressure Graph

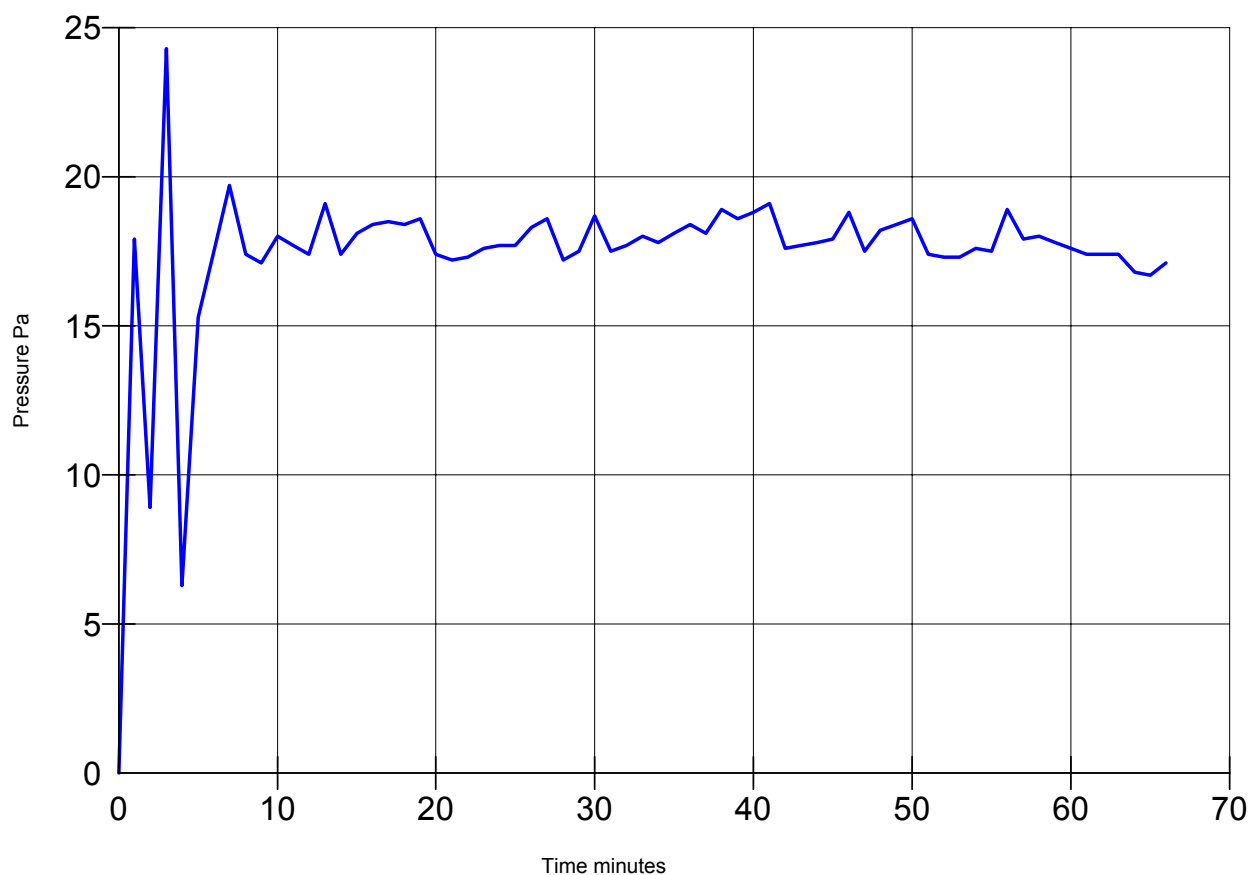


Figure 3. Furnace pressure graph.



Unexposed Face Temperature Graph

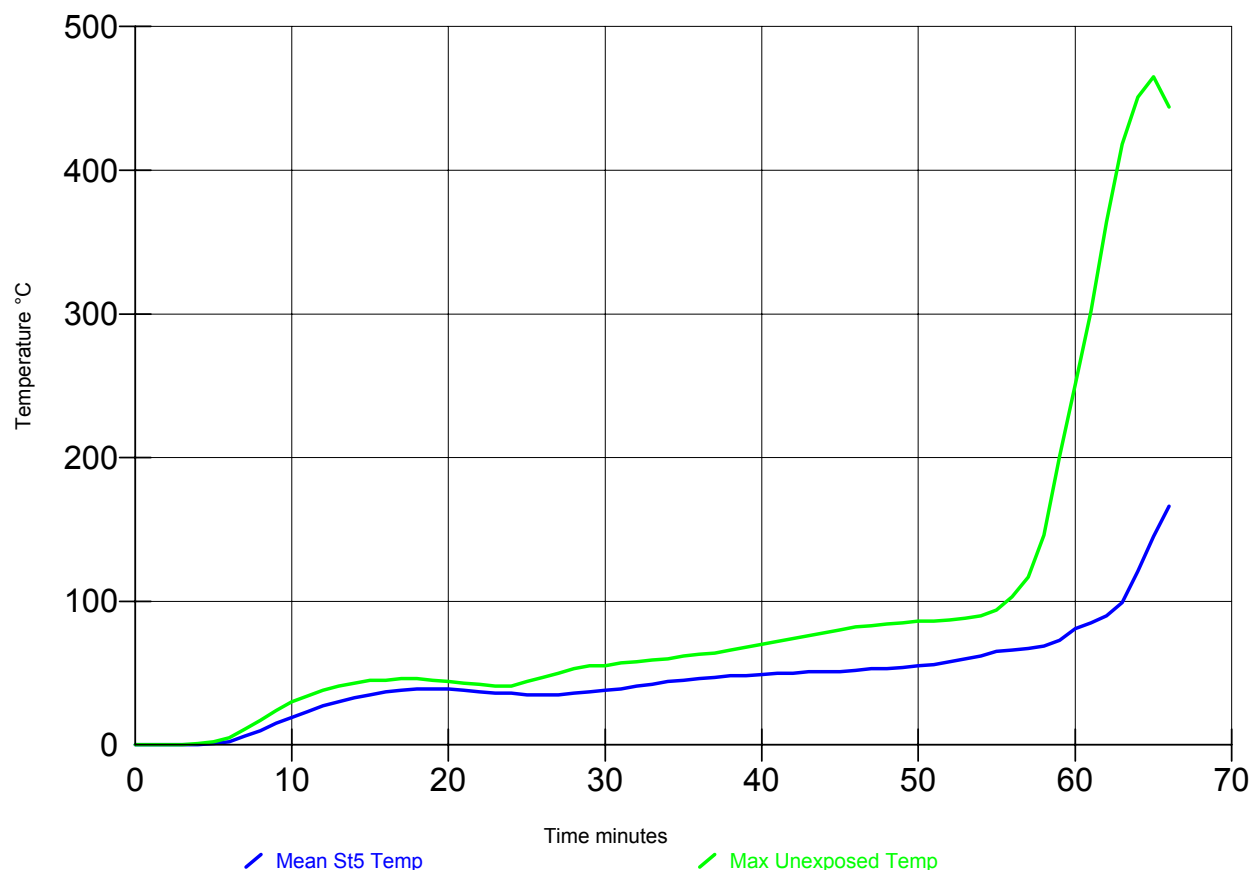


Figure 4. Unexposed face temperature graph.



Unexposed Face Thermocouple Layout

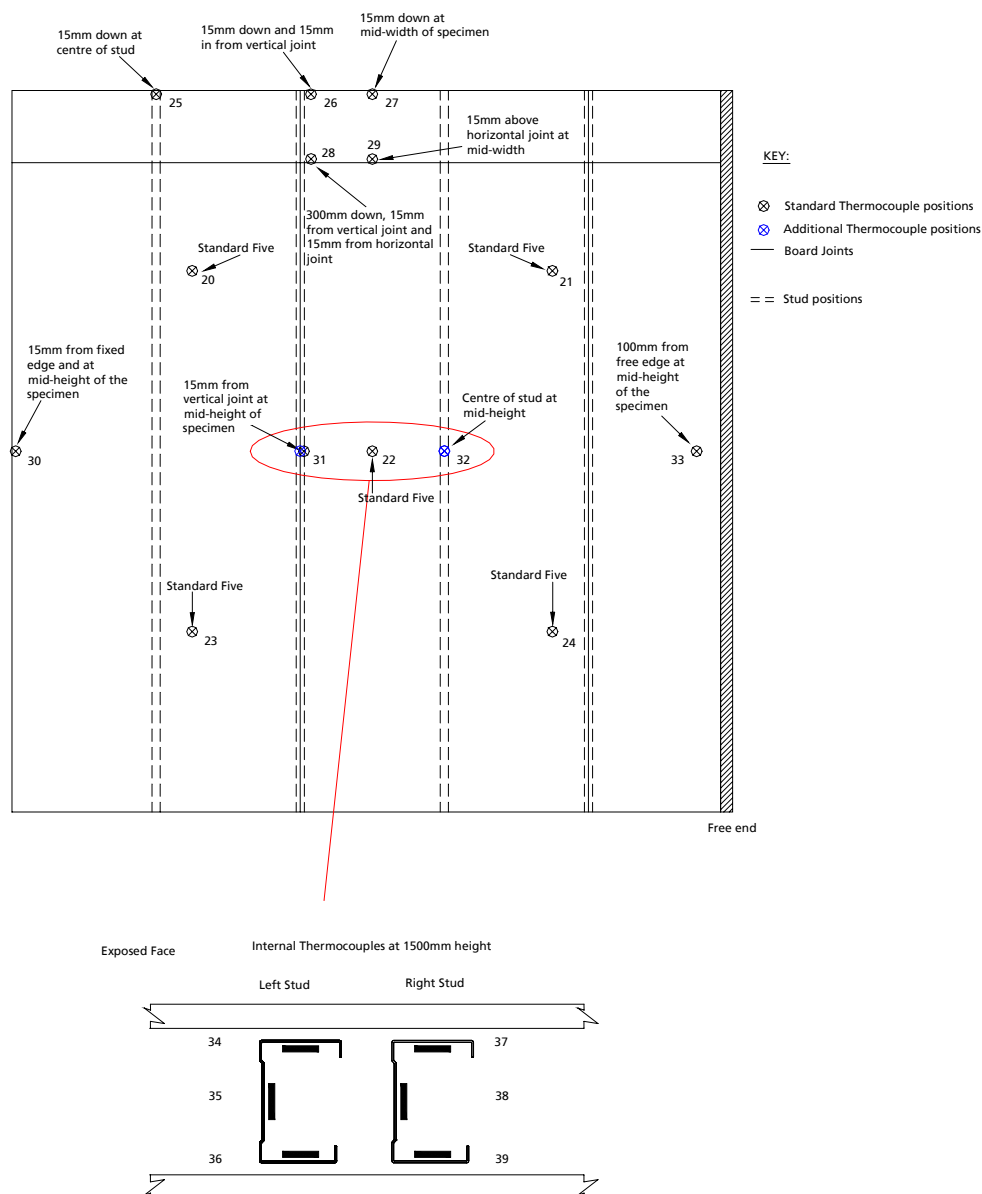


Figure 5. Unexposed face thermocouple layout.



Unexposed Face Standard Five Thermocouple Data

Time (mins)	Temperature Rise (°C)				
	Thermocouple No. 20	Thermocouple No. 21	Thermocouple No. 22	Thermocouple No. 23	Thermocouple No. 24
0	0	0	0	0	0
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	1	1	1	1	1
6	4	2	2	3	2
7	8	5	5	7	5
8	14	9	8	12	8
9	20	14	12	17	12
10	25	18	15	21	17
11	30	22	18	25	21
12	34	25	22	29	25
13	38	29	25	33	28
14	40	32	28	36	31
15	42	34	31	38	34
16	44	36	33	39	36
17	44	38	34	40	38
18	45	39	36	40	39
19	44	39	36	40	39
20	44	39	36	39	39
21	42	38	35	38	38
22	41	37	35	37	38
23	40	36	34	36	37
24	39	36	34	36	36
25	39	35	34	36	35
26	39	35	35	36	34
27	39	34	35	37	34
28	40	34	36	37	34
29	41	35	38	39	33
30	42	36	39	40	34
31	44	37	40	41	37
32	45	38	42	42	38
33	47	39	43	44	39
34	48	41	45	45	41
35	49	42	46	46	42
36	50	43	47	47	43
37	51	44	48	48	45

Customer: **British Gypsum Limited**



Time (mins)	Temperature Rise (°C)				
	Thermocouple No. 20	Thermocouple No. 21	Thermocouple No. 22	Thermocouple No. 23	Thermocouple No. 24
38	52	44	49	49	46
39	52	45	49	50	47
40	52	46	50	51	48
41	53	47	50	52	48
42	52	47	51	52	49
43	53	48	51	53	50
44	53	48	52	54	50
45	54	48	52	55	50
46	54	49	53	55	51
47	56	49	53	56	52
48	57	50	54	56	52
49	58	50	54	57	54
50	60	51	55	57	55
51	62	52	56	59	55
52	68	52	57	61	56
53	71	53	57	63	56
54	73	54	66	65	56
55	74	54	76	67	56
56	76	55	76	69	57
57	77	56	77	71	58
58	80	57	78	71	60
59	87	58	87	71	62
60	92	75	95	75	69
61	98	77	99	78	77
62	108	77	108	83	77
63	125	77	127	88	78
64	170	84	183	92	79
65	215	92	240	95	87
66	254	96	289	99	95

See figure 5 for the locations of the thermocouples.

Additional Unexposed Face Temperature Data

Time (mins)	Temperature Rise (°C)				
	Thermocouple No. 25	Thermocouple No. 26	Thermocouple No. 27	Thermocouple No. 28	Thermocouple No. 29
0	0	0	0	0	0
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	2	0
5	1	2	0	5	1
6	4	5	2	10	3
7	8	11	4	14	6
8	13	17	7	18	10
9	19	24	11	23	14
10	24	29	15	26	18
11	28	34	18	29	21
12	31	37	21	32	23
13	33	40	24	35	24
14	35	42	27	38	25
15	37	44	28	40	26
16	38	44	30	41	27
17	38	45	31	42	27
18	39	45	32	41	28
19	39	45	33	40	29
20	39	44	34	39	30
21	39	43	34	38	30
22	39	42	34	37	30
23	38	41	35	36	30
24	38	40	35	36	31
25	38	40	35	36	31
26	38	39	35	37	31
27	38	40	35	39	32
28	37	40	35	42	34
29	37	41	35	46	36
30	39	42	34	50	37
31	38	43	35	53	40
32	39	44	35	58	43
33	39	45	36	61	47
34	40	46	36	64	51
35	40	47	37	66	55
36	40	48	37	69	59
37	41	49	38	72	63

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Time (mins)	Temperature Rise (°C)				
	Thermocouple No. 25	Thermocouple No. 26	Thermocouple No. 27	Thermocouple No. 28	Thermocouple No. 29
38	42	50	39	75	66
39	42	51	40	77	69
40	43	51	41	80	72
41	44	52	41	84	75
42	44	53	42	88	78
43	45	54	42	93	81
44	46	55	43	99	85
45	48	57	44	106	89
46	49	58	44	114	93
47	51	59	45	122	97
48	52	60	45	132	101
49	53	62	46	144	106
50	55	63	46	157	110
51	56	64	47	172	115
52	57	66	47	190	121
53	59	67	48	209	128
54	60	68	49	231	139
55	61	69	50	256	159
56	62	71	50	285	180
57	63	73	52	316	201
58	65	77	54	350	226
59	66	80	57	383	253
60	68	85	60	418	283
61	69	90	63	438	315
62	71	100	65	458	352
63	74	111	67	465	388
64	76	114	69	470	424
65	79	121	73	474	462
66	88	136	78	563	481

See figure 5 for the locations of the thermocouples.

Thermocouple No. 28 was located on a screw head therefore is discounted from the failure criteria.

Thermocouple No. 29 was located on a screw head therefore is discounted from the failure criteria.



Additional Unexposed Face Temperature Data

Time (mins)	Temperature Rise (°C)			
	Thermocouple No. 30	Thermocouple No. 31	Thermocouple No. 32	Thermocouple No. 33
0	0	0	0	0
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	1	0
5	0	1	2	1
6	1	3	5	5
7	2	7	8	11
8	4	11	12	17
9	7	16	17	24
10	9	21	21	30
11	12	24	26	34
12	15	28	30	38
13	18	30	34	41
14	21	33	37	43
15	24	35	38	45
16	26	36	39	45
17	28	37	38	46
18	31	38	38	46
19	33	38	37	45
20	34	37	37	44
21	35	37	37	42
22	36	36	37	41
23	36	36	39	40
24	35	36	41	38
25	35	36	44	38
26	35	37	47	37
27	34	38	50	37
28	33	40	53	37
29	34	42	55	37
30	32	44	55	38
31	33	46	57	39
32	33	48	58	39
33	33	49	59	41
34	34	51	60	42
35	35	52	62	43
36	36	53	63	44
37	37	54	64	46

Time (mins)	Temperature Rise (°C)			
	Thermocouple No. 30	Thermocouple No. 31	Thermocouple No. 32	Thermocouple No. 33
38	38	55	66	47
39	39	56	68	48
40	40	57	70	48
41	41	58	72	49
42	42	59	74	50
43	43	60	76	51
44	43	61	78	51
45	44	63	80	51
46	45	64	82	52
47	45	66	83	52
48	46	69	84	53
49	47	71	85	53
50	47	73	86	53
51	48	75	86	54
52	49	79	87	54
53	49	82	88	55
54	50	86	90	55
55	51	91	94	56
56	52	100	103	57
57	52	116	117	57
58	54	146	146	58
59	55	198	201	59
60	56	251	249	61
61	57	302	292	62
62	58	364	336	64
63	59	418	380	67
64	60	451	415	70
65	61	465	430	75
66	63	444	434	78

See figure 5 for the locations of the thermocouples.

Figures shown in red indicate the time and position of insulation failure.



Internal Thermocouple Data at 1500mm height

Time (mins)	Actual Temperature (°C)					
	Left-hand stud			Right-hand stud		
	Hot Flange Thermocouple No. 34	Web Thermocouple No. 35	Cold Flange Thermocouple No. 36	Hot Flange Thermocouple No. 37	Web Thermocouple No. 38	Cold Flange Thermocouple No. 39
0	34	31	27	34	30	27
1	34	30	27	34	29	26
2	46	32	27	55	31	26
3	74	50	30	84	49	29
4	94	78	47	98	75	39
5	96	89	61	97	86	55
6	99	92	73	98	90	64
7	99	94	78	98	92	70
8	100	94	82	99	93	74
9	100	94	85	100	94	78
10	103	95	88	104	94	80
11	106	96	89	109	95	86
12	109	96	90	116	95	89
13	112	96	91	127	94	90
14	114	96	91	141	94	90
15	116	98	90	165	95	89
16	120	98	91	193	98	86
17	128	100	88	224	106	84
18	141	103	86	259	118	84
19	166	110	85	297	136	86
20	209	125	84	350	159	87
21	248	147	84	409	187	89
22	288	176	87	484	221	92
23	327	205	90	553	257	100
24	365	234	92	597	293	102
25	400	261	95	626	325	103
26	429	286	99	-	350	105
27	459	310	102	656	369	112
28	488	334	103	671	385	126
29	510	355	104	683	399	140
30	527	373	108	693	412	156
31	541	390	122	703	425	176
32	554	407	139	713	439	207
33	566	421	157	721	454	243
34	578	435	179	727	471	278



Time (mins)	Actual Temperature (°C)					
	Left-hand stud			Right-hand stud		
	Hot Flange Thermocouple No. 34	Web Thermocouple No. 35	Cold Flange Thermocouple No. 36	Hot Flange Thermocouple No. 37	Web Thermocouple No. 38	Cold Flange Thermocouple No. 39
35	589	448	205	729	491	314
36	601	461	239	730	513	356
37	613	475	284	731	538	403
38	624	492	338	728	565	453
39	632	511	391	726	591	501
40	647	533	447	722	618	547
41	660	556	500	720	641	583
42	670	579	550	717	659	611
43	679	603	590	714	694	635
44	686	620	620	713	697	655
45	692	633	644	714	701	670
46	699	652	665	714	704	676
47	706	658	680	713	703	679
48	703	648	680	712	703	680
49	702	-	683	713	706	681
50	700	-	680	716	712	681
51	701	-	672	717	710	679
52	717	-	682	715	705	674
53	716	-	680	710	702	665
54	758	-	725	709	698	673
55	781	-	765	709	697	696
56	831	-	809	700	699	704
57	871	-	839	709	711	702
58	883	-	856	720	725	708
59	877	-	866	733	737	720
60	-	-	930	780	783	868
61	-	-	922	807	-	882
62	-	-	-	832	-	899
63	-	-	-	862	-	931
64	-	-	-	893	-	956
65	-	-	-	928	-	951
66	-	-	-	-	-	-

See figure 5 for the locations of the thermocouples.

Thermocouple No. 34 did not work after 59 minutes.

Thermocouple No. 35 did not work after 48 minutes.

Thermocouple No. 36 did not work after 61 minutes.

Thermocouple No. 37 did not work at 26 minutes and after 65 minutes.

Thermocouple No. 38 did not work after 60 minutes.

Thermocouple No. 39 did not work after 65 minutes.



Specimen Lateral Deflection

Time (mins)	Deflection at centre of the specimen (mm)	Deflection 50mm from free end of the specimen (mm)
0	0	0
1	2	0
2	3	0
3	6	0
4	7	2
5	6	2
6	5	2
7	5	2
8	4	1
9	4	1
10	4	1
11	4	1
12	4	1
13	5	2
14	7	2
15	9	3
16	11	4
17	14	5
18	18	9
19	23	15
20	29	19
21	34	27
22	42	34
23	46	39
24	50	44
25	53	47
26	53	47
27	58	52
28	61	55
29	63	57
30	64	59
31	64	60
32	64	60
33	64	60
34	64	60



Time (mins)	Deflection at centre of the specimen (mm)	Deflection 50mm from free end of the specimen (mm)
35	63	60
36	63	60
37	63	60
38	63	60
39	63	60
40	63	60
41	63	61
42	64	62
43	64	62
44	64	62
45	64	62
46	64	62
47	64	62
48	63	62
49	63	62
50	63	62
51	63	63
52	63	63
53	63	63
54	63	64
55	68	64
56	69	64
57	69	64

Both deflection measurements were taken at the mid-height of the specimen.

Negative values indicate that the specimen deflected out of the furnace.

The deflection readings were discontinued after 57 minutes.

(The lateral deflection was recorded by taking measurements relative to a fixed reference wire at 1 minute intervals due to equipment availability at the time of the test).



The Building Test Centre

Fire Acoustics Structures

The Building Test Centre
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PHOTOGRAPHS



Photograph 1. View of the exposed face prior to test.

Customer: **British Gypsum Limited**

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Photograph 2. View of the unexposed face prior to test.

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Photograph 3. View of the unexposed face at 58 minutes (after insulation failure).

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Photograph 4. View of the unexposed face at 64 minutes (after integrity failure).

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Photograph 5. View of the unexposed face at test termination (66 minutes).

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FIELD OF DIRECT APPLICATION

General

The results of the fire test are directly applicable to similar constructions where one or more of the changes listed below are made and the construction continues to comply with the appropriate design code for its stiffness and stability.

- (i) Decrease in height from 3000mm.
- (ii) Increase in the thickness of the wall (minimum thickness 122mm).
- (iii) Increase thickness of component materials (minimum Gypframe stud depth 92mm, minimum Gypframe 'C' stud gauge 0.5mm).
- (iv) Decrease in the linear dimensions of the boards but not thickness ($\leq 2700\text{mm}$ long $\times \leq 1200\text{mm}$ wide Gyproc SoundBloc).
- (v) Decrease stud spacing from 600mm.
- (vi) Decrease in fixing centres from 300mm.
- (vii) Increase in the number of horizontal joints.
- (viii) Horizontal and vertical joints, of the type tested.

Extension of Width

The width of an identical construction may be increased as the specimen was tested at nominally 3000mm wide with one vertical edge without restraint.

Extension of Height

The height of constructions tested at a minimum of 3000mm, maybe increased to 4000mm at the following fire resistance periods as the lateral deflection was below 100mm.

30 minutes
<100mm, \therefore 4000mm