



FIRE TECHNICAL OPINION

FC11824-002

**FIRE RESISTANCE OF GIB® FIRE RATED TIMBER FRAMED WALLS WITH
HIANDRI PACKERS UNDER THE BOTTOM PLATE**

CLIENT

Hiandri Solutions Limited
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New Zealand



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ASSESSMENT OBJECTIVE

To assess the fire resistance of the Winstone Wallboards Ltd fire rated timber framed wall systems with the Hiandri packer system if tested in accordance with AS 1530.4:2014.

CONCLUSION

It is considered that the Hiandri packer system consisting of a Hiandri packer, 9 mm thick plywood packer, polyurethane expanding foam and GIB Fire Soundseal® would not be detrimental to the fire resistance of the following Winstone Wallboards Ltd fire rated timber framed wall systems, when tested in accordance with AS 1530.4:2014:

GIB® system	Wall lining	FRR
GBTL30	1 x 10 mm GIB Fyreline®	30/30/30
GBTL 30b	1 x 13 mm GIB® Standard	30/30/30
GBTL 30c	1 x 10 mm GIB® Standard	30/30/30
GBTL 60	1 x 13 mm GIB Fyreline®	60/60/60
GBTL 60b	2 x 10 mm GIB Fyreline®	60/60/60
GBTL 90	1 x 16 mm GIB Fyreline®	90/90/90
GBT 120a	2 x 13 mm GIB Fyreline®	-/120/120
GBT 120b	1 x 19 mm GIB Fyreline®	-/120/120
GBTL 120	2 x 16 mm GIB Fyreline®	120/120/120
GBUW 15	1 x 13 mm GIB® Standard	15/15/15
GBUW 30a	1 x 16 mm GIB Fyreline®	30/30/30
GBUW 30b	2 x 10 mm GIB Fyreline®	30/30/30
GBUW 60	2 x 13 mm GIB Fyreline®	60/60/60
GBUW 90	1 x 16 mm GIB Fyreline® + 1 x 19 mm GIB Fyreline®	90/90/90
GBUW 120	2 x 19 mm GIB Fyreline®	120/120/120
GBTLAB 60a	2 x 10 mm GIB Fyreline® + GIB® Barrierline	60/60/60
GBTLAB 60b	1 x 10 mm GIB Braceline®/GIB Noiseline® + GIB® Barrierline	60/60/60
GBTLAB 60c	1 x 13 mm GIB Braceline®/GIB Noiseline® + GIB® Barrierline	60/60/60
GBTLAB 60d	1 x 13 mm GIB® Standard + GIB® Barrierline	60/60/60
GBTLA 30a	2 x 10 mm GIB® Standard	30/30/30
GBTLA 30b	Side 1: 1 x 10 mm GIB Braceline®/GIB Noiseline® Side 2: 2 x 10 mm GIB Braceline®/GIB Noiseline®	30/30/30
GBTLA 60	2 x 10 mm GIB Fyreline®	60/60/60
GBTLA 90c	2 x 13 mm GIB Fyreline®	90/90/90
GBTLA 90d	2 x 13 mm GIB Braceline®/GIB Noiseline®	90/90/90



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LIMITATION

This report is subject to the accuracy and completeness of the information supplied.

BRANZ reserves the right to amend or withdraw this assessment if information becomes available which indicates the stated fire performance may not be achieved.

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TERMS AND CONDITIONS

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The results reported here relate only to the item/s described in this report.



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DOCUMENT REVISION STATUS

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01	12 March 2020	12 March 2025	Initial Issue



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1. INTRODUCTION

This report gives BRANZ's assessment of the fire resistance of Winstone Wallboards Ltd fire rated walls with Hiandri packers installed under the bottom plate.

2. BACKGROUND

2.1 BRANZ fire resistance test FP11824-001

In BRANZ unreported fire resistance test FP11824-001 the test specimen consisted of a timber framed plasterboard wall lined with one layer of 13 mm GIB Fyrelite® plasterboard each side. Secured to the underside of the timber bottom plate were Hiandri packers, screw fixed and positioned inline with the timber studs. The packers are nominally 60 mm wide x 84 mm deep x 12 mm high. Positioned next to the packer was a piece of 9 mm thick plywood nominally 80 mm x 80 mm with a single layer of damp proof course (DPC) sheet.

The gap between the packers was filled with Gorilla Pro expanding foam which was cut to be flush with the faces of the bottom plate. The plasterboard was installed with a nominal 12 mm gap to the finished floor level which was filled with GIB Fire Soundseal® to the full depth of the plasterboard.

the fire resistance test was undertaken for 60 minutes then removed to enable inspection of the packers at the nominal fire resistance rating (FRR) of the wall. There were no significant observations related to the bottom plate detail for the duration of the test. The bottom plate detail maintained the Integrity and Insulation criteria for the 60 minute duration of the test.

2.2 GIB® fire rated wall systems

On behalf of Winstone Wallboards Limited BRANZ has undertaken a number of fire resistance tests on load bearing and non-loadbearing timber framed plasterboard wall systems in accordance with AS 1530.4 in support of the following technical manuals:

- Winstone Wallboards Ltd GIB® Fire Rated Systems Specification and installation manual (October 2018).
- Winstone Wallboards Ltd GIB® Noise Control Systems Specification and installation manual (September 2017).

Winstone Wallboards have authorised access to the supporting test and assessment reports as relevant to this opinion.

3. DISCUSSION

3.1 Fire rated systems

3.1.1 GBTL 60

In pilot fire test FP11824-001 a fire rated plasterboard wall consisting of timber framing with one layer of 13 mm GIB® Fyrelite plasterboard was tested with the Hiandri packer system. The wall was constructed (other than the bottom plate detail) generally in accordance with the GIB® GBTL 60 fire rated wall system.



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The test was stopped after 60 minutes then the wall inspected to evaluate the conditions of the studs, bottom plate and also the Hiandri packer system. There are two parts of the Hiandri packer system to consider, the Hiandri packer with a 9 mm thick plywood packer and the expanding foam/sealant.

Temperatures measured on the front face of the Hiandri packer reached a maximum of 310°C towards the end of the fire test. Visual observation of the Hiandri packer after the test indicated that the front face had melted but the majority of the packer maintained its shape. The fire test was a non-loadbearing test however it is considered the Hiandri packer with the plywood would not prejudice the load bearing performance of the wall before at least 60 minutes as previously tested or assessed.

Between the studs and Hiandri packer the cavity between the bottom plate and floor level was filled with Gorilla Pro expanding foam. This is essentially a control joint as defined by AS 1530.4:2014. Temperatures were measured on the GIB Fire Soundseal® on the unexposed face between the finished floor level and plasterboard. The seal maintained the Integrity and Insulation criteria for the 60 minute duration of the test.

Based on the performance of the Hiandri packer system tested it is considered it would not prejudice the fire resistance of the GIB® GBTL 60 fire rated wall system before at least 60 minutes if tested in accordance with AS 1530.4:2014.

3.1.2 GIB® fire rated timber walls – two way exposure

The GIB® Fire Rated Systems Specification and installation manual include a number of fire rated timber walls. See Table 1 for a list of the systems considered in this report.

Table 1: GIB® Fire rated wall systems – two way exposure

GIB® system	Wall lining	FRR
GBTL30	1 x 10 mm GIB Fyrelite®	30/30/30
GBTL 30b	1 x 13 mm GIB® Standard	30/30/30
GBTL 30c	1 x 10 mm GIB® Standard	30/30/30
GBTL 60b	2 x 10 mm GIB Fyrelite®	60/60/60
GBTL 90	1 x 16 mm GIB Fyrelite®	90/90/90
GBT 120a	2 x 13 mm GIB Fyrelite®	-/120/120
GBT 120b	1 x 19 mm GIB Fyrelite®	-/120/120
GBTL 120	2 x 16 mm GIB Fyrelite®	120/120/120

The GIB® fire rated wall systems listed in Table 1 above have all been tested or assessed to achieve the stated fire resistance rating listed. Temperatures were measured on the timber studs and bottom plate in fire resistance test FP11824-001 without a significant difference in charring observed at a depth of 20 mm from the exposed lining. It is considered that at the fire rated period the condition of the framing would be similar to that experienced in FP11824-001 i.e. they can still maintain the applied load. Based on the test data collected it is considered

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that the Hiandri packer system, with additional plywood packer as tested would not prejudice the structural adequacy performance of the above fire rated walls before the stated FRR.

Temperatures were measured on the unexposed face of the plasterboard wall and on the control joint at the bottom of the wall. The temperatures measured on the control joint seal were notably cooler than measured on the plasterboard at the 60 minute FRR period. Based on the temperatures measured it is considered that the Insulation performance of the Hiandri system would be at least that of the wall. It is therefore considered the Hiandri packer system would not prejudice the Insulation performance of the GIB® wall systems listed in Table 1 before the stated FRR period.

From testing experience of fire rated wall systems and control joints it is likely that the systems would fail the Insulation criteria before failing the Integrity criteria. Based on this it is considered the Hiandri packer system would not prejudice the Integrity performance of the GIB® wall systems listed in Table 1 before the stated FRR period.

3.1.3 GIB® fire rated universal walls – one way exposure

In addition to the two way fire rated wall systems discussed in section 3.1.2 the GIB® Fire Rated Systems Specification and installation manual includes a number of one way exposure walls. The one way fire rated walls are referred to as universal walls and consist of fire rated plasterboard to the side of the wall that is exposed to fire conditions. The walls are then clad with an external lining on the other side of the framing.

Table 2: GIB® Fire rated wall systems – one way fire exposure

GIB® system	Wall lining	FRR
GBUW 15	1 x 13 mm GIB® Standard	15/15/15
GBUW 30a	1 x 16 mm GIB Fyrelite®	30/30/30
GBUW 30b	2 x 10 mm GIB Fyrelite®	30/30/30
GBUW 60	2 x 13 mm GIB Fyrelite®	60/60/60
GBUW 90	1 x 16 mm GIB Fyrelite® + 1 x 19 mm GIB Fyrelite®	90/90/90
GBUW 120	2 x 19 mm GIB Fyrelite®	120/120/120

The Hiandri packer is to be installed as tested in FP11824-001 except that that GIB Fire Soundseal® is to be applied on the exposed face only and to the depth of the plasterboard lining. Based on the performance of the Hiandri packer system in FP11824-001 it is expected that it would not prejudice the fire resistance of the GIB® universal wall systems up to the fire rating period listed in Table 2.

3.2 Noise Control systems

The GIB® Noise Control Systems Specification and installation manual (September 2017) includes a number of timber framed fire rated wall systems. See Table 3 for a list of the systems considered in this report.



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Table 3: GIB® Noise Control fire rated wall systems – two way exposure

GIB® system	Wall lining	FRR
GBTLAB 60a	2 x 10 mm GIB Fyrelite® + GIB® Barrierline	60/60/60
GBTLAB 60b	1 x 10 mm GIB Braceline®/GIB Noiseline® + GIB® Barrierline	60/60/60
GBTLAB 60c	1 x 13 mm GIB Braceline®/GIB Noiseline® + GIB® Barrierline	60/60/60
GBTLAB 60d	1 x 13 mm GIB® Standard + GIB® Barrierline	60/60/60
GBTLA 30a	2 x 10 mm GIB® Standard	30/30/30
GBTLA 30b	Side 1: 1 x 10 mm GIB Braceline®/GIB Noiseline® Side 2: 2 x 10 mm GIB Braceline®/GIB Noiseline®	30/30/30
GBTLA 60	2 x 10 mm GIB Fyrelite®	60/60/60
GBTLA 90c	2 x 13 mm GIB Fyrelite®	90/90/90
GBTLA 90d	2 x 13 mm GIB Braceline®/GIB Noiseline®	90/90/90

The GIB® Noise Control systems listed in Table 3 above are similar to those from the GIB® Fire Rated Systems Specification and installation manual except tend to consist of additional layers of plasterboard and acoustic insulation materials. After reviewing the systems in Table 3 it is considered the Hiandri packer system would not be expected to prejudice the fire resistance of the systems before the stated FRR.

3.3 Expanding Foam

The expanding foam used to fill the gap under the bottom plate was Gorilla Pro expanding foam. The Hiandri packer and plywood were screw fixed to the underside of the bottom plate which was then installed in place. The expanding foam was then applied to fill any gaps between the floor and bottom plate. When the foam had cured it was cut back to the width of the bottom plate.

The Gorilla Pro expanding foam tested in FP11824-001 is a one-component self-expanding polyurethane base foam. The GIB® systems listed in Table 1 to Table 3 essentially consist of the timber bottom plate lined with fire rated plasterboard and sealed with GIB Fire Soundseal® to the depth of the plasterboard.

The polyurethane foam essentially fills the gap and provides a backing for the application of the sealant. The fire performance of the control joint is essentially due to the sealant used rather than the foam. Therefore it is considered that the expanding foam tested can be replaced with other similar polyurethane foams which are without prejudice to the fire resistance of the GIB® fire rated wall systems.



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4. CONCLUSION

It is considered that the Hiandri packer system consisting of a Hiandri packer, 9 mm thick plywood packer, polyurethane expanding foam and GIB® Fire Soundseal® would not be detrimental to the fire resistance of the following Winstone Wallboards Ltd fire rated timber framed wall systems, when tested in accordance with AS 1530.4:2014:

Table 4: GIB® Fire rated wall systems

GIB® system	Wall lining	FRR
GBTL30	1 x 10 mm GIB Fyrelite®	30/30/30
GBTL 30b	1 x 13 mm GIB® Standard	30/30/30
GBTL 30c	1 x 10 mm GIB® Standard	30/30/30
GBTL 60	1 x 13 mm GIB Fyrelite®	60/60/60
GBTL 60b	2 x 10 mm GIB Fyrelite®	60/60/60
GBTL 90	1 x 16 mm GIB Fyrelite®	90/90/90
GBT 120a	2 x 13 mm GIB Fyrelite®	-/120/120
GBT 120b	1 x 19 mm GIB Fyrelite®	-/120/120
GBTL 120	2 x 16 mm GIB Fyrelite®	120/120/120
GBUW 15	1 x 13 mm GIB® Standard	15/15/15
GBUW 30a	1 x 16 mm GIB Fyrelite®	30/30/30
GBUW 30b	2 x 10 mm GIB Fyrelite®	30/30/30
GBUW 60	2 x 13 mm GIB Fyrelite®	60/60/60
GBUW 90	1 x 16 mm GIB Fyrelite® + 1 x 19 mm GIB Fyrelite®	90/90/90
GBUW 120	2 x 19 mm GIB Fyrelite®	120/120/120
GBTLAB 60a	2 x 10 mm GIB Fyrelite® + GIB® Barrierline	60/60/60
GBTLAB 60b	1 x 10 mm GIB Braceline®/GIB Noiseline® + GIB® Barrierline	60/60/60
GBTLAB 60c	1 x 13 mm GIB Braceline®/GIB Noiseline® + GIB® Barrierline	60/60/60
GBTLAB 60d	1 x 13 mm GIB® Standard + GIB® Barrierline	60/60/60
GBTLA 30a	2 x 10 mm GIB® Standard	30/30/30
GBTLA 30b	Side 1: 1 x 10 mm GIB Braceline®/GIB Noiseline® Side 2: 2 x 10 mm GIB Braceline®/GIB Noiseline®	30/30/30
GBTLA 60	2 x 10 mm GIB Fyrelite®	60/60/60
GBTLA 90c	2 x 13 mm GIB Fyrelite®	90/90/90
GBTLA 90d	2 x 13 mm GIB Braceline®/GIB Noiseline®	90/90/90

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Technical Opinion Summary



This is to certify that the specimen described below has been examined by BRANZ on behalf of the sponsor.

Sponsor

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New Zealand

Reference BRANZ Reports FC11824-002

Referenced Standard AS1530.4:2014

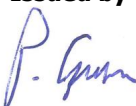
Specimen Name: GIB® Fire Rated Timber Framed Wall Systems with Hiandri packer system

Specimen Description: Winstone Wallboards Limited fire rated timber wall systems with the Hiandri packer system consisting of a Hiandri packer, 9 mm thick plywood, polurethane expanding foam and GIB Fire Soundseal® installed with the following GIB® systems:

GIB® system	FRR
GBUW 15	15/15/15
GBTL30, GBTL 30b, GBTL 30c, GBUW 30a, GBUW 30b, GBTLA 30a or GBTLA 30b	30/30/30
GBTL 60GBTL 60b, GBUW 60, GBTLAB 60a, GBTLAB 60b, GBTLAB 60c, GBTLAB 60d or GBTLA 60,	60/60/60
GBTL 90, GBUW 90, GBTLA 90c or GBTLA 90d	90/90/90
GBT 120a or GBT 120b	-/120/120
GBTL 120 or GBUW 120,	120/120/120

Orientation: Two way walls - Exposure from either face
One way walls (universal walls) – Exposure from the plasterboard face only

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Reviewed by


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