



BRANZ Appraised
Appraisal No.324 [2006]

BRANZ Appraisals

**Technical Assessments of products
for building and construction**

**BRANZ
APPRAISAL
CERTIFICATE
No. 324 (2006)**

This Certificate replaces BRANZ
Appraisal Certificate No. 324 (1996)
issued July 1996.
Amended 16 July 2007.

**GIB ULTRALINE® PLUS
LINING SYSTEM**

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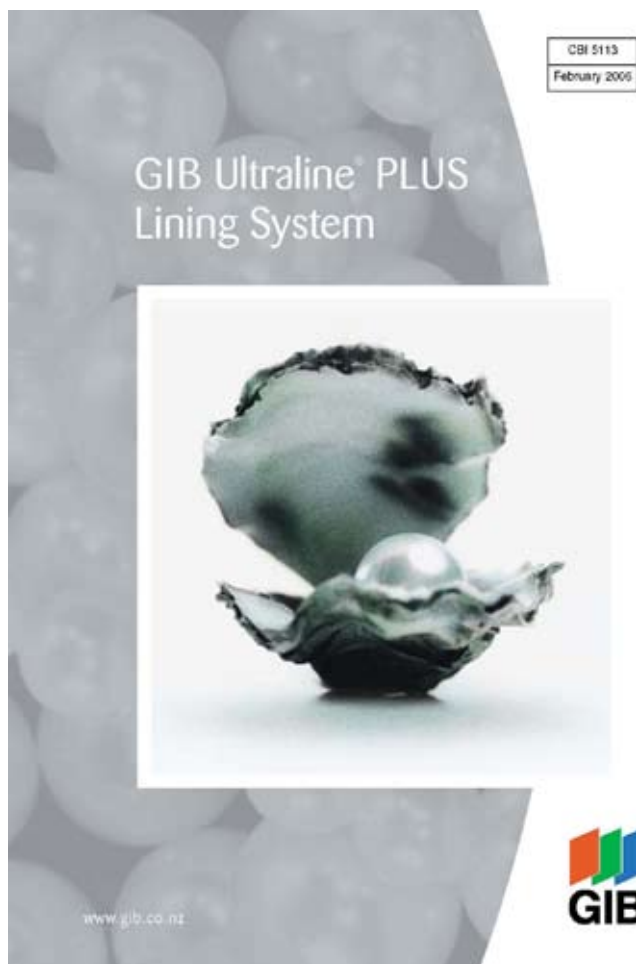
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PRODUCT

1.1 GIB Ultraline® PLUS Lining System is for the interior lining of timber and steel framed walls and ceilings where a high quality paint finish is required.

1.2 GIB Ultraline® PLUS Lining System is based on a 13 mm thick paper-bound, gypsum-plaster core sheet lining material which is stronger and more rigid than standard plasterboard. The face lining paper is white and has a smoother finer texture Pearlcoat™ coated paper.



SCOPE

2.1 GIB Ultraline® PLUS Lining System has been appraised for use as general, bracing-rated, fire-rated, and sound transmission rated interior wall and ceiling lining system in buildings within the following scope:

- on framed walls and ceilings within the scope limitations on NZS 3604; and,
- on timber and light gauge steel framed walls and timber framed floor/ceilings subject to specific design.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, the GIB Ultraline® PLUS, if designed, used, installed and maintained in accordance with the statements and conditions of this Certificate, will meet or contribute to meeting the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. GIB Ultraline® PLUS meet the requirements for loads arising from self-weight, earthquake, wind and impact [i.e. B1.3.3 (a), (f), (h) and (j)]. See Paragraphs 8.1 - 8.8.

Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years, B2.3.1 (b) 15 years and B2.3.1 (c) 5 years. GIB Ultraline® PLUS Lining System meets these requirements. See Paragraphs 9.1 - 9.4.

Clause C3 SPREAD OF FIRE: Performance C3.3.1, C3.3.2 and C3.3.5. GIB Ultraline® PLUS Lining System meets this requirement by providing passive fire and smoke protection. See Paragraph 12.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. GIB Ultraline® PLUS Lining System meets this requirement and will not present a health hazard to people.

Clause G6 AIRBORNE AND IMPACT SOUND: Performance G6.3.1 and G6.3.2. GIB Ultraline® PLUS Lining System meets the requirements. See Paragraphs 14.1 and 14.2.

This Certificate appraises an **Alternative Solution** in terms of New Zealand Building Code compliance.

Technical Specification

4.1 The GIB® plasterboards and accessories used in the GIB Ultraline® PLUS Lining System and supplied or specified by Winstone Wallboards Limited are as follows:

GIB® Plasterboards

• GIB Ultraline® PLUS

4.2 GIB Ultraline® PLUS is a paper-bound, gypsum-plaster core sheet lining material which is stronger and more rigid than standard plasterboard. The face lining paper is white and has a smoother finer texture Pearlcoat™ coated paper. GIB Ultraline® PLUS is available in a sheet thickness of 13 mm and a sheet width of 1200 mm and 1350 mm. The sheets have a taper on the two long sheet edges and are also available with a square edge. GIB Ultraline® PLUS sheets are available in lengths between 3000 mm and 6000 mm. The nominal weight is 9.0 kg/m².

• GIB Aqualine®

4.3 GIB Aqualine® is a paper-bound, modified water-resistant gypsum-plaster core sheet lining material. The sheets have a taper on the two long sheet edges. GIB Aqualine® is available in 10 mm and 13 mm sheet thicknesses, a sheet width of 1200 mm and in lengths of 2400 mm, 2700 mm, 3000 mm and 3600 mm. The nominal weights are 7.8 kg/m² and 10.2 kg/m² for 10 mm and 13 mm thick sheets respectively. GIB Aqualine® face paper is green in colour.

Fastenings

- GIB® Grabber® High Thread Drywall screws for fixing to timber:
6g x 25, 32, mm and 7g x 51 mm.
- GIB® Grabber® Self Tapping Drywall screws for fixing to light gauge steel:
6g x 25, 32, 41 mm;

Ceiling Diaphragms

4.4 Ceiling diaphragms are constructed using timber, or GIB® Rondo™ or USG Donn® ScrewFix™ metal ceiling batten system. The perimeter of the ceiling diaphragm is fixed to GIB® Rondo™ perimeter channel, or alternatively, to an additional ex150 x 40 mm timber plate fixed to the top plate.

Adhesive and Sealants

- GIBFix® Wood Bond (Acrylic)
- GIBFix® All-Bond (Solvent)
- GIB Soundseal® is a flexible water-based acoustic sealant.

GIB® Accessories and GIB® Jointing Compounds

- As specified in the GIB Ultraline® PLUS Lining System and GIB® Site Guide Technical Literature.

Plywood

- Plywood must be a minimum of 7 mm thick complying with AS/NZS 2269 D-D Grade Structural.
- Plywood fixing are 30 x 2.8 mm hot-dipped galvanised flat-head nails.

Accessories

- GIB® Rondo™ metal ceiling batten and clip system and GIB Clips®.

Sound Control Infill

- Pink® Batts® Silencer glass wool insulation.

Fasteners, braces and connections

- Angle braces, galvanised steel.
- Angle brace fixing 30 x 2.8 mm hot-dipped galvanised flat-head nails.
- GIB® HandiBrac™, galvanised steel 90 x 62 x 54 x 1.55 mm thick angle bracket.
- GIB® HandiBrac™ Washer, 50 x 60 x 5 mm thick electroplated.
- GIB® HandiBrac™ Fixings, 8 Type 17 screws 5 x 35 mm.
- Coach screws 12 mm x 150 mm and 50 x 50 x 3 mm washer hot-dipped galvanised for fixing to timber floors.
- Bolts M12 x 150 mm minimum and 50 x 50 x 3 mm washers for fixing to concrete floors. Proprietary fixings with a minimum characteristic strength of 15 kN may be used.
- Shot fired fasteners minimum 75 mm x 3.8 mm with 16 mm discs for fixing GS1a and GS2 internal line bracing elements to concrete slabs.
- Galvanised or Stainless steel strap 25 x 0.9 mm top and bottom plate connections.
- Strap fixings 30 x 2.5 mm hot-dipped galvanised flat-head nails.

Note: For corrosion protection requirements refer to NZS 3604 Section 4.

Handling and Storage

5.1 The best results are achieved when GIB® plasterboards are treated as a finishing material and protected from damage. Sheets must be stacked flat and kept dry at all times. For limits on stack heights see the GIB® Site Guide. Sheets must be carried on edge and not dragged.

5.2 All accessories must be kept dry.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the GIB Ultraline® PLUS Lining System. The Technical Literature must be read in conjunction with this Certificate. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Certificate must be followed.

Design Information

General

7.1 GIB Ultraline® PLUS Lining System is for the interior lining of timber and steel framed walls and steel battened ceilings where a high quality paint finish is required. It combines best practice products, systems and installation practices.

7.2 GIB Ultraline® PLUS Lining System includes wall bracing elements, ceiling diaphragms and noise control.

7.3 GIB Ultraline® PLUS may be substituted for some other GIB® Plasterboard products in specific GIB® Noise Control Systems and GIB® Fire Rated Systems.

7.4 In wet areas, GIB® recommends that 13 mm GIB Aqualine® replaces GIB Ultraline® PLUS.

7.5 GIB® plasterboards must not be exposed to temperatures of 52°C or greater for prolonged periods. Refer to appliance and fitting manufacturer's for installation details.

GIB Ultraline® PLUS Lining System

7.6 The GIB Ultraline® PLUS Lining System Technical Literature describes in detail, design and installations considerations to achieve high levels of finish. There is also design and construction information to achieve noise control for internal walls and floor/ceiling. Specific Bracing Unit ratings are also given for GIB Ultraline® PLUS and 13 mm GIB Aqualine®.

General Framing

7.7 Supporting framing must comprise one of the following subject to the minimum sizes, dwang centres and all other frame requirements of GIB® Ultraline PLUS Lining System Technical Literature:

- Timber framing must be designed and constructed in accordance with NZS 3604, or to a specific design using NZS 3603 and NZS 4203. (AS/NZS 1170.)
- Steel framing must be designed to withstand loads in accordance with NZS 4203. (AS/NZS 1170.)
- Ceiling battens must be steel.

Bracing Framing

7.8 Timber framing grade, spacing and construction must comply with NZS 3604.

7.9 The minimum actual framing dimensions are 90 x 35 mm for external walls and 75 x 35 mm for internal walls.

7.10 Angle braces provide some bracing resistance for holding the frames square during construction and transportation. Angle braces, where required in the bracing panel, must be fixed with three 30 x 2.8 mm GIB® Nails at the bottom and top plates, and two 30 x 2.8 mm GIB® Nails at intermediate studs.

7.11 Joints in the top plates of bracing panels must be tied together with 3kN and 6 kN top plate connectors using 2.5 x 0.9 mm galvanised mild steel strap, 3 nails each side of joint for 3 kN and 6 nails each side of joint for 6kN.

Structure

Bracing

8.1 The Bracing Units achieved (wind and earthquake) when using GIB Ultraline® PLUS Bracing System are given in Table 1.

8.2 The GIB Ultraline® PLUS Lining System Technical Literature provides comprehensive construction and panel hold-down details. Panel hold-downs may be bolts or screws with nailed straps or the GIB® HandiBrac™.

8.3 The bracing units are derived from BRANZ P21 test method based on a wall height of 2.4 m. For any other wall height the bracing rating can be calculated by multiplying the appropriate value shown in Table 1 by 2.4 and dividing by the wall height in metres, except that panels less than 1.8 m high shall be rated as if they were 1.8 m high.

Ceiling Diaphragms

8.4 GIB Ultraline® PLUS ceiling diaphragms are limited to not steeper than 25° to the horizontal and not exceeding 10 m in length.

Openings in Bracing Elements

8.5 Openings are allowed within the middle third of bracing elements (length and height walls, length and width ceilings). The opening dimension in either direction must not exceed one third of the element height (width). Small openings of 90 x 90 mm or less may be placed anywhere except within 90 mm of the edge of the bracing element.

8.6 The GIB Ultraline® PLUS Lining System Technical Literature provides comprehensive installation details.

Water-splash Areas

8.7 GIB Ultraline® PLUS bracing systems must not be located in shower cubicles or behind baths and the like. They may be used in water-splash areas provided they are protected as required by NZBC Clause E3. The use of 13 mm GIB Aqualine® is recommended in wet areas.

Impact Resistance

8.8 GIB® plasterboards provide adequate resistance to soft body impact, based upon experience of use in domestic and light commercial applications.

Durability

9.1 GIB Ultraline® PLUS Lining System, including linings and their fixings have a serviceable life of at least 50 years. The ability of the system to remain durable is dependent on them remaining dry in service, and being maintained in accordance with this Certificate.

Maintenance

9.2 The building must be maintained weatherproof and GIB Ultraline® PLUS Lining System must be protected from external and internal moisture in accordance with NZBC Clauses E2 and E3.

Table 1: Bracing Unit ratings for 13 mm GIB Ultraline® PLUS and 13 mm GIB Aqualine®.

Type	Length (m) Minimum	Lining Requirements	Other Requirements		BU Per Metre	
			Diagonal Brace	Hold-Downs ⁽²⁾	Wind	Earthquake
UP1	0.6	13 mm GIB Ultraline® PLUS one face fixed horizontal or vertical	N/A	Yes	100	85
	1.2		N/A	Yes	110	85
UP1a	1.8		Yes	Yes	125	100
UPP	0.6	13 mm GIB Ultraline® PLUS one face fixed horizontal or vertical, 7.0 mm D-D plywood on the other ⁽¹⁾	N/A	Yes	130	130
	0.9		N/A	Yes	150	150
UP2	1.2	13 mm GIB Ultraline® PLUS both faces fixed horizontal or vertical ⁽¹⁾	N/A	Yes	140	120

Note: 1) For bracing elements lined both sides (UPP and UP2) each side must be fastened as a bracing element.

2) Refer to the Technical Literature for hold-down details.

9.3 Holes resulting from damage to the lining, up to 100 x 100 mm square, will have no significant effect on the performance of the bracing panel. Such holes may be repaired by patching, stopping and finishing as appropriate. Independent expert advice must be sought to assess the effect and repair of larger areas of damage.

9.4 Bracing elements require no ongoing maintenance, apart from decoration and the repair of any damage.

Outbreak of Fire

11.1 Separation or protection must be provided to GIB Ultralime® PLUS Lining System from heat sources such as stoves, heaters, flues and chimneys.

11.2 NZBC Acceptable Solution C/AS1, Part 9 and Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

Spread of Fire

12.1 13 mm GIB Ultralime® PLUS may substitute for 10 mm GIB Fyrelime®, 10 mm GIB® Standard plasterboard and 13 mm GIB® Standard plasterboard in all fire resistant wall construction. Refer to GIB® Fire Rated Systems Technical Literature.

Internal Moisture

13.1 GIB Ultralime® PLUS Lining System must be used in dry internal situations, and must not be used where likely to be exposed to liquid water, or where extended exposure to humidity above 90% RH is expected, e.g., such as may be expected in sauna rooms, commercial kitchens and the like.

Airborne and Impact Sound

14.1 13 mm GIB Ultralime® PLUS may substitute for 13 mm GIB® Standard plasterboard and 10 mm GIB Noiseline® in GIB® Noise Control Systems. Refer to GIB® Noise Control Systems Technical Literature.

14.2 The GIB Ultralime® PLUS Lining System Technical Literature provides specific details for sub-intertency (same tenancy) Quiet Zone Internal Wall and Floor/Ceiling constructions.

Installation Information

Installation Skill Level Requirement

14.1 Installation of GIB Ultralime® PLUS Lining System can be carried out by any competent building contractor.

General

15.1 GIB Ultralime® PLUS Lining System must be installed in accordance with the Technical Literature. For inspection, reference must be made to the Technical Literature.

Cutting

15.2 GIB® plasterboard is easily cut by scoring the face paper with a sharp short-bladed trimming knife, and then snapping the plasterboard away from the cut face and cutting the back paper or by sawing. Use of a metal straightedge facilitates clean straight cuts. Cut edges can be tidied up by using a knife. Paper dags should be removed.

Health and Safety

15.3 Dust resulting from the sanding of stopping and finishing compounds may be a respiratory irritant, and the use of a suitable facemask is recommended.

Framing

15.4 To achieve an acceptable decorative finish, GIB Ultralime® PLUS Lining System and GIB® Site Guide specifies that walls must not be lined unless the moisture content of timber framing is less than 18%. GIB® recommend a moisture content of 8–12% where buildings are to be air conditioned or centrally heated.

Sheet Fixing

15.5 The recommended installation method for GIB Ultralime® PLUS is horizontal fixing.

15.6 GIB Ultralime® PLUS is screw fixed to wall framing at 300 centres around the perimeter and single screw fixing at each stud where the horizontal joint crosses the stud. Screws are to be no closer than 12 mm from the sheet edge. Fixing to intermediate studs is by GIBFix® Adhesive at 300 centres. Adhesive must not be used under screws.

15.7 GIB Ultralime® PLUS is screw fixed to ceiling battens at sheet edges and centre. Perimeter screw fasteners are at 600 mm centres or closer depending on the wall/ceiling details.

15.8 GIB Ultralime® PLUS and 13 mm GIB Aqualine® bracing elements are fixed at 150 mm centres around the perimeter framing of the wall bracing element. Fixing to other framing is either mechanical or by using GIBFix® Adhesives. All edge fixings must be in accordance with the edge fixing pattern. Corner fixings must be 50 mm away from the sheet corner. Bracing elements require a special fastening pattern with three fasteners at 50 mm centres from each corner. Ceiling diaphragms require the first corner fastening at 50 mm, the second at 100 mm and there after at 150 mm.

15.9 The GIB Ultralime® PLUS Lining System requirements for horizontal or vertical sheet installation must be met. Full sheets must be used wherever possible. Fixings must be no closer than 12 mm from the sheet edge and driven at right angles to the sheet until the head is seated in a slight dimple just below the surface of the paper liner. Fixings must not be over-driven. Mechanical fixings must be spaced between the daubs of adhesive.

15.10 Plywood used in System Type UPP is nail fixed at 150 mm centres around the perimeter of each sheet and at 300 mm centres to intermediate framing.

15.11 Where a bracing element is also used as a fire-rated element, the method of fixing (including the length of the fixing specified) for the fire-rated element must be used, but the perimeter fixings of the bracing element must be at 150 mm centres.

Jointing and Finishing

15.12 All bracing element joints must be reinforced with paper tape and finished in accordance with GIB Ultralime® PLUS Lining System and GIB® Site Guide Technical Literature.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

16.1 Bracing tests were carried out by Ensis, Rotorua in accordance with BRANZ Technical Paper P21 to determine the performance of GIB Ultralime® PLUS Lining System when the building is subjected to lateral wind or earthquake loading. Nail and screw slip tests were carried out by BRANZ. The results of tests were reviewed by BRANZ experts and found to be satisfactory.

Other Investigations

17.1 The GIB Ultraline® PLUS Lining System Technical Literature has been reviewed by Marshall Day Acoustics Limited and an opinion given on the sound insulation performance of the system.

17.2 The GIB Ultraline® PLUS Lining System and GIB® Site Guide Technical Literature have been examined by BRANZ and found to be satisfactory.

17.3 Site visits were carried out by BRANZ to assess the practicability of the installation of the systems, and to view completed installations.

17.4 An assessment was made of the durability of the systems by BRANZ technical experts and found to be satisfactory.

17.5 Winstone Wallboards Limited GIB® plasterboards have been assessed for the following properties: MOR, MOE, paper tensile strength, paper shear strength, nail pull resistance, Hunter hardness, inspection for fungal spores, hard and soft body impact tests.

Quality

18.1 Winstone Wallboards Limited's manufacturing process and details of the quality and composition of the materials, have been examined by BRANZ and found to be satisfactory.

18.2 The quality management systems of Winstone Wallboards Limited have been assessed and registered by TELARC as meeting the requirements of ISO 9001, Registration No. 581.

18.3 Winstone Wallboards Limited is responsible for the quality of the product supplied.

18.4 The quality of the application and finish on site is the responsibility of the installation and stopping contractors.

18.5 Designers are responsible for the design of buildings.

18.6 Building owners are responsible for the maintenance in accordance with the instructions of Winstone Wallboards Limited.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2269: 1994 Structural plywood.
- AS/NZS 2588: 1998 Gypsum Plasterboard.
- BRANZ Technical Paper P21:1979 (revised 1982, 1987, 1988) A wall bracing test and evaluation procedure.
- BRANZ Technical Recommendation No. 10 - December 1991, Supplement to P21: An evaluation method of P21 test results for use with NZS 3604: 1990.
- NZS 3602: 2003 Timber and wood-based products for use in building.
- NZS 3603: 1993 Timber structures standard.
- NZS 3604: 1999 Timber framed buildings.
- NZS 4203: 1992 Code of practice for general structural design and design loadings of buildings.
- New Zealand Building Code Handbook and Approved Documents, Building Industry Authority, 1992.
- The Building Regulations 1992, up to, and including October 2004 Amendment.



In the opinion of BRANZ, GIB Ultraline® PLUS Lining System is fit for purpose and will comply with the Building Code to the extent specified in this Certificate provided it is used, designed, installed and maintained as set out in this Certificate.

The Appraisal Certificate is issued only to the Certificate Holder, Winstone Wallboards Limited, and is valid until further notice, subject to the Conditions of Certification.

Conditions of Certification

1. This Certificate:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the technical literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. The Certificate Holder:
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions.
3. The product and the manufacture are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ.
4. BRANZ makes no representation as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by the Certificate Holder.
5. Any reference in this Certificate to any other publication shall be read as a reference to the version of the publication specified in this Certificate.

For BRANZ

P Robertson
Chief Executive

Date of issue: 22 November 2006

Amendment No. 1, dated 16 July 2007.

GIB® HandiBrac™ hold-down option included.