



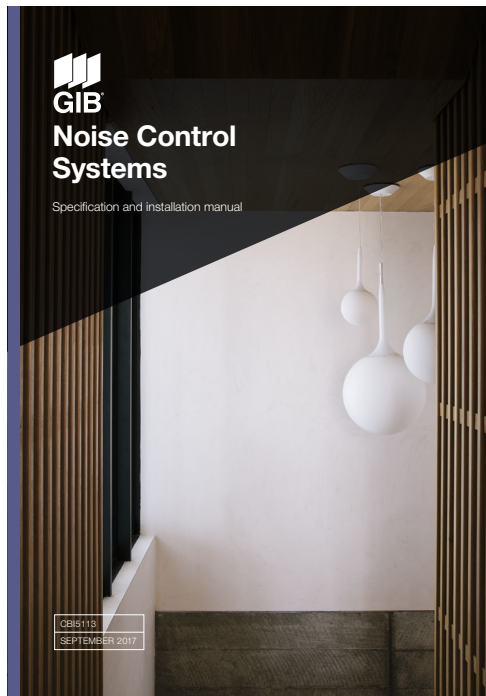
BRANZ Appraised

Appraisal No. 394 [2017]

GIB® NOISE CONTROL SYSTEMS 2017

Appraisal No. 394 [2017]

This Appraisal replaces BRANZ Appraisal No. 394 [2006]



BRANZ Appraisals

Technical Assessments of products for building and construction.



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Product

- 1.1 GIB® Noise Control Systems are a range of sound-insulating intertenancy and sub-intertenancy building element constructions, based on the use of GIB® plasterboards.
- 1.2 The range consists of timber and steel framed wall and floor/ceiling systems.

Scope

- 2.1 GIB® Noise Control Systems have been appraised for use as Sound Transmission Class [STC] rated wall and floor/ceiling systems, and Impact Insulation Class [IIC] rated floor/ceiling systems in buildings.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, GIB® Noise Control Systems, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. GIB® Noise Control Systems meet the requirements for loads arising from self-weight and impact [i.e. B1.3.3 (a) and (j)]. See Paragraphs 8.1 - 8.3.

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® Noise Control Systems meet these requirements. See Paragraphs 9.1 - 9.3.

Clause C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE: Performance C3.4 (a) and C3.6. GIB® Noise Control Systems with specified fire resistance ratings can be used to meet these requirements by providing passive fire and smoke protection. See Paragraphs 12.1 and 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. GIB® Noise Control Systems meet 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® Noise Control Systems - Intertenancy meet these requirements. See Paragraph 15.1.



Technical Specification

4.1 The GIB® plasterboards and accessories used in GIB® Noise Control Systems, which are supplied or specified by Winstone Wallboards Ltd, are as follows:

GIB® Plasterboards

- **GIB Braceline®/GIB Noiseline®** is a high-density, fiberglass-reinforced, paper-bound gypsum-plaster core sheet lining material with a light blue face paper. GIB Braceline®/GIB Noiseline® is available in 10 and 13 mm sheet thicknesses. The 10 mm thickness product is made in sheet widths of 1200 and 1350 mm. Both of these sheet widths are available with two different long edge profiles – taper on both edges and taper edge/square edge. Available sheet lengths for the 10 mm thickness product include 2400, 2700, 3000, 3600 and 4800 mm. The nominal weight of the 10 mm thickness product is 9.0 kg/m². The 13 mm thickness product is made 1200 mm wide with tapered long edge profiles on both edges. Available sheet lengths for the 13 mm thickness product include 2400, 2700, 3000 and 3600 mm. The nominal weight of the 13 mm thickness product is 12.0 kg/m².
- **GIB® Standard** is a paper-bound, gypsum-plaster core sheet lining material. GIB® Standard plasterboard is available in 10 and 13 mm thicknesses and sheet widths of 1200 and 1350 mm [GIB® Wideline]. The sheets have a recess on the two long edges. The 10 mm thick sheets are also available with a square edge. Sheets are available in various lengths from 2400 to 6000 mm. The nominal sheet weight is 6.5 kg/m² for 10 mm thick sheets and 8.5 kg/m² for 13 mm thick sheets. GIB® Standard plasterboard face paper is a light buff colour.
- **GIB Fyrelite®** is a paper-bound, gypsum-plaster core sheet lining material. Glass fibre and other additives are added to the core during manufacture. The sheets have a recess on the two long sheet edges. GIB Fyrelite® is available in thicknesses of 10, 13, 16 and 19 mm with a sheet width of 1200 mm. Sheet thicknesses of 10 and 13 mm are available in standard lengths between 2400 and 3600 mm, and sheet thicknesses of 16 and 19 mm are available in standard lengths between 2400 and 3000 mm. The nominal sheet weight is 7 kg/m² for 10 mm thick sheets, 10.5 kg/m² for 13 mm thick sheets, 14.5 kg/m² for 16 mm thick sheets, and 16.5 kg/m² for 19 mm thick sheets. GIB Fyrelite® face paper is pink in colour.
- **GIB Barrierline®** is a paper-bound, gypsum-plaster core sheet lining material. GIB Barrierline® is 25 mm thick and has a sheet width of 600 mm. The sheets have a formed square edge on the two long edges. Sheets are available in a length of 3000 mm. The nominal sheet weight is 20.0 kg/m². GIB Barrierline® face paper is light blue in colour.

Note: The product name is printed on the front face and edge of GIB plasterboards, along with the date and time of manufacture.

Plasterboard Fixings and Adhesives

- **GIB® Grabber® High Thread screws** - 25, 32 and 41 mm x 6g, and 51 and 57 mm x 7g for fixing to timber.
- **GIB® Grabber® Self Tapping screws** - 25, 32, and 41 mm x 6g, 51 mm x 7g, and 63 and 76 mm x 8g for fixing to light gauge steel.
- **GIBFix® One Adhesive** – Acrylic-based adhesive for bonding plasterboard to timber framing.
- **GIBFix® All-Bond Adhesive** – Solvent-based adhesive for bonding plasterboard to timber framing.

Acoustic Sealant

- **GIB Soundseal®** - a flexible water-based acoustic sealant.



Accessories

- **GIB® Rondo® 310 Metal Ceiling Batten** - 75 x 35 mm galvanised mild-steel ceiling batten.
- **GIB Quiet Clip®** - galvanised steel clip with rubber grommets, for mounting GIB® Rondo™ 310 Metal Ceiling Battens
- **GIB Rail®** - 70 x 13 mm folded, galvanised mild-steel resilient rail.
- **GIB® Rondo® STWC [ST-001 Clip]** - acoustic resilient mounting clip for steel wall and ceiling battens.
- **GIB® Rondo® Metal Ceiling Batten and Clip System** - ceiling supporting systems which comprise steel battens, clips and perimeter tracks.
- **USG Boral ScrewFix™ Suspension System** - a suspended ceiling grid comprising wire hangers, strong-back channels, and furring channels.
- **GIB® Rondo® Quiet Stud®** - folded, galvanised mild-steel studs.
- **GIB® Quiet Tie®** - provides a structural connection between double-stud walls.

GIB® Intertenancy Barrier Systems for Terrace Homes Components

- Refer to BRANZ Appraisal No. 940 [2016] for full details of components for the GIB® Intertenancy Barrier Systems for Terrace Homes.

Jointing Compounds and Tape

- As specified in the GIB® Site Guide Technical Literature.

4.2 System components and accessories for GIB® Noise Control Systems, which are supplied by the building contractor are:

Sound Control Infill

- **Pink® Batts® R1.2** - 50 mm thick glasswool insulation.
- **Pink® Batts® Building Insulation Blanket [BIB] R1.8** - 75 mm thick glasswool insulation
- **Pink® Batts® R2.2** - 90 mm thick glasswool insulation
- **Pink® Batts® Silencer®** - 100 mm thick glasswool insulation.

Flooring

- Minimum 20 mm thick wood-based flooring complying with the NZBC.
- Minimum 17 mm thick plywood flooring complying with AS/NZS 2269.
- **James Hardie Secura Interior Flooring System** - comprising 19 mm thick Secura Interior Flooring, Batten and Cradle isolation mounts and structural steel battens.
- **Laminex Strandfloor® Tongue and Groove Flooring** - 20 mm thick strand board with a groove on one long edge and a white polypropylene tongue on the other.

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 GIB® Noise Control Systems. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.



Design Information

General

- 7.1 GIB® Noise Control Systems include systems that meet the provisions of NZBC Clause G6 Airborne and Impact Sound for the transfer of airborne and structure-borne sound through wall and floor/ceiling elements between occupancies. Also included are systems that do not require compliance with NZBC Clause G6, such as between rooms and spaces of the same occupancy. These are described within the Technical Literature as 'sub-intertenancy' systems. The Technical Literature also contains construction and junction details.

[Note: Proprietary floor joist, flooring, suspended ceiling systems, ceiling systems and wall stud systems have not been assessed for anything other than sound and fire properties and are otherwise outside the scope of this Appraisal.]

GIB® Noise Control Systems Intertenancy STC55 and Higher

- 7.2 NZBC compliant systems are provided in the following categories:
- Barrier walls [timber or steel framing], with a central barrier of GIB Barrierline® or 13 mm GIB Fyreline® [steel framing only]
 - Double Timber Frame
 - Timber Frame with GIB Rail®
 - Timber Frame with Acoustic Resilient Mounts
 - Double Steel Frame
 - Staggered Stud Steel Frame
 - Steel Frame with GIB Rail®
 - Steel Frame with Acoustic Resilient Mounts
 - GIB® Rondo® Quiet Stud® Steel Frame
 - Intertenancy Floor/Ceiling.

GIB® Noise Control Systems Intertenancy Lower than STC55

- 7.3 Discretionary systems are provided in the following categories:
- GIB® Rondo® Quiet Stud® Steel Frame
 - Single frame wall [timber and steel framing]
 - Floor/ceiling systems.

Fire Resistance Ratings

- 7.4 A number of GIB® Noise Control Systems also have Fire Resistance Ratings [FRRs]. Refer to the Technical Literature for details of the available fire resistance rated systems.

Sound Infill Insulation

- 7.5 Pink® Batts® insulation must be used where specified in GIB® Noise Control Systems to achieve the Sound Transmission Class [STC] and Impact Insulation Class [IIC] classifications stated in the Technical Literature.

Floors

- 7.6 GIB® Noise Control Floor/Ceiling Systems specify the use of 20 mm thick wood-based flooring or 17 mm structural plywood, fixed in accordance with the flooring manufacturer's instructions. Winstone Wallboards Ltd also offer a floor/ceiling system based on the use of James Hardie Secura Interior Flooring and another floor/ceiling system based on the use of Laminex Strandfloor® Tongue and Groove Interior Flooring.
- 7.7 The correct floor finish must be selected to achieve the required IIC. The Technical Literature provides a number of IIC performances for alternative floor finishes. A nylon carpet on 11 mm underlay must be used where specified in the manual to achieve the relevant published IIC performance. Where carpet and underlay is used to contribute to meeting the requirements of NZBC Clause G6, the carpet and underlay must be installed prior to the receipt of the Code Compliance Certificate. The floor finishes used in GIB® Noise Control Systems have not been assessed for other properties and are outside the scope of this Appraisal.



Maximum Temperature Exposure

- 7.8 GIB® plasterboards must not be exposed to temperatures of 52°C or greater for prolonged periods. Refer to appliance and fitting manufacturers for installation details.

Control Joints

- 7.9 Where control joints are required, the joints must be specifically designed to maintain the integrity of the sound control system and fire resistance rated system. These joints have not been assessed by BRANZ and are outside the scope of this Appraisal.

Structure

Framing

- 8.1 Timber framing must be designed and constructed in accordance with NZS 3604, or to a specific engineering design using NZS 3603 and AS/NZS 1170, with studs and floor joists at maximum 600 mm centres. The structural design for each specific structure is the responsibility of the building designer.
- 8.2 Steel framing must be to a specific engineering design meeting the requirements of the NZBC and must comply with the minimum dimensions specified in the Technical Literature.

Impact Resistance

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

Durability

Serviceable Life

- 9.1 GIB® Noise Control Systems, including linings and their fixings have a serviceable life of at least 50 years. The ability of the systems to remain durable is dependent on them remaining dry in service, and being maintained in accordance with this Appraisal.
- 9.2 GIB Soundseal® sealant is expected to remain effective for at least 15 years provided the installation instructions are followed.
- 9.3 Timber framing treatment must comply with NZBC Acceptable Solution B2/AS1.

Maintenance

- 10.1 Lining systems must be protected from internal and external moisture in accordance with NZBC Clauses E2 and E3.
- 10.2 Holes resulting from damage to the lining, up to 100 x 100 mm square, must be repaired. 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.
- 10.3 Normal maintenance includes the reinstatement of damaged or deteriorated sealants, repair or renewal of carpet and rubber underlays and the maintenance of the paper face on the walls and ceiling linings.

Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to GIB® Noise Control Systems from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.



Fire Affecting Areas Beyond the Fire Source

Internal Surface Finishes

- 12.1 For internal surface finish properties of GIB® plasterboards, refer to BRANZ Appraisal No. 289 [2012] GIB® Fire Rated Systems.

Fire Resistance Ratings (FRRs)

- 12.2 GIB® Noise Control Systems can be used to provide FRRs as determined by NZBC Acceptable Solutions C/AS1 – C/AS7 and NZBC Verification Method C/VM2. Refer to the Technical Literature for details of the available fire resistance rated systems.

Structural Stability During Fire

- 13.1 In order to satisfy the requirements of NZBC Clause C6 Structural Stability, designers must ensure that fire rated elements are supported by building elements having at least the same FRR as the fire rated element they are supporting.

Internal Moisture

- 14.1 GIB® Noise Control Systems 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

- 15.1 The inter-tenancy provisions of NZBC Clause G6 for wall and floor/ceiling elements will be achieved when a GIB® Noise Control System with a minimum STC rating of 55 and a minimum IIC rating of 55 [for floor/ceilings] is used in accordance with the Technical Literature and this Appraisal.

Installation Information

Installation Skill Level Requirement

- 16.1 Installation of GIB® Noise Control Systems must be completed by, or under the supervision of, a Licenced Building Practitioner with the relevant Licence Class, in accordance with the Technical Literature and this Appraisal.

General

- 17.1 GIB® Noise Control Systems must be installed in accordance with the specifications contained in the GIB® Noise Control Systems Technical Literature and the GIB® Site Guide.

Wall Framing

- 17.2 Winstone Wallboard Ltd specifies timber framing with a moisture content of less than 18% at the time interior linings are installed. The use of kiln-dried timber is recommended.
- 17.3 Resilient rails must be fixed horizontally to studs at 600 mm centres maximum.
- 17.4 Furring channels, connected to ST-001 clips [acoustic resilient mounts], must be fixed horizontally to studs at 600 mm centres maximum.
- 17.5 The wall frames in double-framed systems must be acoustically isolated from each other. However, where frames must be connected for fire and structural performance, GIB® Quiet Ties® may be used. GIB® Quiet Ties® are connected by nail fixing at the floor plate and at the roof level, and are spaced at maximum 1800 mm centres or in accordance with a specific engineering design.

Cutting Sheets

- 17.6 GIB® plasterboards are cut by scoring the paper face with a sharp, short-bladed trimming knife. The plasterboard must then be snapped away from the cut face and the back paper cut. Cut-outs for switch boxes and other penetrations should be made using a keyhole saw.



Fixing Sheets

- 17.7 The fixing method specified for each system in the GIB® Noise Control Systems Technical Literature must be used. Sheet fixings must be no closer than 12 mm to sheet edges. Where linings are fixed to resilient rails, fixings must not touch or penetrate the stud. Sheet joints must be staggered between layers.

Suspended Ceilings

- 17.8 GIB® Noise Control Systems floor/suspended ceiling systems use galvanized mild-steel suspension systems. The ceiling must be designed and installed in accordance with the suspended ceiling manufacturer's technical information. Suspended ceiling systems have not been assessed and are outside the scope of this Appraisal.

Insulation (Sound Control Infill)

- 17.9 Insulation must be installed in accordance with the insulation manufacturer's instructions. The insulation must be a neat friction fit between framing members with no edge gaps. Insulation must not be compressed, folded or tucked. In ceiling voids, loose laid insulation must be installed with all edges neatly butted.

Sealant

- 17.10 With the exception of the systems that incorporate double timber frame walls with GIB Barrierline® central barrier, GIB Soundseal® must be applied to the perimeter of the framing in single lining systems, or when two or more linings are used it must be applied to the perimeter of the inner lining. Linings must be bedded onto the sealant to provide an airtight seal. A positive, no gaps bond must be made to the contact surfaces.

Building Services

- 17.11 With the exception of the central barrier wall systems, flush boxes tested and approved as suitable for fire-rated and/or sound-rated applications must be used to ensure that the fire/sound-rated performance requirements are not compromised. Alternatively, the sound control performance will not be compromised if flush boxes are fitted to each side of the wall and separated by a minimum distance of 450 mm.
- 17.12 Plumbing pipe-work installed with bends with generous radii and smooth bores and tapered joints will reduce the generation of plumbing noise by turbulence. The transfer of plumbing noise may be reduced by isolating elements with the use of resilient pipe clips and pipe wraps. Plumbing systems designed to prevent excessive pressure, water hammer, splashing, thermal movement of pipes, aeration or appliance noise will complement GIB® Noise Control Systems by reducing the noise generated by plumbing.

Jointing and Finishing

- 17.13 Jointing and finishing must be carried out in accordance with the GIB® Site Guide.

Inspection

- 18.1 The Technical Literature and this Appraisal must be referred to during the inspection of GIB® Noise Control Systems installation.

Health and Safety

- 19.1 Dust resulting from the sanding of boards, jointing or finishing compounds may be a respiratory irritant, therefore the use of a suitable face mask is recommended. Where sealants, insulation, flooring and other materials are used, the instructions of the manufacturer must be followed.

Basis of Appraisal

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

Tests

- 20.1 Airborne sound and impact reduction indices tests were conducted by the University of Auckland Acoustics Testing Service and reviewed by Marshall Day Acoustics Limited. Variations to the tested systems have been assessed using computer based modelling methods by Marshall Day Acoustics Limited.
- 20.2 Testing to determine the FRR has been completed in accordance with AS 1530.4 by various accredited fire test laboratories. The results have been reviewed by BRANZ fire experts.

Other Investigations

- 21.1 The GIB® Noise Control Systems Technical Literature has been reviewed by Marshall Day Acoustics Limited and an opinion given on the sound insulation performance of the systems.
- 21.2 Opinions on the fire resistance ratings of variations to tested systems in accordance with AS 1530.4 were given by BRANZ fire experts.
- 21.3 The GIB® Noise Control Systems and GIB® Site Guide Technical Literature have been examined by BRANZ and found to be satisfactory.
- 21.4 Site visits were carried out by BRANZ to assess the practicability of the installation of the systems, and to view completed installations.
- 21.5 An assessment was made of the durability of the systems by BRANZ technical experts and found to be satisfactory.
- 21.6 The properties of 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

- 22.1 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.
- 22.2 The quality management systems of Winstone Wallboards Limited have been assessed and registered by TELARC as meeting the requirements of ISO 9001.
- 22.3 Winstone Wallboards Limited is responsible for the quality of the product supplied.
- 22.4 The quality of the application and finish on site is the responsibility of the installation and stopping contractors.
- 22.5 Designers are responsible for the design of buildings.
- 22.6 Building owners are responsible for maintenance in accordance with the instructions of Winstone Wallboards Limited.

Sources of Information

- AS 1530: 2005 Part 4 Fire resistance tests on elements of construction.
- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 1860.1:2002 Particleboard flooring – Specifications
- AS/NZS 2269:2012 Plywood – Structural Part 0: Specifications
- AS/NZS 2588: 1998 Gypsum Plasterboard.
- NZS 3603: 1993 Timber structures standard.
- NZS 3604: 2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of Amendments – Acceptable Solutions, Verification Methods and Handbooks.
- The Building Regulations 1992.



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06 October 2017

GIB® NOISE CONTROL SYSTEMS
2017



In the opinion of BRANZ, **GIB® Noise Control Systems 2017** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Winstone Wallboards Ltd**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - 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. **Winstone Wallboards Ltd**:
 - 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;
 - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty 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 **Winstone Wallboards Ltd**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **Winstone Wallboards Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

06 October 2017