



CONFIDENTIAL

Product Review

Prepared by
Construction Information Limited

Product name
Best Wall Board

Product supplier
Amazing Boards NZ Ltd

Report date
8 September 2023

Executive summary

Construction Information Limited (CIL) trading as Masterspec, have carried out a review of technical documentation for the product or system – Best Wall Board.

Based on our review, we are of the opinion that the information provided for your building product or system satisfies the requirements of the Building Regulations 2022.

Please refer to the [Review Findings section](#) for a list of the issue(s) that we have identified. In the [Suggestions section](#), we provide commentary about how these issues might be rectified.

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1.0 Introduction and purpose

Construction Information Limited (CIL) trading as Masterspec, have been engaged by Amazing Boards NZ Ltd to undertake a review of technical documentation for the product or system Best Wall Board.

This review has been undertaken to provide an opinion on the presentation and completeness of the information provided and to establish if a Building Product Information Requirements (BPIR) statement can be provided that will satisfy the requirements of the Building Regulations 2022 in relation to Schedule 1 and/or Schedule 2. Ultimately your statement must clearly display how the building product or system is expected to contribute to compliance with reference to relevant clauses of the New Zealand Building Code - commonly referred to as a "Compliance Pathway".

This document can be used in relation to the Building Regulation 2022 but should not be considered as a sole source of information to meet the requirements of these regulations. This document is subject to [Construction Information Limited's Terms and Conditions \(masterspec.co.nz/Terms-and-Conditions/7373/\)](https://masterspec.co.nz/Terms-and-Conditions/7373/)

2.0 Review findings

This report serves to document the findings of the Product Review conducted by Masterspec for Best Wall Board Ltd on Best Wall Board

2.1 Product class

Class 1: Batch or mass-produced products ⓘ

2.2 Product name

Best Wall Board

2.3 Product description and its intended use

Best Wall Board is a semi-vapour permeable, rigid air barrier manufactured from shredded and compressed composite, containing 60% wood fibre, 30% polyethylene and up to 4-5% aluminium, finished with a moisture resistant facer to external face and a paper internal facing.

Thickness:	12 mm
Width:	1200 mm
Length:	2450 mm
Density:	To be Confirmed

2.4 Product identifier (if applicable)

123456AAA

2.5 Place manufactured (New Zealand or overseas)

Overseas	<i>Australia Wall Boards Pty Ltd</i> <i>123 Wall Street, Suburb, City State, Postcode</i> australiawallboards.com.au exampleonly@australiawallboards.com.au
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2.6 Relevant Building Code clauses

B1 Structure	B1.3.1, B1.3.2, B1.3.3 (a, b, c, f, h, m, or q), B1.3.4
B2 Durability	B2.3.1 a) not less than 50 years those building elements that provide structural stability & b) 15 years those building elements that are difficult to access or replace, B2.3.2 a).
E2 External Moisture	E2.3.2
E3 Internal Moisture	E3.3.1
F2 Hazardous Building Materials	F2.3.1
H1 Energy Efficiency	contributes to H1.3.1

2.7 Statement of how the building product is expected to contribute to compliance

B1 Structure:

- *Bracing Systems have been tested in BRANZ Technical Paper P21 in accordance with NZS 3604 subject to modifications to NZBC B1/AS1. (Acceptable Solution).*
- *Bending Strength and Stiffness testing in accordance with AS/NZS 2269.1:2012. (Alternative Solution)*

Comment

- The Bending Strength and Stiffness testing and BRANZ P21 testing are satisfactory.
- Evaluation of the flexural capacity of Best Wall Board Products (three-point bending) by Auckland Ltd was carried out in accordance with ASTM D3043 Method A. This testing was done on 12mm thick Best Wall Board product and was commissioned by The Engineering Group Ltd. have not included this testing above as it is based on a 12mm thick product not 10mm thick as Best Wall Board and the report states it is for the sole use of The Engineering Group Ltd.
- The RA No 1209 also refers to some other testing such as compression testing to ASTM D94-83 (Intertek 26.11.2-13), testing to ASTM E2112 for lateral shear load (Drj 18.12.2013). Masterspec was not provided with a copy of this testing to assess.

B2 Durability:

- *By NZBC B2/VM1 In-service history and laboratory testing for NZBC E2 & E3. (See below).*
- *Best Wall Board has an in-service history of approximately 25 years (12-15 years in the USA).*

Comment

- Best Wall Board requires not less than 50 years durability where it is used as a bracing element and 15 years durability where it is used as a RAB (non-structural) unless cladding over has greater durability.
- The laboratory testing for NZBC E2 & E3. (See below) are satisfactory.
- In-service history, we would require confirmation that Composite Board product is the same as Best Wall Board.
- Autumia - Compliance Statement Fibre-glass-faced Best Wall Board Exterior Sheathing Report states that " this product will achieve the 15 years minimum durability requirement.". As a structural bracing element Best Wall Board requires a not less than 50 years durability.
- Additional confirmation is required to show compliance with the 50 years durability

E2 External Moisture:

- *Scion Report 4606 - Evaluation of 12mm Best Wall Board to Acceptable Solution E2/AS1 Table 23. Confirms testing to AS/NZS 4201.4 Resistance to Water Penetration, AS/NZS 4201.6 Surface Water Absorbency, ASTM E96 Procedure B (Wet cup) Water Vapour Resistance and AS/NZS 1301.421:1998 pH of extract. Best Wall Board meets all the requirements of E2/AS1 Table 23. Best Wall Board is semi-vapour permeable with a vapour transmission of 12.5MN.s/g. (Alternative Solution)*

Comment

Scion Report 4606- Evaluation of 12mm Best Wall Board to Acceptable Solution E2/AS1 Table 23 is satisfactory. It confirms compliance with all the requirements of E2/AS1 Table 23, except vapour resistance. Best Wall Board is semi-vapour permeable with a vapour transmission of 12.5MN.s/g as such additional E3 Internal moisture testing below has been provided.

E3 Internal Moisture:

- *Engineering WUFI hygrothermal wall modelling analysis carried out by Marton Engineering establishes conditions of use. (Alternative Solution).*
- *ASTM E96 Procedure B (Wet cup) Water Vapour Resistance. Best Wall Board is semi-vapour permeable with a vapour transmission of 12.5MN.s/g. (Alternative Solution).*
- *Tested for mould growth to ASTM D2373-12. (Alternative Solution).*

Comment

- *Marton Engineering WUFI hygrothermal wall modelling analysis. It appears this testing has been carried out using Auckland, Hamilton, and Tauranga NIWA Weather file. Confirmation is required for other areas. Masterspec note that your NZBC E3 Design Guide notes that Best Wall Board are approved for use in Climatic Zones 1-3 without MVTC and for Climatic Zones 4-6 Best Wall Board Design Method 2 or 3 must be used. The above Marton testing appears to be only carried out in Climatic Zones 1 & 2. Confirmation required and additional testing may be required.*
- *Tested for mould growth to ASTM D2373-12, Test Report G101, 29.07.2013 was carried out for Composite Board. Confirmation is required that Composite Board is the same as Best Wall Board and that these tests can be used.*

F Class Name

- *VOC and formaldehyde tested to ASTM D5116:2017. Total Volatile Organic Compound Rate*

Comment

VOC and formaldehyde testing appears satisfactory.

H Class Name

- *Thermal Conductivity tested to ASTM C518 in accordance with AS/NZS 4859.1. Density of 591kg/m³ R-value of 0.13. (Acceptable Solution).*

Comment

- *Thermal Conductivity testing to ASTM C518, Report 10063MID-003, 3.02.2010 was carried out for Composite Board. Confirmation is required that Recycle Board is the same as Best Wall Board and that these tests can be used.*
- *The Autumia Report then interprets these results and states that the R-value for 12mm Best Wall Board is R-value 0.16, however this report states a board density of 691kg/m³. In your other literature (such as Best Wall Board MSDS) the density is stated as 700-900kg/ m³ depending on product. Confirmation of board density and R-value is required.*
- *You could not include the contribution to H1 as it only has a very minor contribution.*

2.8 Limitations on the use of the building product

- Suitable for wind zones up to and including very high as defined in NZS 3604.
- The use of Best Wall Board in Extra High Wind Zone as defined in NZS 3604 must be supported by Specific Engineered Design.
- Suitable for use over timber framing that is within the scope of NZS 3604 and NZBC E2/AS1.
- Suitable for use over steel framing that is within the scope of NASH Standard Part 2 and NZBC E2/AS4, NASH Building Envelope Solutions for Steel Framed Buildings.
- As a semi-vapour permeable product design must be in accordance with Best Wall Board NZBC E3 Design Guide Internal Moisture Control. Mechanical Ventilation and Temperature Control (MVTC) system must be used in conjunction with Best Wall Board for some climatic conditions.

2.9 Design requirements that would support the appropriate use of the building product

Best Wall Board NZBC E3 Design Guide Internal Moisture Control. Refer to Best Wall Board Rigid Air Barrier - Best Wall Board Installation Manual, section 8 Bracing Design and Installation.

2.10 Installation requirements

Refer to Best Wall Board Rigid Air Barrier - Best Wall Board Installation Manual.

Use approved joint sealing tape to all joints. Joint sealing tape to be approved for use with Best Wall Board refer to Best Wall Board Installation Manual for further information.

Use approved flashing tape at all openings. Flashing tape to be approved for use with Best Wall Board refer to Best Wall Board Installation Manual for further information.

Use uPVC horizontal flashing at inter-story junctions. Refer to Best Wall Board Installation Manual for further details.

Flexible building wrap, to NZBC E2/AS1 Table 23, recommended to be installed over for high-risk design with risk matrix score ≥ 13 as determined by NZBC E2/AS1 Tables 1 Definition of risk levels & Table 2, Building envelope risk scores.

Best Wall Board, where installed over steel framing a thermal break is required.

2.11 Maintenance requirements

Refer to Best Wall Board - Maintenance Sheet.

2.12 Building Act 2004 section 26 compliance

Is the building product/building product line subject to warning or ban under [section 26 of the Building Act 2004](#)?

No

3.0 Suggestions

You may want to consider ... {{suggestions and recommendations go here}}

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4.0 Documentation reviewed

The documentation reviewed during the preparation of this report is as follows

BRANZ ST1-01-2	BRANZ Structures Test Report - Bracing testing of Best Wall Board (15.07.2022)
TechCal	VOC Emission Test Certificate - Test method ASTM D5116-2017 (August 2021)
Intertek Test Report	Report G1007581 Recycle Board Testing to ASTM D3273-12
Intertek	Report 10042MID-009 Essential Board Testing to ASTM C518, 2010 (23 Feb 2012)
Marton Engineering	WUFI hydrothermal wall modelling analysis (16/07/2022)
Autumia	Compliance Statement Fibreglass faced Best Wall Board Exterior Sheathing
SCION Bracing results P21	400mm x 2.4m 12mm Best Wall Board RAB with Brackets, (13.09.2022)
SCION Bracing results P21	600mm x 2.4m 12mm Best Wall Board RAB with Brackets, (13.09.2022)
SCION	Bending stiffness and strength tests on 12mm Best Wall Board (August 2021)
SCION Report 4606	Evaluation of 10mm Best Wall Board to Acceptable Solution E2/AS1 Table 23 (March 2022)
UniServices	Evaluation of the flexural capacity of Composite Board products (three-point bending)