



BEAL Appraisal Certificate



APPRAISAL #: C1410

EXPIRY DATE: 30 April 2024

The Magnum Board 9mm Weatherboard System



Product

1.1 The MAGNUM BOARD 9mm Weatherboard system is comprised of vapour-permeable, mineral sheet based weatherboards for use over timber framing or light gauge steel framing which is protected by either a rigid or flexible air barrier*, in wind zones up to and including 'extra-high' as defined by NZS3604. The system is designed to provide durable, vapour-permeable, exterior cladding options, when over-coated with BioPin vapour permeable coatings.

1.2 The system consists of MAGNUM BOARD weatherboards attached to H3.2 treated timber battens using specified nail fixings, over a RAB (such as the MAGNUM BOARD Rigid Air Barrier system) or *FAB.

1.3 The Magnum Board Weatherboard system (MBWB) are to be installed by suitably experienced trade persons, under the supervision of a Licensed Building Practitioner, as described in the Appraisal-holder's technical literature.

NZ Building Regulations

2.1 In the opinion of BEAL, the MBWB system, when designed, installed and maintained in accordance with the statements and conditions of this Appraisal Certificate, will meet the following provisions of the New Zealand Building Code:

2.2 Clause B1 STRUCTURE

Performance B1.3.3(h) resistance to high winds. See paragraph 8.1

2.3 Clause B2 DURABILITY

Performance B2.3.1(b) 15 years and B2.3.1(c) 5 years. See paragraphs 8.2

2.4 Clause E2 EXTERNAL MOISTURE

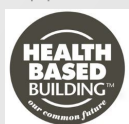
Performance E2.3.2. Walls incorporating the MBWB system contribute to meeting this requirement. See paragraphs 8.3 & 8.4

2.5 Clause F2 HAZARDOUS BUILDING MATERIALS

Performance F2.3.1. The MBWB system meets this requirement and will not present a health hazard to people. See paragraph 8.5

2.6 The Magnum Board Rigid Air Barrier System has been appraised as an 'Alternative Solution' in terms of compliance with the New Zealand Building Code.

Applicant:



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Appraised by:



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Scope and Limitations

3.1 The MAGNUM BOARD Weatherboard system has been appraised for use as an external cladding fixed onto H3.2 treated battens which are fixed over a Rigid Air Barrier, which in turn is fixed over timber or light gauge steel framing within the following scope:

- Used in conjunction with new timber or light gauge galvanized steel framing designed and constructed to comply with the requirements of the NZBC; and,
- Situated in wind zones up to, and including, 'Extra High' as per NZS 3604 Building Wind Zones

3.2 The MAGNUM BOARD Weatherboard system shall be installed by suitably experienced trade persons, under the supervision of a Licensed Building Practitioner, within the scope and limitations described in the Appraisal-holder's technical literature.

Technical Literature

4.1 The MAGNUM BOARD Weatherboard system Technical Manual Ver 4.0 must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained within the technical manual and scope of this Appraisal Certificate must be followed.

4.2 For a copy of this technical literature and any subsequent updates, please visit the web site:

www.healthbasedbuilding.com

Technical Details

5.1 Materials and accessories supplied by Health Based Building Ltd. are as follows:

- **MAGNUM Weatherboards**

MAGNUM BOARD 9mm Weatherboards are comprised of a white mineral board material with a number of attributes including vapour permeability. The nominal size of the 9mm weatherboard is 3.0m x 195mm.

- **MAGNUM Weatherboard Fixings**

MAGNUM BOARD Weatherboards are fixed through cavity battens, over either a Rigid Air Barrier or Flexible air Barrier, into timber or steel framing. Fixings shall be either Paslode or SIFCO brand products. These include Paslode - Impulse Nail 65 x 2.8mm Stainless Steel Round Drive Paslode code B20560, using the Paslode Frame master Impulse Nailer B20543 or B20540 with Paslode No Mar Tip B20544G, or, SIFCO guns MAX® CN565S, or CN650M, or CN70, or CN80, or HN90F-ST pneumatic nailers with No Mar Tip. SIFCO nails are FRP50V8SS 50mm x 2.8mm Stainless Steel Rink Shank Coil Nail. Nail heads to be embedded flush with Magnum Board® surface.

Screw fixing through cavity battens to steel framing shall be using the Simpson Strong-Tie WSCBGHLA114SA cement sheet collated screws. A Quick Drive with PRO175 attachment is available through Simpson Strong-Tie. Screws are to be embedded flush with the Magnum Board surface.

- **MAGNUM Weatherboard Soakers**

MAGNUM BOARD Weatherboard external corners are made weather-resistant using proprietary soakers. Internal corners are made weather resistant using Corner Flashings.

- **MAGNUM Weatherboard proprietary internal corner flashings,** are as detailed in the Technical Manual.

- **Recommended Protective Coatings**

5.2 Compatible coatings supplied by Resene and Wattyl are available from these suppliers. For further information contact Health Based Building Ltd.

- **Handling and Storage**

5.3 All products must be stored inside, in a well ventilated area, up off concrete floors, kept dry, out of direct sunlight and away from freezing conditions.

Advice for designers

General

6.1 The MAGNUM BOARD Weatherboard system is an exterior cladding system incorporating vapour-permeable mineral board for use on new and existing timber or light gauge framing where the building is situated in high to extra high wind zones.

6.2 The system is designed to comply with performance clauses B2.3.1(b) for the cladding & (c) for a compliant protective coating being 15 and 5 years.

6.3 Before an installation of the RAB or FAB and weatherboards can be carried out, it is essential that a survey of the framing be carried out to ensure compliance with NZS3604:2011 for timber framing or NASH to ensure that the stud and dwang centres meet the requirements set out in the MAGNUM BOARD Weatherboard system Technical Manual.

7.1 PENETRATIONS

Installation of the MAGNUM BOARD Weatherboard system is reliant on all openings and penetrations meeting the requirements set out in the Technical Manual.

Structural performance - Clause B1

8.1 The MBWB system when used in accordance with this Appraisal Certificate and subjected to normal conditions of environment and use, is expected to tolerate wind forces up to and including Extra High as defined in NZS3604:2011.

Durability - Clause B2

8.2 The MAGNUM BOARD Weatherboard system when used in accordance with this Appraisal Certificate and subjected to normal conditions of environment and use, is expected to have a serviceable life of at least 15 years for the Magnum Weatherboards and 5 years for a compliant protective coating system. Refer to Health Based Building Ltd. for recommendations. Warranties of 20 years are available. www.healthbasedbuilding.com

External Moisture - Clause E2

8.3 Performance of the MBWB system is reliant on the correct installation of the system to meet the requirements of clause E2.

8.4 The design of details not included within the Technical Manual are subject to specific design and are outside the scope of this Appraisal Certificate.

Hazardous Building Materials - Clause F2

8.5 Performance F2.3.1. The MBWB system when installed according to the requirements of this appraisal meets this requirement.

Installation Requirements

Installation Skill Requirement

9.1 Installation of the MAGNUM BOARD Weatherboard system, including accessories and the recommended Biopin protective coating system, shall be installed by suitably experienced trade persons, under the supervision of a Licensed Building Practitioner, as described in the Appraisal-holder's technical literature.

Preparation of Timber Framing

9.2 The moisture content of any new timber framing must be no higher than 18%.

Biopin Coating Application

9.3 Note that the application of the Biopin Coating system must not be undertaken when the substrate temperature is below 4°C or if it is likely to drop below 4°C during drying/curing time.

Health and Safety

9.4 The safe use and handling of the MAGNUM BOARD Weatherboards and the Biopin Coating system products are described in the Technical Literature. The products must be used in conjunction with the relevant material safety data sheet for each product. Refer to Section 18 of the Technical Literature.

Health and Safety

9.5 The safe use and handling of the MAGNUM BOARD Weatherboards and the recommended Biopin Coating system are described in the Technical Literature. The products must be used in conjunction with the relevant material safety data sheet for each product. Refer to Section 18 of the Technical Literature.

Basis of this Appraisal

BEAL use the 'compliance verification procedure' to evaluate compliance with the relevant performance clauses of the NZBC:

Performance B1.3.3(h) resistance to high winds.

Performance B2.3.1(b) & (c) 15 & 5 years

Performance E2.3.2.

Performance F2.3.1.

Other performance clauses were considered not relevant.

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

Assessments

10.1 The following assessments of the MBWB system have been undertaken by BEAL:
Review of test data and technical literature supplied by Health Based Building Ltd.

Tests

10.2 The following testing of the MAGNUM BOARD Weatherboard system has been undertaken by BEAL to verify compliance:

- Durability by way of adhesion testing to the MAGNUM BOARD Weatherboards before and after accelerated age conditioning
- Durability by way of assessment of water absorption resistance of the MAGNUM BOARD Weatherboards using two different methods of test
- Assessment of weathertightness was based on an adaptation of the test procedure described in AS/

NZS4284 Testing of Building Facades to suit.

10.3 The above test methods, assessments and respective laboratory test reports have been assessed by BEAL and deemed suitable.

Other Investigations

10.4 An opinion has been given by BEAL experts on the durability of The MBWB system based on research, test data and in-service history.

10.5 The installation of the MBWB system was also evaluated (including site visits) in practical building situations assessing the following:

- Ease of installation
 - Potential risks of non-performance when being installed
 - Factors that affect the quality of the installed product
- 10.6 The Technical Literature has been examined by BEAL and found to be satisfactory.

Quality

10.7 The manufacture of the MAGNUM Board has been considered by BEAL, with details regarding the manufacturing quality control and composition of the materials used found to be satisfactory.

10.8 The quality of materials, components and accessories supplied by Health Based Building Ltd. is managed through the use of a 'Building Product Quality Plan'.

10.9 The Health Based Building Ltd. Building Product Quality Plan ensures continuous conformance with the quality requirements from purchase to supply of components.

10.10 Health Based Building Ltd.'s Building Product Quality Plan is reviewed and audited at least annually by BEAL.

10.11 Designers are responsible for the framing design, and building contractors are responsible for the quality of construction of the framing. The building owner is responsible for the supply and correct installation of windows and doors and any other penetrations of the cladding.

Sources of Information

- The Building Regulations 1992, as at 15 November 2021
- NZS 3604:2011 Timber framed Buildings
- NASH Standards 1 & 2
- ICC-AC386 - Acceptance Criteria for Fibre-reinforced Magnesium-oxide Based Sheets.
- Test data and technical literature supplied by the MAGNUM Board manufacturer in the USA. This includes the test report from ICC-Evaluation Service using the ICC-AC386 - "ACCEPTANCE CRITERIA FOR FIBER-REINFORCED MAGNESIUM-OXIDE-BASED SHEETS" originally issued 1 July 2015 and updated since.
- Letter concerning a 50 year durability from Thompson Global Partners LLC dated 27 August 2018
- Test Reports from BEAL:
 - TR140616-1 Adhesion of the protective coating
 - TR140717-1 Weathertightness
 - TR140723-2 Fixing pull-through resistance
 - TR140723-2 Staged fixing shear resistance
 - TR220610-2 MOE & MOR—face side up
 - TR220616-2 Nail pull-through
 - TR220718-2 MOE & MOR - face side down
- Fixing capacity testing was also peer reviewed by a Chartered Structural Engineer.

Concluding statement

11.1 In the opinion of BEAL, the MBWB system is fit for purpose and will comply with the NZBC to the extent specified provided that it is used, designed, installed and maintained as set out in this Appraisal Certificate. The Appraisal Certificate is issued only to Health Based Building Ltd., and is valid until the date of expiry described on the front of this appraisal, subject to the conditions of this Appraisal.

Conditions of Appraisal

1. This appraisal Certificate:

- a) Relates only to the MBWB system as described herein;
- b) Must be read, considered and used in full, together with the current version of the Technical Literature
- c) Does not address any legislation, regulations, codes or standards, not specifically named herein;
- d) Is copyright of BEAL

2. The Appraisal Certificate holder continues to meet the quality requirements of the Health Based Building Ltd. Building Product Quality Plan and has the plan audited and Appraisal certificate revalidated by BEAL on an annual basis.

3. Health Based Building Ltd. shall notify BEAL and obtain approval of any changes of the product specification or quality assurance prior to product being marketed including any trade literature, web site info or the like.

4. BEAL 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 Appraisal Certificate holder.

5. BEAL's verification of the building product or system complying with one or more of the above-mentioned criteria is given on the basis that the criteria used were those that were appropriate to demonstrate compliance with the NZBC at the date of this Appraisal Certificate. In the event that the criteria is withdrawn or amended at a later date, this Appraisal may no longer remain valid.

6. Any reference in this Appraisal Certificate to any other publication shall be read as a reference to the version of publication specified in this Appraisal Certificate.

Authorised Signatory



C R Prouse - Director

BEAL (Building Element Assessment Laboratory Limited)

[Revised and updated December 2022 ver2.3]