



# BEAL Appraisal Certificate



APPRAISAL #: C2305

EXPIRY DATE: 31 July 2025

## SUMNER Adhered Masonry Veneer System



### Product

1.1 The SUMNER Adhered Masonry Veneer system (SAMV) uses SUMNER Board (a fibre-cement board) as the cladding substrate, enabling the adhesion of a wide range of thin masonry veneer finishes. SAMV provides a durable, weatherproof and attractive solution for thin masonry.

1.2 SUMNER Board is denser than typical fibre-cement sheets, having a density of ~1.3 kg/m<sup>3</sup>, making it a suitable substrate for adhering thin masonry veneers ranging from 25kg/m<sup>2</sup> to 92kg/m<sup>2</sup>.

1.3 SUMNER Board is screw fixed to timber or steel framing or masonry, including ICF formwork, at 180mm or 220mm centres around the perimeter and through the centre of the board.

1.4 SUMNER Board is primed and joints taped to ensure it meets durability requirements. The use of the proprietary joint tape also prevents moisture ingress at board junctions and can be used in place of z-flashings at inter-storey junctions.

1.5 Stainless steel 'L-brackets' are utilised in conjunction with the SUMNER Grip Plus adhesive to secure the thin masonry veneers to the board, which are screw-fixed at 600mm centres.

1.6 SAMV is applied by tradespersons trained and approved by Original Stone Ltd, within the scope and limitations described in the Appraisal-holder's Technical Manual.

### NZ Building Regulations

2.1 Based on testing and expert opinions to verify performances, it is BEAL's opinion, the SAMV will meet the following provisions of the New Zealand Building Code when designed, installed and maintained as per the statements and conditions of this Appraisal Certificate:

#### Clause B1 STRUCTURE & MECHANICAL

Performance B1.3.1 and B1.3.3. SAMV meets the requirements for loads arising from self-weight, wind, impact and creep [B1.3.3 (a), (b), (h), (j) and (q)] (refer to Para 14.4).

Performance B1.3.2 SAMV meets the requirements for adhesive performance requirements (refer Para 14.5)

#### Clause B2 DURABILITY

Performance B2.3.1 (b), 15 years, and B2.3.2. SAMV meets these requirements (refer to paragraph 14.6).

#### Clause E2 EXTERNAL MOISTURE

Performance E2.3.2. SAMV meets this requirement (refer to paragraph 14.7).

#### Clause F2 HAZARDOUS MATERIALS

Performance F2.3.1. SAMV meets this requirement (refer to paragraph 14.8).

2.2 The SAMV has been appraised as an 'Alternative Solution' in terms of compliance with the New Zealand Building Code.

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## Scope and Limitations

3.1 The SAMV is appraised for use as an external wall cladding system for buildings within the following scope:

- Scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- Timber framing complying with NZS3604; and or,
- Steel framing complying with the NASH Standards; and,
- Masonry walls, including ICF formwork complying with NZS 4229
- Can be situated in up to and including 'Extra High' wind zones as described in NZS 3604.

3.2 THE SAMV must only be installed on vertical surfaces as described in the Technical and Installation manual.

3.4 The SAMV has also been appraised for use with aluminium window and door joinery installed with vertical jambs and horizontal heads and sills, meeting the requirements of the New Zealand Building Code for the relevant building wind zone or to Specific Engineered Design (SED).

3.5 Only tradespersons approved by Original Stone Ltd. shall install the SAMV.

## Technical Literature

4.1 Installers must read the SAMV Technical Manual version dated 5th March 2023 in conjunction with this Appraisal and follow all design, use, installation and maintenance instructions.

4.2 For a copy of this technical literature and any subsequent updates, please refer to the following: [www.sumnerschist.co.nz/documents/document.html](http://www.sumnerschist.co.nz/documents/document.html) or from the BEAL web site under Appraisals.

## Technical Details

5.1 The SAMV can be installed over a frame protection system comprising either a flexible air barrier or, a rigid air barrier according the relevant wind zone as defined in NZS3604.

5.2 Components of the SAMV supplied by Original Stone include:

### SUMNER Board

- SUMNER Boards are a fibre-cement type sheet, 2400mm by 1200mm, 9mm thick.

### VERMINI Cavity Battens

- These cavity battens are manufactured from extruded polypropylene to be approximately 45 mm wide by 18 mm thick and supplied in 1200mm vertical and 550mm horizontal lengths.

### SUMNER BOARD FASTENERS

- For timber framed construction use 10g x 63mm Stainless Steel 316 screws
- For steel framed construction use Galvanised Class 4 countersunk screws 10g x 60mm with wings
- For masonry wall construction use Hilti HPS-1 R 6/40x65 anchors, or SPAX 6x60 A2 WH sleeved with HILTI HUD-L 8x60 (pre-drill 65mmx8mm at 300mm centres).

### SUMNER Prime

- All surfaces must be brushed or rolled with SUMNER

Prime before applying adhesive (excluding interior Tilt Slab, which needs cleaning down with water).

### SUMNER Grip Plus

- This is a two-part adhesive designed especially for heavyweight veneer classification. See the examples below\*\*.

### SUMNER L-Fixings

- These stainless steel 316 L-shaped brackets support the sheer weight of thin masonry veneer pieces during and after installation.

### SUMNER Tape

- This flashing tape is used at all internal and external corners and over control joints.

### \*\*Thin Masonry Finishes

Examples include:

- Brick slips,
- Stone veneers (bluestone, basalt, schist, limestone etc),
- Porcelain or ceramic tiles.

5.3 Accessories, supplied by the owner or main contractor include:

- **A rigid air barrier system** (RAB) or proprietary building wrap / **flexible underlay & tape system**, that ensures all overlaps and edges of the RAB or wall wrap / underlay to be airtight and weathertight;
- Where a flexible building wrap / underlay system is used, the use of Polypropylene tape strapping for securing the building wrap or underlay in place and preventing bulging of the wall insulation into the frame cavity is recommended;
- **Flexible flashing sill and jamb tapes** that comply with AAMA 711-07 or a flexible flashing tape covered by a valid BEAL or BRANZ Appraisal for use around window and door joinery.
- **Proprietary pipe gaskets** as approved by SUMNER;
- Where required, window head, jamb and sill flashings that comply with the NZBC;
- Other penetrations through the wall shall be SED.

## Handling and Storage

6.1 Handling and storing all SAMV materials, both on and off-site, are the main contractor's responsibility.

6.2 Dry storage must be provided on-site for SAMV components and protected from moisture and physical damage.

6.3 Handling of SUMNER Boards requires care to prevent damage to corners or excessive flexing.

## Advice for designers

### General

7.1 The SUMNER Adhered Masonry Veneer system is a highly decorative stone veneer type cladding system designed for installation over timber, light gauge steel or masonry substructures.

7.2 Before installation can begin, it is essential that a careful inspection of the substructure is made to ensure its suitability and is accordance with the SAMV Technical Manual.

## Timber Framing

7.3 Timber framing shall be treated as required by NZS 3602.

7.4 The installed timber framing must comply with NZS 3604 for both buildings or parts of buildings within the scope limitations of NZS 3604. Where buildings or parts of buildings are outside the scope of NZS 3604, then they must be to SED per NZS 3603 and AS/NZS 1170. Where SED is required, the framing must be of at least the equivalent stiffness to the framing provisions of NZS 3604. In all cases, studs must be at a maximum of 600mm centres.

7.5 Timber framing must have a maximum moisture content of 18% at the time of cladding application. (Problems could arise later on due to timber shrinkage if over 18%).

## Light Gauge Steel (LGS) Framing

7.6 LGS framing shall be to the NASH Standards or to SED.

7.7 The minimum steel framing specification is 'C' section studs and nogs with overall section dimensions of 76mm web by 40mm flange. Steel thickness must be a minimum of 0.55mm.

7.8 Studs centres must be 600mm or less for steel framed buildings up to and including Very High wind zones as defined in NZS3604. Studs centres must be 400mm or less for wind zones that exceed Very High.

## Masonry & ICF Formwork Substrates

7.9 Masonry walls including ICF formwork must be constructed flat and straight to allow the SUMNER Board to be attached in accordance with the details described in the Technical manual.

## SAMV Board Layout

7.10 SUMNER Boards are installed vertically and supported behind fixing locations by vertical and horizontal battens. At the base of the wall, the SUMNER Boards can be either rested on a concrete rebate (75mm below the finished floor level) or hung 50mm below the finished floor level.

## General

7.11 The selected cavity closers shall be compliant with the requirements of the NZBC.

7.12 The ground clearance requirement between the finished floor level and ground level, as outlined in NZS 3604, must always be followed. At ground level, paved surfaces must be kept clear from the bottom edge of the SAMV by a minimum of 100mm and unpaved surfaces by 175mm.

7.13 At balcony, deck or roof-to-wall junctions, the SAMV bottom edge must be kept clear of any adjacent surface or above the top surface of any adjoining roof flashing by a minimum of 35mm.

7.14 Where the SAMV abuts other cladding systems, designers shall seek advice to ensure the junction meets the performance requirements of the NZBC. Note that the technical manual provides limited guidance only. Details not included within the technical manual have not been assessed and are therefore outside the scope of this Appraisal.

7.15 As described earlier, all buildings must have a

frame protection system to prevent the passage of air and moisture into the framing.

7.16 In cases where interior walls are not lined, such as attic spaces at the gable end, a proprietary frame protection system shall be installed to the interior of the unlined framing.

## Control Joints

7.17 SUMNER Board control joints must be constructed as per the technical literature and as follows;

### Horizontal control joints

- To be installed when intermediate floor joists are not seasoned or when the height of the wall exceeds 8.0m,

### Vertical Control Joints

- 5.0m maximum centres
- These need to align with any control joint within the structural framing or where the system abuts other cladding systems unless there is a SED.
- Must be used at both internal and external corners.

**Note:** Where possible, the location of control joints shall be in line with window and door openings. Horizontal and vertical control joints must be located over structural supports. The Technical manual provides some guidance for designing vertical control joints where the system abuts different cladding types. Details not included within the technical manual or those marked as 'Specific Design Only' are outside the scope of this Appraisal Certificate.)

### Inter-story Junctions

7.18 At inter-story horizontal junctions, use of expanding flexible tape shall be incorporated into the frame protection design.

**Structure** - Clauses B1.3.1, B1.3.3 (a), (b), (h), (j) and (q)

### Mass

8.1 SAMV has an approximate mass of 45 to 92kg/m<sup>2</sup>, considered a heavy wall cladding in NZS 3604.

### Impact Resistance

8.2 The system has adequate resistance to impact loads that the cladding system will likely be subjected to when used in a residential situation. The likelihood of impact damage should be considered at the design stage for light commercial situations, with appropriate protection provided, such as bollards or barriers where necessary.

### Wind Zone

8.3 SAMV is suitable for use in all building wind zones as per NZS 3604, up to and including 'Extra High'.

## Durability – Clause B2.3.1 (b)

9.1 The SAMV will meet NZBC B2.3.1 (b) performance requirements, 15 years for the cladding system and B2.3.2 when used per this Appraisal Certificate and subjected to normal conditions of the environment and use.

### Maintenance

9.2 Regular maintenance is essential to ensure SAMV meets the performance requirements of the NZBC and to ensure maximum serviceability.

9.3 Periodic cleaning of the wall is required to remove grime, dirt and organic growth as per the technical literature to maximize the life and appearance of the masonry finish.



9.4 A tradesperson must immediately repair any cracks, damaged areas or areas showing signs of deterioration that may be susceptible to water ingress. SAMV must be maintained and fixed per SAMV instructions.

9.5 The minimum ground clearance, as set out in this Appraisal and technical literature, must be maintained at all times during the system's life to ensure SAMV durability and weather tightness.

### External Moisture - Clause E2.3.2

10.1 When installed in accordance with this Appraisal Certificate and Technical Literature, the SAMV will prevent the penetration of water that could cause undue dampness and/or damage to building elements and will therefore comply with clause E2.3.2.

10.2 The details provided within the technical manual for weather resistance are based on the design principle of employing both a 1st and 2nd line of defense against moisture ingress into the framing. Moisture ingress will be prevented by detailing the window and door joinery and other wall penetrations as detailed in the SAMV technical manual. Any weathertightness details not described in the SAMV Technical Manual and developed by a designer are outside the scope of this Appraisal Certificate.

### Hazardous Building Materials - Clause F2.3.1

11.1 The constructed SAMV, when installed according to the requirements of this Appraisal and the manufacturer's instructions, meets this requirement and will not present a health hazard to people using the building.

## Installation Requirements

### Installation Skill Requirement

12.1 Approved experienced applicators must carry out the fitment of SAMV under the supervision of a Licensed Building Practitioner (LBP).

12.2 Installation of the accessories supplied by the building contractor must be completed by a tradesperson who understands cavity-based cladding construction, per instructions given within the SAMV Technical Manual and this Appraisal Certificate.

#### System Installation

12.3 The building contractor must install the selected building wrap and flexible flashing tape per the manufacturer's instruction before installing SAMV. The building wrap shall run horizontally and be continuous around corners. The wrap must be lapped not less than 75mm at horizontal joints and not less than 150mm over studs at vertical joints. The builder must take care when installing building wrap and flashing tape around window and door openings to ensure a continuous seal and protect any exposed wall framing.

12.4 The builder shall tape all laps and outer edges of the wall wrap to prevent wind ingress.

12.5 The building contractor must install aluminium joinery per SAMV technical literature. A nominal 7.5-10mm gap must be left between the joinery reveal and the wall framing to accommodate the PEF rod and air seal when fitting the joinery.

12.6 An approved installer must be used to fit SAMV and per the technical literature.

12.7 A building inspector must refer to SAMV technical literature during installation inspection.

### Health and Safety

13.1 Considerations for tradespersons when fitting SUMNER Board:

- Cut the board in open-air or well-ventilated areas,
- use a dust mask,
- use eye protection,
- gloves must be worn.

13.2 All cutting, drilling or grinding aspects must comply with the latest regulations of the Labour Department's occupational safety and health division.

13.3 Refer to the technical literature from the relevant manufacturer for the safe use and handling of the components that make up the SAMV.



Photo of a project completed in 2004

# Basis of this Appraisal

14.1 BEAL use the compliance verification procedure to demonstrate compliance with the relevant clauses of the NZBC based on a risk analysis procedure. The following is a summary of the technical investigations carried out:

## Assessments

14.2 The technical literature and information supplied by Original Stone has been assessed by BEAL experts and found satisfactory.

## Testing Carried Out

BEAL Testing Services have completed the following testing to verify compliance of the SAMV:

### 14.3 Buildability

The SAMV was constructed as per the manufacturer's instructions to establish ease of construction

### 14.4 Performance Clauses B1.3.1 & B1.3.3

Compliance with this clause was established through mechanical testing of the SUMNER Board using the specified fixings to ensure the cladding would meet each relevant performance requirements.

### 14.5 Performance Clause B1.3.2

Compliance with performance clause B1.3.2 was established through flatwise adhesion testing of the SUMNER Grip Plus as per ASTM C297 before and after accelerated ageing, using a low porosity porcelain tile to represent typical masonry veneer.

### 14.6 Performance Clause B2.3.1(b)

Compliance with performance clause B2.3.1(b) was established through an expert opinion which considered the materials used in the SAMV product.

### 14.7 Performance Clause E2.3.2

Compliance with performance clause E2.3.2 was established through a weathertightness test using a Driving Rain Test Booth to evaluate the weather tightness of the window head, jamb and sill details, and horizontal control joints, based on the use of a frame protection system.

### 14.8 Performance Clause F2.3.1

Compliance with performance clause F2.3.1 was established through an expert opinion plus an absence of asbestos test report, which considered the materials used in the SAMV product.

## Other Investigations

15.1 Wind loadings, self-weight, seismic loadings, shear force, panel capacity, fastener pull-through testing and calculations for SAMV were determined by an independent Chartered Engineer concerning the requirements of compliance document B1 Structure. The engineer provided structural and durability opinions which support this Appraisal.

15.2 BEAL assessed the in-service history of the SAMV system, that was developed and used as early as 2004.

## Quality & Risk Management

15.3 The quality of SAMV materials, components and accessories is managed using the Building Product Quality Plan. SAMV's Building Product Quality Plan ensures continuous conformance with the quality requirements from purchase to the supply of components.

15.4 SAMV's Building Product Quality Plan is reviewed annually by BEAL.

15.5 Quality of installation of the SAMV on site is the responsibility of the tradespersons trained and approved by Original Stone Ltd.

15.6 Designers are responsible for the building design, and the owner is responsible for the quality of installation of framing systems, joinery, building wrap, flashing tapes, head flashings and air seals in accordance with the SAMV technical literature and per this Appraisal Certificate.

## Responsibilities

16.1 Building owners are responsible for the maintenance of the SAMV as per the warranty information and this Appraisal Certificate.

# Sources of Information

- ♦ AS 3566 Self drilling screws for the building and construction industries.
- ♦ AS/NZS 1170:2002 Structural design actions
- ♦ ASTM C 297: Standard test method for flatwise tensile strength of sandwich constructions.
- ♦ AS/NZS 2908.2: Cellulose-cement products
- ♦ NASH 3405:2006 Steel framed buildings
- ♦ 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 4229:2013 Concrete masonry buildings not requiring specific engineering design
- ♦ NZS 4211:1985 Specification for performance of windows.
- ♦ The Building Regulations 1992, up to, and including 15 November 2022 amendments.
- ♦ A test report from SGS covering the absence of asbestos in the SUMNER Board, dated 9th November 2018.
- ♦ A statement of in-service history from 2004 from the certificate-holder.

## BEAL Test reports:

- ♦ TR111103 Pull-through Resistance Test
- ♦ TR160811-1 Adhesive Strength of Sumner Grip Adhesive to Low Porosity Maximum Porcelain Tile
- ♦ TR170616-1a Testing of the Inherent Compressive Strength of New Polypropylene Battens
- ♦ TR170620 Testing of Water Flow through New Polypropylene Battens
- ♦ TR180507-1 Proprietary Test Method for Assessment of the Adhesion Tensile Strength between the CDK Neolith Tile and the Sumner Grip Adhesive used for Original Stone
- ♦ TR190514-1 Weathertightness Test of a Sample Wall
- ♦ TR201002-1 Deflection Test to Measure the Compressive Strength of Flexible Cellular Materials

## Concluding statement

17.1 In the opinion of BEAL, based on the testing and assessments carried out, the SAMV is fit for purpose and will comply with the NZBC to the extent specified, provided it is designed, installed and maintained per the manufacturer's instructions and this Appraisal Certificate.

17.2 The Appraisal Certificate is issued only to Original Stone Ltd and is valid until further notification, subject to the conditions of this Appraisal.

## Conditions of Appraisal

1. This appraisal Certificate:

- a) Relates only to the SUMNER Adhered Masonry Veneer 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 Original Stone Ltd. Building Product Quality Plan and has the plan audited and Appraisal certificate revalidated by BEAL on an annual basis.

3. Original Stone 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 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)  
Updated July 2024

