



Producer Statement

Masada™ D5 Building Board Wall Cladding System



Manufactured in Australia by:

Poly Marketing Pty Limited T/A

Envorinex

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ABOUT THIS PRODUCER STATEMENT

This Producer Statement provides information on the Masada™ D5 Building Board Twin-wall uPVC wall cladding system (marketed in New Zealand as Masada) by Cosy Home Exteriors.

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The Masada™ D5 Building Board is a weather-resistant, exterior weatherboard, for residential and light commercial type buildings and made from 100% recyclable, unplasticised polyvinyl chloride (uPVC). Information in this Producer Statement includes product properties and recommendations to assist in the design, application, installation and maintenance of the cladding system.

SCOPE

The Masada™ D5 Building Board is an **Alternative Solution** for use as an exterior weatherboard on buildings. This definition arises as unplasticised polyvinyl (uPVC) has not been listed as a cladding type in the New Zealand Building Code (NZBC) Acceptable Solution E2/AS1.

Information provided by the manufacturer of the Masada™ D5 Building Board and the testing and inspection documentation of independent organisations has been reviewed and summarised. The performance criteria of the **Alternative Solution** have been considered in the design and installation recommendations and with respect to the requirements for compliance with the New Zealand Building Code.

WARRANTY

The Masada™ D5 Building Board is supported with a 25 year product warranty. The warranty is transferable to subsequent owners. Conditions of this warranty are available in this Producer Statement or can be accessed on www.envorinex.com or www.masadanz.co.nz

The Masada™ D5 Building Board is warranted not to peel, blister, pit, and flake or corrode as a result of manufacturing defects or as a result of exposure to ocean air (salt spray) or to acid rain resulting from hydrocarbon or industrial pollution.

Warranty Conditions

Envorinex will accept no liability or responsibility if the information contained in this Producer Statement is incorrectly or inappropriately applied or interpreted, nor if used in a manner other than as explicitly set out in this document or to referenced documents available on website www.envorinex.com and www.masadanz.co.nz

PRODUCT INFORMATION

D5 Building Board (Masada)

The Masada™ D5 Building Board is manufactured by Envorinex in Australia and marketed and distributed in New Zealand by Cosy Home Exteriors.

Masada™ D5 Building Boards have been supplied throughout New Zealand since 1984.

The Masada™ D5 Building Boards conform to the specifications for Type A (twin wall) uPVC wall cladding as prescribed in the AS/NZS 4256 and S/NZS 4257.

Cosy Home Exteriors

Cosy Home Exteriors is the exclusive master distributor of Masada™ D5 Building Board throughout New Zealand via a network of authorized installers and builders.

The Masada™ D5 Building Board is a lightweight horizontal wall cladding resembling weatherboards attached with hidden fastenings.

The Masada™ D5 Building Board is intended to be used on new timber or steel frame buildings or for over-cladding existing buildings when fasteners can be driven into existing materials provided there is adequate nail holding capacity.

Builders can access either the Direct Fixed Cladding System or Cavity Drained Cladding System Manuals from Cosy Home Exteriors Limited website on www.envorinex.com & www.masadanz.co.nz. Further assistance can be obtained by contacting either Cosy Home Exteriors or Envorinex on either masada@masadanz.co.nz or info@envorinex.com.

NEW ZEALAND BUILDING CODE

The Masada™ D5 Building Board is designed as exterior wall weatherboards for use on a building to comply with the New Zealand Building Code (NZBC). The Masada™ D5 Building Board is a 'secondary element', i.e. a building element not providing load bearing capacity to the structure.

The NZBC sets out performance requirements for different building elements and requires materials to be fit for the purpose for which they are intended. This section summarises the data available to demonstrate The Masada™ D5 Building Board meets the performance requirements of the specific clauses listed below.

Clause B1 STRUCTURE:
Performance: B1.3.1, B1.3.2, B1.3.3 and B1.3.4.

Clause B2 DURABILITY:
Performance: B2.3.1 (b), 15 years; B2.3.2 (b)

Clause E2 EXTERNAL MOISTURE:
Performance: E2.3.2
Roofs and exterior walls shall prevent the penetration of water that could cause undue dampness, or damage to building elements.

Clause F1 HAZARDOUS BUILDING MATERIALS:

Performance F2.3.1

The product or system will not be harmful to people.

The Masada™ D5 Building Board is an **Alternative Solution** as unplasticised polyvinyl chloride (uPVC) has not been listed as a specific cladding type in the New Zealand Building Code (NZBC) Acceptable Solution E2/AS1.

The Masada™ D5 Building Board is direct fixed to timber framing where the Risk Score (NZBC E2/AS1) fits a 0 – 6 category. For higher risk scores, the cladding is to be used with battens to provide 20 mm drained ventilated cavity.

LIMITATIONS

The Masada™ D5 Building Board is **not suitable** for use as:

1. Any building element where the New Zealand Building Code requires a minimum of 50 years performance, or
2. Columns, support posts, beams, joists, stringers or other primary load-bearing applications, or
3. A material for decking or parapet capping, or
4. A fire escape or decking on a single access way into a building, or
5. Bracing as described in NZS 3604, or
6. A firewall or where there are spread-of-flame requirements as specified in NZBC C3.3.
7. Roofing Material

PRODUCT SPECIFICATION

The Masada™ D5 Building Board complies with the requirements of AS/NZ 4256 Plastic Roof and Wall Cladding Materials, Part 4 – Unplasticised polyvinyl chloride (uPVC) wall cladding boards.

The Masada™ D5 Building Board including accessories are manufactured in Australia to metric measurements. The Masada™ D5 Building Board is available as either a D5 board or 150mm board; the difference being the depth of the panel when installed horizontally.

Dimension	Twin-wall cladding
Length	5.80 m
Cover Width	D5 Board 250 mm 150 Board 150 mm
Panel coverage	D5 Board 1.45 m ² 150 Board 0.87 m ²
Window reveal allowance	20 mm nominal for Direct Fixed System.

	40mm nominal for Cavity Drained System
Weight	D5 board 4.5 kg/length 0.78 kg/m 150 Board 2.7 kg/length 1.08 kg/m
Thermal Resistance (R)	0.30
Thermal Conductivity (R)	0.015
Thermal Expansion	2.5 mm/m @ 55 °C
Sound Transmission Class (single wall)	20dBA loss
Sound Transmission Class (double wall)	36dBA loss
Static Design Pressure	3.2 kPa
Wind Load Testing	57 m/sec
Wind Gust Capacity	225 kph

Masada™ D5 Building Board is recognised as Type A board under AS/NZS 4256:4 – Unplasticised Polyvinyl Chloride (uPVC) (transverse stiffness < 1.0 Nm² when direct fixed to framing (Type B is for the single skin weatherboards which must be fixed over a substrate at a maximum of 450mm centres).

PRODUCT DESCRIPTION

The Masada™ D5 Building Board components are manufactured from unplasticised polyvinyl chloride (uPVC) to final shape and form. The weatherboards consist of interlocking, secret fixing, hollow sections of wall cladding with a range of installation accessories (trim, flashings, and soffit).

The Masada™ D5 Building Board is manufactured as nominal 5.8 m lengths. The weatherboards have a shiplap profile with a smooth finish surface giving the appearance of well cared for timber weatherboards. The width is either as a 150mm wide dressed weatherboard or as a 250mm double profile (D5). The Twin-wall weatherboards and trims have fixing strips, pre-punched at regular intervals along the edge other than for the injection moulded "off-stud" weatherboard joiners.

The Masada™ D5 Building Board is available in a range of eight colours; each polythene wrapped pack of Twin-wall uPVC wall cladding is identified with the manufacturing batch number and indicative stacking height.

D5 250mm packs contain four boards, weight ~18 kg.

D5 (IP) 150mm packs contain 10 boards, weight ~27 kg.

The Masada™ D5 Building Board gives a seamless appearance, with quick and easy installation and never needs painting.

Accessory products are consistent in shape, size and appearance, and are required for the correct installation of the Masada™ D5 Building Board. Accessories are manufactured from the same formulation materials and with the same lifelong properties as the cladding. Refer to the Installation Manual or web site for descriptions and accessory specifications.

PERFORMANCE

Masada™ D5 Building Board has been used in Australia since 1982 and in New Zealand since 1984.

Experience has shown the Masada™ D5 Building Board to be extremely durable and resistant to ultra-violet (UV) light, temperature changes, oxidation effects and biological deterioration.

Envorinex have verified the Masada™ D5 Building Board through third party testing in the Australia

As the manufacturer, Envorinex provides a 25 year product warranty.

1. Durability to Biological Agents

The NZBC B2 DURABILITY: Performance B2.3.1 (b) specifies a minimum serviceable life of 15 years.

The service life is supported by the continuing long term outdoor exposure of Masada™ D5 Building Board samples at the Allunga Outdoor Exposure Laboratory, Townsville, Queensland from May, 1982 to May 2008 (26 years exposure) The evaluation method is based on AS 1580.481.

In addition, this Type A (Twin-wall) uPVC wall cladding has been used in New Zealand since 1984 and Australia since 1982 without any water entry or early demise problems.

Both New Zealand and Australia have not had a warranty claim since commencing manufacture in 1982.

New Zealand performance is supported by long term commercial and residential use of the product and exceeds the NZBC 15 year minimum requirement.

The manufacturer warrants durability against product failure due to mould, rot or insect damage.

2. Weathering and Moisture Resistance

2.1 Exposure to UV

Over time the cladding surface will gradually 'bloom,' merely requiring an occasional wash down to retrieve surface appearance.

Our material was the only uPVC wall cladding manufacturer to have had materials continually exposed for 26 years (long-term) testing at the Allunga Exposure Laboratory, Townsville, Queensland, Australia. The material was first exposed on 26th May, 1982 and was continuously exposed for the twenty six years without washing or maintenance.

2.2 Exposure to temperature and moisture variations

The D5 materials are designed, formulated and Australia / New Zealand performance confirmed to negate the effects of temperature and moisture variations.

3. Wind and Moisture Resistance

3.1 Wind driven rain testing

Certified testing of the Masada™ D5 Building Board in a simulated weatherboard system has been performed by Window Engineering Consultants in accordance with AS/NZS 4284:1995 and at the test pressures specified in the NZBC E2 Verification method E2/VM1 for a 500 Pa Static pressure test for a period of 15 minutes with water spray exposure. Additionally a Cyclic pressure test was conducted for the 5 minute exposure with pressure cycling between 150 and 300Pa followed by two periods of 5 minutes each with pressure cycling between 300 and 600 Pa. The Water Management and Wet wall tests of VM1 were not undertaken.

These water penetration tests were performed on a 3.00m high by 4.70m timber framed wall incorporated internal and external corner details, window penetration detail, electrical metre box, apron flashing on roof , PVC water pipe penetration and a balcony parapet and T-wall junction. No water penetration was observed in either the static pressure or cyclic water penetration tests.

Detailing and finishing around windows, doors, and joins to other product types are important in ensuring weather tightness of the building envelope. This is achieved through the use of specific weather tightness design where required, using the accessory products fasteners and recommended sealants. Further information can be found in the Product Installation Manual.

3.2 Wind zones

When fixed in accordance with the Installation Manual, the Masada™ D5 Building Board are suitable in low, medium and high wind zones as defined in NZS 3604.

Masada™ D5 Building Board has been tested by Colless & Associates Pty Limited of Darwin, Northern Territory, Australia on 12th April, 1985 and certified to comply with Darwin Cyclone Area (Region C Tropical Cyclones) in accordance with AS1170.2.

Masada™ D5 Building Board has been tested at the Cyclone Testing Station of James Cook University in Townsville, Queensland, Australia on 3rd September, 1982 and was deemed to comply with Category 2 of the SAA Wind Loading Code AS1170.2.

4. Strength properties

4.1 Loading

Masada™ D5 Building Board was tested according to AS 2921-1987 (now replaced by AS/NZS 4256). The Type A (Twin-wall) cladding with a 450 mm stud met the test requirements of no permanent deformation, disengagement or cracking when a sand bag was dropped onto either the stud position or over the mid span section.

Masada™ D5 Building Board is designed to be fixed at up to 600mm centres other than in a high wind or cyclone designated location where fixing shall be at a maximum of 450mm centres.

4.2 Resistance to Impact

Masada™ D5 Building Board was tested according to AS 2921-1987 (now replaced by AS/NZS 4256). The failure load after cycling was 5.72 kPa for the Type A board (Twin-wall) these results indicate there is

adequate resistance to impact from impacts likely in normal residential applications. The impact resistance may decrease over time and at lower temperatures.

5. Thermal properties

5.1 Thermal movement

The coefficient of thermal linear expansion for the uPVC is typically 45×10^{-6} per degree Celsius. Over a 55°C temperature movement the Masada™ D5 Building Board will have an expansion/contraction in the order of 2.5mm per metre. Allowance is made for this expansion by the provision of slotted fixing strips on the Masada™ D5 Building Board.

5.2 Thermal resistance

The thermal resistance (the insulating value) of a material is its resistance to heat flow. The higher the 'R'-value, the greater the insulation value.

The method for measuring the 'R'-value of a given material or system depends on its shape.

6. Fire Characteristics

Masada™ D5 Building Board is self extinguishing and designed for use as a non-fire rated exterior wall. The product is not easily ignited but once exposed to flame will soften and regress.

The Masada™ D5 Building Board should not be exposed to a flame or heated surface at any time.

DESIGN AND INSTALLATION

For information on the design and installation of the Masada™ D5 Building Board including Specific Weather tightness Designs (SWD's) for New Zealand conditions refer to the Direct Fixed Cladding System and Cavity Drained Cladding System Manuals on www.envorinex.com & www.masadan.co.nz.

A risk assessment of the proposed design for each elevation shall be carried out according to NZBC E2/AS1. The risk matrix shall be used to define a risk score for the building. When the risk score is 0 – 6 the Twin-wall uPVC wall cladding system may be direct fixed to the framing. For risk scores between 7 and 20, the cladding is to be installed over a 20 mm minimum drained cavity with battens. For higher risk scores the building will require redesign or specific design to reduce the risk and evidence to demonstrate weather-tightness will be achieved.

Before beginning installation check the Masada™ D5 Building Board components are as ordered. Confirm that all critical building dimensions are as specified in the drawings.

Masada™ D5 Building Board must be applied to walls that are in plane and free of obstructions. Masada™ D5 Building Board will expand and contract with temperature changes. However as the Masada™ D5 Building Board is fixed through expansion slots, the weatherboards remain straight. Boards can be cut with a sharp, fine-toothed saw or fine-toothed finishing blade. The use of a masonry cutting disk is an alternative option.

Masada™ D5 Building Board must be installed in accordance with either the Direct Fixed Cladding System or Cavity Drained Cladding System Manuals. Trim and accessory products are available. All detailing and finishing including sealants are required to meet the requirements of NZBC E2.

Additional information published by Envorinex is available on www.envorinex.com & www.masadanz.co.nz.

Weatherboards

Install only as horizontal weatherboard panels onto studs spaced at up to maximum centres of 600mm. Framing is to be first covered with a breathable building wrap complying with NZS 2295. Recommended building wraps are GibFrame Gard II, Paul's Fastwrap and Watergate. Synthetic papers, e.g. Tyvek and Coverup must not be used. (See NZBC E2/AS1 2.4.2c).

To fix the Masada™ D5 Building Board use 9 mm head, 2.8 mm shank, 40 mm long hot dipped galvanised steel fasteners that comply with AS 3566 for direct fixing to timber framing. A 50 mm long fastener is required for fixing through battens into timber framing for walls with a cavity. Use with a suitable sized washer when fixing to steel framing. When the Masada™ D5 Building Board is in a salt spray zone, 304 Stainless steel nails or plated screws are required.

Sealants

A weather-tight building envelope is required. It is the responsibility of the designer, builder and contractor to ensure sound design principles are followed including where the sealants are used in conjunction with flashings. Care must be taken by these persons to ensure installation has been carried out correctly.

Only some silicone sealants are approved for use with the Masada™ D5 Building Board;

- FOSROC SILAFLEX MS Building Sealant
- HOLDFAST Fix All 220 LM Building Sealant

SILAFLEX MS is a neutral cure, non-slumping, elastomeric sealant based on a silicone - modified organic polymer that has an Appraisal Certificate [BRANZ APPRAISAL CERTIFICATE No. 311 (1995)].

Fix All 220 LM is also a modified polymer based sealant with similar properties and has an Appraisal Certificate [BRANZ APPRAISAL CERTIFICATE No. 419 (2001)].

The design of weather-tight joints and any detailing must be in accordance with the principles of good design such as described in the respective Appraisal Certificates and in BRANZ Bulletin No. 283. It is expected the sealants when used and maintained correctly will remain serviceable for 15 years or more in an exterior environment. This will meet the NZBC clause B2 DURABILITY requirements for Performance, B2.3.1 (b) 15 years.

Further information on installation is available in the Product Installation manual.

STORAGE AND HANDLING

Masada™ D5 Building Board:

- are lightweight and rigid for easy handling, and
- are flexible and do not break under stress.

Do not dump Masada™ D5 Building Board materials or accessories from truck onto ground. Manually unload.

Store panels flat on a smooth, dry, level surface out of direct sunlight.

Protect panels from contact with sharp objects or heavy traffic areas.

Do not expose to flame or hot surfaces.

HEALTH AND SAFETY

It is recommended to always wear safety goggles when cutting and fixing the cladding products. Always observe site safe practices on the building site.

In the event of a fire, use water or ABC dry chemical or foam. CO2 extinguishers may be of limited use for large fires.

A Material Safety Data Sheet for the product is available on www.envorinex.com.

MAINTENANCE

Masada™ D5 Building Board should be regularly hosed down or cleaned with soapy water especially in areas where there are industrial pollutants.

Surface marks may be removed with a damp cloth and non-abrasive cleaning product. DO NOT use petroleum based solvents for cleaning.

Graffiti can be removed using proprietary brand cleaners. Contact Envorinex for additional information.

DISPOSAL

Masada™ D5 Off-cuts or scrap are 100% recyclable or may be discarded with household rubbish or as normal construction waste to land fill.

INFORMATION SOURCES

1. New Zealand Building Code (NZBC)

Documents up to and including March 2005

Clause B1	STRUCTURE
Clause B2	DURABILITY
Clause E2	EXTERNAL MOISTURE
Clause F1	HAZARDOUS BUILDING MATERIALS

2. BRANZ

Moonshine Road, Judgeford.
Private Bag 50 906, Porirua City, New Zealand
www.branz.co.nz

BRANZ APPRAISAL CERTIFICATE No. 311 (1995)

SILAFLEX MS (BUILDING SEALANT)

Fosroc Limited

PO Box 38 079, Petone, Lower Hutt, New Zealand

BRANZ APPRAISAL CERTIFICATE No. 419 (2001)

Fix All 220 LM Building Sealant
Holdfast Manufacturing Limited
PO Box 4206, Hamilton

BRANZ Bulletin No. 283

Sealed joints in external claddings – 1. Joint design.

3. External Test Reports

Window Engineering Consultants

Testing of Masada™ D5 Building Board simulated weatherboard wall cladding system, directly fixed onto timber framed wall system in accordance with AS/NZ 4284:1995 Testing of Building Facades. Report No. 1389, July 2005.

Allunga Exposure Laboratory

Exposure report for white vinyl siding – 26 years.
26 May 2008.

Cyclone Testing Station

SAA Wind Loading Code AS1170.2
3 September, 1982

Colless & Associates Pty Limited

Darwin Cyclone Area Testing – Certificate M/211/1 – AS1170.2
12 April, 1985

4. Standards

AS 3566.1-2002	Self-drilling screws for the building and construction industries. Part 1: General requirements and mechanical properties.
AS 3566.2-2002	Self-drilling screws for the building and construction industries. Part 2: Corrosion resistance requirements.
AS/NZS 4256	Plastic roof and wall cladding materials
AS/NZS 4256.1	Part 1: General requirements
AS/NZS 4256.4	Part 4: Unplasticised polyvinyl chloride (uPVC) wall cladding boards
AS/NZS 4257	Plastic and wall cladding materials – Methods of test
AS/NZS 4284:1995	Testing of Building Facades.
NZS 3604	Code of Practice for light timber frame buildings not requiring specific design.

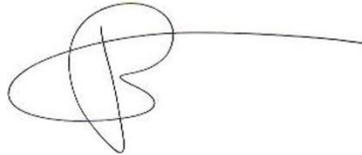
5. Other

Direct Fixed Cladding System Manual
Cavity Drained Fixed Cladding System Manual
Compliance Document for New Zealand Building Code – Clause E2 – External Moisture

MANAGING DIRECTOR'S STATEMENT DECLARATION

I, Jennifer Brown of 114 Victoria Street, George Town, in the State of Tasmania, Australia, the Managing Director of Poly Marketing Pty Ltd T/A ENVORINEX, do solemnly and sincerely declare that the information contained herein is true and correct in accordance with testing body and authority certifications.

I make this solemn declaration under the Oaths Act 2001



Signed:

Jennifer Brown

Declared at: George Town Tasmania, Australia

On: 7th July 2009

BEFORE ME



Michael Rodney Turner
Commissioner for Declarations
In the State of Tasmania, Australia