



betterBRACE Rigid Air Barrier

August 2022



save
B O A R D

saveBOARD betterBRACE (Rigid Air Barrier)

What is saveBOARD?

saveBOARD betterBRACE Rigid Air Barrier is a unique structural composite panel made from 100% upcycled materials.

The core of the product is made from shredded and compressed composite packaging, giving the user a sustainable and superior performing product.

saveBOARD does not use glues, resins or other such biological or environmentally harmful products. During construction, or in-service use saveBOARD does not create harmful dusts, vapours, or other potentially harmful Volatile Organic Compounds (VOC's) .

The saveBOARD construction boards are semi-vapour permeable, durable wall and roofing products. The product is designed for use with timber or steel framing and is finished with a moisture resistant fibreglass facer on top side and a recycled paper facing on the internal side.

Using saveBOARD reduces embodied energy by -2.7 kgCO₂ eq/sqm. This is a significant climate change benefit compared to traditional building materials which add carbon to a building.

saveBOARD betterBRACE Rigid Air Barrier is manufactured in New Zealand for exclusive use in New Zealand & Australia. Please refer to the saveBOARD Product Technical Statement for compliance with relevant performance clauses of New Zealand & Australian Building Codes / Permits.

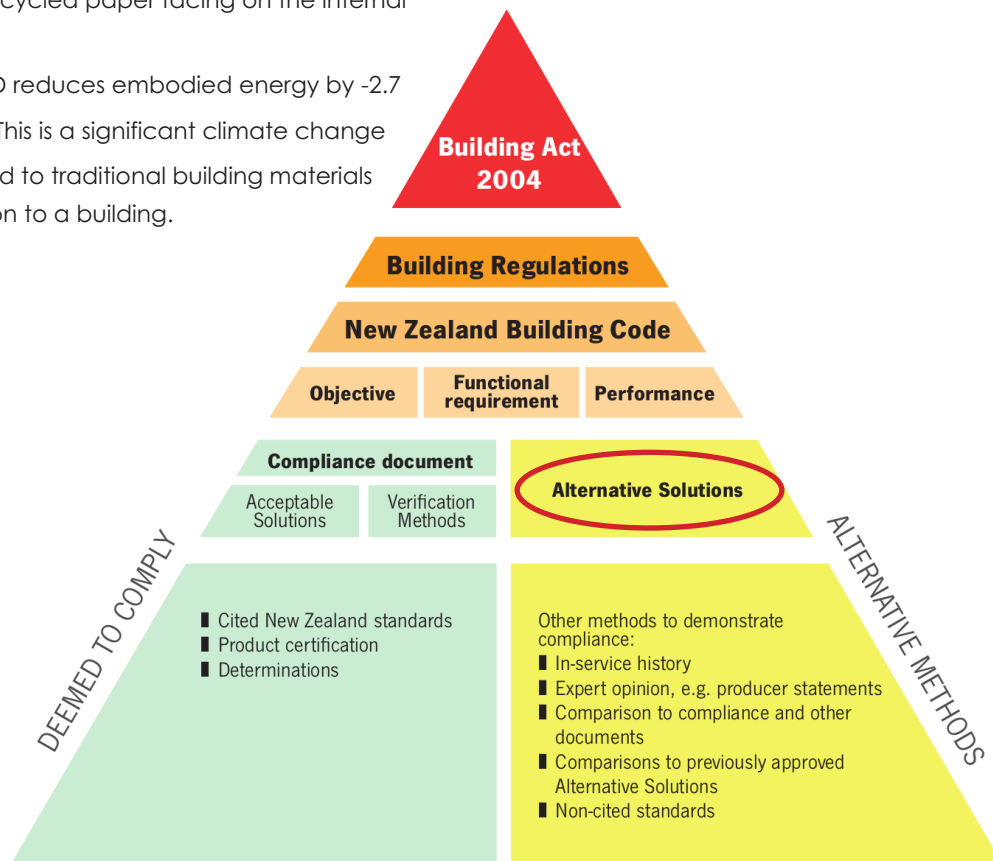
saveBOARD betterBRACE Rigid Air Barrier may be overlaid on self-supporting product/structure and can be used for the verified specified uses.

What is saveBOARD's scope of use?

saveBOARD Rigid Air Barrier confirmed for use in NZ by an Engineering Statement for NZBC compliance by Kiazon Engineering Ltd and specific Structural testing by Scion & BRANZ laboratories.

How does saveBOARD demonstrate compliance with NZBC?

saveBOARD Rigid Air Barrier is as an **Alternative Solution Product**.



Primary NZ Compliance Evidence

NZBC Compliance Appraisal – Compliance Statements (NZ)

- saveBOARD when used as a Rigid Air Barrier supported by a Compliance Statement for NZBC compliance by The Building Business Ltd (TBB) & Kiazon Engineering Ltd.

Please refer to the saveBOARD technical support literature, NZBC Compliance Appraisals and product test information available on the saveBOARD website.

NZ - Expert Analysis and Testing – July 2021 – Still Current

- saveBOARD has been independently appraised against NZBC compliance by The Building Business Ltd (TBB).
- saveBOARD has been independently tested by leading NZ recognised research Laboratories - SCION & BRANZ.

Support Compliance Evidence

In-service History

- The saveBOARD product has been successfully used in the US for over 12 years.

US - Expert Analysis and Testing 2015 – Current

- saveBOARD has been independently tested and verified to internationally recognised standards by accredited testing laboratories in the US.
- saveBOARD has achieved compliance with the International Building Code for use in the US as an external wall and roofing substrate.

NZBC Compliance Appraisal Notes

An NZBC Compliance Appraisal is a technical opinion of a building product or system's fitness for purpose. It involves extensive testing and verification of Building Code compliance and is done by an independent appraisal organisation. (Such as Chartered Engineer or Accredited Testing Laboratory).

An appraisal looks at any specific installation systems or processes. It recognises limitation on a product's intended scope of use.

Appraisals have no legal standing. However, they can form a useful part of your evidence of compliance.

Products are assessed against a wide range of performance factors. These include:

- the requirements of the Building Code
- performance under test conditions
- in-service performance
- accuracy of the product's technical information
- manufacturing procedures and quality control systems.

Appraisal organisations

An appraisal organisation should be independent of the product's manufacturer or distributor.

It should have:

- thorough and validated testing procedures (for example, its processes are reviewed by a third party)
- suitably qualified staff (such as engineers and research scientists).

The organisation should also carry out or require:

- regular inspections to ensure the product conforms during manufacture
- regular inspections to ensure the product conforms when in use
- knowledge of the Building Code and building science.

You can use an appraisal organisation from outside New Zealand. However, the product needs to be assessed against the New Zealand Building Code.

Ref - <https://www.building.govt.nz/building-code-compliance/product-assurance-and-multiproof/product-assurance/your-product-and-the-law/>

SAVEBOARD RIGID AIR BARRIER

PURPOSE

Upcycled Building Materials Limited manufacture and supply saveBOARD betterBRACE for use as a rigid air barrier and bracing element to be used in buildings where air vapour control design limits are applied.

EXPLANATION

saveBOARD is a structural composite panel manufactured from shredded and compressed composite packaging. saveBOARD betterBRACE Rigid Air Barrier have a fibre glass outer face and paper inner face.

The boards are 1200 mm in width and supplied in (thickness x length, mm):

- 10 x 2450, 2750 and 3000
- 12 x 2400, 2700 and 3000.

saveBOARD is manufactured from 100% recycled materials diverted from landfill, and all offcuts and waste may be reused as feedstock for new building products.

The use of saveBOARD betterBRACE as a rigid air barrier is subject to building design that incorporates a drained and ventilated cavity. The design and specification of saveBOARD betterBRACE Rigid Air Barrier and the design and specification of the building must take into account the exterior thermal envelope and internal controls that relate to ventilation, space temperature, relative humidity, and geographical climate zones.



For further assistance please contact:



enquires@saveboard.nz

www.saveboard.nz



SCOPE AND LIMITATIONS OF USE

Scope	Limitations
Location In wind zones up to and including extra high as defined in NZS 3604:2011. In earthquake zones as defined in NZS 3604:2011. In geographical climate zones as defined in H1/VM1, 5 th edition; H1/VM2, 1 st edition; and H1/AS1, 5 th edition.	➤ Bracing demand must meet the requirements of NZS 3604:2011, Tables 5.8, 5.9 and 5.10. ➤ The building must be designed in accordance with an applicable building design method as specified in saveBOARD NZBC E3 Design Guide Internal Moisture Control (June 2022, Version 1), Table 1 'Approved saveBOARD Design Methods' (SDM) that applies to the relevant climate region.
Building On timber or lightweight steel framing. As a rigid air barrier.	➤ Where installed over steel framing, a thermal break is required. ➤ Timber framing moisture content must not exceed 16%. ➤ The building must be designed in accordance with the building design methods as specified in saveBOARD NZBC E3 Design Guide Internal Moisture Control (June 2022, Version 1), table 1, <i>Approved saveBOARD Design Methods</i> (SDM). SDM 1 specifies climate regions where MVTC is not required. SDM 2 specifies design criteria input options. SDM 3 allows for project specific hygrothermal analysis. ➤ saveBOARD recommends the use of full building mechanical ventilation and temperature control (MVTC) for controls for relative humidity and interior temperature in residential buildings.
As a wall bracing element.	➤ Installation must be in accordance with Scion P21 test assembly. Alternative fasteners can be used as specified in BRANZ P21, ST16230-01 Refer to saveBOARD installation manual ➤ 10 mm thick saveBOARD (fibreglass faced and paper backed) must be used.

CONDITIONS OF USE

The use of saveBOARD betterBRACE Rigid Air Barrier is subject to the design achieving compliance with one of the Approved saveBOARD Design Methods (SDM) as set out in table 1 of the saveBOARD NZBC E3 Design Guide Internal Moisture Control, June 2022 Version 1.



USEFUL INFORMATION

For information on the design, installation and maintenance of saveBOARD Rigid Air Brace Board and for our warranty refer to www.saveboard.nz.

PERFORMANCE CLAIMS

If designed, installed and maintained in accordance with all Upcycled Building Materials Limited requirements, the use of saveBOARD Rigid Air Brace Board will comply with or contribute to compliance with the following performance claims:

NZ Building Code clauses		BASIS OF COMPLIANCE	
	Compliance statement	Demonstrated by	
B1 STRUCTURE B1.3.1, B1.3.2, B1.3.3 (a, b, c, e, f, i, j, l, m, o, r) B1.3.4 (a, b, c, d, e)	VERIFICATION METHOD B1/VM1 and ALTERNATIVE SOLUTION	<ul style="list-style-type: none"> ➤ P21 wall bracing [Scion: 18/09/2020a, 18/09/2020b]. ➤ P21 wall bracing [BRANZ 15/07/2022] ➤ Bending stiffness and strength test to AS/NZS 2269.1:2012 [Scion, 08/2021]. ➤ Compression indentation testing to ASTM D2394-83 [Intertek, 26/11/2013]. ➤ Testing to ASTM E2126 and CUREE protocol and ASTM D3043 for performance under lateral load, lateral shear load and centre point flexure load to determine bending stiffness, flexural modulus and rupture modulus [DrJ, 18/12/2013]. ➤ Flexural capacity (three point bending) evaluation to ASTM D3043 [[Auckland UniServices Ltd, n.d.] ➤ Product Performance Evaluation of product metrics for use as an internal lining and bracing element [TBB 11/2021]. 	
B2 DURABILITY B2.3.1 (a), B2.3.2 (a)	ALTERNATIVE SOLUTION	<ul style="list-style-type: none"> ➤ WUFI hygrothermal wall modelling analysis carried out by building envelope specialist establishes the conditions for use [Kaizon, 12/07/2022]. ➤ Water vapour transmission and permeance tested to E96-16 [Intertek, 30/05/2018]. ➤ Tested to ASTM D2373-12 for resistance to growth of mould [Intertek, 29/07/2013]. 	
E2 EXTERNAL MOISTURE E2.3.2, E2.3.5	ALTERNATIVE SOLUTION	<ul style="list-style-type: none"> ➤ Water vapour transmission and permeance tested to E96-16 [Intertek, 30/05/2018]. 	
E3 INTERNAL MOISTURE E3.3.1	ALTERNATIVE SOLUTION and ACCEPTABLE SOLUTION	<ul style="list-style-type: none"> ➤ WUFI hygrothermal wall modelling analysis carried out by building envelope specialist establishes the conditions for use/required temperature controls to limit vapour flows [Kaizon, 12/07/2022]. ➤ Water vapour transmission and permeance tested to E96-16 [Intertek, 30/05/2018]. ➤ Tested to ASTM D2373-12 for resistance to growth of mould [Intertek, 29/07/2013]. ➤ Sustainable Engineering ASHRAE 160P Hygrothermal modelling / mould growth [09/2020]. 	
F2 HAZARDOUS BUILDING MATERIALS F2.3.1	ALTERNATIVE SOLUTION	<ul style="list-style-type: none"> ➤ VOC and formaldehyde testing to ASTM D5116:2017 [CETEC: 26/08/2021a, 26/08/2021b]. 	
H1 ENERGY EFFICIENCY H1.3.1	ACCEPTABLE SOLUTION	<ul style="list-style-type: none"> ➤ Thermal conductivity tested to ASTM C518 [Intertek, 02/2012]. 	

SOURCES OF INFORMATION

- Auckland UniServices Ltd. [n.d.] *Evaluation of the flexural capacity of ReWall products* (three point bending).
- BRANZ. [15/07/2022] *P21: Structures Test Report No. ST16230-01-1 1200 x 2.4m mm x 10 mm thick saveBoard, fibreglass and paper face.*
- CETEC. [26/08/2021a] *ASTM D5116-2017 Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Material/Products.* VOC Emission Test Certificate.
- CETEC. [26/08/2021b] *ASTM D5116-2017 Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Material/Products.* VOC Emission Test Certificate.
- DrJ. [18/12/2013] *Technical Evaluation Report.* TER No. 1202-02.
- Intertek. [29/07/2013] *Test Report.* Report number 101207581COL-001.
- Intertek. [26/11/2013] *Test Report.* Report number 101416039MID-001.
- Intertek. [30/05/2018] *Test Report.* Testing Halfback Roofing Board to Evaluate Water Vapour Transmission and Permeance in accordance with ASTM E96-16 (Procedure B). Document control no. ATI 00231.
- Kaizon. [12/07/2022] *WUFI hydrothermal wall modelling analysis.*
- saveBOARD. [June 2022] *SaveBOARD NZBC E3 Design Guide Internal Moisture Control.* June 2022, Version 1.
- Scion. [18/09/2020a] *P21:2010 1200mm x 2.4m 10mm Saveboard with brackets (single wall).*
- Scion. [18/09/2020b] *P21:2010 1200mm x 2.4m 10mm Saveboard without brackets.*
- Scion. [08/2021] *Bending stiffness and strength tests on 12mm saveBOARD.*
- Scion. [28/09/2021] *Screw head pull through Testing TE21-007 on 12mm saveBOARD.*
- TBB. [Dec 2021] *Product Performance Evaluation of saveBOARD for use as an internal lining or bracing element.*

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www.saveboard.nz



1. Where a standard is referenced it is to be read as amended by the acceptable solution or verification method as applicable.
2. Sources of information also include the Building Act 2004 and its regulations, including the Building Code (Schedule 1 of the Building Regulations 1992), Acceptable Solutions and Verification Methods, and relevant cited standards.
3. The quality and assurance that the supplied products meet the performance claims stated in this pass™ are the responsibility of the company that is the holder of this pass™.

Kevin Brunton

Kevin Brunton, Technical Director, TBB confirms that this pass has been prepared on behalf of Upcycled Building Materials Limited and in accordance with MBIE PTS guidelines and in accordance with the TBB pass™ process which is within the scope of TBB's ISO 9001 certification.

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saveBOARD installation manual

saveBOARD betterBRACE

Rigid Air Barrier



August 2022

Version 1.1

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1. Purpose of Document

This document is intended to help Designers, Builders, D.I.Y. Homeowners, and Building Consent Authority (B.C.A.) Building Officials who want to ensure that saveBOARD Rigid Air Barrier (saveBOARD betterBRACE) lining is specified, installed, and performs correctly as a rigid air barrier lining.

Following the instructions within this document are important to ensure correct product use and the ongoing support of the manufacturer's warranty.

Designer and Installer Qualification and Skill level

Where saveBOARD betterBRACE is specified /installed, the designer/installers should have the appropriate skills and knowledge of the product and, where necessary, the qualification required by law.

Please Note:

The design and Installation of saveBOARD betterBRACE relates to building work that forms part of the primary structure and weathertight envelope of a building which is Restricted Building Work (RBW). RBW must be carried out or supervised by a Licensed Building Practitioner (LBP).

It is also necessary to obtain building consent before the commencement of work. Failure to do so is an offence under the Building Act 2004.

2. Technical Support

This document must be read in conjunction with the saveBOARD betterBRACE specification document and current Product Technical Statement (P.T.S.).

Please refer to saveBOARD betterBRACE specifications and details, which are easily downloaded from the saveBOARD website www.saveBOARD.co.nz

For product maintenance and warranty requirements, please refer to the guidance on the saveBOARD website www.saveBOARD.co.nz

saveBOARD provides technical support for the full range of saveBOARD products. By visiting www.saveBOARD.co.nz you can access all the latest information regarding our products, including:

- Product Technical Statements (P.T.S.)
- Product Specification
- Installation Guides,
- Technical Notes, and other useful information.

3. Product Information

saveBOARD products are unique structural composite panels made from 100% upcycled materials.

The core of the product is made from shredded and compressed composite packaging, giving the user a sustainable and superior performing product.

The manufacturing process does not involve glues, resins, or other biological or environmentally harmful products. During construction or in-service use, it does not create toxic dust, vapours, or other potentially harmful inhalants Volatile Organic Compounds (V.O.C.'s) or Formaldehydes.



The saveBOARD construction boards are semi-vapour permeable ¹, durable wall and roof products. The product is designed for use with timber or steel framing. It is finished with a moisture-resistant fibreglass facer on the external and interior surface(s) or a paper facing on the interior side.

saveBOARD products have been manufactured in New Zealand and Australia for exclusive use. Please refer to the saveBOARD P.T.S. - Lining Product Technical Statement for compliance with relevant performance clauses of New Zealand & Australian Building Codes / Permits.

saveBOARD products may be overlaid on self-supporting product/structure and can be used for verified specified uses such as wall and roof linings.

saveBOARD betterBRACE Panel sizes are as follows:

- 2450 mm x 1200 mm x 10 mm
- 2750 mm x 1200 mm x 10 mm
- 3000 mm x 1200 mm x 10 mm

saveBOARD has been manufactured and tested by independent testing laboratories in New Zealand (N.Z.) - Australia (Aus), and the United States (U.S.) and has demonstrated compliance with the International Building Code, N.Z. Building Code, Australian Building Code for specific requirements relating to wall and roof uses.

All test certification and data have been independently evaluated for compliance with the N.Z. Building Code.

To support Australasian use, the following accredited laboratories have carried out an independent assessment and additional compliance testing to verify compliance with N.Z. Building Code and the Australian Building Code.

Assessment Area - Test	Accredited Organisation	Date - Status
Structure – P21 Bracing Test (Screw fixings)	Scion (N.Z.)	2020 – Current
Durability - NZBC E2 AS1 Table 23 properties	Scion (NZ)	2022 – Current
Structure - P21 Bracing Test (Nail fixings)	BRANZ (NZ)	2022 – Current
Fire – Group Number assessment – AS 5637.1	Ignis Labs (Aus)	2022 – Current
Internal Moisture NZBC E3 - WUFI Hygrothermal Analysis	Kaizon (NZ)	2022 – Current

*(Please refer to saveBOARD Website for current test certification).



¹ saveBOARD is a semi-permeable Class II vapour retarder as defined by the International Residential Code (IRC).



4. NZBC Building Compliance Approval

saveBOARD betterBRACE has been evaluated as an ALTERNATIVE SOLUTION material through testing to the reference standards in the NZ ACCEPTABLE SOLUTIONS for the following N.Z. Building Code clauses:

B1 structure.

B1.3.1, B1.3.2, B1.3.3(a,b,f,h), B1.3.4(d)

B2 Durability

B2.3.1 (a), B2.3.2.

C4 Movement to a place of safety

C4(a)- Specific to Material Group Rating

E2 External moisture

E2.3.2 (contributes to), E2.3.7

E3 Internal moisture

E3.2 , E3.3.1 (contributes to)

F2 Hazardous building materials

F2.2, F2.3.1

H1 Energy efficiency

H1.3.1 (contributes to), H1.3.2E (contributes to)

5. Working safely with saveBOARD

saveBOARD products are safe to work and live with.

- saveBOARD can be cut, drilled, and sanded in the same manner and methods as most wood-based products.
- saveBOARD products do not contain materials that are known to cause cancer if work-related dust is inhaled.
- saveBOARD cutting activities do not generate harmful dust, but we recommend you always follow Health & Safety best practices to reduce or limit inhalation.

Safety recommendations for working with saveBOARD betterBRACE

- We recommend cutting is completed outside or in a well-ventilated area.
- ALWAYS wear Personal Protective Equipment (P.P.E.). We recommend minimum P.P.E. of Safety glasses - Hearing protection – Dusk mask. When working near others, instruct them to also wear P.P.E.
- ALWAYS use the right tool(s), following the manufacturer's safety recommendations.
- Refer to saveBOARD Material Safety Data Sheet for further details.

5.1 Cutting – Hand saw and Power tools

saveBOARD can be cut in the same manner and methods as most wood-based products.

STEP 1 – Using a standard carpentry pencil, mark the cut line on the saveBOARD.
Hand-Cut - For handsaw cutting, a standard 500mm Handsaw with a > 7 Teeth Per Inch (T.P.I.) is suitable.

STEP 2 - For accurate cutting, it is always recommended that the cut is made with a power saw running against a fixed straight edge.
Power Cut - For power saw cutting, a circular saw with > 1200w motor fitted with a standard ripping blade > 40 Teeth is suitable.

Step 3 – Clean up the cut with a sandpaper block/ 80 Grade sandpaper or as required. Where saveBOARD is to be used as a finished product, it is good trade practice to ensure clean-cut edges with sharp tools.

*For all cutting, always follow the tool manufacturer's safety recommendations.



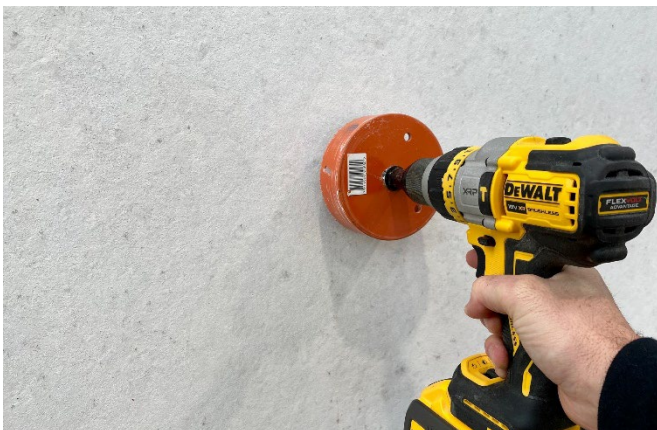
5.2 Drilling - Hole forming - For smooth, clean-cut circular holes:

saveBOARD can be drilled in the same manner and methods as most wood-based products.

STEP 1 – Mark the centre of the hole required on the sheet.

STEP 2 – Using a 3 – 5mm standard drill bit, pre-drill a central 'pilot' hole.

STEP 3 - Using the pilot hole as a guide, cut the hole with the hole saw that is correct for the hole size required. It is recommended to use a heavy-duty power drill, but a battery drill with sufficient power can achieve a good result.



T.I.P. – Allow the hole saw to cut. Do not apply excessive pressure as this may damage the back of the board upon exit.

Always follow the tool manufacturer's safety recommendations.

5.3 Sanding

Clean up cut edges with a sandpaper block /80 Grade Sandpaper or as required.

Always follow the tool manufacturer's safety recommendations.

5.4 Handling and Storage

Safe handling in transport and storage on-site is essential for worker's safety and protection of saveBOARD betterBRACE.

When manually handling saveBOARD betterBRACE ensure the panels are lifted correctly. For safety, we recommend a minimum of 2 people.

When stored on-site saveBOARD should be laid flat on suitable bearers. The spacing between the bearers should be no more than 600mm apart.

Where multiple pallets are stacked, all storage bearers must align to the ground. For safe working, it is not advisable to stack materials above chest height on-site and materials should always remain restrained to protect against high wind exposure.

5.5 Storage

When stored external on-site, there must be a minimum of 50mm clearance from the ground and water sources. If delivered sheets are to be exposed for more than 48hrs saveBOARD betterBRACE should be covered with temporary waterproofing.

It is good to trade practice to allow sheet materials to climatize to the site conditions for 48 hours prior to installation.

When correctly installed SaveBOARD betterBRACE must not be exposed to the weather for more than 90 days. Please note tape joint manufacturers' requirements may be different.



6. Standard Installation

6.1 Installation Scope

saveBOARD betterBRACE is suitable for use as a rigid air barrier for residential buildings up to and including V.H. wind zone within the scope of NZS 3604 and E2/AS1. For bracing applications, follow the saveBOARD betterBRACE bracing details bracing design Instruction. Bracing with rigid air barriers can only be achieved when fixed directly to the frame. The board must be fixed in accordance with the bracing details of all framing.

saveBOARD betterBRACE must always be fixed directly to the framing, and the vertical face joints must be sealed with appropriate tape systems (see recommended joint treatment products).

The cladding systems used over saveBOARD betterBRACE must satisfy the various performance requirements of the NZBC E2. saveBOARD betterBRACE is suitable for use behind NZBC E2/AS1 complying cladding systems approved by a B.C.A.

The cladding system must not be directly fixed to saveBOARD betterBRACE and must be installed by incorporating a ventilated cavity E2/AS1 type cladding system.

6.2 Support Framing

All support timber framing shall comply with NZS 3604 or comply with the Specific Engineering Design (S.E.D.) requirements.

All steel support framing shall comply with NASH Standard Part 2:2019 Light Steel Framed Buildings or S.E.D.

All frame durability treatments must comply with NZBC B2/AS1. saveBOARD does not recommend board installation (Externally or

Internally) on very wet timber framing. It is the builder's responsibility to ensure that framing is confirmed at a moisture content $\leq 16\%$ before internal linings are applied. This is a saveBOARD warranty requirement.

90 x 45mm minimum timber framing size is the minimum recommended for fixing saveBOARD betterBRACE. It is the designer's responsibility to ensure that the framing and the saveBOARD substrate are suitable for installing the selected cladding.

Table 1. Structural framing stud set out

Product	Wind Exposure	Framing Centres (Max)
saveBOARD betterBRACE	Up to including H (High)	600mm
saveBOARD betterBRACE	VH (Very High)	400mm

Note: The use of saveBOARD betterBRACE in Extra High Wind Zones must be supported by S.E.D.

6.3 Vertical Installation and Joints

Before Installation, check that each saveBOARD is not damaged to ensure optimal performance, and it is dust-free and dry to ensure correct joint tape adhesion. The joint tape products recommended by saveBOARD do not require the sheets to be primed.

All saveBOARD sheets must be installed vertically, with an expansion gap between the sheet edges of 2-4mm required. This includes external and internal vertical corner joints.

All vertical board joints should be fully supported by vertical timber/ metal studs. Any horizontal joints or cut-outs within a sheet should be supported by backing blocks.

The bottom edge of sheets must overhang below the bottom plate by 15 – 20mm. The bottom sheet edge must remain a minimum of 100mm clearance (150mm recommended) to the ground and saveBOARD should not be in contact or exposed to standing water during construction.

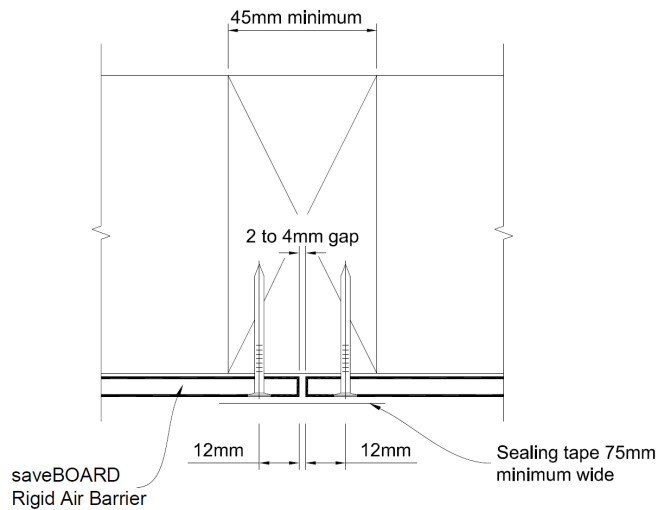


DIAGRAM 1 – Vertical Board Layout

6.4. Horizontal Joints

For two or more storey buildings saveBOARD betterBRACE must not be fixed directly to intermediate floor joists.

At the intermediate floor level, a horizontal joint detail is required.

Step 1: The lower vertical board should project over the intermediate floor joist to a maximum of 50mm.

Step2: A continuous Z type flashing must be installed horizontally to the full length of the wall. For wall lengths over 3m the Z flashing must be lapped 50mm and silicone sealed. The Z flashing must provide face covering to the lower sheets to a minimum of 40mm.

Any vertical or internal corners to the horizontal Z flashing must be sealed with appropriate joint tape with a minimum 75mm cover to the corner joint.

When installing the intermediate level boards, a minimum of a 15mm movement gap is required between lower and upper boards. The Z flashing upstand behind the intermediate boards must provide a minimum 30-35mm back cover.

No fixings are allowed in the floor joist or Z flashing area.

The lowest sheet fixing to the upper intermediate boards must be into the intermediate floor subframe bottom plate and stud only.

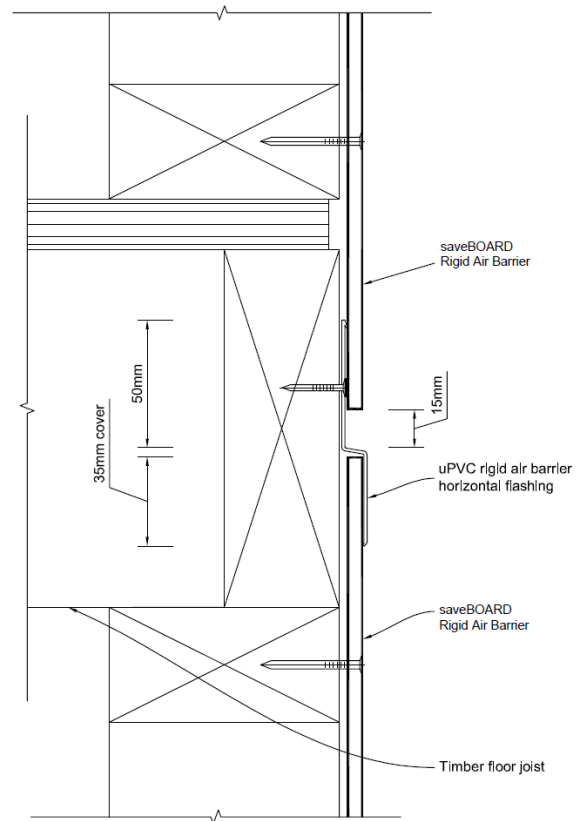
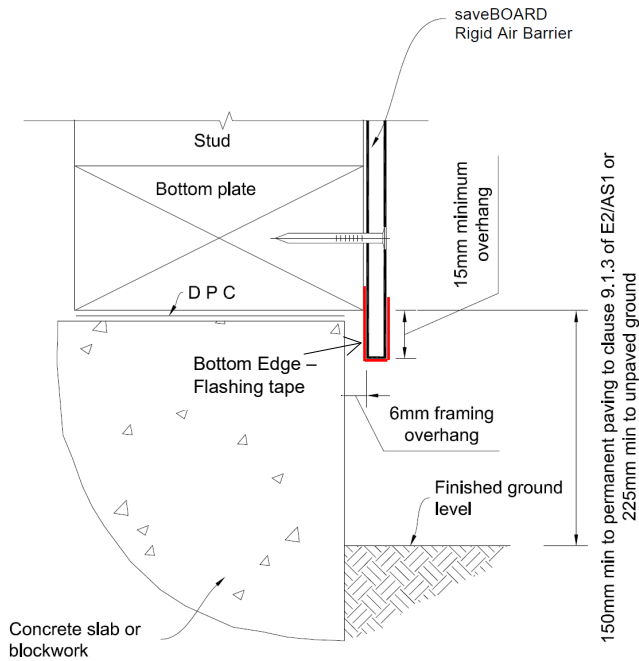


DIAGRAM 2 – 2 Storey Horizontal Joint detail

6.5 Bottom Edge Detail

The bottom must be sealed with an appropriate joint tape with a minimum cover of 35mm on the back face, 10mm around the bottom edge and 30mm around the front face.



7. saveBOARD FIXINGS

saveBOARD betterBRACE must be installed with its fiberglass side facing out towards the external cladding. The fiberglass applied on the face helps the board to drain the moisture freely over the face and keeps it dry. To retain board integrity, all fixings (nails or screws) must finish flush with the board surface.

7.1 Bracing and Non-Bracing fixings

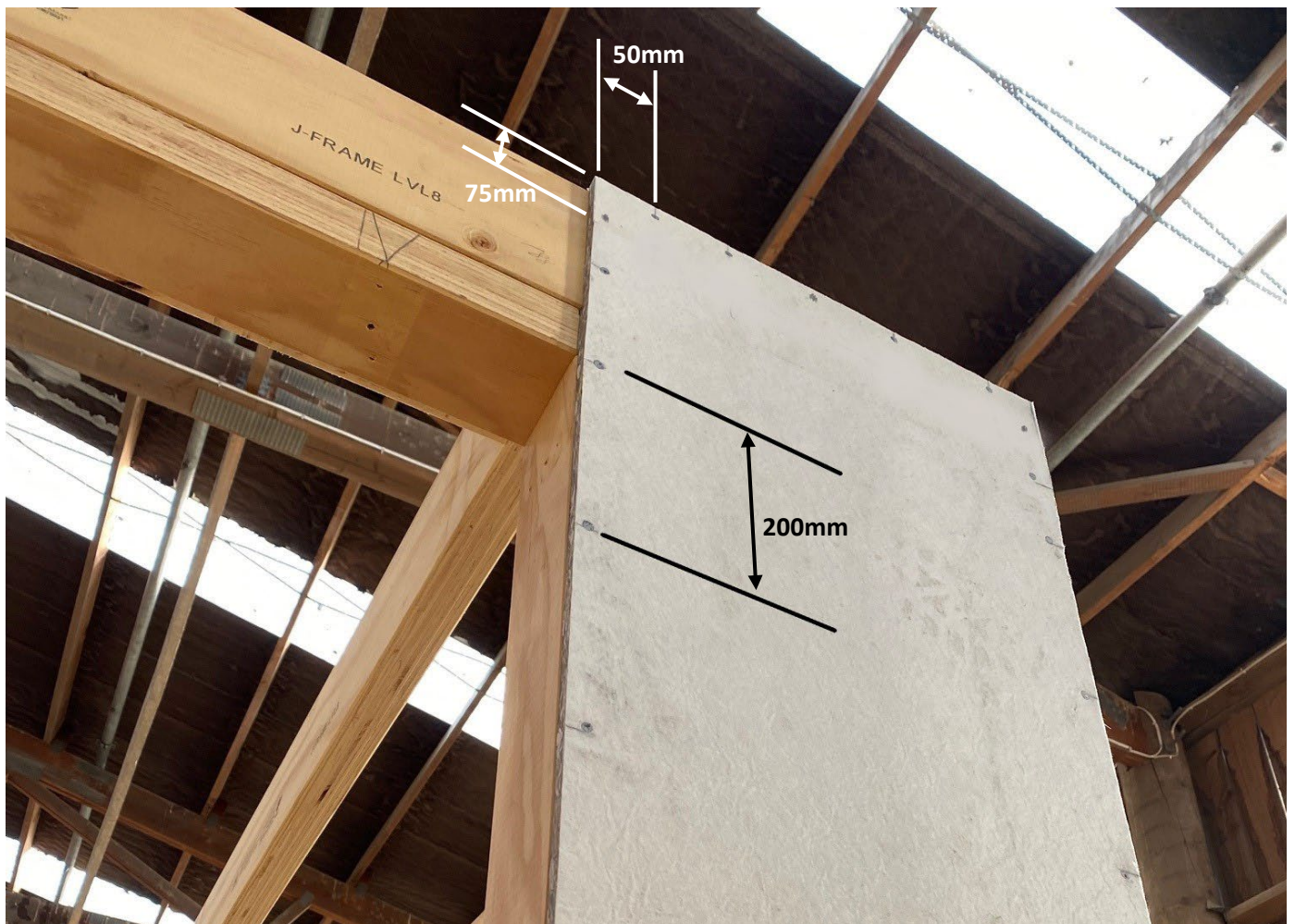


DIAGRAM 4 - Standard Board fixings

saveBOARD betterBRACE can either be fixed with screws, pneumatic nails (gun nails) or hand nails. Tables 2 & 3 below lists the recommended fixing types.

All fixings must have a minimum clearance of 50mm horizontally and vertically from the sheet corners and 20mm from the sheet edges.

Nail gun fixings must be of a suitable round head type to provide the minimum hold capacity required.

Table 2. saveBOARD betterBRACE 10mm Fixings (Non-Bracing)

Type of fixing	Description	Fixing centres	Frame type
Hand Nail	50 x 2.8mm Galvanized Flat Head Nail	Corner pattern - 50, 200mm horizontal. 75, 200mm vertical	Timber Only
Nail Gun	50 x 2.8mm Galvanized Flat Head Ring Shank Nails	Corner pattern - 50, 200mm horizontal. 75, 200mm vertical	Timber Only
Screw	GIB® Grabber® 32mm x 8g Ceramic Coated High Thread Screws. (Or equivalent)	Corner pattern - 50, 200mm horizontal. 75, 200mm vertical	Timber or Steel frame

Table 3. saveBOARD betterBRACE 10mm Fixings (Bracing)

Type of fixing	Description	Fixing centres	Frame type
Hand Nail	50 x 2.8mm Galvanized Flat Head Nail	Corner pattern - 50, 150mm horizontal. 75, 150mm vertical	Timber Only
Nail Gun	50 x 2.8mm Galvanized Flat Head Ring Shank Nails	Corner pattern - 50, 100mm horizontal. 75, 100mm vertical	Timber Only
Screw	GIB® Grabber® 32mm betterBRACE 8g Ceramic Coated High Thread Screws. (Or equivalent)	Corner pattern - 50, 50, 50, 75, 75, 150mm	Timber Only

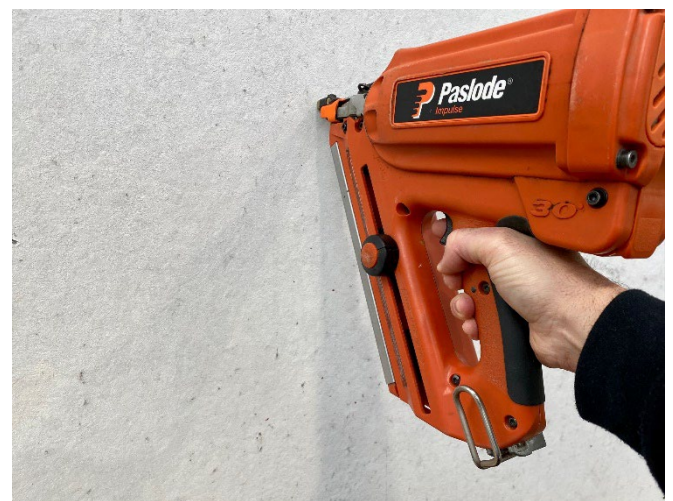




DIAGRAM 5 – Bracing Board fixings

7.2 Fixing Durability

Structural fixings are a critical component of a building system. To comply with the NZBC B2 Durability requirements, all structural fixings must have the same level of Durability as required for a

structural wall system. Tables 2 and 3 list fixings suitable fixings for NZBC Corrosion Zones A-C only.

It is the designer's responsibility to confirm exposure requirements for individual projects. When such corrosion risks as Sea Spray or Geothermal exposure exist, it will be necessary to increase the fixing Durability to Stainless steel type or equivalent to the satisfaction of the B.C.A.



8. BRACING DESIGN AND INSTALLATION

saveBOARD betterBRACE may be used as a bracing element with structural timber wall framing systems that comply with N.Z. Building Code.

8.1 Scope of use:

saveBOARD betterBRACE bracing may be used for;

- New buildings construction; and
- Alterations to existing buildings.

For alterations to existing buildings, the designer/builder must satisfy themselves that the existing subframe/structure is suitable to achieve the desired bracing performance, and saveBOARD BU/m must be considered indicative only when applied to the existing structure.

8.2 Bracing Design requirements

When specifying saveBOARD betterBRACE as a design bracing element, it is the designer's responsibility to confirm the following site-specific conditions:

- Environmental exposure zone
- Wind zone
- Critical structural design input (Wind and Earthquake loads) as applicable to the wall bracing calculations required
- Structural framing specification requirements
- Suitable durability treatment for structural frames/substrate
- Suitable design and specification for an NZBC compliant cladding and roof system
- All other matters that may affect performance

8.3 Bracing Design performance Input

saveBOARD Bracing Units (BU/m) comparison

Product	Wind	Earthquake
saveBOARD 10mm	143	154
OSB 8mm	131	107
Cement Board 6mm	125	102
Plywood 7mm	123	139

Based on a 2400 x 1200 Sheet (Nail fixed)

8.4 Design Exposure Limitations –

Wind zones: Maximum of Extra High.

Wind pressure: Up to 2.5 kPa U.L.S. - Must be supported by Specific Engineering Design (S.E.D.).

Substrate structural fixings: saveBOARD Panel installation must be as per the instructions in this manual. Bracing elements can be achieved effectively by using all current N.Z. B.C.A. approved mechanical fixing strap, bracket, and hold down systems (Pryda, HandiBrac, Mitek, etc.).

Substrate framing: Wall stud spacing must not exceed 600 mm centres. Prior to internal lining installation, the structural framing moisture content is recommended to be $\leq 16\%$.

Bracing Sheet service penetrations: Service penetrations holes must not exceed 100mm x 100mm in dimension or 100mm diameter maximum. Penetrations are limited to a maximum of 2 holes per sheet, and multiple penetrations must be a minimum of 750mm apart. Penetrations are not to be located within the top 150mm or bottom 250mm of a bracing sheet.

Description	Concrete Slab		Timber Floor	
	Wind (BU/m)	EQ (BU/m)	Wind (BU/m)	EQ (BU/m)
System 1: saveBOARD - 400mm x 2400mm with GIB Handibrac. Fixing 50 x 2.8mm Galvanized Flat Head Ring Shank Nails	65 BU/m	76 BU/m	65 BU/m	76 BU/m
System 2: saveBOARD - 600mm x 2400mm with GIB Handibrac. Fixing 50 x 2.8mm Galvanized Flat Head Ring Shank Nails	87 BU/m	98 BU/m	87 BU/m	98 BU/m
System 3: saveBOARD - 1200mm x 2400mm with GIB Handibrac. Fixing 50 x 2.8mm Galvanized Flat Head Ring Shank Nails	143 BU/m	154 BU/m	143 BU/m	154 BU/m

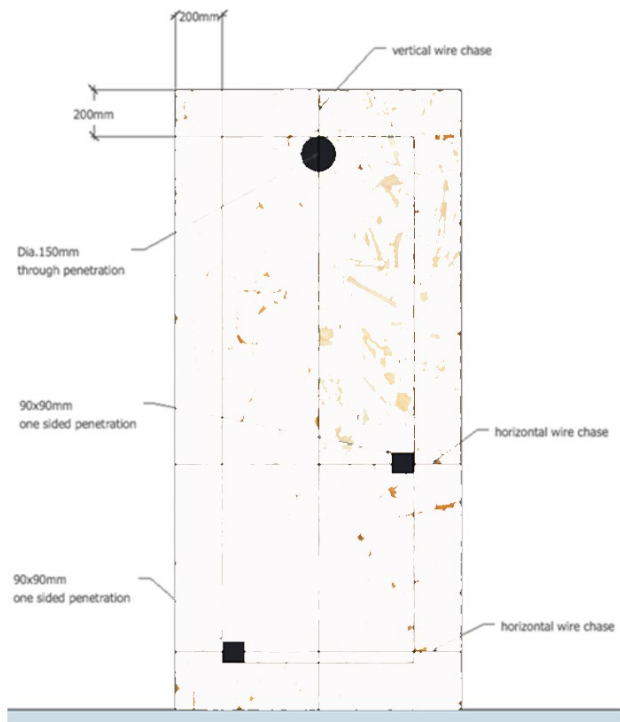


DIAGRAM 6 – Permitted penetrations in Bracing board.

Note: All penetrations are to be sealed as per the instructions in this guide.

Sheet Installation and fixing: Must be strictly in accordance with the instructions in this guide.

9. saveBOARD JOINT TREATMENT

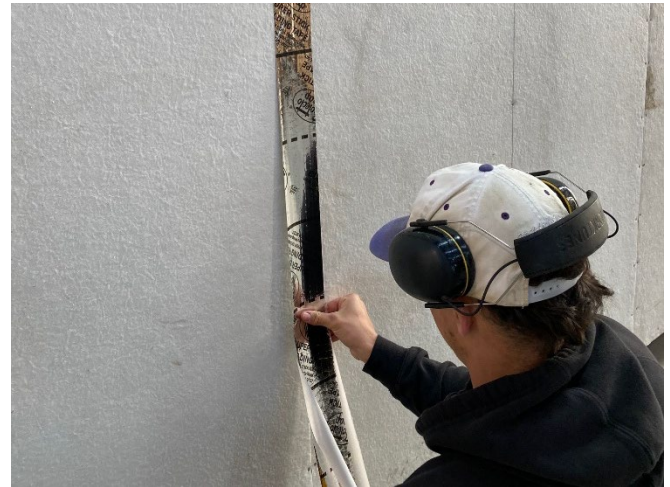
All vertical board joints must be sealed to stop the moisture ingress into the framing behind saveBOARD betterBRACE.

The vertical joints must be sealed with a minimum of a compatible 75mm wide joint tape applied with even coverage to both sheets.

9.1 Board Joint Tape

The following products are recommended:

- Mashall Innovations SUPER-STICK Building Tape
- SIGA Wigluv
- Proclima adhesive tapes - TESCON
- Thermakraft Premium Jointing tape.



It is important to follow the joint tape manufacturers' recommendations regarding the installation of their sealing tapes in specific climatic conditions and substrate preparation. We recommend the use of a firm rubber roller to ensure firm and even pressure resulting in the correct bond when installing the joint tape to the saveBOARD betterBRACE surface.

We recommend that the joint tape is installed with 48hrs of board installation. Prolonged exposure to U.V. and weather may affect the joint tape manufacturer's warranty.

Any horizontal joints or service penetrations should be sealed with the minimum of a suitable flexible flashing tape providing a minimum of 100mm cover beyond the joint or penetration.

9.2 Sealing Cut Edges

It is not necessary to seal saveBOARD betterBRACE cut edges, but all joints must be covered by approved joint tape.

9.3 Use of Build Wrap

saveBOARD has been tested and has demonstrated compliance with the durability performance requirements of NZBC E2/AS1 - Table 23.

Where saveBOARD is relied upon as the

building wrap, care must be taken to ensure board fixings must finish flush with the board surface.

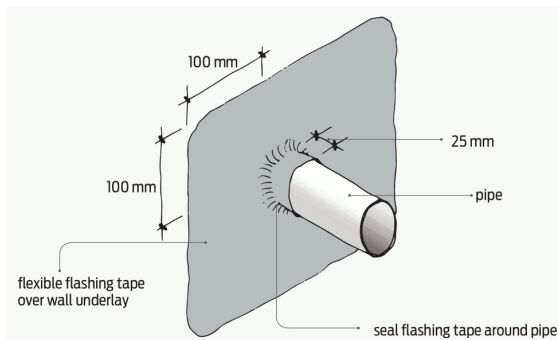
Building wrap or wall underlays are only recommended for higher risk designs where the E2/AS1 risk matrix scores ≥ 13 .

10. saveBOARD PENETRATION TREATMENTS

Only use saveBOARD betterBRACE approved flexible flashing tapes.-

10.1 Installing Service Penetrations

Service penetrations through saveBOARD betterBRACE must slope to the outside (Angle of $> 5^\circ$).



The flashing tape must be installed with a minimum of 25 mm cover projecting around the pipe and 100 mm minimum surface adhesion to saveBOARD betterBRACE surrounding the penetration.

10.2 Installing Window /Door Penetrations

All window/door tapes should be used in accordance with the manufacturer's installation guide.

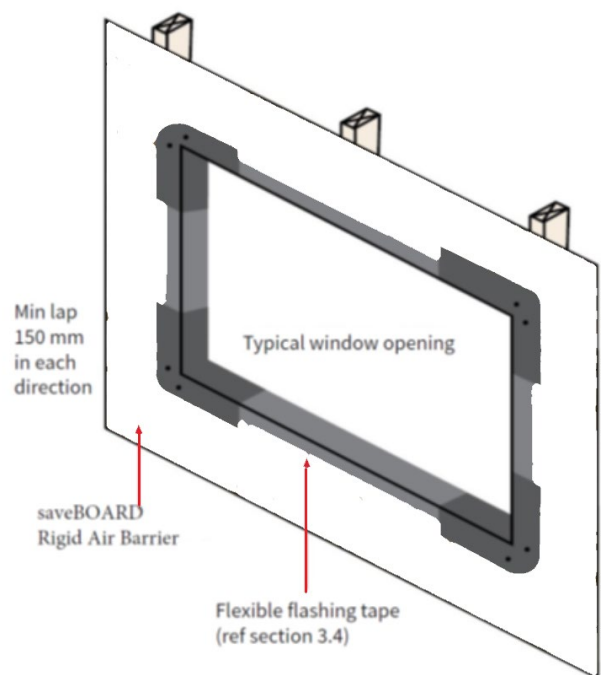
Treatment of window and door openings should be carried out in accordance with WAZ Guide to E2/AS1.

Step1: Using a recommended compatible tape, cut a length of tape for the bottom sill 200 - 250 mm wider than the opening.

Step2: Following the tape manufacturer's instructions, fit the tape flush with the inside line of the framing and then extend the tape out in both directions along the sill and then up the jamb to a minimum of 100 mm in height.

Step3: Repeat the Installation with two more 200-250mm pieces of tape for each upper opening corner. Use a rubber roller to ensure the tape bond is even and complete.

T.I.P.: It is recommended that you apply a second layer of tape to both bottom corners.





Maintenance Sheet

Rigid Air Barrier



Care and Maintenance of saveBOARD Rigid Air Barrier

saveBOARD betterBRACE - Rigid Air Barrier

saveBOARD's Rigid Air Barrier is a unique structural composite panel made from 100% upcycled materials. The core of the product is made from shredded and compressed composite packaging, giving the user a sustainable and superior performing product. It is for use with timber or steel framing.

Finished with an external moisture resistant Fiberglass facing paper and recycled paper on the interior side, saveBOARD betterBRACE is a semi-vapour permeable high strength and durable roof product.

Finishing the Rigid Air Barrier

saveBOARD Rigid Air Barrier requires no maintenance; however, the external cladding system must be well maintained.

Check the external cladding system on a regular basis and carry out any required maintenance as per the suppliers instructions.

Maintenance

Under normal conditions saveBOARD Rigid Air Barrier requires no maintenance providing that the protective covering has been maintained.

If water damage occurs to an area where saveBOARD Rigid Air Barrier is installed, ensure the area is allowed to dry before replacing any cladding. Maximum exposure to weather must not exceed three months.



USEFUL LINKS

For compliance information of saveBOARD Rigid Air Barrier refer to:

- saveBOARD Product Technical Statement.
- Information to help with the design and specification of saveBOARD Rigid Air Barrier refer to:
- saveBOARD Product Specification
- saveBOARD Design & Installation Guide

Information to help with the installation of saveBOARD Rigid Air Barrier refer to:

- saveBOARD Design & Installation Guide

Our warranty for saveBOARD supplied betterBRACE refer to:

- saveBOARD Warranty

For more information on saveBOARD betterBRACE visit: www.saveBOARD.nz

ABOUT saveBOARD

saveBOARD

is focused on building a circular economy by turning composite packaging waste, back into products that re-enter the local supply chain eliminating future waste.

Closed Loop Solution

Our core business is to provide a Closed Loop solution for composite packaging (such as milk cartons, ingredients bags, coffee cups and soft plastics) by turning them into products that are commonly used in the building industry.

Product Stewardship

saveBOARD will also provide a product stewardship programme for our own products rather than create another waste problem. During construction the off cuts and waste saveBOARD products can be separated at source into a 'saveBOARD FlexiBin or skip bin'. Instead of going to landfill, the saveBOARD waste can be returned to our facility to be shredded and reused in our boards providing a ZERO waste solution.



Product Warranty Rigid Air Barrier



This warranty applies to saveBOARD Rigid Air Barrier where used in accordance with all saveBOARD betterBRACE information.

Warranty period:

15 years from proven date of purchase.

All enquiries relating to this warranty must be directed to the point of sale or installer in the first instance.

saveBOARD warrants that:

- At the time of delivery to the merchant or site (where applicable), the saveBOARD Rigid Air Barrier is free from freight related defects, factory defects.
- The design, installation, storage and handling advice provided by saveBOARD will result in building work that complies with relevant provisions of the New Zealand Building Code & Australian Building Permit, providing that all advice from saveBOARD has been followed, and providing the required maintenance has been undertaken.

In the event of proven product failure, the following applies:

- saveBOARD will supply replacement materials without charge.
- The installer will be responsible for the cost of removing and installing any replacement materials.
- Consequential losses or damage, as a result of product failure, are not covered.
- saveBOARD obligations under this warranty are limited to the replacement of defective materials (supplied by saveBOARD) or the value of these materials. The value of the materials will be reduced pro-rata based on the remaining life of the product (as defined by the durability provision of the New Zealand Building Code or Australian Building Permit).

In the event of proven failure that results from the design, installation, storage and handling advice provided by saveBOARD the following applies:

- saveBOARD will supply replacement materials, remove existing materials and install the replacement materials or provide the value of the materials and associated work.
- The value of the materials will be reduced pro-rata based on the remaining life of the product (as defined by the durability provision of the New Zealand Building Code or Australian Building Permit).
- Consequential losses or damage, as a result of product failure, are not covered.

saveBOARD reserves the right to supply other compatible materials for repair should the warranted materials no longer be supplied by saveBOARD.

This warranty is subject to the following:

- Receipt of date of purchase of the product.
- Evidence of failure.
- Receipt of a written claim from the claimant within 30 days after the defect would have become reasonably apparent or, if the defect was reasonably apparent prior to installation, then the claim must be made prior to installation.
- Satisfactory evidence that all storage, handling and maintenance requirements have been carried out.
- The warranty does not cover failure or problems caused by defective use, failure relating to improper design of the project structure, structural failure, settlement, movement of materials to which the product is attached or dependent on, acts of God including but not limited to earthquakes, cyclones, floods or other severe weather conditions, inadequate maintenance, growth of mould, mildew, fungi, bacteria or any organism on any product, or has acts or omissions of a third party over whom saveBOARD has not control.
- The warranty does not cover failure arising from the failure to follow saveBOARD design, installation, storage, handling or maintenance advice.
- Normal wear and tear is excluded from this warranty.
- All relevant saveBOARD Rigid Air Barrier technical information is available from saveBOARD.

www.saveBOARD.com.au www.saveBOARD.nz