Allco ALLTHERM Warmroof Systems

Technical Compliance Documentation

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SUPPLEMENTARY INFORMATION

ALLCO ALLTHERM WARM ROOF – YOUR SOLUTION TO ENSURE H1 COMPLIANCE

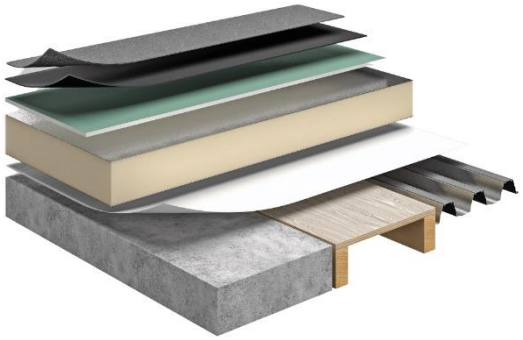
The ALLTHERM Warm roofing system was designed to offer exceptional roofing insulation in flat or low-pitched roof. Created in New Zealand for New Zealand conditions ALLTHERM has been designed to ensure ultimate thermal performance, high UV protection and long-term durability.

ALLTHERM build up places the insulation outside of the building envelope eliminating condensation entering your roof space to provide the gold standard in insulation keeping your home warmer, drier and quieter.

Allco ALLTHERM Warm Roof is accredited by BRANZ to comply with the new H1 requirements of the building code in all 6 climate zones.

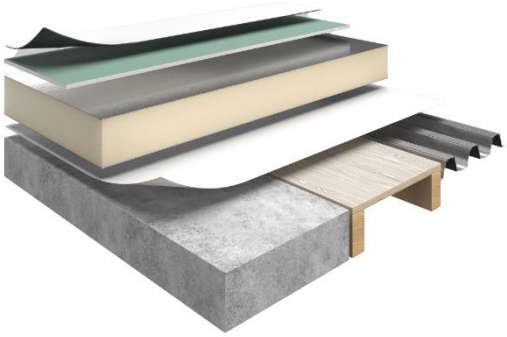
ALLCO ALLTHERM CASALI 2 LAYER TORCH ON WARMROOF BUILD-UP

1. Glue Guru Cantac Bit-U-Prime vapour barrier primer.
2. Johns Manville vapour barrier.
3. Glue Guru Roof-Tac adhesive.
4. Conqueror PIR insulation board.
5. Glue Guru Roof-Tac adhesive.
6. Fibre Cement roof cover board.
7. Glue Guru Cantac Bit-U-Prime vapour barrier primer.
8. Casali Aderix base sheet.
9. Casali Dermafil APP/ Dermabit Extra APAO cap sheet.



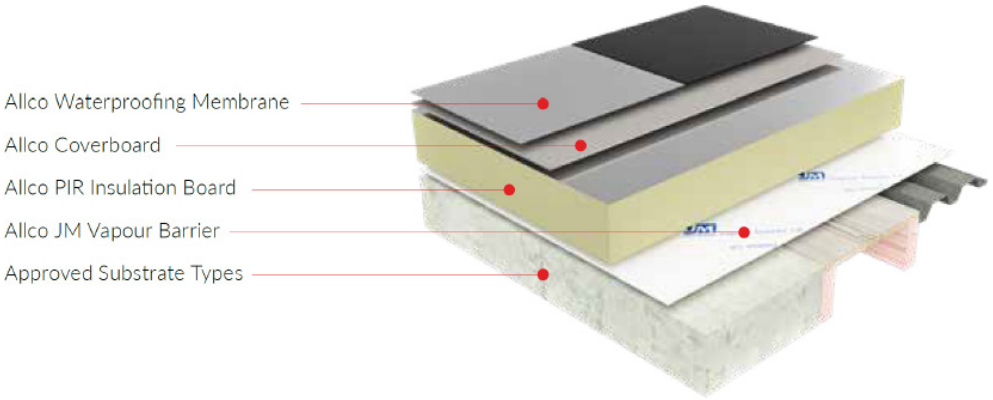
ALLCO ALLTHERM TPO WARMROOF BUILD-UP

1. Glue Guru Cantac Bit-U-Prime vapour barrier primer.
2. Johns Manville vapour barrier.
3. Glue Guru Roof-Tac adhesive.
4. Conqueror PIR insulation board.
5. Glue Guru Roof-Tac adhesive.
6. Fibre Cement cover board.
7. Glue Guru Roof-Tac adhesive.
8. Johns Manville TPO membrane.



BRANZ Appraised
Appraisal No. 1166 [2021]

ALLCO ALLTHERM WARMROOF SYSTEM



Appraisal No. 1166 (2021)

Amended 13 July 2023

BRANZ Appraisals

Technical Assessments of products for building and construction.

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New Zealand
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branz.co.nz

Product

1.1 Allco Alltherm Warmroof System is an insulating roofing system for limited access flat roofs and decks with concrete, timber or steel substrates. It consists of a thermal insulation layer and a waterproofing membrane roof finish.

Scope

2.1 Allco Alltherm Warmroof System has been appraised for use as an insulating roof or deck on buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regard to building height and maximum floor plan areas; and,
- on limited access flat roofs with concrete, timber or steel structural decks subject to specific structural design; and,
- with roofs and decks constructed to drain water to gutters and drainage outlets complying with the NZBC; and,
- with roofs and decks constructed to suitable falls (Refer Paragraphs 15.3 and 15.4); and,
- with no steps within the deck, no integral roof gardens and no downpipes directly discharging to the deck; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.

2.2 Allco Alltherm Warmroof System has also been appraised for durability and thermal performance as an insulated roofing and deck system on buildings that are the subject of specific design with no building height restriction. Building designers are responsible for the building design and for the incorporation of the Allco Alltherm Warmroof System into their design, in accordance with the declared properties and instructions of Allco Waterproofing Solutions Ltd.

2.3 Allco Alltherm Warmroof System must be installed by Allco Waterproofing Solutions Ltd approved and trained installers.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, Allco Alltherm Warmroof System, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:**

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years. The Allco Alltherm Warmroof System meets this requirement. See Paragraphs 10.1 and 10.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. Allco Alltherm Warmroof System meets these requirements. See Paragraphs 15.1–15.9.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Allco Alltherm Warmroof System meets this requirement.

Clause H1 ENERGY EFFICIENCY: Performance H1.3.1 (a). Allco Alltherm Warmroof System will contribute to meeting this requirement. See Paragraph 14.1.

Technical Specification

4.1 Allco Alltherm Warmroof System is an insulating roofing for flat roofs. The thermal layer is a polyisocyanurate board available in a number of thicknesses to suit design requirements. The insulation board is adhesive-bonded on limited access flat roofs and decks of concrete, timber and steel substrates. The roof and deck finish is either a modified bitumen or TPO waterproofing membrane which is either torch-applied or adhesive-fixed to the insulation board or fibre cement cover board.

4.2 Materials supplied by Allco Waterproofing Solutions Ltd are as follows:

- Allco Casali Dermafil Cap Sheet
- Allco Casali Dermabit Extra Cap Sheet
- Allco Casali Aderix SA Base Sheet
- Allco JM TPO
- Allco Cover Board
- Allco PIR Insulation (Conqueror)
- Allco JM TPO Vapour Barrier SA
- Allco JM Membrane Primer
- Allco JM Urethane Adhesive
- Allco Roof-Tac Contact Adhesive

Handling and Storage

5.1 Handling and storage of all materials, whether on-site or off-site, is under the control of the Allco Waterproofing Solutions Ltd approved and trained installers. Dry storage must be provided for all products and the rolls of membrane must be stored in an upright position.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Allco Alltherm Warmroof System. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

7.1 Allco Alltherm Warmroof System is a roof and deck system which provides thermal insulation and waterproofing. It is for use on limited access flat roofs and decks subject only to light foot traffic for maintenance purposes. The insulation board is adhesive-bonded to concrete, timber or metal structural decks which are subject to specific structural design. The insulation board is available in several thicknesses to suit various thermal insulation designs.

7.2 The system can be used on new or existing roofs and decks subject to the suitability of the substrate of existing roofs.

7.3 The waterproofing membrane system is either a fully bonded adhesive-fixed TPO membrane with heat welded joints, or a double-layer, torch-applied, modified bitumen sheet.

7.4 The vapour control membrane, JM Vapour Barrier, is self-adhesive and applied over the structural deck before the installation of the insulation board.

7.5 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membrane. Refer to the BRANZ Good Practice Guide: Membrane Roofing.

Structure

8.1 The fully bonded Allco Alltherm Warmroof System is suitable for buildings situated in NZS 3604 Wind Zones up to, and including, Extra High.

8.2 For buildings subject to specific design, the structural designer must confirm that the adhesive fixing has adequate adhesion to the substrates.

Substrates

Plywood

9.1 Plywood must be treated to H3 (CCA treated). LOSP treated plywood must not be used. Plywood must be a minimum of 17 mm to comply with AS/NZS 2269, at least CD Grade Structural, with the sanded C face upwards.

Concrete

9.2 Concrete substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101.

Steel

9.3 The steel substrate must be G550 aluminium-zinc AZ150 to AS1397.

Existing Construction

9.4 A thorough inspection of the substrate must be made to ensure it is in fit condition.

9.5 Repairs must be undertaken, where applicable, to ensure the substrate is sound. Plywood and steel substrates must be checked for screw fixings, and if necessary, refixed as for new plywood and steel.

Durability

Serviceable Life

10.1 Allco Alltherm Warmroof System is expected to have a serviceable life of at least 15 years, provided it is designed, used, installed and maintained in accordance with this Appraisal and the Technical Literature.

Chemical Resistance

10.2 Industrial air pollutants and windborne salt deposits should not significantly affect the durability of the membrane. However, the long term properties of the material may be affected by contact with petroleum-based products such as oils, greases and solvents.

Maintenance

11.1 The membrane roof system, including any areas with an ultraviolet (UV) coating applied, must be regularly (at least annually) checked for damage, rubbish and debris or coating breakdown. Damage, such as small punctures and tears, must be repaired and coatings reapplied as recommended by Allco Waterproofing Solutions Ltd.

11.2 Special care must be taken when inspecting the membrane roof system to ensure the continuing prevention of moisture ingress, and repairs must be undertaken where required.

11.3 Drainage outlets must be maintained to operate effectively.

Prevention of Fire Occurring

12.1 Separation or protection must be provided to Allco Alltherm Warmroof System from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

Control of Internal Fire and Smoke Spread

13.1 Allco Alltherm Warmroof System meets the flame propagation criteria of AS 1366 as specified in NZBC Acceptable Solution C/AS1, Paragraph 4.3 and NZBC Acceptable Solution C/AS2, Paragraph 4.17.

13.2 The Conqueror PIR 50 mm insulation board has been tested in accordance with ISO 9705 and achieved a Group Number of 2-S. Refer to Table 4.1 of NZBC Acceptable Solution C/AS2 to determine where the product may be used when exposed to view from interior spaces according to its Group Number.

Energy Efficiency

14.1 Thermal resistance (R-value) of building elements may be verified by using NZS 4214. The R-value for the Allco PIR Insulation 80 mm thick is R3.40.

External Moisture

15.1 Roofs must be designed and constructed to shed precipitated moisture. They must also take account of snowfalls in snow prone areas. A means of meeting code compliance with NZBC Clause E2.3.1 is given in the Technical Literature which aligns with details in NZBC Acceptable Solution E2/AS1.

15.2 When installed in accordance with this Appraisal and the Technical Literature, Allco Alltherm Warmroof System will prevent the penetration of water and will therefore meet code compliance with NZBC Clause E2.3.2. The membrane is impervious to water and will give a weathertight roof.

15.3 Roof and deck falls must be built into the substrate.

15.4 The minimum fall is 1 in 30 for plywood roofs, 1 in 60 for concrete roofs, and 1 in 100 for gutters. The minimum fall for decks is 1 in 40. All falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane. *(Note: Where possible BRANZ recommend a fall of 1:60 for gutters).*

15.5 Allowance for deflection and settlement of the substrate must be made in the design of the roof to ensure falls are maintained and no ponding of water can occur.

15.6 Allco Alltherm Warmroof System is impermeable, therefore a means of dissipating construction moisture must be provided in the building design and construction to meet code compliance with NZBC Clause E2.3.6.

15.7 Drainage flanges must be used for any outlet and must be fitted with a grate or cage to reduce potential sources of blockages. An overflow must be provided where the roof does not drain to an external gutter or spouting.

15.8 Penetrations and upstands of the membrane must be raised above the level of any possible flooding caused by the blockage of roof drainage.

15.9 The design of details not covered by the Technical Literature is subject to specific weathertightness design and is outside the scope of this Appraisal.

Condensation Control

16.1 Allco JM Vapour Barrier must be installed over the substrate prior to installing the insulation.

Water Supplies

17.1 Allco Alltherm Warmroof System has not been assessed for roofs used for the collection of potable water.

Installation Information

Installation Skill Level Requirement

18.1 Installation must always be carried out in accordance with Allco Alltherm Warmroof System Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant Licence Class.

18.2 Installation and finishing of components and accessories supplied by Allco Waterproofing Solutions Ltd and its approved applicators must be completed by trained applicators, approved by Allco Waterproofing Solutions Ltd.

18.3 Installation of the accessories supplied by the building contractor must be carried out in accordance with Allco Alltherm Warmroof System Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant Licence Class.

Preparation of Substrates

19.1 Substrates must be dry, clean and stable before installation commences.

19.2 The relative humidity of concrete substrates must be 75% or less before membrane application. The concrete can be checked for dryness by using a hygrometer, as set out in BRANZ Bulletin No. 585.

19.3 The moisture content of the plywood and timber substructure must be a maximum of 20% and the plywood sheets must be dry at time of membrane application.

System Installation

20.1 Allco Alltherm Warmroof System must be installed in accordance with the Technical Literature.

20.2 The vapour layer is installed onto the substrate followed by the insulation. The insulation is set out in a brick bond fashion and is screwed down using the screws and washers as defined in the Technical Specification.

20.3 The membrane double layer system is then installed over the insulation or Allco Cover Board; generally the membrane must be unrolled without tension onto the prepared substrate and allowed to 'relax' for at least 30 minutes prior to installation.

20.4 The membrane is then installed from the lowest point and each layer is installed across the roof or deck fall allowing a 80 mm side overlap and a 150 mm end overlap. The cap sheet layer must be offset against the base sheet layer.

Inspections

21.1 Critical areas of inspection for waterproofing systems are:

- Construction of substrates, including crack control and installation of bond breakers and movement control joints.
- Moisture content of the substrate prior to the application of the system.
- Acceptance of the substrate by the system installer prior to application of the system.
- Installation of the system to the Technical Literature.

Health and Safety

22.1 Safe use and handling procedures for Allco Alltherm Warmroof System are provided in the Technical Literature. The products must be used in conjunction with the relevant Material Safety Data Sheets for each product.

Basis of Appraisal

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

Tests

23.1 The following is a summary of the testing and test reports on Allco Alltherm Warmroof System:

- Assessment by Belgian Union for Technical Approval (UBAtc) and granted "Technical Approval with Certification" under ATG certificate numbers 1924 and 2850. The testing covered tensile strength, elongation, peel resistance (joints), joint strength, low temperature flexibility, fatigue resistance, nail hold, resistance to heat aging, static load, indentation resistance and peel resistance (substrate).
- Assessment by BRANZ for tensile adhesive strength of Allco Alltherm Warmroof System.

The above test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

24.1 A durability opinion has been provided by BRANZ technical experts.

24.2 Installation of the insulation and membranes has been assessed by BRANZ for practicability of installation and found to be satisfactory.

24.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

25.1 The manufacture of the components of the system has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

25.2 The quality of the supply of products to the New Zealand market is the responsibility of Allco Waterproofing Solutions Ltd.

25.3 Quality on-site is the responsibility of the Allco Waterproofing Solutions Ltd trained and approved installers.

25.4 Designers are responsible for the building design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of Allco Waterproofing Solutions Ltd and this Appraisal.

25.5 Building owners are responsible for the maintenance of the membrane system in accordance with the instructions of Allco Waterproofing Solutions Ltd and this Appraisal.

Sources of Information

- AS/NZS 1170:2002 Structural design actions - General principles.
- AS/NZS 2269:2012 Plywood – structural.
- BRANZ Bulletin No. 585 Measuring Moisture in Timber and Concrete.
- BRANZ Good Practice Guide: Membrane Roofing, reprint October 2015.
- ISO 9705:1993 Fire tests - Full scale room test for surface products.
- NZS 3101:2006 The design of concrete structures.
- NZS 3604:2011 Timber-framed buildings.
- NZS 4214:2006 Methods of determining the total thermal resistance of parts of buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 13 July 2023.

This Appraisal has been amended to add a fibre cement cover board and to change the name of the system.

BRANZ

In the opinion of BRANZ, Allco Alltherm Warmroof System is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to GL Imports Ltd, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
   a) relates only to the product as described herein;
   b) must be read, considered and used in full together with the Technical Literature;
   c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
   d) is copyright of BRANZ.
2. GL Imports Ltd:
   a) continues to have the product reviewed by BRANZ;
   b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
   c) abides by the BRANZ Appraisals Services Terms and Conditions;
   d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty 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 GL Imports Ltd.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to GL Imports Ltd or any third party.

For BRANZ

Chelydra Percy
Chief Executive

Date of Issue:
24 May 2021

JM Vapor Barrier SA

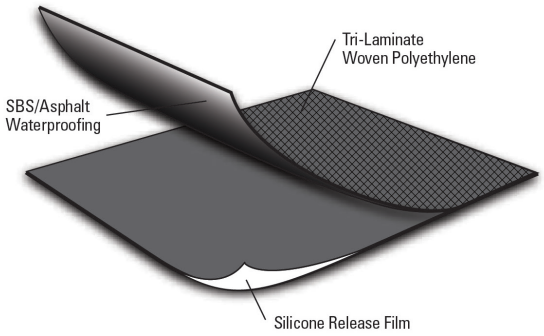
Polyethylene-Reinforced, Self-Adhering SBS Vapor Barrier

Features and Components

Tri-laminate woven polyethylene, nonslip, UV-protected top surface: Provides temporary weather protection for 90 days. Provides high tensile strength and puncture resistance.

Self-sealing, high-quality SBS rubber and asphalt blend: Provides low air and vapor permeability.

Silicone release film: Allows for ease of self-adhering installation.



Component
M
Membrane
Multi-Ply

Type
PT
Protection

System Compatibility

This product may be used as a component in the following systems. Please reference product application for specific installation methods and information.

Multi-Ply	BUR	APP		SBS				
	HA	CA	HW	HA	CA	HW	SA	MF
	*Compatible with all multi-ply systems**							

Single Ply	TPO				PVC			EPDM		
	MF	AD	SA	IW	MF	AD	IW	MF	AD	BA
	*Compatible with all single ply systems above**									

Key: **HA** = Hot Applied **CA** = Cold Applied **HW** = Heat Weldable **SA** = Self Adhered **MF** = Mechanically Fastened **IW** = Induction Weld **BA** = Ballasted **AD** = Adhered

* This product is compatible with all systems when used as a vapor barrier.
** Do not apply hot asphalt to this product.

Energy and the Environment

Pre-Consumer Recycled Content	0%
Post-Consumer Recycled Content	0%

Peak Advantage® Guarantee Information

Systems	Guarantee Term
When used as a vapor barrier in most JM systems.*	10, 15 or 20 years

*Contact JM Technical Services for specific system requirements or guarantee terms.

Codes and Approvals

CLASSIFIED UL US

FM APPROVED

MIAMI-DADE COUNTY APPROVED
Miami-Dade County
Product Control Approved

Installation/Application

Self-Adhered

- This product is not suitable for hot asphalt application to the top surface
- Can be installed on plywood, gypsum or concrete board as well as asphalt, metal or concrete
- All substrates must be primed prior to installation
- Minimum application temperature is 14°F (-10°C)
- Ideal for low-slope applications up to 3" per foot (7.5 cm/m) or 14°
- Side laps are 3" (7.62 cm); end laps are 6" (15.24 cm)
- Refer to Vapor Barrier Installation Instructions for application information

Packaging and Dimensions

Roll Coverage*	468 ft² (43.5 m²)
Roll Length	134 ft (40.8 m)
Roll Width	45 in (1.1 m)
Roll Weight	80 lb (35.8 kg)
Rolls per Pallet	25
Pallet Weight	2,050 lb (930 kg)
Pallets per Truck**	21

*Assumes a 4" side lap **Assumes 48' flatbed truck.

JM Vapor Barrier SA

Polyethylene-Reinforced, Self-Adhering SBS Vapor Barrier

Tested Physical Properties

Physical Properties		ASTM Test Method	Vapor Barrier SA	
			MD*	XMD**
Strength	Tear Resistance	D 5147	90 lbf (400 N)	79 lbf (350 N)
	Tensile Strength	D 5147	54 lbf/in. (9.5 kN/m)	68 lbf/in. (12 kN/m)
	Dynamic Puncture Resistance	E 154	152 lbf (675 N)	
Longevity	Low Temp. Flexibility	D 5147	< -22°F (< -30°C)	
	Thickness	D 5147	31.5 mil (0.8 mm)	
	Lap Adhesion with Primer	D 1876	68 lbf/ft (1000 N/m)	
	Lap Adhesion without Primer	D 1876	41 lbf/ft (600 N/m)	
	Ultimate Elongation	D 5147	33%	20%
Performance	Peel Resistance (Steel)	D 903	5.4 lbf/in (950 N)	
	Water Vapor Permeance	E 96	0.03 perm (1.7 ng/Pa•s•m^2)	
	Air Permeability	E 2178	< 0.001 L/s/m^2	
		E 283	< 0.002 L/s/m^2	

*MD = Machine Direction
**XMD = Cross-Machine Direction

Note: Material tested in accordance with ASTM D 5147 Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Materials.

RS-2075 8-21 (Replaces 4-19)

PRODUCT INFORMATION

Polyisocyanurate (PIR) insulation is suitable for use in buildings, extensions and renovations, and is one of the most effective insulation materials used in construction. PIR insulation core sandwiched between a choice of high performance fibreglass aluminium, embossed foil, or glass fabric creates a durable, light weight insulation board with superior performance and reduced material cost. Also, available in facing free.

R Value according to AS/NZS 4859.1 Part 2 Section 5.2

Thickness (mm)	20	25	30	40	50	60	70	75	80	90	100	140	150
(mK/W)	0.93	1.17	1.40	1.87	2.34	2.80	3.27	3.50	3.74	4.21	4.67	6.54	7.01
Weight (kg/m²)	0.97	1.19	1.41	1.85	2.29	2.73	3.17	3.39	3.61	4.05	4.49	6.25	6.69

Weight for glass fabric/glass fabric facings

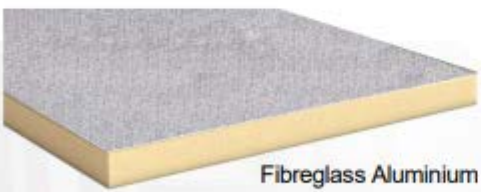
FIRE PERFORMANCE

Fibreglass Aluminium	
AS ISO 9705	
NCC Volume One Specification C1.10 Clause 4 determined in accordance with AS 5637.1	Group 2
NZBC Verification Method C/VM2	Group 2-S

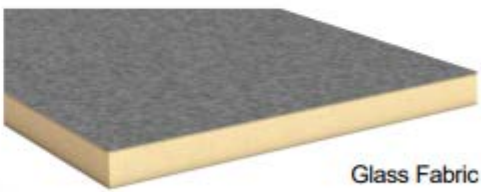
Embossed Foil	
AS ISO 9705	
NCC Volume One Specification C1.10 Clause 4 determined in accordance with AS 5637.1	Group 3
NZBC Verification Method C/VM2	Group 3

PRODUCT PROPERTIES

Density	38-42kg/m³
Compressive strength	≥0.15MPa
Shear strength	≥0.11MPa
Water vapour transmission rate	10-15 g/m2.24h
Standard width	1200mm
Standard length	2400mm
Thickness (mm)	20, 25, 30, 40, 50, 60, 70, 75, 80, 90, 100, 140 and 150



Fibreglass Aluminium



Glass Fabric

Embossed Foil

Facing Free

1. Product Description

ETERPAN® MD is manufactured through flow-on production method from a homogeneous mixture of cement, organic cellulose fibres and selected mineral fillers. The asbestos-free board is autoclaved to form a highly dimensional stable board ideal for both internal and external applications such as cladding, partitions, ceilings, stone/tile/brick backer board, rigid air barrier, in situ formwork concrete etc.

ETERPAN® MD comes in thicknesses ranging from 6 to 20mm in lengths of 2,400mm, 2,700mm or 3,000mm.

2. Benefits

ETERPAN® MD is an advanced building material, serving as the best alternative to conventional wood, plasterboard or other wood/ cement based products;

a. Wide variety of thicknesses and applications
b. Dimensionally stable
c. Impact resistant
d. Moisture, mould and water resistant
e. Resistant to attack of termites, insects and other vermin
f. Easy to install and work with
g. Environmental-friendly, no harmful gas emission
h. Non-combustible

3. Technical Properties

Test Method:	ASTM C1185 :	Standard Test Methods for Sampling and Testing Non- Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards
	ASTM C1186 :	Standard Specification for Flat Fiber Cement Sheets Non-Asbestos Fiber-Cement Flat Sheet, Roofing and Siding Shingles, and Clapboards
	BS 476 Part 4 :	Fire Tests on Building Materials and Structures Part 4: Non-combustibility tests for materials
	BS 476 Part 7 :	Part 7: Method of test to determine the classification of the surface spread of flames of products
	ASTM C518 :	Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus

For technical assistance please contact:
Promat Australia Pty. Ltd., 1 Scotland Road, Mile End South, Adelaide, SA 5031
T +61 (8) 8352 6759 **F** +61 (8) 8352 1014 **E** PAPL.mail@etexgroup.com

Physical Properties

Property	Value	Unit	Standard
Density (not less than)	1300	kg/m^3	ASTM C1185
Moisture Content (at EMC)	10% by Weight	%	ASTM C1185
Water Absorption	33 ± 2 %	%	ASTM C1186
Moisture Movement - Normal to Oven Dry - Normal to Saturated	 0.80 0.45	 mm/m mm/m	ASTM C1185
Thermal Expansion	5×10^{-6}	m/mK	-
Thermal Conductivity	0.28	W/mK	ASTM C518
Thermal Shrinkage (4ht/ 500°C) - Length - Thickness - Weight loss	 0.56 0.78 10.50	 % % %	-
Resistance to Continuous Freezing	-30	°C	-
Resistance to Continuous Heating	150	°C	-

Mechanical Properties

Property	Value	Unit	Standard
Modulus of Rupture - Longitudinal (Oven-Dry) - Transverse (Oven-Dry)	 12.0 9.0	 N/mm^2 N/mm^2	ASTM C1185
Modulus of Elasticity - Longitudinal (Oven-Dry) - Transverse (Oven-Dry)	 7500 9500	 N/mm^2 N/mm^2	ASTM C1185
Delamination Strength (Air-Dry)	1.0	N/mm^2	-

Durability

Property	Value	Standard
Heat-rain performance – Category A : 50 Cycles	Passed	ISO 8336
Warm water performance	Passed	ISO 8336
Soak-dry performance – Category A : 50 Cycles	Passed	ISO 8336
Freeze-thaw performance – Category A : 100 Cycles Type A : 50 Cycles	 Passed Passed	 EN 12467 AS/ NZS 2908.2

For technical assistance please contact:
Promat Australia Pty. Ltd., 1 Scotland Road, Mile End South, Adelaide, SA 5031
T +61 (8) 8352 6759 **F** +61 (8) 8352 1014 **E** PAPL.mail@etexgroup.com

Reaction to Fire

Property	Value	Unit	Standard
Non-combustibility	Non-combustible	-	BS 476 Part 4
Surface Spread of Flame	Class 1	-	BS 476 Part 7
Building Regulation Classification	Class 0	-	-
Heat Release Smoke Production and Mass Loss	Group 1	-	ISO 5660 Part 1:2015

All material properties and physical performance are mean values given for information only.
If certain properties are critical for particular application, it is advisable to consult Eternit Guangzhou Building Systems Co. Ltd.

Eternit Guangzhou Building Systems Co. Ltd reserves the right to amend this information sheet without prior notice.

4. Health and Safety Aspects

During the mechanical machining of panels, airborne dust which may be hazardous to health, may be released.
Avoid direct contact of dust with skin and eyes as they may cause irritation.
The use of dust extraction equipment is advised. Respect regulatory occupational exposure limits for total inhalable and respirable dust.
For more information, please check the Material Safety Data Sheet before working with the product.

5. Certification

All Eternit Guangzhou Building Systems Co. Ltd products are manufactured in line with the ISO standards. Eternit Guangzhou Building Systems Co. Ltd manufacturing facility achieved the certificates of ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007. These certificates can also be downloaded from http://www.eternit.com.cn/Abouts/index.html

For technical assistance please contact:
Promat Australia Pty. Ltd., 1 Scotland Road, Mile End South, Adelaide, SA 5031
T +61 (8) 8352 6759 **F** +61 (8) 8352 1014 **E** PAPL.mail@etexgroup.com

Product Technical Statement

Product Description: RAB™ Board 6mm and 9mm are pre-sealed fibre cement sheets for use as rigid air barrier in residential or commercial facade applications.

Scope of Use: RAB Board can be used in residential buildings as a rigid sheathing as per the requirement of section 9.1.7.2 of E2/AS1. RAB Board is also suitable to withstand high wind pressures up to 4.5kPa experienced on specific engineering design (SED) building facades where it equalises the wind pressure within the cavity to pressures on the external face of building facade.

RAB Board is also suitable for use in fire rated systems and in bracing applications.

Limitations: RAB Board must not be used in situation where it stays in contact with ground moisture

Compliance with the NZBC:

The following clauses of the NZBC are applicable to RAB Board and it complies with these requirements as explained below

Structure - B1: RAB Board installed as per its installation manual has been assessed to withstand wind pressures up to 4.5kPa and meets the requirements of B1.3.1, B1.3.2 and B1.3.3 of Clause B1 of NZBC.

RAB™ Board is tested as per BRANZ-P21 test and is suitable for use in bracing applications for buildings within the scope of NZS 3604.

Durability - B2**:** RAB Board is manufactured in accordance with AS/NZS 2908.2 and meets the durability performance requirements of section B2.3.1(a) and B2.3.2 of Clause B2.

External Moisture - E2: RAB Board has been tested and meets the requirements of Table 23 of E2/AS1.

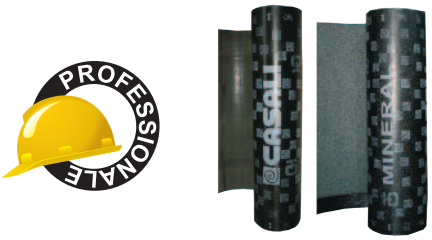
Hazardous Building Materials - F2: RAB Board complies with the requirements of F2.3.1 and will not present a health hazard when handled as per its technical specifications.

Fire Performance - C: RAB Board has been assessed and is classified as non-combustible material and is suitable for use in fire rated external walls close to boundaries.

Installation: RAB Board must be installed in accordance with Rigid Air Barriers Installation Manual. . The specifications are available at James Hardie web site www.jameshardie.co.nz or Ask James Hardie™ at 0800 808 868 for further information.

Warranty: RAB Board has a product warranty of 15 years when installed and maintained as per the current installation manual.

DERMABIT® EXTRA
DERMABIT®
CASALI DERMABIT® EXTRA



PROJECT SPECIFICATIONS: single and multi-layer solutions for: large commercial and industrial roofing, residential buildings, large metal structures with and without insulation, exposed waterproofing systems mechanically fixed, roofing with photovoltaic panels, waterproofing foundations, retaining walls and large structures in general.

REINFORCEMENTS: polyester with high mechanical properties and excellent dimensional stability.

FINISHES: sand, mineral self-protection in different colours.

PLUS: an APAO synthesis engineering polymer based compound that ensures a thermal operating range of -25°C/+150°C, high elasticity, excellent resistance to atmospheric ageing, perfect joint seal and excellent adhesion to any type of deck, high resistance to mechanical and thermal stress; the family of Dermabit® membranes is certified by the most prestigious certification institutes such as BBA, ITC, BRANZ and have been used for more than 40 years in more than thirty countries all over the world.

BBA APPROVAL INSPECTION TESTING CERTIFICATION CERTIFICATE 11/4861

BRANZ Appraised
Appraisal No.647 [2009]

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Enduring Quality

DERMABIT® EXTRA
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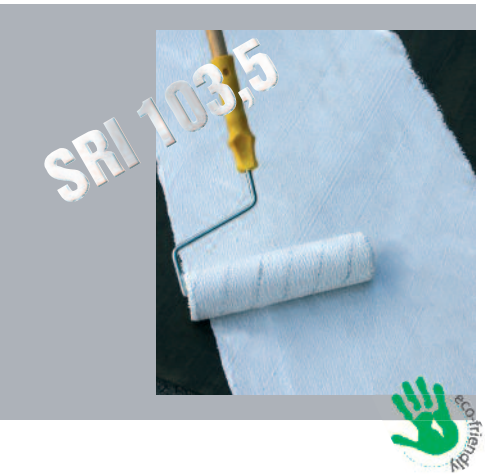
PROFESSIONALE



DERMABIT®	STANDARD	U.M.	DERMABIT EXTRA 40180	DERMABIT EXTRA 4 mm	DERMABIT 30160	4170 CASALI DERMABIT EXTRA**	43170 CASALI DERMABIT EXTRA **	DERMABIT 40250 - 50250
					BBA	BBA	BBA	
Finishing	-	-	SAND	MINERAL	SAND	SAND	MINERAL	SAND
Reinforcement type	-	-	HSP POL	HSP POL	SP POL	HSP POL	HSP POL	GS POL
Thickness	EN 1849 - 1	mm	4	4	3	4 *	4 *	4-5
Weight	EN 1849 - 1	kg	4	4	3	4	5,2	4-5
Maximum Tensile Force LONGITUDINAL / TRASVERSAL	EN 12311-1	N/5cm	900 / 700	900 / 700	700 / 600	850 / 650	850 / 650	1200 / 900
Elongation at break LONGITUDINAL / TRASVERSAL	EN 12311-1	%	45 / 45	45 / 45	40 / 40	40 / 40	40 / 40	50 / 50
Tearing resistance LONGITUDINAL / TRASVERSAL	EN 12310 -1	N	200 / 200	200 / 200	150 / 150	170 / 170	170 / 170	220 / 240
Flow resistance at elevated temperature	EN 1110	°C	150	150	150	150	150	150
Flexibility at low temperatures	EN 1109	°C	-25	-25	-20	-20	-20	-20
Dimensional stability	EN 1107-1	%	±0,2%	±0,2%	±0,3%	±0,2%	±0,2%	±0,2%
Thermal ageing in air VARIATION OF LOW TEMPERATURE FLEXIBILITY	EN 1296 EN 1109	Δ°C	5	5	5	5	5	5
Peel resistance of joints	EN 12316-1	N/5cm	40	40	40	40	40	40

* THICKNESS MEASURED EXCLUDING MINERAL FINISHING

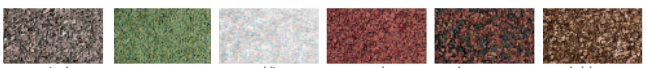
Reinforcement **- POL**: standard performance stabilized non woven polyester / **SP POL**: medium performance stabilized non woven polyester / **HSP POL**: high performance stabilized non woven polyester / **GS POL**: special performance stabilized non woven polyester for great structure / **GLASS FIBRE**: fibre glass mat reinforced with threads / **ALL + POL**: aluminium foil coupled with non woven polyester - ***Finishing*** **- MINERAL**: slated / **SAND**: sanded / **PBS**: Polyethylene on both sides.



IMPROVING WATERPROOFING PERFORMANCE OF DERMABIT®, SAVING ENERGY, WITH DERMACOLOR COOL ROOF

Dermacolor Cool Roof is a high-reflectance synthetic resin-based white paint in water emulsion, which thanks to a special formulation containing special glass micro-spheres, is used to protect bitumen-polymer waterproofing membranes against UV radiation, significantly lowering the surface temperature (by up to 40°C with respect to a black membrane).This attenuates the urban heat island effect and reduces damage to waterproof systems installed on roofs, giving a considerable energy saving due to reduced use of the air conditioning system of the building.
Dermacolor Cool Roof was tested for its solar reflection index (SRI)* obtaining the excellent result of 103.5 (Test Report No. 313875 issued by the Giordano Institute on 05/03/2017). The SRI index indicates the ability of a material to reflect ultraviolet rays, so that the higher the index the greater the solar rays transmitted by the material will be, meaning that less heat is accumulated and transmitted to the rooms below; tests carried out on the polymer bitumen membrane Casali Dermabit®.

Slated Self Protection available for Dermabit®
Other finishing, on request.



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rev 01/2017

DERMAFIL

APP

PROJECT SPECIFICATIONS: the ideal choice for a wide range of multi-layer waterproofing applications in the field of residential, industrial and prefabricated roofing, with or without insulation. Particularly suitable for waterproofing bridges and other structures subject to traffic in accordance with EN 14695 (in the 40250 and 50250 GS POL versions), waterproofing underground structures, and to renovate existing roofing (resurfacing).

REINFORCEMENTS: a wide range of TNT polyester characterised by excellent mechanical properties and excellent dimensional stability.

FINISHES: sand, mineral self-protection in different colours.

PLUS: a bitumen based compound modified with select polypropylene polymers (APP) and copolymers.
Highly reliable solutions, wide thermal operating range (-15°C/+130°C), perfect adhesion to different types of decks (reinforced concrete, wood, metal) and constant nominal thickness even after application, thanks to the smooth bottom finish.

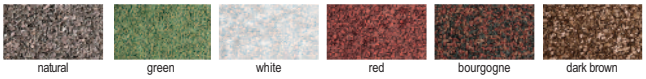
DERMAFIL	STANDARD	U.M.	DERMAFIL 30200 - 40200	DERMAFIL 40160	DERMAFIL 40250 - 50250	DERMAFIL 40200 - 45200 50200	DERMAFIL 4 mm - 5 mm
Finishing	-	-	SAND	SAND	SAND	MINERAL	MINERAL
Reinforcement type	-	-	SP POL	SP POL	GS POL	SP POL	SP POL
Thickness	EN 1849 - 1	mm	3 / 4	4	4 / 5	-	4* / 5 *
Weight	EN 1849 - 1	kg	-	-	-	4 / 4,5 / 5	-
Maximum Tensile Force LONGITUDINAL / TRASVERSAL	EN 12311-1	N/5cm	600 / 500	700 / 600	1200 / 900	600 / 500	700 / 600
Elongation at break LONGITUDINAL / TRASVERSAL	EN 12311-1	%	40 / 40	40 / 40	45 / 45	40 /40	40 / 40
Tearing resistance LONGITUDINAL / TRASVERSAL	EN 12310 -1	N	150 / 150	150 /150	200 / 220	150 / 150	150 / 150
Flow resistance at elevated temperature	EN 1110	°C	130	130	130	130	130
Flexibility at low temperatures	EN 1109	°C	-15	-15	-15	-15	-15
Dimensional stability	EN 1107-1	%	±0,3%	±0,3%	±0,2%	±0,3%	±0,3%

* THICKNESS MEASURED INCLUDING MINERAL FINISHING

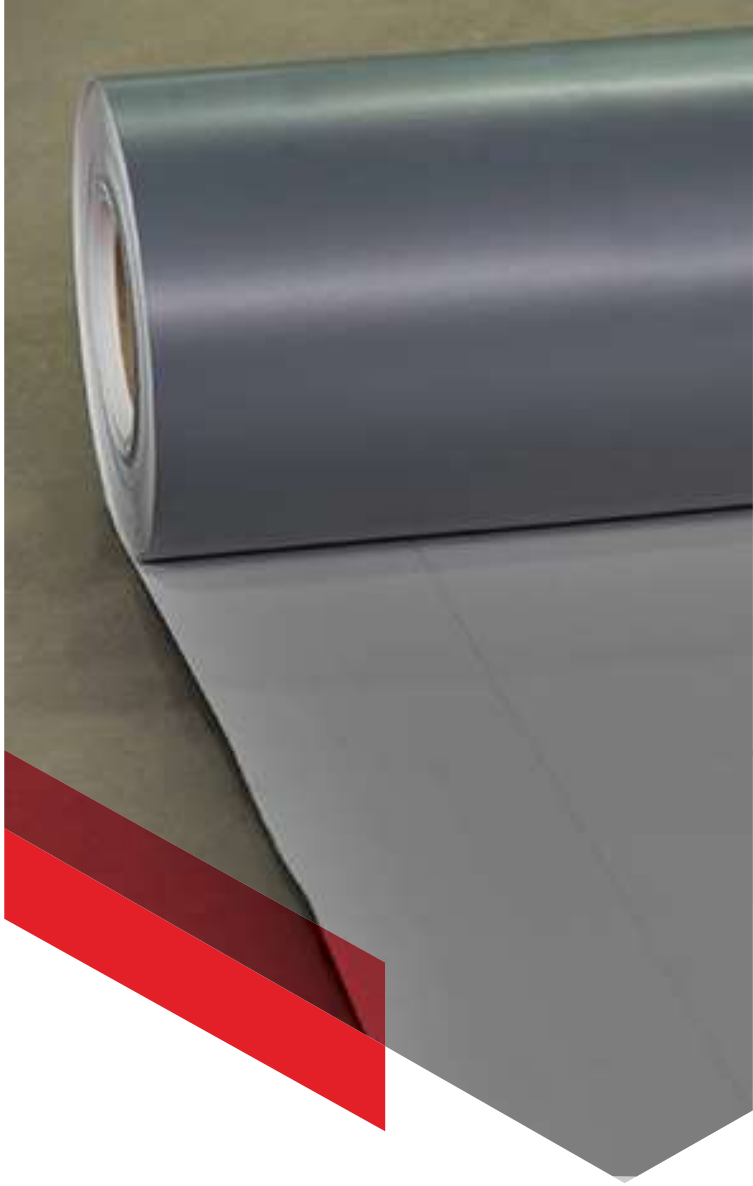
rev 01/2017

***Reinforcement* - POL**: standard performance stabilized non woven polyester / **SP POL**: medium performance stabilized non woven polyester / **HSP POL**: high performance stabilized non woven polyester / **GS POL**: special performance stabilized non woven polyester for great structure / **GLASS FIBRE**: fibre glass mat reinforced with threads / **ALL + POL**: aluminium foil coupled with non woven polyester - ***Finishing* - MINERAL**: slated / **SAND**: sanded / **PBS**: Polyethylene on both sides.

Slated Self Protection available for Dermafil
Other finishing, on request. For finishing details refer to pg. 34



ALLCO JM TPO



Allco JM TPO is a single ply, polyester fabric reinforced, thermoplastic polyolefin (TPO) fully bonded waterproofing sheet membrane for roofs and decks, applied as a fully bonded or mechanically fixed system with heat-welded seams. Also available in fleece backed (FB).

Allco JM TPO is suitable for commercial and residential low-slope and pitched roofs, gutters, parapets, balconies, and under floating decks. Allco JM TPO can also be used as the waterproofing membrane for Allco's warm & cold roof solutions.

Product	Colour	Thickness (mm)	Roll Length (m)	Roll Width (mm)	Coverage (m2)	Cut-to-length	Water Potable*	BRANZ Appraised	Product Warranty	Stock item
JM TPO	White	1.52	30	1524	46.45		Yes	Yes	20 Years	Indent
		1.52	30	3048	92.90		Yes	Yes	20 Years	Indent
		2.03	23	1524	34.84		Yes	Yes	20 Years	Indent
	Grey	1.14	30	3048	92.90		Yes	Yes	20 Years	Yes
		1.52	30	1524	46.45		Yes	Yes	20 Years	Yes
		1.52	30	3048	92.90	Yes	Yes	Yes	20 Years	Yes
		1.52	30	3657	111.5		Yes	Yes	20 Years	Yes
		2.03	23	1828	41.70		Yes	Yes	20 Years	Indent
	Tan	1.14	30	1828	55.57		Yes	Yes	20 Years	Indent
JM TPO FB	White	2.92	30	3048	92.90		Yes	Yes	20 Years	Indent
	Grey	2.92	30	3048	92.90	Yes	Yes	Yes	20 Years	Yes

SCOPE OF USE

Allco JM TPO membrane is suitable for use as a roof and deck waterproofing membrane on buildings within the following scope:

- The scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1
- The scope limitations of NZBC Acceptable Solutions E2/AS1, Paragraph 1.1 with regard to building height and floor plan area when subject to specific structural design; and with substrates of plywood, Strandsarking (roofs only) or suspended concrete slab;
- With minimum falls of roofs 1:30 and decks 1:40
- With deck size limited to 40m^2
- Situated in NZS 3604 Wind Zones, up to, and including Extra High; and with the weather tightness design of junctions for each specific structure being the responsibility of the building designer.

Allco recommends that before specifiying waterproofing membrane products that Architects and building designers consult the relevant NZBC documents and NZ Standards including, but not limited to these listed below:

- NZBC Acceptable Solution E2/AS1: External Moisture
- NZS 3604: 2011 Timber-framed Buildings
- AS/NZS 2269: 2012 Plywood - Structural
- AS/NZS 1170: 2002 Structural Design Actions – General Principles NZBC Acceptable Solution C/AS1 – C/AS6: Protection from Fire

TECHNICAL

Durability: Allco JM TPO has a 20 Year durability warranty

NZBC Compliance: Allco JM TPO, when installed and maintained in accordance with the supplier's instructions and maintenance requirements, will satisfy the durability clause NZBC B2.3.1 (b) 15 years. Allco JM TPO meets the relevant clauses of NZBC E3 Internal Moisture and F2 Hazardous Building Materials.

Design requirements: Product specification and incorporation of Allco JM TPO, into the building design shall be carried out by a designer, or architect, or engineer, or building professional who; is qualified to design the buildings covered under the "Scope" of use of this product; and has ready access to the technical specifications including installation details and standards referenced to in the BRANZ Appraisal No.1046 (2018) where the design limitations are outlined for the scope of this data sheet.

Allco JM TPO is supplied as a complete system with proprietary heat weldable accessories to deal with roof penetrations including internal and external corners and pourable pockets. Refer to the Allco website www.allco.co.nz or refer to an Allco Account Manager for a full list of accessories.

BRANZ Appraised
Appraisal No. 1046 [2018]

masterspec
Specification No. 4422AJ

INSTALLATION

Installation shall be carried out by an Allco Approved Applicator. Installation shall be undertaken in accordance with all relevant technical information related to the selected installation method, including information contained within the BRANZ Appraisal No. 1046 (2018) and the suppliers installation instructions.

MSDS

Material Safety Data Sheets (MSDS) are available on request from your Allco account manager or by visiting our website www.allco.co.nz

SPECIFICATION & SUBSTITUTION

Allco specification documents are available through Masterspec or can be downloaded from our website (www.allco.co.nz). Substitution of any products in NZBC compliant systems should not be accepted and we recommend this be made clear in all specification and tender documents.

MAINTENANCE REQUIREMENTS

Maintenance requirements for Allco JM TPO are outlined in Allco's Care and Maintenance Guide.
In the event of damage to the membrane, the membrane must be repaired by an Allco approved applicator only who can remove the damaged portion and heat weld a patch as for new work. Drainage outlets must be maintained to operate effectively.

BIT-U-PRIME

CANTAC BIT-U-PRIME is an industrial strength bitumen primer formulated to prepare substrates for the installation of bitumen membranes for roofing, decking and other structures. Bit-U-Prime can also be used with a wide range of membranes and applications to optimise adhesion.

BIT-U-PRIME can be sprayed directly onto timber, concrete, metal, mastic and flashing materials.

BIT-U-PRIME can also be used to prime and prepare potholes for the repair of asphalt.

USES

- Primes and seals new and existing roofs, decks and other structures with better adhesion of primers, tapes and membranes including bitumen felt and flashings.
- Primer can be used with a wide range of other roofing membranes and other applications where a surface is difficult for a bonding agent to adhere to.

FEATURES

- ✓ Improves Waterproofing
- ✓ High Coverage
- ✓ Easy Application
- ✓ Improves Bond Strength
- ✓ Fast Drying
- ✓ Waterproof
- ✓ Minimal Preparation Required

THE CANISTER ADVANTAGE

- *CANTAC's self contained, environmentally friendly, portable canister system was designed for ease of use.*
- *The canister, equipped with a reusable gun and hose, eliminates the need for air assisted primer application systems.*
- *No power or compressor is required!*
- *This approach significantly reduces set up and clean-up time. The canister system is almost maintenance free. No solvent is needed to flush out guns and messy pressure pots.*
- *The spray pattern is consistent, delivering perfect results every time which eliminates human error caused by inconsistent spray patterns. Its portability enables you to easily apply the primer on site.*
- *Once you have emptied the eco friendly canister, simply attach your gun and hose to a new one. The empty canister is made from recyclable steel and can be easily recycled making it more environmentally friendly than traditional plastic containers.*

PHYSICAL & CHEMICAL PROPERTIES

Chemical Description	Black Bitumen Based Primer
Odour	Minimal Solvent Odour
Appearance	Black Liquid
Solids Content	High Solid Content
Viscosity	Sprayable Grade
Coverage	17kg Canister: 250^{sm} Single Sided (Guide only: Coverage depends on absorbency of substrate and coating weight. Generally the heavier the coating weight the stronger the bond.)

Minimum Open Time	1 - 5 mins
Maximum Open Time	24 hours (best results within 1hr)
Heat Resistance	-40 – +120ºC
Cleaner	Citrus Cleaner or Acetone
Flash Point	Extremely Flammable
Specific Density	0.70kg per ltr +/- 5%
Size	17kg Recyclable Canister

DIRECTIONS FOR USE

1. For best results all surfaces to be primed must be clean, dry and free from dirt, dust, oil, loose paint, wax and grease. The temperature of the primer and the surfaces being bonded should be between 15°C - 27°C.

2. Attach the larger end of the hose to the spray gun and tighten securely, attach the smaller end of the hose to the canister valve securely.

3. Slowly open the canister valve and inspect the connections for any leaks. Tighten if needed. Fully open the valve.

4. Unscrew the trigger stop nut on the gun and spray a test pattern. Adjust nut to vary primer output.

PRIMER APPLICATION

Hold the applicator 150-250mm away from the surface and apply an even coat of primer to one surface with a coating weight of approximately 80-100% of the surface. Allow primer to dry until tacky (2-5mins).

Note: Test for tackiness by gently touching the primer with your knuckle. If the primer transfers to your skin it is too wet. If the primer is tacky and does not transfer to your skin, it is ready to bond. If the primer is dry or has very little tack, it is too dry and another coat of primer should be applied. Porous substrates may require additional coats. High strength of critical bonds may require two coats per surface.

Apply even pressure over the entire surface to ensure intimate contact. Pressure may be applied by mechanical presses, nip rollers or hand rollers. Insufficient pressure will result in poor bonds.

CLEAN UP

Clean tip after use with CANTAC Citrus Cleaner. Excess primer and overspray may be removed with CANTAC Citrus Cleaner, Acetone, WOODLOK GLAZE-AWAY & DSOLV-AWAY, GLUE GURU 05CR or most Industrial Solvents.

EQUIPMENT SHUT DOWN / STORAGE

Screw the trigger stop adjustment nut all the way to the trigger lock position.

DO NOT disconnect the hose until the canister is completely empty and ready to attach to another canister.

The canister system can be stored as long as the canister as been left on the and gun is in the lock out position by using the adjustment nut.

Alternatively remove the tip and soak in solvent, spray a small amount of primer through the gun and hose every 1-2 months to ensure there is no thickened primer in the hose.

TROUBLESHOOTING

COLD WEATHER PROBLEMS

EFFECTS OF COLD WEATHER AND CANISTERS

The primer in the canister will thicken as temperatures get colder. The propellants used will decrease in pressure and therefore effectiveness. The propellants may condense and reduce the effective amount of available pressure in the canister. This will adversely affect the spray pattern and consequently, the performance of the primer.

HOW TO ELIMINATE COLD WEATHER PROBLEMS

1. Store the canisters in a controlled environment with temperatures between 15ºC and 27ºC.
2. Keep canisters off cold concrete floors and away from outside walls.
3. Allow additional time for solvents and propellants to flash off when temperatures are below 15ºC.
4. If the canisters are too cold for use, they can be brought up to room temperature by submerging them up to the valve in warm water or by attaching a heater belt. Once the canisters equilibrate to at least 15ºC, the products will perform as normal.

APPLICATOR – HOSE BLOCK CHECK LIST

IF THE SYSTEM SPRAYS POORLY, OR NOT AT ALL:

The sequence below runs through to a complete clog in the canister valve. If at any time during the sequence the problem is resolved, stop, clean the needed parts, put the system back together, and you are finished.

1. Make sure the canister is not empty.
2. Make sure the canister valve is open.
3. Close the spray gun trigger stop adjusting nut and clean the nozzle tip. (Does it spray now?)
4. Take off the nozzle and try spraying (Does it spray now?). Clean the nozzle.
5. Shut off the canister valve. Carefully and slowly, loosen the spray gun/hose connection and look for primer to squirt out. If primer starts to leak out, allow it to slowly continue to do so until it stops. (This will be messy but you will need to bleed off the pressurised primer to clean the spray gun). The spray gun has a clog at the valve, stem or inlet area and needs to be cleaned.
6. If nothing leaks out after fully loosening the spray gun, carefully remove the spray gun, realising that the hose may be clogged but could be full of primer and pressure depending on where the clog is. (Secure the open end of the hose into a bucket in case the clog releases and the system flushes).
7. Carefully and slowly loosen the hose connection at the canister valve. Look for primer to squirt out. If primer starts to leak out, allow it to slowly continue to do so until it stops. (This will be messy but you will need to bleed off the pressurised primer in the hose.) Clean or replace the hose.
8. With everything now isolated from the canister, place a bucket in front of the canister valve and slowly open to see if any primer comes out. If it does, put the cleaned system parts back together. If it does not, there is something wrong with the canister valve and it should be returned.

SOLVENTS THAT CAN BE USED FOR CLEANING THE NOZZLE, SPRAY GUN:

CANTAC Citrus Cleaner, Acetone, Toluene, WOODLOK GLAZE-AWAY & DSOLV-AWAY, GLUE GURU 05CR or most Industrial Solvents.

FOR CLEANING THE HOSE:

Keep the hose connected to a gun and canister that is turned on. This keeps the primer inside the hose pressurized and prevents blockages.

HEALTH & SAFETY

Refer to the Material Safety Data Sheet for health and safety information before using this product.

HANDLING & STORAGE

Product should be stored between 5°C and 25°C on a wooden pallet and kept from freezing. Keep out of direct sunlight and away from sources of heat. If the product has been left for prolonged periods between uses, agitating is recommended.

DISPOSAL

Canister disposal: Use extreme caution. Empty canister completely. Puncture the friable disc on the canister using a non-spark producing tool. Dispose of the scrap metal in accordance with local regulations.

SHELF LIFE

Best used within 18 months from date of manufacture when stored under the above conditions in the original unopened containers.

TESTING

Always test the suitability of the product for your application before use.

OTHER CANTAC PRODUCTS

HSE-TAC
Premium high strength contact with low odour.Extra long open time for high volume applications.

HSE-BIO
Premium high strength contact adhesive with low odour, double pressurized with extra-long open time for high volume applications. Greenstar approved.

POLY-TAC
Industrial strength, polystyrene safe contact adhesive for bonding polystyrene to itself and many other materials.

HIGH-TAC
High strength, high heat resistant contact adhesive for high pressure laminates, upholstery & most wall & floor coverings.

ULTRA-TAC
Pressure sensitive adhesive with exceptional tack for insulation materials.

ROOF-TAC
Premium high strength contact adhesive for TPO, EPDM, PVC and other rubber roofing membranes.

CITRUS CLEANER
Cleans gun tips and removes a variety of adhesives and tape residue.

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Laverton North
VIC 3026
Australia

CANTAC
CANISTER ADHESIVE TECHNOLOGY

ROOF-TAC

CANTAC ROOF-TAC is a natural rubber based, plasticiser resistant contact adhesive formulated for bonding. TPO and EPDM roofing membranes to substrates.

ROOF-TAC features very fast flash-off, with extra-long open time. High heat stability (128˚) and superior long-term bond strength.

ROOF-TAC is an excellent choice for permanent bonding of TPO, EPDM and most other roofing membranes to a variety of substrates and is also suitable for a wide variety of applications involving laminating of plastic materials.

USES

- Bonds TPO, EPDM and other roofing membranes to most common roofing materials.
- Bonds polyester wall & floor coverings.
- Bonds most vinyl's & rubbers.

FEATURES

- ✓ Plasticiser Resistant
- ✓ Extra Long Open Time
- ✓ Very Low Odour
- ✓ High Heat Resistant
- ✓ High Strength
- ✓ Waterproof
- ✓ No Ozone Depleting Substances
- ✓ High Coverage
- ✓ High Solids

THE CANISTER ADVANTAGE

- *CANTAC's self contained, environmentally friendly, portable canister system was designed for ease of use.*
- *The canister, equipped with a reusable gun and hose, eliminates the need for air assisted adhesive application systems.*
- *No power or compressor is required!*
- *This approach significantly reduces set up and clean-up time. The canister system is almost maintenance free. No solvent is needed to flush out guns and messy pressure pots.*
- *The spray pattern is consistent, delivering perfect results every time which eliminates human error caused by inconsistent spray patterns. Its portability enables you to apply adhesive in your facility or on site.*
- *Once you have emptied the eco friendly canister, simply attach your gun and hose to a new one. The empty canister is made from recyclable steel and can be easily recycled making it more environmentally friendly than traditional plastic containers.*

PHYSICAL & CHEMICAL PROPERTIES

Chemical Description	Solvent Based Contact Adhesive
Odour	Minimal Solvent Odour
Appearance	Blue
Solids Content	38 - 42%
Viscosity	Sprayable Grade
Coverage	17kg Canister: 272m^2 Single Sided (Guide only: Coverage depends on absorbency of substrate and coating weight. Generally the heavier the coating weight the stronger the bond.)

Minimum Open Time	1 - 2 minutes
Maximum Open Time	24 hours
Heat Resistance	-40 – +120ºC
Cleaner	Citrus Cleaner or Acetone
Flash Point	Non applicable
Specific Density	0.70kg per ltr +/- 5%
Size	17kg Recyclable Canister

DIRECTIONS FOR USE

1. For best results all surfaces to be bonded must be clean, dry and free from dirt, dust, oil, loose paint, wax and grease. The temperature of the adhesive and the surfaces being bonded should ideally be between 15°C - 27°C.

2. Attach the larger end of the hose to the spray gun and tighten securely, attach the smaller end of the hose to the canister valve securely.

3. Slowly open the canister valve and inspect the connections for any leaks. Tighten if needed. Fully open the valve.

4. Unscrew the trigger stop nut on the gun and spray a test pattern. Adjust nut to vary adhesive output.

ADHESIVE APPLICATION

Hold the applicator 150-250mm away from the surface and apply an even coat of adhesive to 100% of the surface area of both surfaces, achieving approximately 80-100% coverage. Allow adhesive to dry until tacky (1-2mins).

Note: Test for tackiness by gently touching the adhesive with your knuckle. If the adhesive transfers to your skin it is too wet. If the adhesive is tacky and does not transfer to your skin, it is ready to bond. If the adhesive is dry or has very little tack, it is too dry and another coat of adhesive should be applied. Porous substrates may require additional coats. High strength of critical bonds may require two coats per surface.

Apply even pressure over the entire surface to ensure intimate contact. Pressure may be applied by mechanical presses, nip rollers or hand rollers. Insufficient pressure will result in poor bonds.

CLEAN UP

Clean tip after use with CANTAC Citrus Cleaner. Excess adhesive and overspray may be removed with CANTAC Citrus Cleaner, Acetone, WOODLOK GLAZE-AWAY & DSOLV-AWAY, GLUE GURU 05CR or most Industrial Solvents.

EQUIPMENT SHUT DOWN / STORAGE

Screw the trigger stop adjustment nut all the way to the trigger lock position.

DO NOT disconnect the hose until the canister is completely empty and ready to attach to another canister.

The canister system can be stored for up to 2 months without being used. If the canister is going to be left for longer than 2 months it is recommended to turn off the canister, bleed the pressure from the gun and hose. Remove the gun and hose and attach to a canister of Gun & Hose Cleaner and flush out the line for approximately 3 minutes. The gun and hose can then be removed and stored.

Alternatively remove the tip and soak in solvent, spray a small amount of adhesive through the gun and hose every 1-2 months to ensure there is no thickened adhesive in the hose.

TROUBLESHOOTING

COLD WEATHER PROBLEMS

EFFECTS OF COLD WEATHER AND CANISTERS

The adhesive in the canister will thicken as temperatures get colder. The propellants used will decrease in pressure and therefore effectiveness. The propellants may condense and reduce the effective amount of available pressure in the canister. This will adversely affect the spray pattern and consequently, the performance of the adhesive.

HOW TO ELIMINATE COLD WEATHER PROBLEMS

1. Store the canisters in a controlled environment with temperatures between 15ºC and 27ºC.
2. Keep canisters off cold concrete floors and away from outside walls.
3. Allow additional time for solvents and propellants to flash off when temperatures are below 15ºC.
4. If the canisters are too cold for use, they can be brought up to room temperature by submerging them up to the valve in warm water or by attaching a heater belt. Once the canisters equilibrate to at least 15ºC, the products will perform as normal.

APPLICATOR – HOSE BLOCK CHECK LIST

IF THE SYSTEM SPRAYS POORLY, OR NOT AT ALL:

The sequence below runs through to a complete clog in the canister valve. If at any time during the sequence the problem is resolved, stop, clean the needed parts, put the system back together, and you are finished.

1. Make sure the canister is not empty.
2. Make sure the canister valve is open.
3. Close the spray gun trigger stop adjusting nut and clean the nozzle tip. (Does it spray now?)
4. Take off the nozzle tip and try spraying (Does it spray now?). Clean the nozzle.
5. Shut off the canister valve. Carefully and slowly, loosen the spray gun/hose connection and look for adhesive to squirt out. If adhesive starts to leak out, allow it to slowly continue to do so until it stops. (This will be messy but you will need to bleed off the pressurised adhesive to clean the spray gun). The spray gun has a clog at the valve, stem or inlet area and needs to be cleaned.
6. If nothing leaks out after fully loosening the spray gun, carefully remove the spray gun, realising that the hose may be clogged but could be full of adhesive and pressure depending on where the clog is. (Secure the open end of the hose into a bucket in case the clog releases and the system flushes).
7. Carefully and slowly loosen the hose connection at the canister valve. Look for adhesive to squirt out. If adhesive starts to leak out, allow it to slowly continue to do so until it stops. (This will be messy but you will need to bleed off the pressurised adhesive in the hose.) Clean or replace the hose.
8. With everything now isolated from the canister, place a bucket in front of the canister valve and slowly open to see if any adhesive comes out. If it does, put the cleaned system parts back together. If it does not, there is something wrong with the canister valve and it should be returned.
9. **Be sure to wear appropriate PPE, especially eye protection when connecting/disconnecting gun or hose.**

SOLVENTS THAT CAN BE USED FOR CLEANING THE NOZZLE, SPRAY GUN:

CANTAC Citrus Cleaner, Acetone, Toluene, WOODLOK GLAZE-AWAY & DSOLV-AWAY, GLUE GURU 05CR or most Industrial Solvents.

FOR CLEANING THE HOSE:

Attach gun and hose to a canister of CANTAC Gun & Hose Cleaner and flush out for approximately 3 minutes.

HEALTH & SAFETY

Refer to the Material Safety Data Sheet for health and safety information before using this product.

HANDLING & STORAGE

Product should be stored between 5°C and 25°C on a wooden pallet and kept from freezing. Keep out of direct sunlight and away from sources of heat. If the product has been left for prolonged periods between uses, agitating is recommended.

DISPOSAL

Canister disposal: Use extreme caution. Empty canister completely. Puncture the friable disc on the canister using a non-spark producing tool. Dispose of the scrap metal in accordance with local regulations.

SHELF LIFE

Best used within 24 months from date of manufacture when stored under the above conditions in the original unopened containers.

LIMITATIONS

ROOF-TAC is not suitable for Polystyrene.

TESTING

Always test the suitability of the product for your application before use.

OTHER CANTAC PRODUCTS

HSE-TAC
Premium high strength contact with low odour. Extra long open time for high volume applications.

POLY-TAC
Industrial strength, polystyrene safe contact adhesive for bonding polystyrene to itself and many other materials.

HIGH-TAC
High strength, high heat resistant contact adhesive for high pressure laminates, upholstery & most wall & floor coverings.

ULTRA-TAC
Pressure sensitive adhesive with exceptional tack for insulation materials.

CITRUS CLEANER
Cleans gun tips and removes a variety of adhesives and tape residue.

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PRODUCT NAME	# ADERIX Polyester 2,5 mm PE
MISSION	Dual APP/SBS self adhesive membrane designed for cold application with no flame
CATEGORY	Professional use
PRODUCT DESCRIPTION	ADERIX Self-adhesive waterproof membranes are the intended solution for cold application without the use of flame. ADERIX membranes is made of "dual compound" APP and self-adhesive compound which provides a suitable combination of special bitumen, elastomeric polymers and resins that enhance their adhesive performance in time. The new generation of stabilized nonwoven spun bond polyester reinforcement adds a high mechanical resistance and an excellent dimensional stability. ADERIX membranes are particularly suitable to waterproof flat or pitched roofs with wooden subfloors, or in presence of flame sensitive heat-insulating materials. ADERIX 2,5 mm with top finishing in PE film is used as a base under the ADERIX mineral versions in a double layer solution or as under tiles membranes on the top of wooden pitched roofs. Top finish is in PE/or PPE texture film while the bottom finish is made of silicone removable PE film.

CHARACTERISTICS	**COMPOUND**	**REINFORCEMENT**	**FINISHING**
	Dual APP/SA SBS	Polyester	POLYETHYLENE / SILICONISED FILM

USE DESTINATION	EN 13707 – Multilayer system without permanent surface protection – underlay EN 13707 – Multilayer system under permanent heavy protection - underlayer EN 13969-A – Bitumen damp proof sheet

DESCRIIPTION	TEST METHOD	UNITS	EXPRESSION OF RESULT	VALUE
Visible defects	EN 1850 -1	Statement	Pass	Pass
Lenght	EN 1848 -1	m	MLV	10-1%
Width	EN 1848 -1	m	MLV	1-1%
Straightness	EN 1848 -1	Statement	Pass (<20mm/10m)	Pass
Thickness	EN 1849 -1	mm	MDV ± 10%	2.5
Mass per unit area	EN 1849 -1	Kg/m²	MDV ± 10%	-
Watertightness	EN 1928:2000 MET. A	Statement	Pass > 60kPa	Pass
Watertightness after stretching at low temperature	EN 13897	%	MLV	NPD
External fire performance	EN 13501-5	Class	Pass	F roof
Reaction to fire	EN 13501-1	Class	Pass	F
Tensile properties (maximum tensile force): L Tensile properties (maximum tensile force): T	EN 12311-1	N/50 mm	MDV ± 20%	400 300
Tensile properties (elongation): L Tensile properties (elongation): T	EN 12311-1	%	MDV ± 15 abs.	35 35
Tearing resistance (nail shank): L Tearing resistance (nail shank): T	EN 12310-1	N	MDV ± 30%	130 130
Resistance to impact	EN 12691/A	mm	MLV	700
Resistance to static loading	EN 12730-1/B	Kg	MLV	10
Flexibility at low temperature	EN 1109	°C	MLV	-10/-20*
Flow resistance at high temperature	EN 1110	°C	MLV	100

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DESCRIIPTION	TEST METHOD	UNITS	EXPRESSION OF RESULT	VALUE
Dimensional stability	EN 1107-1	%	MLV	± 0.3 %
Form stability under cyclical temperature change	EN 1108	mm	MLV	NPD
Artificial aging by long term exposure to high temp • Flexibility at low temperature • Flow resistance at high temperature	EN 1296 EN 1109 EN 1110	Δ °C °C °C	MDV MVL MVL	NPD/10 NPD 90
Artificial aging by combination of UV radiation and water	EN 1297	Statement	Pass	NPD
Adhesion of granules	EN 12039	%	MDV	NPD
Water vapour transmission properties	EN 1931	μ	MDV ± 30% o 20'000	20'000
Resistance to root penetration	EN 13948	Statement	Pass	NPD
Peel resistance of joints	EN 12316-1	N/50 mm	MDV	NPD
Shear resistance of joints	EN 12317-1	N/50 mm	MDV	300/200
Durability-Watertightness after artificial ageing	EN 1296 EN 1928	Statement	Pass	Pass
Durability-Watertightness after exposure against chemicals	EN 1847 EN 1928	Statement	Pass	Pass
Chemical resistance	EN 13707 All. C	Information	Tab. C1&C2	Tab. C1&C2

* FLEXIBILITY AT LOW TEMPERATURE ON SELF ADHESIVE SIDE -20°C – UPPER SIDE FLEXIBILITY AT LOW TEMPERATURE -10°C PEELING ON STEEL (ASTM D1000) ≥ 30 N/10 mm.

Tolerance by EN 13707, EN 13969, EN 14695, EN 13859-1, EN 13970 and guidelines AISPEC-MBP.
MLV = Limit value;
MDV = Medium value;
NPD = Performance not registered since not significative value for the expected final use.
This technique form contains information subject to correction without any CASALI'S S.p.A. previous notice.
You are required to follow the technical documentation issued by producer for a correct use of product.

According to D.lgs 285/98 this product does not contain asbestos, tar and any other dangerous subsatnces

SUBSTRATES

PLYWOOD SUBSTRATE CHECKLIST

- Framing supports at 400mm centres for 17.5m ply (in one direction). All plywood edges must also be supported.
- Do not use tongue and groove plywood.
- Framing supports at 600mm centres for 19.5m ply (in one direction). All plywood edges must also be supported.
- Minimum thickness 17mm, F8, CCA H3.2 treated, structural plywood (not LOSP treated).
- Minimum CD grade with the sanded C face upwards.
- Plywood to be laid at right angles (90 degrees) to supporting timber.
- Plywood is to be laid with staggered joints in a brick bond pattern with a 3mm expansion gap between plywood sheet edges.
- Plywood is screw-fixed with 10g x 50mm SS counter-sunk screws at 150mm centres on all sheet edges and at 200mm centres through the body of the sheet. All screws to be counter sunk 1-2mm.
- Chamfer all external edges with a minimum radius of 5mm.
- *Plywood is to be kept dry at all times during construction. Blow/ torch drying the plywood surface prior to membrane application does not comply. Plywood to be at no more than 18% moisture content.
- For Roofs and Roof Decks over living spaces, all cavities must be ventilated and insulated in compliance with clause H1 NZBC. - 1 vent for the first 40m2 and one for every 50m2 thereafter. Cavity ventilation is not required for a Warm Roof system which meets or exceeds the minimum R value requirements.
- All drains and outlets are membrane compatible. Note that TPO membranes cannot be welded to Stainless Steel scuppers or sumps. Accessories must have Clamped Grates or be TPO weldable.
- Please ensure you have clearly ordered the correct membrane, colour and thickness for your project.
- Ensure minimum required falls are met. E2/AS1 2011 states 2° for roofs (1:30 or 34mm/mt), 1.5° for decks (1:40 or 25mm/mt) and 1:100 for internal gutters (10mm/mt).

If you have a query regarding this substrate specification, please call your Allco Representative on 09 448 1185

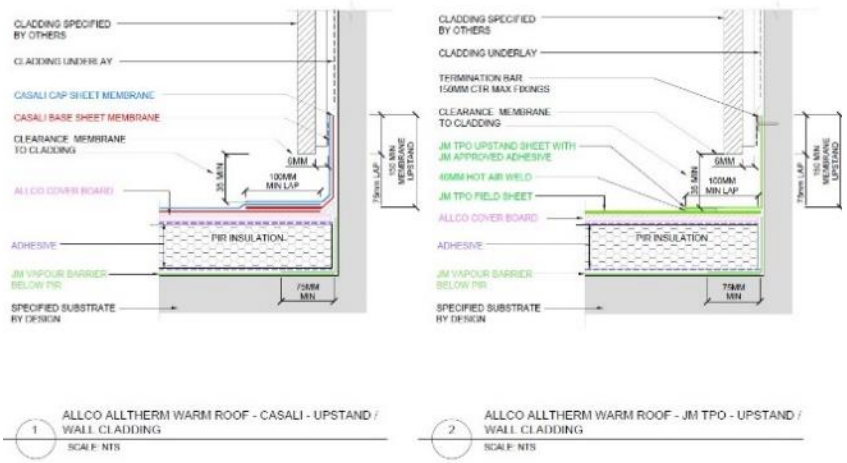
NOTES

*Cover the substrate to keep it dry, ensuring the waterproofing membrane can be installed when needed.
Communicate early with your Allco Approved Applicator or your Allco Representative about the project scheduling to ensure weather exposure is kept to a minimum.
Correct substrate installation is critical to the durability and performance of the membrane.
Failure to strictly comply with substrate specification may affect the product warranty.
All construction should comply with the NZ Building Code. Contact your local council for further details.
Communication between the Applicator and Construction Company will assist to ensure this specification is met.

CONCRETE SUBSTRATE CHECKLIST

- Ensure concrete substrate has been allowed to fully cure - at least 28 days from pour.
- If the concrete is less than 28 days old and a concrete surface sealer has been used or a rapid curing compound, you must identify the product and verify correct curing has taken place prior to laying.
- Relative humidity of concrete substrates must be 75% or less before application. (This can be verified with the use of a hygrometer). Allco recommends the use of Allco Substrate Primer Sealer.
- Fill hollows or holes with a cement plaster, or FLC.
- Surface to be smooth, clean, dry and free of debris or release agents.
- Substrate Venting installed as required. Contact your Allco Representative if a venting specification has not been provided.
- Use minimum 50mm bond-breaker tapes over expansion joints.
- Minimum 20mm triangular fillets at the base of upstands.
- All drains and outlets are membrane compatible. Confirm with Allco Representative if required.
- Please ensure you have clearly ordered the correct membrane, colour and thickness for your project.
- Ensure minimum required falls are met. E2/AS1 2011 states:
    - 2° for roofs (-1:30 or 34mm/mt)
    - 1.5° for decks (-1:40 or 25mm/mt)
    - 1:100 for internal gutters (10mm/mt).

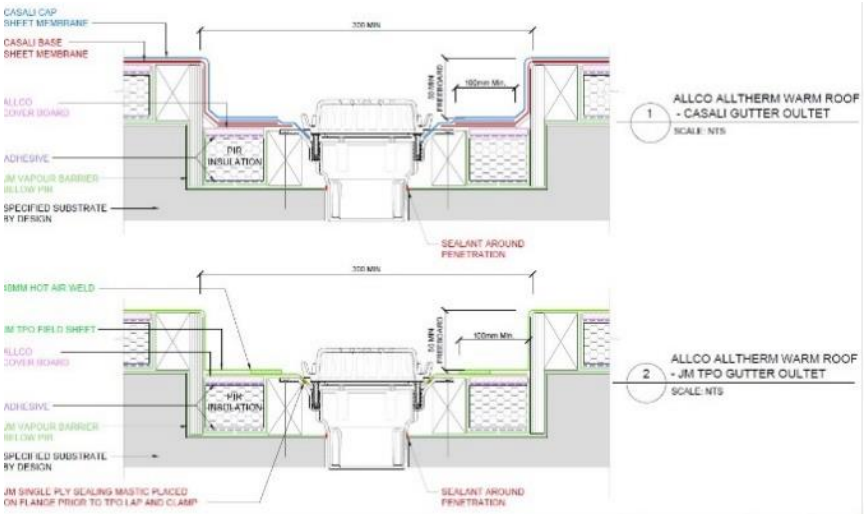
ALLCO ALLTHERM TYPICAL DETAILS



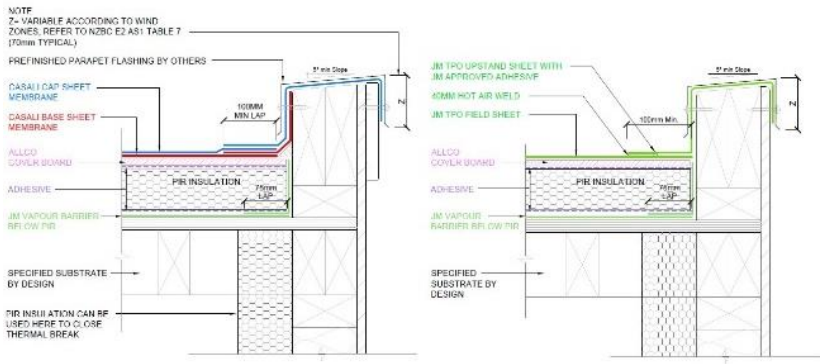
1 ALLCO ALLTHERM WARM ROOF - CASALI - UPSTAND / WALL CLADDING
SCALE: NTS

2 ALLCO ALLTHERM WARM ROOF - JM TPO - UPSTAND / WALL CLADDING
SCALE: NTS

WR-001



WR-002

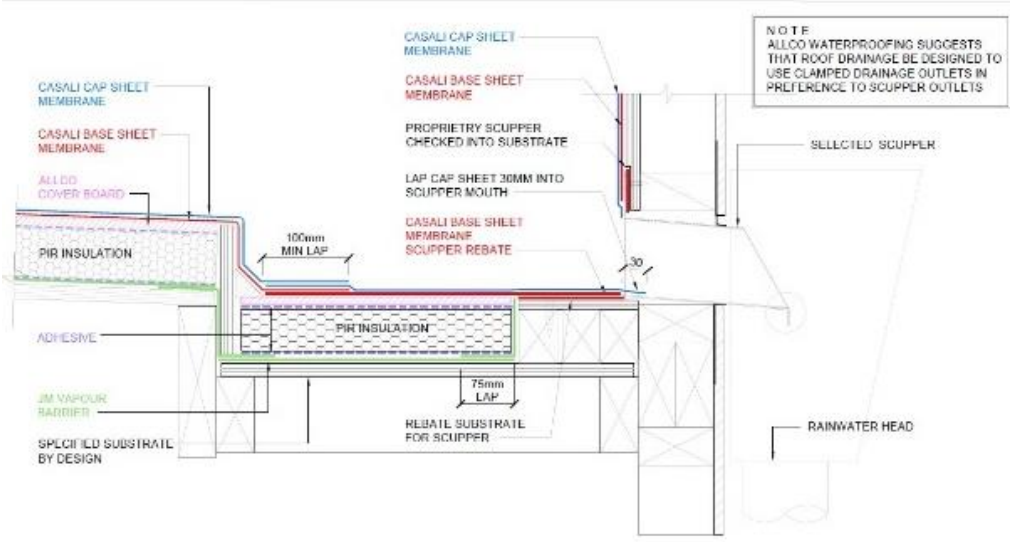


1 ALLCO ALLTHERM WARM ROOF - CASALI - PARAPET DETAIL
SCALE: NTS

2 ALLCO ALLTHERM WARM ROOF - JM TPO - PARAPET DETAIL
SCALE: NTS

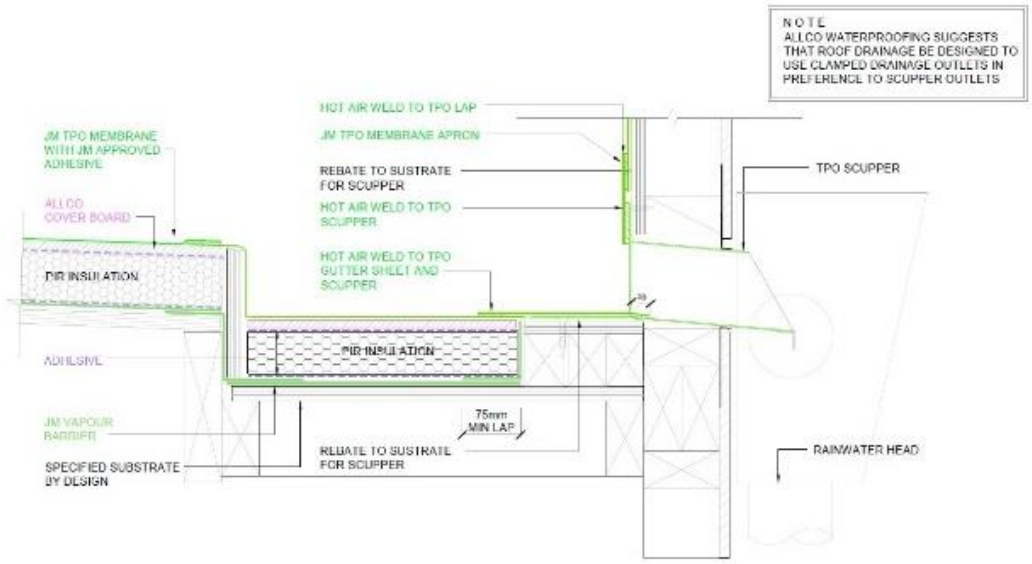
WR-003

ALLCO ALLTHERM TYPICAL DETAILS CONTINUED

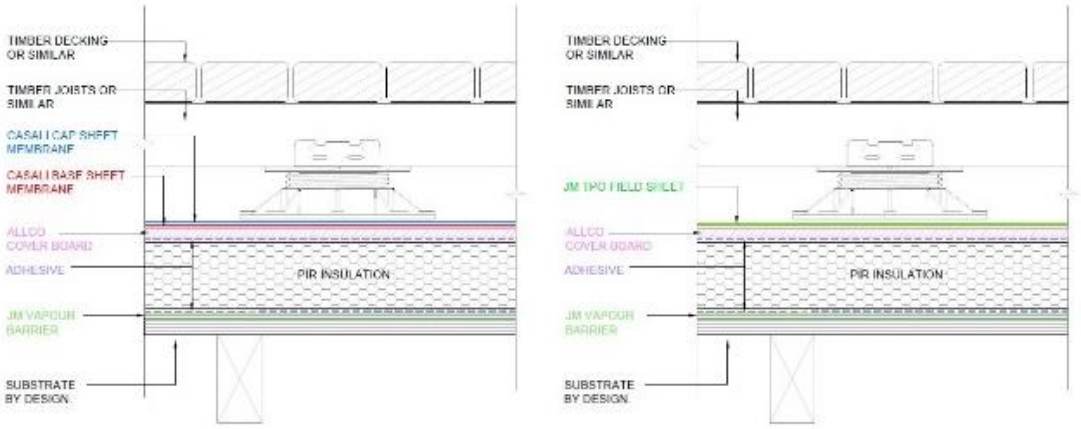


1 ALLCO ALLTHERM WARM ROOF - CASALI - PARAPET / SCUPPER
SCALE: NTS

WR-004 Torch on



WR-004A TPO

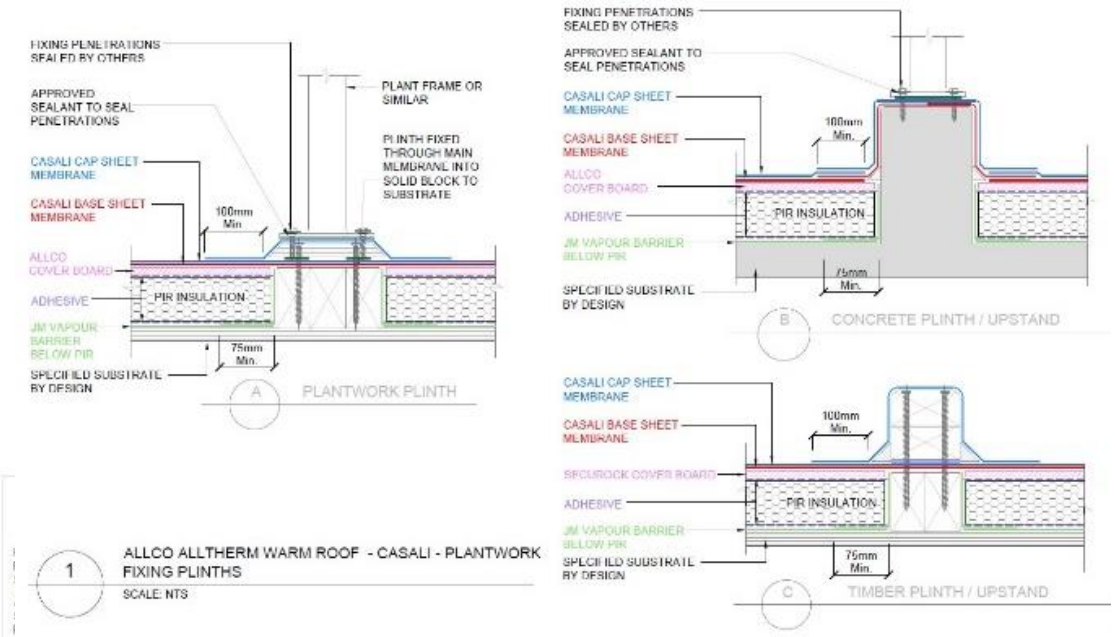


WR-005

1 ALLCO ALLTHERM WARM ROOF - CASALI - FLOATING DECK
SCALE: NTS

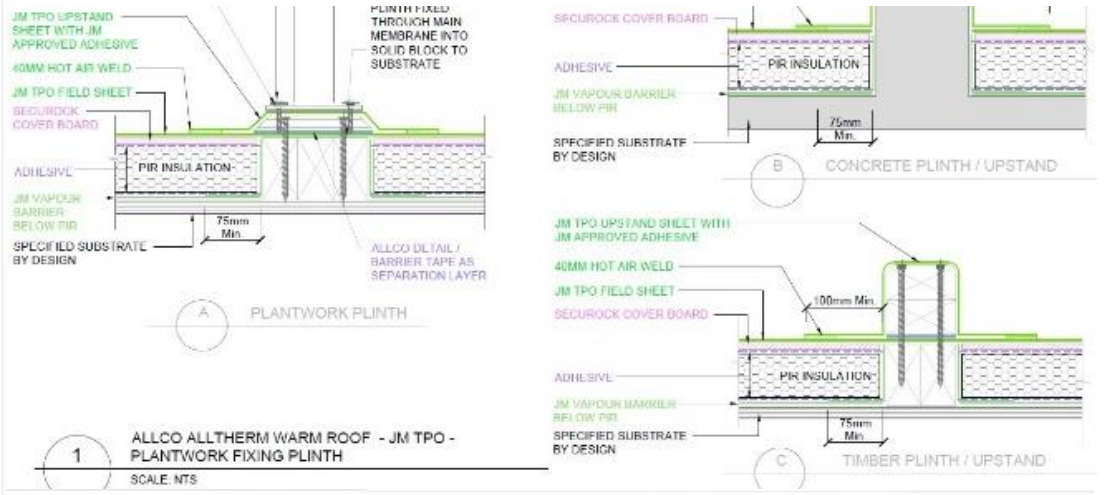
2 ALLCO ALLTHERM WARM ROOF - JM TPO - FLOATING DECK
SCALE: NTS

ALLCO ALLTHERM TYPICAL DETAILS CONTINUED



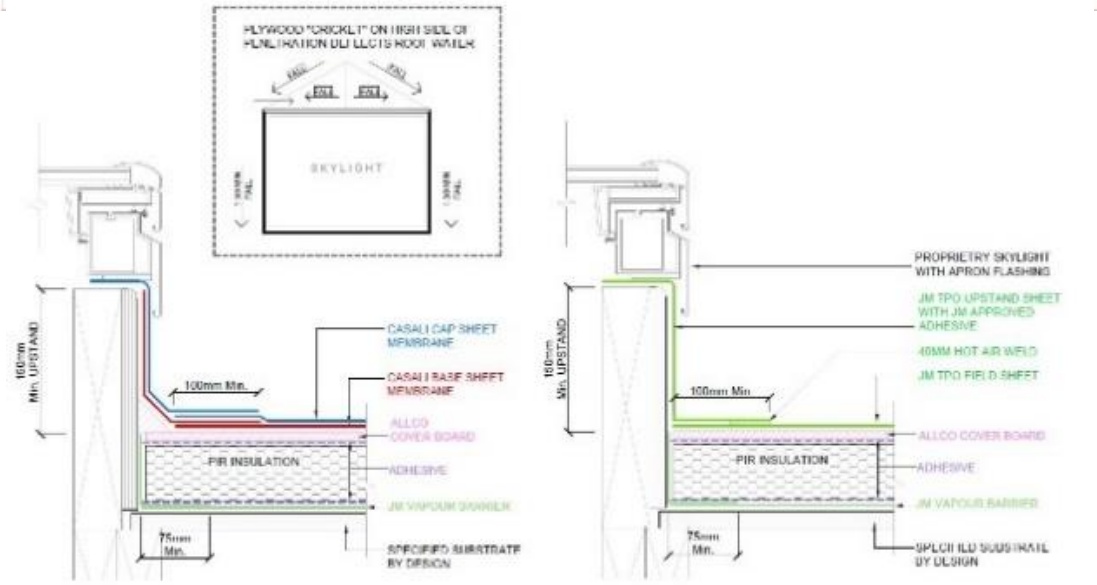
1 ALLCO ALLTHERM WARM ROOF - CASALI - PLANTWORK FIXING PLINTHS
SCALE: NTS

WR-006 Torch on



1 ALLCO ALLTHERM WARM ROOF - JM TPO - PLANTWORK FIXING PLINTH
SCALE: NTS

WR-006A TPO

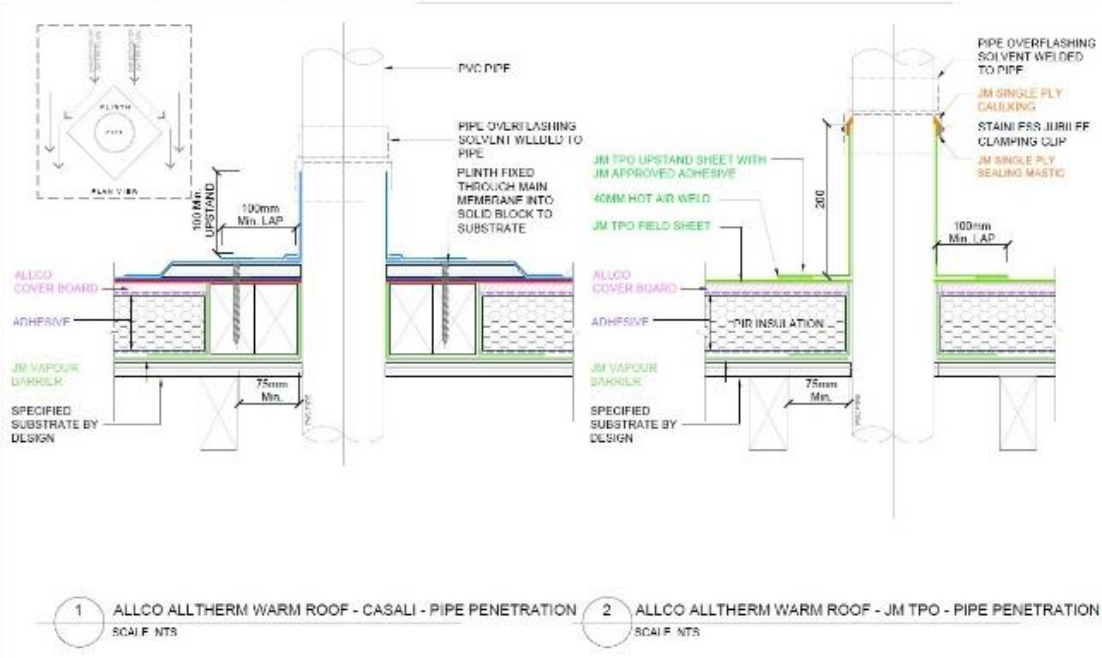


1 ALLCO ALLTHERM WARM ROOF - CASALI - SKYLIGHT PLINTH
SCALE: NTS

2 ALLCO ALLTHERM WARM ROOF - JM TPO - SKYLIGHT PLINTH
SCALE: NTS

WR-007

ALLCO ALLTHERM TYPICAL DETAILS CONTINUED



1 ALLCO ALLTHERM WARM ROOF - CASALI - PIPE PENETRATION
SCALE NTS

2 ALLCO ALLTHERM WARM ROOF - JM TPO - PIPE PENETRATION
SCALE NTS

WR-008

1 ALLCO ALLTHERM WARM ROOF - CASALI - DRIP EDGE
SCALE NTS

2 ALLCO ALLTHERM WARM ROOF - JM TPO - DRIP EDGE
SCALE NTS

WR-009

ALLCO MEMBRANE ROOFING SOLUTION
CARE AND MAINTENANCE

CASALI TORCH-ON/ JM TPO

THE RIGHT WAY TO MAINTAIN YOUR ROOF:

DO'S

- Undertake or arrange roof inspections at least once a year. It is best to inspect your roof at the end of Summer and/or the end of Winter. Where the property has surrounding trees or high bird activity more frequent inspections may be required to ensure outlets and drains are free from debris.
- Record all inspections on the Membrane Inspection Form provided by Allco.
- Complete specific inspections after severe weather events including but not limited to strong winds, heavy continuous rainfall, or hail.
- Complete specific inspections after any repair work or other work carried out on your roof.
- Act immediately to contact your Allco Approved Applicator if any damage is noted or maintenance is required.
- Contact an Allco Approved Applicator to perform a detailed inspection of the membrane system at periodic intervals as noted:
    - Initial inspection 1 year after installation
    - Follow up inspection 3 years after installation.
    - Planned inspection at 5 year intervals until the completion of the warranty.
    - Immediately if any leaks or damage are observed.

DONT'S

- Allow unqualified personnel to access or maintain your roof.
- Permit other trades to make penetrations into your roof. Any modifications to your roof particularly those that require penetrations or fixings must be carried out or supervised by an Allco Approved Applicator.
- Move heavy equipment across your roof membrane.
- Puncture the roof membrane.
- Do not expose the roof membrane to exhaust fats, chemicals, petroleum products, solvents, or other contaminants.

GENERAL INSPECTION

HOMEOWNER/ END-USER

- Ensure that the roof surface including internal gutters and valleys are clean and free of organic matter (leaves, twigs, and dirt) and any other debris.
- Check that all outlets and overflows are free from debris allowing water to flow freely through them without causing any ponding.
- Visually inspect the roof membrane, sheet joints and details for any visible signs of damage or punctures and record inspections using the 'Membrane Inspection Form' provided by Allco.
- Inspect any metal cap flashings to ensure they are secure and not causing wear to the membrane.
- Where possible inspect the underside of the substrate for signs of leaks.

ALLCO APPROVED APPLICATOR

- Perform detailed inspection of the installed membrane system at periodic intervals as noted or when contacted by the Homeowner/ End-user
    - Initial inspection 1 year after installation.
    - Follow up inspection 3 years after installation.
    - Planned inspection at 5 year intervals until the completion of the warranty.

APPLICATOR INSPECTION

- Visually inspect the roof and gutters for any signs of damage
- Check for signs of ponding on the roof areas.
- Inspect all sheet lap joins, patches, and other details at random locations as deemed required.
- Check all drains, outlets, and scuppers to ensure they are free from debris.
- Inspect all terminations and penetrations.
- Check the membrane wherever it encounters metal flashings for signs of abrasion or wear.
- Ensure all cap flashings are fixed securely.
- If any remedial work is required, ensure what was done and note the location on the inspection sheet.

HEALTH & SAFETY

- Before accessing the roof, you must familiarise yourself with any relevant WorkSafe requirements and ensure these are adhered to.
- When working at heights follow all safety guidelines and where relevant ensure you are safely harnessed to protect from falling.
- If you are not comfortable in respect of working at height, get your Allco Approved Applicator or a suitably certified person to inspect.

LEAKS AND DAMAGE

If any leaks or damage are identified, you should immediately contact the Approved Applicator who issued the Workmanship Warranty or Allco Waterproofing Solutions. Any repairs required must be carried out by an Allco Approved Applicator and recorded as part of your twice-yearly roof inspections.

CLEANING OF YOUR ALLCO CASALI MEMBRANE

You should complete your annual inspection by washing your roof thoroughly.

You must not use high-pressure washes on membrane roofs as this has the potential to drive moisture under flashing and may cause other damage.

Apply a neutral detergent and water. Rinse off with a garden hose. If your property is surrounded by trees etc and the roof is subjected to high amounts of organic material (leaves, pollens, and branches) then it may require inspection and cleaning on a more regular basis.

CLEANING OF YOUR ALLCO JM TPO MEMBRANE

You should complete your annual inspection by washing your roof thoroughly.

Apply a neutral detergent and water and agitate with a soft bristle broom, then thoroughly wash the roof down using a garden hose. If collecting water from the roof disconnect downpipes prior to cleaning.

You must not use high pressure washes on membrane roofs as this has the potential to drive moisture under flashing and may cause other damage.

PRODUCT WARRANTY

Allco Waterproofing Solutions Ltd is proud to be associated with some of the highest quality roofing membrane suppliers from across the world. You have chosen to install a high-quality Casali/JM TPO membrane roof on your building that is designed, manufactured, and installed to provide years of protection to your building.

Your Allco Casali/JM TPO membrane roofing system is manufactured using premium quality materials and installed by trained and approved applicators. Upon completion of the installation of your Casali/JM TPO membrane roof, your Allco Approved Applicator will issue a Workmanship Warranty. Once this has been provided by the Allco Approved Applicator, Allco Waterproofing Solutions will issue a ***20-year Product Warranty.***

To ensure continued validation of the warranty, regular, thorough, and documented maintenance of the Casali/JM TPO membrane roofing system is required. A good maintenance regime is also the best way to prolong the life of the Casali/JM TPO roofing membrane and fittings and prevent problems developing.

If at any time you have concerns regarding the performance of your membrane system, please contact Allco Waterproofing Solutions.

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Supplementary Test Report

Test Report No. AFS-R1059

The following supplementary report of observations and outcomes from testing of the Allco Waterproofing Solutions Limited warm roof system on a 40mm thick reinforced concrete substrate. The information and results recorded in this supplementary report has been extrapolated from the full test report AFS-R1058.

The test results recorded in Test Report AFS-R1059 are outside the scope of the laboratories accreditation.

Prepared for:	Allco Waterproofing Solutions Limited
Date of Issue:	21st July 2022
Test Date(s):	25th May 2022
Sample Designer:	Allco Waterproofing Solutions Limited
Manufacturer:	Allco Waterproofing Solutions Limited
Test & Sample Details:	Uplift Resistance Testing of Allco Waterproofing Solutions adhered TPO membrane warm roof systems on 40mm reinforced concrete substrate.
Test Procedure:	ANSI/SPRI IA-1 Standard Field Test Procedure for Determining the Uplift Resistance of Insulation and Insulation Adhesive Combinations over Various Substrates
Client Details:	Allco Waterproofing Solutions Limited 5 Te Kea Place, Albany Auckland 0632
Laboratory Details:	All Facade Services Limited 74 Moxham Ave Hataitai Wellington 6021

Tested by: ..... Darryl Scott (AFS)

Checked by: ..... Jon Johnston

1. Summary

1.1 Description

For each warm roof systems tested, a total of five 610mm x 610mm test samples were prepared by Allco Waterproofing Systems Limited using a combination of TPO membrane, a paper faced gypsum cover board, a foil faced PIR insulation layer and a vapour barrier, all of which were adhesive fixed onto a 40mm thick reinforced concrete substrate.

Full details of the test samples are recorded at Section 3.0.

1.2 Results

Table 1 below records the average uplift resistance achieved for the 5 warm roof samples tested on a 40mm thick reinforced concrete substrate. Uplift resistance is shown in pounds per square foot (psf).

Sample Substrate	TPO	Cover Board	PIR	Vapor Barrier	Adhesive Type 1	Adhesive Type 2	Average Resistance (psf)
40mm Reinforced Concrete	JM 1.52mm Single Ply TPO	Georgia Pacific 15.9mm DensDeck Cover Board	Conqueror 75mm Foil Faced PIR	JM Tri-laminate Membrane	Glue Guru Bit-U-Prime	Glue Guru CANTAC Roof-Tac	300

Table 1: Averaged uplift resistance results.

Uplift resistance results for each warm roof sample are recorded at section 6.0 Test Results. Full test results are recorded at Appendix B.

2. Objective

Uplift resistance tests were conducted on the Allco Waterproofing Systems Ltd test samples to determine the comparative performance of each combination in resisting separation of the individual sample components. The results are used as the basis for selection of the most critical (membrane, adhesive, substrate) combination to be used to achieve the highest level of uplift resistance without delamination or destruction of the test sample or individual components.

3. Sample Description

A total of five 610mm x 610mm test samples were prepared by Allco Waterproofing Systems Limited using a combination of TPO membrane, a paper faced gypsum cover board, a foil faced PIR insulation layer and a vapour barrier with all layers adhesive fixed to the 40mm thick concrete substrate.

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Checked by: .....

With the exception of the cover board thickness, all test samples comprised of the same layers using the following materials:

- Cantac Bit-U-Prime. A low VOC sprayable bitumen primer formulated to prepare substrates for the installation of bitumen membranes for roofing. Supplied in 17kg canisters.
- JM Vapour barrier. A tri-laminate woven polyethylene SBS rubber and asphalt blend membrane. Suitable for use on concrete and plywood substrates.
- Cantac Roof-Tac. A low VOC sprayable rubber-based adhesive formulated for bonding roofing membranes. Supplied in 17kg canisters.
- Conqueror 75mm thick PIR. A polyisocyanurate (PIR) insulating core sandwiched between 2 high-performance foil facing sheets.
- GP DensDeck Prime roof cover board. A nominal 6.4mm* or 15.9mm* gypsum based core with fibreglass mat facer to both front and back of sheet.
- JM TPO. A 1.52mm thick Thermoplastic Polyolefin reinforced single ply membrane.

**Although manufacturers literature advised the GP DensDeck cover boards are manufactured with thicknesses of 6.4mm and 15.9mm, a cover board thickness of 8.5mm was measured on the plywood and profiled metal substrates with cover board thicknesses of 8.5mm and 12mm measured for the concrete substrate test samples.*

The 5 x tests samples for the 40mm thick substrate comprised as follows:

Sample Type CS (Concrete Substrate)

- A 40mm thick reinforced concrete substrate.
- Glue Guru Bit-u-Prime
- JM Vapour barrier
- Glue Guru Cantac Roof-Tac adhesive
- Conqueror 75mm thick embossed foil faced PIR
- Glue Guru Cantac Roof-Tac adhesive
- Georgia Pacific DensDeck Prime 6.4mm or 15.9mm cover board
- Glue Guru Cantac Roof-Tac adhesive
- JM 1.52mm Single Ply TPO

4. Specimen Preparation

A 610mm x 610mm piece of 19mm thick (minimum) CD grade plywood attachment plate is adhered to the top of the TPO waterproof membrane using an adhesive with a bonding strength greater than the bonding strength of the adhesive being tested.

When the assembly has been allowed to cure to at least the minimum time specified by the adhesive manufacturer the attachment plate is connected to the pull test equipment.

Tested by: ..... Checked by: .....

Darryl Scott (AFS)

5. Procedure

Calibrated pull testing equipment is used to apply a load perpendicular to the test sample substrate. The test commences when the load equals 120 lbf plus the tare weight of the equipment used to connect the load cell to the test sample.

The load is then gradually increased in increments of 60 lbf with each incremental load held for 60 seconds. The process is repeated until failure occurs. Failure occurs when any component of the assembly loses connection to itself or subsequent components.

The maximum load value maintained for 60 seconds is recorded and converted to pounds per square foot (psf). A minimum of 4 pull tests are carried out for each TPO membrane roofing system.

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Darryl Scott (AFS)

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Messrs. Allco Waterproofing Solutions
New Zealand,

Castelferretti, 01/12/2022

SUBJECT: Declaration concerning bond strength adhesion to concrete of Dermabit membranes

CASALI SPA hereby declares that membranes of the family CASALI DERMABIT EXTRA torch applied on a primed concrete substrate, achieve a bond strenght higher than 0,4 N/mm^2 (400 KPa) as resulting from internal tests performed according to the european standard EN 13596.

Kind Regards,

CASALI s.p.a.
Quality Assurance Manager
Marco Compagnucci