

The Additional Documents



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Arizto Ltd. Licensed REAA 2008



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-  No Upfront Costs
-  No Sale, No Fee

*T&C's Apply

Asbestos Refurbishment Survey Report

Property address: 6 Wingate Street, Redwood, Christchurch, 8051
Job reference: S-06010
Client: Homehub
Client order ref: HH-8488-32975
Inspection date: 16 May 2025
Buildings included: 6 Wingate Street
Report date: 24 May 2025
Report version: 1.0
Site inspected by: Elijah Austen - LAA23030057
Report prepared by: Nicola Robertson – BOHS IP402, IP404
Report authorised by: Alexandra Dalzell
BSc (Hons) Biochemistry / MSc Forensic Science
WorkSafe Licensed Assessor No: AA19020175

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1.0 Executive Summary

Forensic Specialists Ltd conducted an 'Asbestos Refurbishment Survey' on 16 May 2025 at 6 Wingate Street, Redwood, Christchurch, 8051. The survey and sampling procedures used for this process are in accordance with the 'Good Practice Guidelines, Conducting Asbestos Surveys' WorkSafe (2016) and 'The Survey Guide HSG264 (2012)'.

The aim of the survey was to identify asbestos containing materials (ACMs) likely to be affected by the refurbishment work being proposed in the scope of work provided by the client. The findings and recommendations in this report are based on the condition of the property and results of the samples taken by Forensic Specialist on the date the survey was completed.

NO materials / products at 6 Wingate Street, Redwood, Christchurch have been found to contain asbestos.

Based on the survey completed and the sample results it is recommended:

- a) If the scope of the refurbishment work provided in this report changes this report should be altered to reflect the additional work being undertaken;
- b) Anyone working on / in the buildings undertaking the refurbishment work should be provided a copy of this report;
- c) Any materials identified during the refurbishment work that are not included in this report that may contain asbestos should be tested and / or disposed of as hazardous waste;

For the remainder of the recommendations please read 'Section 8.0 Recommendations'.

This report is to be read in its entirety to ensure a complete understanding of the surveying, sampling, and reporting process is understood.

Thank you for using Forensic Specialists Ltd, please do not hesitate to contact us if you have any questions or concerns.

Kind regards

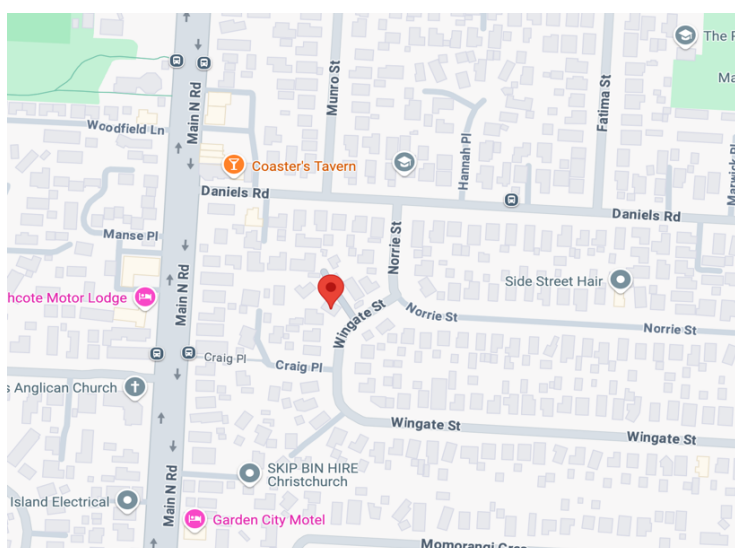


Alexandra Dalzell - Director

BSc (Hons) Biochemistry / MSc Forensic Science
WorkSafe Licensed Assessor No: AA19020175

2.0 Report Details

Job reference	S-06010
Client	Homehub
Client address	8 Arrenway Drive, Rosedale, Auckland, 0632
Client order reference	HH-8488-32975
Site address	6 Wingate Street, Redwood, Christchurch, 8051
Property use	Residential
Report commissioned by	Janine Pugh
Survey type	Asbestos Refurbishment Survey
Survey undertaken by	Elijah Austen - LAA23030057
Survey completed on	16 May 2025



3.0 Introduction

3.1 Background

An Asbestos Refurbishment Survey was carried out at the property by Forensic Specialists Ltd at the request of Homehub.

Asbestos refurbishment surveys are carried out to identify where the asbestos containing materials are in/on a building that is being refurbished. ACMs that maybe disturbed or removed during the work are required to be identified prior to any work being undertaken ensuring that they can be managed and/or disposed of appropriately during the work.

3.2 Areas surveyed

The areas as per the Scope of Works at 6 Wingate Street, Redwood, Christchurch were surveyed.

4.0 Survey Scope

The aim of the survey was to:

- a) Locate as far as reasonably practicable the presence and extent of suspected ACM's. Samples will only be taken from products that are suspected to contain asbestos. The survey was an invasive survey, all practical steps were taken to identify asbestos that maybe disturbed during the planned refurbishment work of the building/s on this property;
- b) Produce a register detailing the extent, type of asbestos prior to the proposed works being undertaken within the property;
- c) Provide recommendations and advise the PCBU of the management and / or removal of ACMs during the proposed work.

4.1 Scope of work provided by the client

Forensic Specialists Ltd have completed the survey based on the understanding the client is intending to remove and replace the flooring in the bathroom and laundry.

5.0 Survey and Sampling Methods

The findings and recommendations in this report are based on the condition of the property and samples taken during the survey. Surveyors undertaking surveys on behalf of Forensic Specialists Ltd are all trained and qualified.

While the survey attempted to locate the asbestos containing materials at the property, it is possible that asbestos materials, which may be concealed within inaccessible areas/voids, may not have been located during the survey.

The methodology for assessment of identifying ACMs includes the following:

5.1 Visual Assessment

A visual assessment is completed at the property by the surveyor.

Products / materials that are **known to be ACMs** (Roofing, AIBs, sprayed coatings) can be visually identified without sampling as containing asbestos. However, it is recommended to take samples as the production process of some products can be altered over time.

Products / materials that are **known NOT TO be ACMs** (GIB linings, metal roofing, plastic downpipes or products made after 2016) can be visually identified without sampling as not containing asbestos.

5.2 Sampling

Samples were taken from all materials that required confirmation that they were ACMs and / or to confirm the type of asbestos they contained. Samples were taken in accordance 'WorkSafe Good Practice Guidelines Conducting Asbestos Surveys, October 2016'. All samples were tested by an IANZ accredited laboratory.

Refer to APPENDIX B for the Sampling Results & APPENDIX D for the Laboratory Certification.

6.0 Summary of Asbestos Locations

Surveying and sampling are used to categorise products into the following three categories:

All products / materials identified as ACMs if removed need to be disposed of as hazardous waste by a qualified contractor.

All products / materials / areas marked 'PRESUMED' should be treated as hazardous until otherwise identified.

Any items sampled and tested that have been found not to contain asbestos are identified as NADs.

The table below provides a summary of the Positive ACMs identified during the survey and sampling.

(APPENDIX A & B provides the complete Asbestos Building Register and sampling details)

6.1 Table identifying the locations where asbestos was found

Building Name	Level	Location	Item	Material	Sample #	Class A/B	Asbestos Type
No asbestos containing materials / products were identified in the area where the refurbishment work is to be undertaken							

7.0 Duties of a PCBU under the Health and Safety at Work (Asbestos) Regulations

In accordance with the Health and Safety at Work (Asbestos) Regulations 2016 (HSAW) PCBUs have a duty to identify and manage Asbestos in a property to keep people safe.

The HSAW places the following duties on PCBUs:

- Duty to ensure asbestos identified at workplace
- Duty to analyse samples
- Duty to ensure presence and location of asbestos indicated
- Duty to prepare asbestos management plan
- Duty to review asbestos management plan
- Duty to provide health monitoring
- Duty to ensure that appropriate health monitoring is provided
- Duty to train workers about asbestos
- Duty to limit use of equipment on asbestos or ACM

To access the complete set of NZ regulations in the Health and Safety at Work (Asbestos) Regulations 2016 use the following link:

<http://www.legislation.govt.nz/regulation/public/2016/0015/latest/DLM6729802.html>

8.0 Recommendations

Based on the survey completed and the sample test results it is recommended:

- a) If the scope of the refurbishment work provided in this report changes this report should be altered to reflect the additional work being undertaken;
- b) Anyone working on / in the buildings undertaking the refurbishment work should be provided a copy of this report;
- c) Any materials identified during the refurbishment work that are not included in this report that may contain asbestos should be tested and / or disposed of as hazardous waste;

8.1 Recommendations for any work being undertaken on ACMs

- a) A suitably qualified contractor is engaged to undertake any work on:
 - I. Class A ACMs
 - II. Class B ACMs over 10m²
- b) An independent consultant is engaged to provide monitoring and clearance certificates for any asbestos removal work that maybe undertaken during the refurbishment work;
- c) Appropriate H&S measures are put in place while the ACM removal work is completed (e.g. air monitoring, clearance inspections etc);
- d) A copy of the ARCP (Asbestos Removal Control Plan) and the WorkSafe notification is provided prior to any work being undertaken;
- e) After any ACM work is completed, it is recommended the client receives a copy of all clearance certificates issued and waste management documentation.

PCBUs have a statutory duty of care to ensure occupants, visitors and contractors are kept safe from asbestos that are in buildings. ACMs have been identified at the property in accordance with the Health and Safety at Work (Asbestos) Regulations 2016.

This report should only be used for the purpose it was written for as an 'Asbestos Refurbishment Survey Report' and not demolition work.

9.0 Disclaimer and Conditions

Forensic Specialists Ltd have taken every feasible action to ensure that the quality and integrity of this report is accurate. However Forensic Specialists Ltd makes no warranty that the assessment services will categorically detect all products/materials containing asbestos on the basis that:

- a) Samples were only taken from the materials / products suspected to contain asbestos or as requested by the client;
- b) The areas surveyed and sampled are representative of the condition of the property on the dates when the survey/s was completed. Any changes or alterations to the property after this date the sample/s are not recognised in this report;
- c) Only locations and products / materials documented in this report were considered and assessed during the survey;
- d) Only surface areas that can be visually identified will be recorded in this report. Any hidden, concealed, disguised ACMs within the fabric of the building will not be reported on;
- e) Forensic Specialists Ltd does not guarantee to locate all ACMs as some products / materials may only be identified during refurbishment or demolition,
- f) Forensic Specialists Ltd engagement to complete a survey, take samples and provide this report for the property was limited to ACMs only. The property may contain other hazardous substances that have not been identified and reported.
- g) This report is based on visual examination and sample testing only. Forensic Specialists Ltd are not responsible for searching or inspecting council records, plans or other documents.
- h) All measurements detailing the extent of products / materials in this report as estimates only.
- i) This report does not include investigations into land contamination associated with asbestos or other contaminants.
- j) Forensic Specialists Ltd does not guarantee the validity of information included in this report that may have been provided by other parties;
- k) If this report is not used for the purpose it was written for Forensic Specialists Ltd accepts no responsibility or liability.

Forensic Specialists Ltd will not be responsible if this report is used for in a manner it was not intended for. To the extent permitted by law, Forensic Specialists Ltd excludes liability (where possible) for loss or damage of any kind (arising directly or indirectly from surveying and sampling services) and if Forensic Specialists Ltd cannot rely on any exclusion, its liability shall in all cases be limited to a refund of the fee paid for the services giving rise to such claim.

Forensic Specialists Ltd certifies:

- a) It has no direct or indirect association with any Removal/Remediation companies;
- b) It holds Public Liability Insurance of \$5,000,000.00;
- c) It holds Statutory Liability Insurance of \$1,000,000.00;
- d) It holds Professional Environmental Liability Insurance of \$5,000,000.00.

10.0 Glossary of Terms & Abbreviations

Definitions, terms, abbreviations, and acronyms that may be found in this report:

A-Class	'Friable' asbestos
AC	Asbestos Cement
ACD	Asbestos Contaminated Dust
ACMS	Asbestos Containing Materials - means any material or thing that, as part of its composition, contains asbestos, including dust or debris
ACOP	Asbestos Code of Practice
ARCP	Asbestos Removal Control Procedures
AIB	Asbestos Insulating Board
B Class	'Non-friable' bonded asbestos, normally mixed and sealed into products
CAF	Compressed Asbestos Fibers (gaskets)
Clearance Certificates	A legal document given by the Asbestos Assessor to the PCBU after Asbestos Removal works has been undertaken
Demolition Survey	A demolition survey is required before any demolition / removal work is carried out. This type of survey is used to locate and describe, as far as reasonably practicable, all ACMs affected by the works prior to it commencing.
Friable ACM	Asbestos that's in a powder form is able to be crumbled, pulverised, or reduced to a powder by hand pressure when dry. While all asbestos has the potential to become airborne, friable is more likely to become airborne.
NAD	No Asbestos Detected
Non-Friable ACM	Asbestos that's not in a powder or cannot be crumbled, pulverised, or reduced to a powder by hand pressure when dry. It is usually in a bonded form, such as asbestos cement sheet in good condition.
Management Survey	A management surveys' purpose is to locate, as far as reasonably practicable, the presence and extent of any suspect ACMs in the building which could be damaged or disturbed during normal occupancy, including foreseeable maintenance and installation, and to assess their condition.
Management Plan	An asbestos management plan sets out where any identified asbestos or asbestos-containing material is present, and how it will be managed. The workplace PCBU must make sure a copy of the asbestos management plan is readily accessible to workers and their representatives, as well as to other PCBUs.
Material Assessment	An assessment that assesses the potential for fibre release for each ACM and then a priority scoring for action is calculated as part of the plan for managing asbestos
PCBU	Person Conducting a Business or Undertaking – i. Whether the person conducts a business or undertaking alone or with others; and ii. Whether or not the business or undertaking is conducted for profit or gain.
Refurbishment Survey	A refurbishment survey is required before any refurbishment work is carried out. This type of survey is used to locate and describe, as far as reasonably practicable, all ACMs in the area where the refurbishment work will take place.
Waste documentation	Any removal work of ACMs is required to be carried out by contractors holding the appropriate licenses and a copy of all tipping documentation, air monitoring (if required) and clearance certificates should be issued to the client.
WorkSafe Notification	Complete form to notify WorkSafe New Zealand of upcoming licensed asbestos removal work, as required by the Health and Safety at Work (Asbestos) Regulations 2016 regulation 34. Notification must be given to WorkSafe at least 5 days before work commences.

Asbestos Types

Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Tremolite	Fibrous forms of these minerals may be found very occasionally during sample analysis and should be considered as hazardous as Amosite and Crocidolite.
Anthophyllite	
Actinolite	

Appendix A - Building Register

Asbestos POSITIVE

Asbestos PRESUMED

Asbestos NEGATIVE

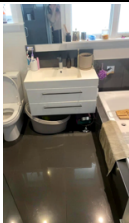
6 Wingate Street

Exterior	Interior
NA	Ceiling- Plasterboard Painted Walls- Plasterboard Painted Flooring- Ceramic Tiles, Cement Sheet, Timber

Sample summaries refer to Appendix B for detailed sampling information (NOTE: All measurements are estimates only)

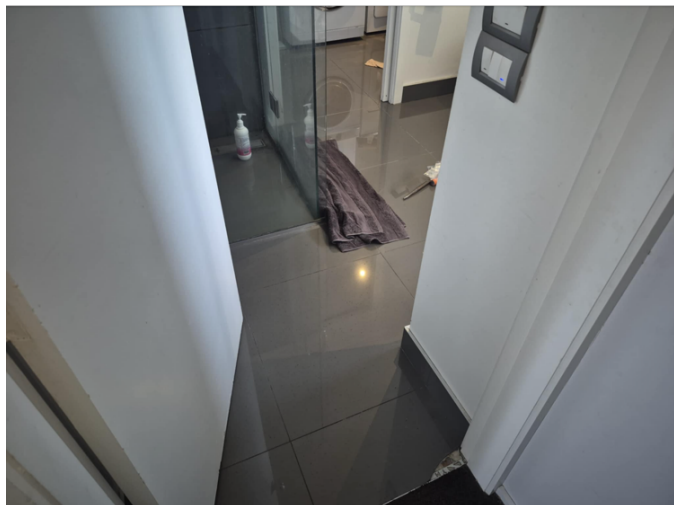
6 Wingate Street									
Level	Location	Item	Extent	Material	Sample #	Recommendation	Asbestos Type	CLASS A/B	Comments
0	Bathroom / Laundry	Flooring	6 m ²	Cement sheet	001	No further action required	NAD	N/A	Ceramic tile on non-suspect cement sheet, Timber Base there was no easy place to check in the laundry without making a mess of the tiles. Owner said works weren't due to start for a while so didn't want to leave the laundry with broken tiles. Visually the same as the bathroom.
0	Bathroom / Laundry	Flooring	6 m ²	Debris	002	No further action required	NAD	N/A	Ceramic tile on non-suspect cement sheet, Timber Base (residue sampled)

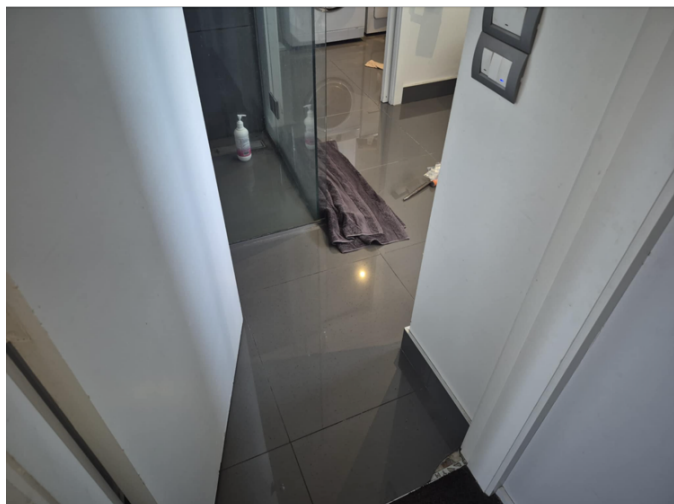
Photo storyboard

						
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Appendix B - Detail of areas sampled

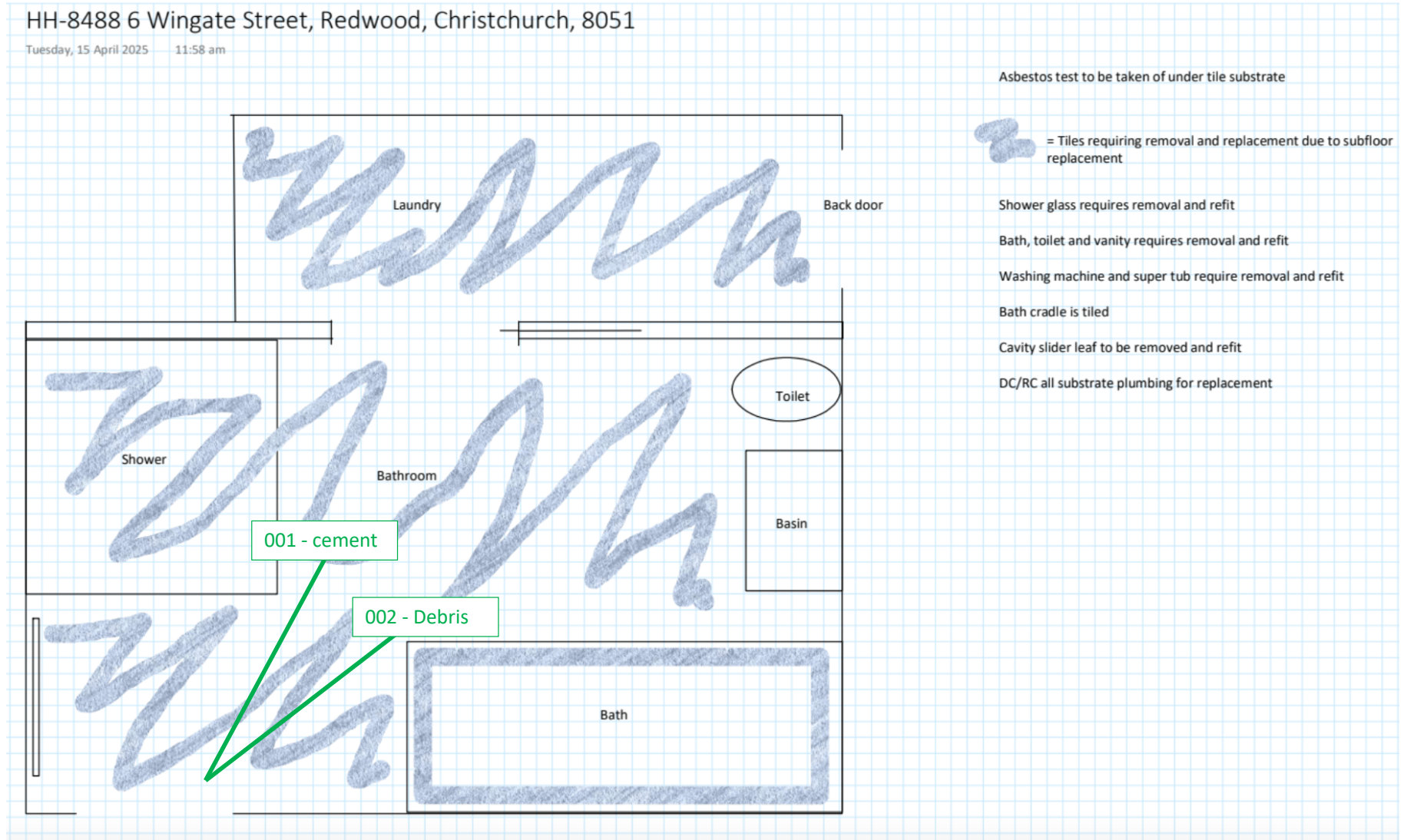
(NOTE: All measurements are estimates only)

Sample Number	Sampled 001				
Building	6 Wingate Street	Location	Bathroom / Laundry	Item	Flooring
Level	0	Material	Cement sheet	Asbestos Type	NAD
Main Photo			Close Up Photo		
					
Condition: N/A			Extent: 6 m²		
Recommendation	No further action required				
Comments	Ceramic tile on non-suspect cement sheet, Timber Base there was no easy place to check in the laundry without making a mess of the tiles. Owner said works weren't due to start for a while so didn't want to leave the laundry with broken tiles. Visually the same as the bathroom.				

Sample Number	Sampled 002				
Building	6 Wingate Street	Location	Bathroom / Laundry	Item	Flooring
Level	0	Material	Debris	Asbestos Type	NAD
Main Photo			Close Up Photo		
					
Condition: N/A			Extent: 6 m ²		
Recommendation	No further action required				
Comments	Ceramic tile on non-suspect cement sheet, Timber Base (residue sampled)				

Appendix C – Drawings

Not to scale



Appendix D – Laboratory Certificates

Verum Group

DETERMINATION OF ASBESTOS

Sampled Address: 6 Wingate Street

Sampling Date: 16/05/2025

Verum Group Ref: A25/8588-1

Applicant: Forensic Specialists Ltd

Report Date: 16/05/2025

RESULTS on samples as received:

Sample #	Sample Source	Sample Description	Asbestos Fibres	Other Fibres
A25/8588-01	S-06010-001 Bathroom/laundry tile underlay	Cement board (~3.0g)	No asbestos fibres detected	SMF
A25/8588-02	S-06010-002 Bathroom/laundry substrate	Residue (~1.0g)	No asbestos fibres detected	SMF

Samples were analysed according to AS4964 - 2004 including the use of polarised light microscopy and dispersion staining.

Any **chrysotile** (white asbestos), **amosite** (brown asbestos) or **crocidolite** (blue asbestos) found will be indicated in the report. The presence of **organic** fibres (eg vegetable matter or nylon) or **SMF** (synthetic mineral fibres, eg glass fibre) will also be noted. Other fibres are not conclusively identifiable without additional analysis and will be indicated on the report as **UMF** (Mineral fibres of unknown type). The fibres may or may not be asbestos. The reporting limit is 0.1g/kg.

Disclaimer: Samples of single materials are required for analysis wherever possible. Where composite materials are submitted for analysis the sample must adequately reflect the material to be analysed and must be accompanied by an appropriate description.




Reported By: Mike Young
National Laboratory Manager

This report must not be quoted except in full.

97 Nazareth Ave., Middleton, PO Box 29-415 Christchurch 8024.

1 of 1

Tel (03) 341 2120

Verum Group

DETERMINATION OF ASBESTOS

Sampled Address: 6 Wingate Street

Sampling Date: 16/05/2025

Verum Group Ref: A25/8588-1

Applicant: Forensic Specialists Ltd

Report Date: 16/05/2025

RESULTS on samples as received:

Sample #	Sample Source	Sample Description	Asbestos Fibres	Other Fibres
A25/8588-01	S-06010-001 Bathroom tile underlay	Cement board (~3.0g)	No asbestos fibres detected	SMF
A25/8588-02	S-06010-002 Bathroom substrate	Residue (~1.0g)	No asbestos fibres detected	SMF

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Any **chrysotile** (white asbestos), **amosite** (brown asbestos) or **crocidolite** (blue asbestos) found will be indicated in the report. The presence of **organic** fibres (eg vegetable matter or nylon) or **SMF** (synthetic mineral fibres, eg glass fibre) will also be noted. Other fibres are not conclusively indentifiable without additional analysis and will be indicated on the report as **UMF** (Mineral fibres of unknown type). The fibres may or may not be asbestos. The reporting limit is 0.1g/kg.

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A handwritten signature in blue ink, appearing to read 'Mike Young'.

Reported By: Mike Young
National Laboratory Manager

QUOTATION

bespoke
SYSTEMS

Quote No: SHW3007
Date: 8/07/2013
Quote Expiry: 7/08/2013

Bespoke Systems Ltd
Trading as Warmup Canterbury
freephone 0800 WARMUP
p 03 338 7586 f 03 338 7585

Sheldon Bell
6 Wingate Street
redwood
Christchurch

Cnr Birmingham Dr & Marylands Pl
Addington, Christchurch

PO Box 8811, Riccarton
Christchurch 8440
www.warmup.co.nz

Re: 6 Wingate Street redwood Christchurch

Area / Item	Qty	Price	Total
BATHROOM Marmox Shower 1m x 1m Channel Drain	1	\$2,175.00	\$2,175.00
Marmox Shower Tray 1m x 1m Channel Drain	1 @		
Marmox Shower Hob Uprand	2 @		
All Proof Waste Kit 80mm	1 @		
Marmox Shower Wall Linings 1.2m x 2.4m	2 @		
Marmox Niche for Shampoo Recess 380 x 300	1 @		
Waterproofing	6 @		
Materials Glue & Fixings	1 @		
Warranted Installation Service	1 @		
BATHROOM Warmup Undertile - UT800 (INCLUDING SHOWER)	1	\$600.00	\$600.00
Warmup TH115 Programmable Electronic Timer/ Thermostat (supply only)	1	\$180.00	\$180.00
Custom 10mm Glass Shower Door & Screens Installed	1	\$1,375.00	\$1,375.00
Channel Drain - New 800mm	1	\$395.00	\$395.00
Total (Exc. GST):			\$4,725.00
GST:			\$708.75
Total (Inc. GST):			\$5,433.75

1. Your Quote Reference: SHW3007		Date: 08/07/2013	Quote Expiry: 07/08/2013
2. Invoice / Receipt Details: Please correct any details that appear incorrectly on our quote as appropriate.			
Name: Sheldon Bell		Ph: 021 229 7411	
Postal Address: 6 Wingate Street redwood Christchurch			
3. Total Amount of the Quote Accepted (Inc. GST)		4. How do you want to pay?	
\$5,433.75		☐ Direct credit to our account 12-3158-0000450-00	
For Shower System installation, 50% of this total will be invoiced once the Shower Tray, Wall Linings and Waste are installed. The balance will be invoiced on completion. ALL INVOICES ARE 7-DAY INVOICES		☐ Cheque - left on site or given directly to our installers.	
5. Approximately when will your heating be required? / /			

By signing you are confirming that you have read and understood the Site Preparation and Terms and Conditions.
Please either fax (03) 338 7585 or email darren@warmup.co.nz this form to us.

6. Signed and accepted by: Name: _____ Signature: _____ Date: / /

8/07/2013

Sheldon Bell
6 Wingate Street
redwood
Christchurch

bespoke

SYSTEMS
Bespoke Systems Ltd

Trading as Warmup Canterbury
freephone 0800 WARMUP
p 03 338 7586 f 03 338 7585

Cnr Birmingham Dr & Marylands Pl
Addington, Christchurch

PO Box 8811, Riccarton
Christchurch 8440
www.warmup.co.nz

Re: 6 Wingate Street redwood Christchurch

Thank you for the opportunity to provide a quotation for you. Bespoke Systems Ltd incorporates our three major brands, Warmup Underfloor Heating, Marmox Building Products and Warmup Showers and Wet Rooms.

warmup

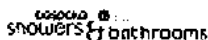
Underfloor Heating

Over the past few decades our undertile and undercarpet heating have provided comfort in thousands of homes, which is why we are able to offer a lifetime guarantee*. Be assured that our heating elements conform to the strictest New Zealand and International Electrical Safety Standards.



Insulation Board for Undertile Heating

Undertile heating is a popular choice, but up to 50% of the heat can be absorbed by the floor below. The good news is that by using Marmox Insulation Board you can increase the performance of the underfloor heating system by directing the heat upwards into the room. Laid on top of existing or new floors before tiling, it provides an ideal base for cost-effective underfloor heating.



Showers and Wet Rooms

Everyone loves the appeal of a beautifully tiled wet area but no one wants leaks. Now Warmup offers you the ideal solution, with a pre-formed tray and walling system that won't leak or absorb moisture. The Warmup Shower Tray is available in a full range of sizes to suit all bathroom layouts. It can be easily cut to fit all designs and is perfect for new concrete slab pours or existing timber and concrete floors. We offer a complete design and installation service with a 15 year warranty.

All installation work will be carried out by our own fully trained professional installers. We also pride ourselves on providing you with a personalised service from quotation to installation.

Please Note:

- This quote must be read in conjunction with our Terms and Conditions, Quote Acceptance and any installation details as provided.
- This quote is valid for 30 days from date shown above.
- If you sign and accept our Quote Acceptance within the 30 day validity period, we are able to hold the quoted product pricing until your build/installation date. You will not be obliged to accept the full quote; we are just allowing you to accept our pricing structure in case we have any price increases.

We hope this quote meets your approval and look forward to hearing from you in the near future. Should you have any questions regarding your quote, please feel free to visit our website, www.warmup.co.nz, call 0800 WARMUP or (03) 338 7586.

Kind regards

Darren Rule
Bespoke Systems Ltd



BRANZ Appraised

Appraisal No. 484 [2018]

MAPEGUM WPS, MAPELASTIC, MAPELASTIC SMART AND MAPELASTIC AQUADEFENSE WET AREA MEMBRANES

Appraisal No. 484 (2018)

This Appraisal replaces BRANZ
Appraisal No. 484 [2012]

Amended 06 October 2022



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



MBP [NZ] Ltd

Exclusive distributor of Mapei
products in New Zealand

PO Box 12 326
Penrose
Auckland

Tel: 09 921 1994

Fax: 09 921 1993

Web: www.MBPLtd.co.nz



BRANZ

BRANZ

1222 Moonshine Rd,
RD1, Porirua 5381
Private Bag 50 908
Porirua 5240,
New Zealand
Tel: 04 237 1170
branz.co.nz



Product

- 1.1 Mapegum WPS and Mapelastic AquaDefense are one-component, liquid-applied waterproofing membranes for internal applications under trafficable floor finishes.
- 1.2 Mapelastic and Mapelastic Smart are two-component liquid-applied waterproofing membranes suitable for internal applications on substrates under trafficable floor finishes.

Scope

- 2.1 Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes have been appraised for use as waterproofing membranes for the internal wet areas of buildings, within the following scope:
 - on floor substrates of concrete, flooring grade particle board, plywood, fibre cement compressed sheet and fibre cement sheet tile underlay, and on wall substrates of concrete, concrete masonry, wet area fibre cement sheet lining systems and wet area plasterboard lining systems; and,
 - when protected from physical damage by trafficable floor finishes; and,
 - where floors are designed and constructed such that deflections do not exceed 1/360th of the span.
- 2.2 The use of Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes on concrete slabs where hydrostatic or vapour pressure is present is outside the scope of this Appraisal.
- 2.3 Movement and control joints in the substrate must be carried through the membrane and trafficable floor finish. The design and construction of the substrate and movement and control joints is specific to each building, and is therefore the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.
- 2.4 The trafficable floor finishes are outside the scope of this Appraisal.
- 2.5 The membranes must be installed by trained applicators, approved by MBP [NZ] Ltd, to the conditions of the Technical Data Sheet [TDS] of the products.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 [b] 15 years and B2.3.2. Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes meet these requirements. See Paragraph 9.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.6. Interior wet area floors and walls incorporating Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes will meet this requirement. See Paragraphs 11.1-11.7.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes meet this requirement.

Technical Specification

4.1 Materials supplied by MBP [NZ] Ltd are as follows:

- **Mapegum WPS** - a one-part, fast drying, polymer-based, ready-to-use, liquid-applied membrane. It is supplied as a light grey-coloured paste in 5, 10 and 25 kg buckets.
- **Mapelastic** - a two-part, flexible, cementitious, liquid-applied membrane. It is supplied as a Part A powder in 24 kg multi-wall bags and a Part B liquid in 8 kg plastic containers. When dry, the membrane is grey in colour.
- **Mapelastic Smart** - a two-part, flexible, cementitious, liquid-applied membrane. It is supplied as a Part A powder in 20 kg multi-wall bags and a Part B liquid in 10 kg plastic containers. When dry, the membrane is light grey in colour.
- **Mapelastic AquaDefense** - a one-part, solvent-free, ultra-quick drying synthetic resin-based paste in water dispersion liquid-applied membrane. It is supplied as a light blue coloured paste in 15 kg drums.
- **Mapeband and Mapeband Gaskets** - a rubber-coated polyester tape for waterproofing expansion joints and sealing around drains and pipes. Available as a tape 120 mm wide in rolls 50 m long, and also in ready-made internal and external corners [90 and 270 degrees] and pipe gaskets 118 x 118 mm and 300 x 300 mm, "T" profiles 515 mm x 315 mm and cross profiles 515 x 515 mm.
- **Mapeband PE120** - a PVC fabric tape used to reinforce wall/wall and floor/wall joints. It is only used with Mapegum WPS and Mapelastic AquaDefense. Available as a tape 120 mm wide, in rolls 10 m and 50 m long, and also as preformed angles 90° and 270°.
- **Mapetex Sel** - a macro-holed non-woven fabric, used to reinforce the first and second layer of the waterproofing membranes. It is supplied as a polypropylene white fabric, in rolls 100 mm, 200 mm and 1 m wide x 25 m long.
- **Mapenet 150** - a glass fibre mesh used to reinforce the membranes. It is supplied as a blue mesh in rolls 1 m wide and 50 m long.
- **Mapeband SA** - a self-adhesive butyl rubber tape used to reinforce all joints. It is supplied as a 2 mm thick, 100 mm wide tape in rolls 25 m long.
- **Mapei Primer 3296** - an acrylic primer for absorbent surfaces. It is an opaque colour and supplied in 5 and 10 kg drums.

Handling and Storage

5.1 All materials must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and out of freezing conditions. The membrane products have a shelf life of 24 months from date of manufacture in the original unopened packaging. Once opened, the products must be used within 3 months.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- Mapelastic Smart, Version 2013-4-2022-gb, 2022.
 - Mapegum WPS, Version 2014-10-2020-en [IT], 2020.
 - Mapelastic, Version 331-5-2018-gb, 2018.
 - Mapelastic AquaDefense, Version 2013-11-2016-gb, 2016.
- 6.2 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 Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes are for use in buildings where an impervious waterproof membrane is required to floors and walls to prevent damage to building elements and adjoining areas.
- 7.2 Mapegum WPS and Mapelastic AquaDefense are designed to be used where a one-component product is preferred.
- 7.3 The membranes must be protected from physical damage by the application of trafficable floor finishes.
- 7.4 Movement and control joints may be required depending on the shape and size of the building or room, and the floor finish specified. Design guidelines can be found in the BRANZ Good Practice Guide: Tiling.
- 7.5 Timber framing must comply with NZS 3604, or where specific engineering design is used, the framing shall be of at least equivalent stiffness to the framing provisions of NZS 3604, or comply with the serviceability criteria of AS/NZS 1170. In all cases, framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and all sheet edges are fully supported. Timber framing systems supporting the substrates must be constructed such that deflections do not exceed 1/360th of the span. Where NZS 3604 is used, the allowable joist spans given in Table 7.1 shall be reduced by 20%.

Substrates

Plywood

- 8.1 Plywood must be a minimum of 17 mm thick complying with AS/NZS 2269, CD Grade Structural with sanded C face upwards and treated to H3 [CCA treated]. LOSP treated plywood must not be used.
- 8.2 The plywood must be laid with the face grain at right angles to the floor joists. The plywood must be supported with dwangs or framing with a maximum span of 400 mm in each direction, fixed with 10 g x 50 mm stainless steel countersunk head screws at 150 mm centres along the sheet edges and 200 mm through the body of the sheets.

Fibre Cement Compressed Sheet/Fibre Cement Sheet Tile Underlay

- 8.3 Fibre cement compressed sheet and tile underlay must be manufactured to comply with the requirements of AS/NZS 2908.2 and must be specified by the manufacturer as being suitable for use as a wet area substrate. Installation must be in accordance with the instructions of the manufacturer.

Particleboard

- 8.4 Particleboard must be specified for the end use in accordance with NZS 3602.

Concrete and Concrete Masonry

- 8.5 Concrete and concrete masonry substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101, concrete slab-on-ground to NZS 3604 or NZS 4229 and concrete masonry to NZS 4229 and NZS 4230.

Wet Area Wall Linings

- 8.6 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588, and be suitable for use in internal wet areas.
- 8.7 Fibre cement sheet must be suitable for use in wet areas and comply with AS/NZS 2908.2.
- 8.8 Installation of plasterboard or fibre cement wall linings must be carried out in accordance with the instructions of the manufacturer.

Durability

Serviceable Life

- 9.1 The Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes, when subjected to normal conditions of environment and use, are expected to have a serviceable life of at least 15 years and be compatible with trafficable floor finishes with a design service life of 15–25 years.

Maintenance

- 10.1 No maintenance of the membranes will be required provided significant substrate movement does not occur and the trafficable floor finish remains intact. Regular checks must be made of the floor finish to ensure it is sound and will not allow moisture to penetrate. Any issues must be repaired immediately by repairing the floor finish.
- 10.2 In the event of damage to a membrane, the trafficable floor finish must be removed and the membrane repaired by removing the damaged portion and applying a patch with sufficient overlap over the damaged section.
- 10.3 Drainage outlets must be maintained to operate effectively, and floor finishes must be kept clean.

Internal Moisture

- 11.1 Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes are impervious to water, and when appropriately designed and installed, will avoid the likelihood of water penetrating behind linings or entering concealed spaces.
- 11.2 Surfaces must be finished with a trafficable floor finish. A means of compliance with NZBC Clause E3.3.3 and E3.3.4 is given in NZBC Acceptable Solution E3/AS1, Paragraph 3.1.1 b), 3.1.2 b) and 3.3.1 b).
- 11.3 Falls in showers and shower areas must be a minimum of 1 in 50. In unenclosed showers, falls must extend a minimum of 1,500 mm out from the shower rose. Floor wastes and drainage flanges must be provided and the floor must fall to the outlet.
- 11.4 Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes are suitable for use to contain accidental overflow to meet NZBC Clause E3.3.2. A means of compliance for overflow is given in NZBC Acceptable Solution E3/AS1, Paragraph 2.
- 11.5 The waterproofing membrane must completely cover shower bases, and for unenclosed showers it must extend a minimum of 1,500 mm out from the shower rose. Further design guidance on waterproofing wet areas, including waterproofing walls and junctions can be obtained from AS 3740, the BRANZ Good Practice Guide: Tiling, and flooring and wall lining manufacturers.
- 11.6 Where water resistant wall finishes such as prefinished sheet materials are used, they must be installed as per the NZBC requirements. They must flash over the membrane a minimum of 30 mm.
- 11.7 BRANZ recommends the entire floor be covered by a waterproof membrane for bath, shower and spa rooms where timber and plywood floors are used.

Installation Information

Installation Skill Level Requirement

- 12.1 Installation of the membranes must be completed by trained applicators approved by MBP [NZ] Ltd
- 12.2 Installation of substrates must always be carried out in accordance with the Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant Licence Class.

Preparation of Substrates

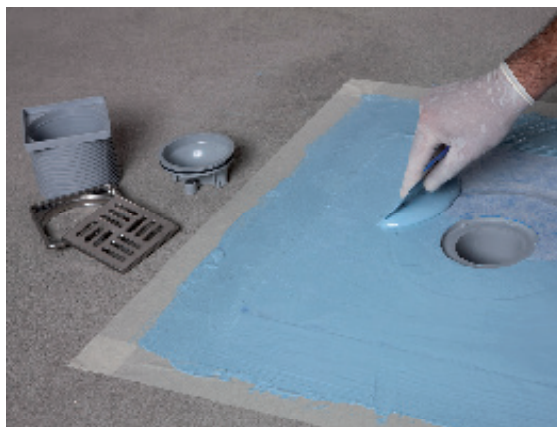
- 13.1 Substrates must be dry, clean and stable before installation commences. Surfaces must be smooth and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents.
- 13.2 The relative humidity of concrete substrates must be 75% or less before membrane application. The concrete substrates can be checked for dryness by using a hygrometer as set out in BRANZ Bulletin No. 585.
- 13.3 All voids, cracks, holes, joints and excessively rough areas must be filled to achieve an even and uniform surface. Junctions of substrate abutments, such as at wall/floor and wall/wall junctions must have a reinforcement installed as set out in the Technical Literature.
- 13.4 Refer to the product manufacturer for correct priming requirements.

Membrane Installation

- 14.1 Installation must not be undertaken where the substrate surface temperature is below 8°C or above 35°C.
- 14.2 Mapelastic and Mapelastic Smart require the liquid and powder to be mixed and left to stand for 5 minutes before re-mixing, then applying. Mapegum WPS and Mapelastic AquaDefense must be thoroughly stirred before application.
- 14.3 The membranes must be applied in a minimum of two coats, at the rates set out in the Technical Literature. Subsequent coats must be applied in an opposite direction to the previous coat. The total finished system thickness of the Mapegum WPS and Mapelastic AquaDefense membranes must be a minimum of 1 mm and the Mapelastic and Mapelastic Smart Membranes must be a minimum of 2 mm.
- 14.4 Application can be made by roller [medium/long nap], brush [long bristle], or a notched steel trowel [finished with a flat steel trowel].
- 14.5 Reinforcement fabric or Mapeband is bedded into the wet layer between coats to provide movement protection at wall/wall and wall/floor junctions, or any other areas such as joints in the flooring substrate, floor cracks, or around penetrations in the membrane. In all other situations, reinforcement provisions as set out in this Appraisal and the Technical Literature apply.
- 14.6 Clean up may be undertaken with water.
- 14.7 For further information, refer to the Technical Literature.

Floor Finishes

- 15.1 The membranes must be fully cured before installing the trafficable floor finish. The cured membranes must be protected at all times to prevent mechanical damage, so may require temporary covers until the finishing is completed.
- 15.2 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ Good Practice Guide: Tiling. The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer or MBP [NZ] Ltd.



Impregnating Drain Vertical fabric with Mapelast AquaDefense



Application of Mapeband to a wall-floor joint with Mapelast AquaDefense



Application of the first coat of Mapelast AquaDefense



Application of the second coat of Mapelast AquaDefense

Inspections

- 16.1 The Technical Literature must be referred to during the inspection of membrane installations.
- 16.2 Critical areas of inspection 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 membrane.
 - Acceptance of the substrate by the membrane installer prior to application of the membrane.
 - Installation of the membrane to the manufacturer's instructions, particularly installation to the correct thickness and use of reinforcement.
 - Membrane curing and integrity prior to the installation of floor finish including protection from mechanical damage during curing and prior to installation.

Health and Safety

- 17.1 Safe use and handling procedures for the membranes are provided in the Technical Literature. The materials must be used in conjunction with the relevant Material Safety Data Sheet.

Basis of Appraisal

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

Tests

- 18.1 The following testing has been undertaken by various organisations:
- Mapegum WPS and Mapelastic Wet Area Membranes in accordance with; EN 14891 for initial tensile adhesion strength, tensile strength after water contact, tensile adhesion strength after heat ageing, tensile adhesion strength after contact with lime water, tensile adhesion strength after contact with chlorine water, tensile adhesion strength after freeze-thaw cycles, waterproofing and crack bridging ability; DIN 53504 for tensile strength and maximum elongation after exposure to air and water immersion [Mapegum WPS only] and; Mapei internal method for water absorption after exposure and water immersion.
 - Mapelastic Smart in accordance with EN 1502-4 for bond strength to concrete, freeze thaw, flexibility, static and dynamic crack bridging, water vapour permeability, impermeability to water and bond strength after water immersion, heat ageing, freeze-thaw and alkali ageing.
 - Mapelastic in accordance with; EN 14891 for crack bridging after 28 days exposure to air, crack bridging after 7 days exposure to air and 21 days immersion in water, adhesion to concrete surface after 28 days exposure to air, adhesion to concrete surface after 28 days exposure to air and 21 days immersion in water; DIN 52615 for resistance to water vapour transmission and; Mapei internal method for deformability under low temperatures.
 - Mapegum WPS in accordance with; EN 1384 for tensile adhesion strength after exposure and water immersion; UNI 8202/22 for water absorption after exposure and water immersion and; DIN 53505 for shore A hardness.
 - Mapelastic AquaDefense in accordance with AS/NZS 4858 Appendix A including effect of heat ageing, bleach, detergent and water on tensile and elongation, water vapour transmission to ASTM E96-92 and cyclic movement resistance requirements of AS/NZS 4858 Appendix B. Testing to ANSI 118.10-1999 including seam strength, breaking strength, dimensional stability, resistance to fungi, static head and shear strength to ceramic tile and cement mortar. Also tensile adhesion on a plywood substrate and low temperature flexibility of the membrane.
- 18.2 The above test methods and results have been reviewed by BRANZ and found to be satisfactory.
- 18.3 Testing of Mapegum WPS and Mapelastic has been undertaken by BRANZ for durability in accordance with AS/NZS 4858, Appendix A covering tensile strength and elongation after immersion in water, bleach, detergent, and after heat ageing.
- 18.4 Testing for suitability of Mapelastic over particleboard in accordance with AS/NZS 4858, Appendix C has been undertaken by BRANZ and found to be satisfactory.

Other Investigations

- 19.1 An assessment was made of the durability of the Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic AquaDefense Wet Area Membranes by BRANZ technical experts.
- 19.2 Site inspections have been carried out by BRANZ to examine the practicability of installation and to examine completed installations.
- 19.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 20.1 The manufacture of the membranes 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.
- 20.2 The quality management system of the membranes manufacturer has been assessed and found to be satisfactory.
- 20.3 The quality of supply of the membrane system materials to the market is the responsibility of MBP [NZ] Ltd.
- 20.4 Quality on-site is the responsibility of the MBP [NZ] Ltd trained applicators.
- 20.5 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing systems and substrates.
- 20.6 Building owners are responsible for the maintenance of the trafficable floor finish in accordance with the instructions of MBP [NZ] Ltd.

Sources of Information

- AS 3958.1:2007 Guide to the installation of ceramic tiles.
- AS/NZS 1170:2002 Structural design actions.
- AS/NZS 2908.2:2000 Cellulose-cement products – Flat sheet.
- AS/NZS 2269:2012 Plywood-Structural.
- AS/NZS 4858:2004 Wet area membranes.
- BRANZ Good Practice Guide: Tiling, April 2015.
- DIN 53504 May 1994 Determination of tensile stress/strain properties of rubber.
- EN 1348: 1997/A1 Adhesives for tiles – Determination of tensile adhesion strength for cementitious adhesives.
- EN 14891 March 2003 Liquid applied waterproofing membranes for use beneath ceramic tiling – Definitions, specifications and test methods.
- NZS 3101:2006 The design of concrete structures.
- NZS 3602:2003 Timber and wood-based products for use in buildings.
- NZS 3604:2011 Timber-framed buildings.
- NZS 4229:2013 Concrete masonry buildings not requiring specific engineering design.
- NZS 4230:2004 Code of Practice for the design of masonry structures.
- UNI 8202 – 22: 1987 Building. Water proof sheets. Determination of behaviour in water.
- Ministry of Business, Innovation and Employment Record of amendments – Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 25 February 2021

This Appraisal has been amended to update the Appraisal holder.

Amendment No. 2, dated 06 October 2022

This Appraisal has been amended to include trafficable floors and to remove Mapelastic Turbo.



In the opinion of BRANZ, **Mapegum WPS, Mapelastic, Mapelastic Smart and Mapelastic Aquadefense Wet Area Membranes** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **MBP [NZ] 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. **MBP [NZ] 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 **MBP [NZ] 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 **MBP [NZ] Ltd** or any third party.

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

09 February 2018



Mapelastic AquaDefense



Ready-to-use, ultra-quick drying, flexible liquid membrane for internal and external waterproofing applications



WHERE TO USE

To form waterproofing layers before applying ceramic, stone, mosaic, welded sheet vinyl and LVT coatings in:

- balconies and terraces;
- bathrooms and shower cubicles;
- laundry rooms;
- saunas and damp environments in general.

Mapelastic AquaDefense may be applied on:

- concrete;
- cementitious screeds and screeds made using special binders (**Topcem Pronto**, **Mapecem** or **Mapecem Pronto**);
- plasterboard (for internal applications only);
- fibre cement sheeting;
- existing coatings in ceramic, terrazzo and stone;
- cementitious render.

ADVANTAGES

Mapelastic AquaDefense offers the following advantages:

- no drill or mixing tools required, supplied ready-to-use;
- **Mapelastic AquaDefense** complies with the current VOC limit requirements for the indoor pollutant/exposure to toxins credits in the relevant Green Star rating tools. See the SDS for the relevant information;

- resistant to rainwater 1 hour after applying the first coat and 3 hours after the second coat;
- tiles may be installed just 4 hours after applying the final coat (at +23°C and 50% R.H. when applied on a dry screed with less than 3% residual moisture);
- highly elastic at +23°C with 3.2 mm crack-bridging capacity without reinforcement;
- **Mapelastic AquaDefense** is certified to AS/NZS 4858:2004 and AS 4654.1-2012 as a Class III non-exposed membrane for internal and external above-ground wet areas.

TECHNICAL CHARACTERISTICS

Mapelastic AquaDefense is a solvent-free, ready-to-use ultra-quick drying, one-component light blue synthetic resin based paste in water dispersion.

Mapelastic AquaDefense is easy to apply using a long-haired roller, brush or trowel on horizontal, sloping and vertical surfaces.

Mapelastic AquaDefense dries very quickly to form a flexible membrane without a tacky surface. It is resistant to light pedestrian traffic after just 3 hours and forms an excellent grip with all types of adhesives for laying ceramic, stone material and mosaic of all kinds. The flexible nature of **Mapelastic AquaDefense** helps it withstand normal movements caused by expansion and shrinkage of the substrate due to temperature variations and vibration.

Mapelastic AquaDefense



Impregnating Drain Vertical fabric with Mapelastic AquaDefense



Application of Mapeband on a wall-floor fillet joint with Mapelastic AquaDefense



Application of the first coat of Mapelastic AquaDefense on a screed

Tiles installed on **Mapelastic AquaDefense** by using C2F-class MAPEI adhesives (such as **Keraquick Maxi S1** or **Granirapid**.) and grouted with **Ultracolor Plus** may be opened to pedestrian traffic within 12 hours of starting the work.

Mapelastic AquaDefense is resistant to water, lime-water ($\text{pH} > 12$), water containing chlorine and detergents commonly used for cleaning residential environments.

RECOMMENDATIONS

- Do not apply **Mapelastic AquaDefense** if the temperature is lower than $+5^{\circ}\text{C}$.
- **Mapelastic AquaDefense** must always be covered with a suitable covering.
- Do not apply **Mapelastic AquaDefense** on substrates with a moisture content of more than 3% (surface moisture meter) or if rising damp is present. Ensure cementitious substrates are well cured.
- Do not apply **Mapelastic AquaDefense** on crumbly cementitious substrates, old floors which are not well bonded to the substrate or surface treatments which impede a good bond.
- Cracks larger than a hairline crack ($<0.2 \text{ mm}$) must be repaired prior to waterproofing.
- Protect the surface from rain for at least 1 hour after applying the first coat and 3 hours after applying the second coat
- All timings on this TDS refer to $+23^{\circ}\text{C}$ and 50% relative humidity environment over a dry and absorbent substrate. Areas with cold climates, low ventilation, and non-absorbent substrates will lengthen these times.

APPLICATION PROCEDURE

Preparation of the substrate

Substrates must be well-cured, sound, clean, dry and free of oil, grease, cement laitance, old paint and any other substance which could compromise the bond. Cementitious substrates must be stable and dry with no rising damp. Surface dust must be completely removed.

Smoothing and levelling layers may be applied using **Planitop Fast 330** or **Adesilex P4**.

On old ceramic floors with hollowed or empty tile joints, or whenever slopes on surfaces need to be levelled out before spreading on **Mapelastic AquaDefense**, we recommend applying a smoothing and levelling layer using **Adesilex P4**. Substrates in this condition must be thoroughly checked and all coatings, such as wax, water-repellent treatments, etc. must be removed from the surface with a suitable cleaning product or by abrasion. Prime the prepared tiles with **Eco Prim Grip Plus**.

Before applying **Mapelastic AquaDefense**, pay particular attention to expansion joints and fillet joints between horizontal and vertical surfaces. In such cases, apply a product from the **Mapeband** range along with the suitable profiles bonded in place with **Mapelastic AquaDefense**.

Structural joints must be waterproofed with **Mapeband TPE** or **Mapeband Flex Roll** bonded to the substrate with **Adesilex PG4**.

APPLICATION OF THE PRODUCT

Mapelastic AquaDefense must be applied in two even coats (minimum 0.4 mm wet film thickness per coat) with a long-haired roller, brush or trowel. Wait until the first coat is dry, making sure the product becomes darker with a matt finish, before applying the second coat diagonally to the first (approximately 1 hour).

The final thickness of the two coats of **Mapelastic AquaDefense** must be at least 0.8 mm in order to create a robust, flexible and continuous film. Make sure there are no interruptions in the film caused by imperfections in the substrate.

If **Mapelastic AquaDefense** is applied on substrates with hairline or repaired cracks, it is highly recommended to insert **Mapetex 50** reinforcement into the first wet coat. **Mapetex 50** must be pressed down with a flat trowel or spiked roller into the first coat of **Mapelastic AquaDefense** while it is still fresh. Wait until the first coat is dry then apply the second coat in order to completely embed **Mapetex 50**. Drying times may increase as **Mapetex 50** insertion increases the final thickness of the applied film.

If a flood test is required, it may be carried out 12-24 hours after applying the final coat of **Mapelastic AquaDefense**. Ensure the membrane is completely dry.

Ceramic, stone and mosaic tiles may be installed 4 hours after applying the second coat using a C2-class MAPEI adhesive according to AS ISO 13007.1 standards, to be selected according to the final use of the floor or coating. For example, on balconies use **Keraflex Maxi S1** (class C2TE S1). For quickly laying tiles use **Keraquick Maxi S1** (Class C2FT S1) or **Granirapid** (Class C2F S1) and for laying all types of mosaic use **Kerabond Plus** mixed with **Isolastic 50** (Class C2T S1).

Grout tile joints with a special cementitious grout such as **Ultracolor Plus** - Class CG2 WAF, **Keracolor FF**, **Keracolor GG** (mixed with **Fugolastic**) or epoxy grout (for example **Kerapoxy**, **Kerapoxy Design** Class RG). Seal expansion joints with a special MAPEI sealant (such as **Mapesil AC** or **Mapesil LM** according to requirements).

Before laying the tiling, carefully check the surface of **Mapelastic AquaDefense** to

TECHNICAL DATA (typical values)

PRODUCT IDENTITY

Consistency:	paste
Colour:	light blue
Density (g/cm ³):	1.30
pH:	9.5
Dry solids content:	66
Brookfield Viscosity (mPa·s):	45,000 (spindle 6 - 10 rpm)

APPLICATION DATA (at +23°C - 50% R.H.)

Minimum filming temperature:	+5°C
Recommended application temperature:	from +5°C to +35°C
Waiting time between first and second coat:	approximately 60 minutes (when dry to the touch)
Waiting time before laying coating:	3-4 hours
Complete drying of 1 mm (WFT) thick layer:	12 hours

FINAL PERFORMANCE

	EN 14891 acceptance range	Performance figures for Mapelastic AquaDefense
Initial bond strength EN 14891-A.6.2 (N/mm ²):	> 0.5	1.7
Bond strength after immersion in water (EN 14891-A.6.3) (N/mm ²):	> 0.5	> 1.0
Bond strength after application of heat source (EN 14891-A.6.5) (N/mm ²):	> 0.5	> 1.8
Bond strength after freeze-thaw cycles (EN 14891-A.6.6) (N/mm ²):	> 0.5	> 0.9
Bond strength after immersion in basic water (solution saturated with lime) (EN 14891-A.6.9) (N/mm ²):	> 0.5	> 1.3
Bond strength after immersion in sodium hypochlorite solution (EN 14891-A.6.7) (N/mm ²):	> 0.5	> 1.2
Crack-bridging ability at +23°C (EN 14891-A.8.2) (mm):	> 0.75	3.2
Crack-bridging ability at -5°C (EN 14891-A.8.3) (mm):	> 0.75	1.6
Impermeability to water under pressure (EN 14891-A.7) (1500 kPa):	no penetration	no penetration



Application by roller of Mapelastic AquaDefense second coat



Application of Mapelastic AquaDefense by brush between floor and wall before applying Mapeband



Bonding tiles on Mapelastic AquaDefense

Bond values according to EN 14891 measured using **Mapelastic AquaDefense** and a C2-type cementitious adhesive according to EN 12004

Mapelastic AquaDefense



make sure it is continuous and that there are no pin-holes or small craters. If there are such defects, apply a further thin coat where they are located.

Before applying a resilient flooring, prime with **Eco Prime T Plus** undiluted and smooth with two coats of **Planiprep SC**.

Cleaning

Mapelastic AquaDefense may be removed easily from tools and surfaces while still fresh with water.

CONSUMPTION

1 kg/m² for two coats (1.3 kg/m² per mm of thickness).

PACKAGING

15 kg rectangular buckets.

STORAGE

Mapelastic AquaDefense may be stored for up to 24 months in its original packaging in a dry place. Protect from freezing weather.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

For further and complete information about the safe use of our product please refer to the latest version of our Safety Data Sheet available from www.mapei.com.au.

PRODUCT FOR PROFESSIONAL USE.

WARNING

Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and

subject to confirmation after long-term practical application; for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application. In every case, the user alone is fully responsible for any consequences deriving from the use of the product.

Please refer to the current version of the **Technical Data Sheet**, available from our website www.mapei.com.au.

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement or replace requirements per the TDS in force at the time of the MAPEI product installation. The most up-to-date TDS can be downloaded from our website at www.mapei.com.au. ANY ALTERATION TO THE WORDING OR REQUIREMENTS CONTAINED OR DERIVED FROM THIS TDS EXCLUDES THE RESPONSIBILITY OF MAPEI.

**All relevant references
for the product are available
upon request and from
www.mapei.com.au**

Mapei Australia Pty. Ltd

180 Viking Drive Wacol Qld 4076

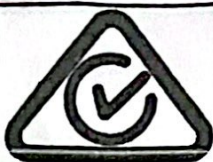
Tel. +61-7-3276 5000 - Fax. +61-7-3276 5076

Website: www.mapei.com.au - Email: sales@mapei.com.au

Manufactured in Brisbane - Australia



BUILDING THE FUTURE



ELECTRICAL CERTIFICATE OF COMPLIANCE & ELECTRICAL SAFETY CERTIFICATE

REFERENCE/CERTIFICATE ID No.: **HH8488**

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under Part 1 or Part 2 of AS/NZS 3000 are safe to be connected to the specified system of electrical supply.

Location Details:

6 Wingate st Redwood CWH

Contact Details:

(Name and address)

Lauren Armstrong 027 4344466

Name of Electrical worker:

**Power Electrical
PO Box 36763**

Registration/Practising licence number:

E5526

Phone & email:

Christchurch 8146

Ph 356 0598 027 432 8598

Name and registration number

of person(s) supervised:

Mark Dreaver

Certificate of Compliance

Type of work:

☐ Addition

☒ Alteration

☐ New work

The prescribed electrical work is:

☐ Low risk

☐ General

☐ High-risk (Specify):

Means of compliance:

☐ Part 1 of AS/NZS 3000

☒ Part 2 of AS/NZS 3000

Additional Standards or electrical code of practice were required:

☐ No

☐ Yes (specify):

Date or range of dates that prescribed electrical work undertaken:

01-05-2026

Contains fittings that are safe to connect to a power supply?

☒ Yes

☐ No

Specify type of supply system:

MBAI 230 volt

The installation has an earthing system that is correctly rated (where applicable)

☒ Yes

☐ No

Parts of the installation to which this certificate relates that are safe to connect to a power supply?

☒ All ☐ Parts (specify)

The work relies on manufacturers instructions:

☐ Yes

☒ No

If yes - identify the instruction manual including name, date and version. Also attach a copy of manufacturer's instructions to this certificate.

(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:

Link:

The work has been done in accordance with a certified design:

☐ Yes

☒ No

If yes - identify the certified design including name, date and version. Also attach a copy of the certified design to this certificate.

(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:

Link:

The work relies on a Supplier Declaration of Conformity (SDoC):

☐ Yes

☒ No

If yes - identify the SDoC including name, date and version OR EESS registration. Also attach a copy of the SDoC to this certificate.

(Or provide reference to readily accessible electronic format, eg Internet link.)

Identify:

Link:

No Part installed

The installation has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010

☐ No ☒ Yes

Description of Work: **AMI Disconnect & Reconnect**

1 x Towel Rail 1 x GPO 1 x L+S

1 x FAN 1 x B-Heater 1 x under Floor

Bathroom only test for RCD protection

Please Note some existing cables

and connections to be checked

by qualified electrician

By signing this document I certify that the completed prescribed electrical work to which this Certificate of Compliance

applies has been done lawfully and safely, and the information in the certificate is correct.

Certifier's signature:

Date:

01-05-2026

Electrical Safety Certificate

By signing this document I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name:

DM Dreaver

Certifier's signature:

[Signature]

Certificate Issue Date:

28-05-2026

Registration/Practising licence number:

E5526

Connection Date:

01-05-2026

CUSTOMER COPY - THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This Electrical Safety Certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.



1 June 2026

HomeHub

Attention: Michelle Baker

By email: homehub@primeeco.tech / michelle.baker@homehub.co.nz

To whom it may concern,

Record of work – HH-8488

We have completed work at 6 wingate street last year which involved the following:

Replace vanity (Client supplied)

Disconnect toilet and reconnect once flooring was completed

Shower faceplate, handle and slide rail disconnect and reconnect

Bath and tapware disconnect and reconnect

Laundry tub and washing machine disconnect and reconnect

We did not touch pipework in the wall as was not needed.

There is no sign off required for the work done by us (AJ Plumbing and Gas)

Yours faithfully,

Jake Huls
Director

QUOTATION

bespoke
SYSTEMS

Quote No: SHW3007
Date: 8/07/2013
Quote Expiry: 7/08/2013

Bespoke Systems Ltd
Trading as Warmup Canterbury
freephone 0800 WARMUP
p 03 338 7586 f 03 338 7585

Sheldon Bell
6 Wingate Street
redwood
Christchurch

Cnr Birmingham Dr & Marylands Pl
Addington, Christchurch

PO Box 8811, Riccarton
Christchurch 8440
www.warmup.co.nz

Re: 6 Wingate Street redwood Christchurch

Area / Item	Qty	Price	Total
BATHROOM Marmox Shower 1m x 1m Channel Drain	1	\$2,175.00	\$2,175.00
Marmox Shower Tray 1m x 1m Channel Drain	1 @		
Marmox Shower Hob Uprand	2 @		
All Proof Waste Kit 80mm	1 @		
Marmox Shower Wall Linings 1.2m x 2.4m	2 @		
Marmox Niche for Shampoo Recess 380 x 300	1 @		
Waterproofing	6 @		
Materials Glue & Fixings	1 @		
Warranted Installation Service	1 @		
BATHROOM Warmup Undertile - UT800 (INCLUDING SHOWER)	1	\$600.00	\$600.00
Warmup TH115 Programmable Electronic Timer/ Thermostat (supply only)	1	\$180.00	\$180.00
Custom 10mm Glass Shower Door & Screens Installed	1	\$1,375.00	\$1,375.00
Channel Drain - New 800mm	1	\$395.00	\$395.00
Total (Exc. GST):			\$4,725.00
GST:			\$708.75
Total (Inc. GST):			\$5,433.75

1. Your Quote Reference: SHW3007		Date: 08/07/2013	Quote Expiry: 07/08/2013
2. Invoice / Receipt Details: Please correct any details that appear incorrectly on our quote as appropriate.			
Name: Sheldon Bell		Ph: 021 229 7411	
Postal Address: 6 Wingate Street redwood Christchurch			
3. Total Amount of the Quote Accepted (Inc. GST)		4. How do you want to pay?	
\$5,433.75		☐ Direct credit to our account 12-3158-0000450-00	
For Shower System installation, 50% of this total will be invoiced once the Shower Tray, Wall Linings and Waste are installed. The balance will be invoiced on completion. ALL INVOICES ARE 7-DAY INVOICES		☐ Cheque - left on site or given directly to our installers.	
5. Approximately when will your heating be required? / /			

By signing you are confirming that you have read and understood the Site Preparation and Terms and Conditions.
Please either fax (03) 338 7585 or email darren@warmup.co.nz this form to us.

6. Signed and accepted by: Name: _____ Signature: _____ Date: / /

Consenting & Compliance Group

Producer statement construction (PS3)

All sections of this PS3 must be completed

Tick applicable Contractor for:

- | | | | |
|--|---|---|------------------------------------|
| ☐ Building | ☐ Emergency Lighting | ☐ Cladding | ☐ Escalator |
| ☒ Waterproof Membranes | ☐ Drainlayer | ☐ Fire Alarm | ☐ Lift |
| ☐ Mechanical (HVAC) | ☐ Solar Heating | ☐ Other (specify): | |

Author name:

Jon-Paul Ferris

Author company:

LHH 2022 Limited

Site address:

6 Wingate Street, Redwood, Christchurch

Description of building work:

Repairs to bathroom and laundry

Owners Details:

Laura Armstrong

Scope of work covered by statement:

Application of liquid based waterproof membrane to bathroom.

System/Product used (if applicable):

Mapei Aquadefence (Brnz Appraisal 485)

I (constructor): Designastyle have been engaged by
AMI Home Hub (applicant, designer, main contractor etc) ☒ part ☐ all
to construct:

As specified in the attached particulars of Building Consent Number: n/a and its attached conditions
I am satisfied on reasonable grounds that the building work specified above has been completed to the extent required by that
Building Consent and complies with the NZ Building Code.

NZBC clauses:
[select as applicable]

- | | | | | | | | | | | | |
|--|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| ☐ B1 | ☒ B2 | ☐ C1 | ☐ C2 | ☐ C3 | ☐ C4 | ☐ C5 | ☐ C6 | ☐ D1 | ☐ D2 | ☐ E1 | ☐ E2 |
| ☒ E3 | ☐ F1 | ☐ F2 | ☐ F3 | ☐ F4 | ☐ F5 | ☐ F6 | ☐ F7 | ☐ F8 | ☐ G1 | ☐ G2 | ☐ G3 |
| ☐ G4 | ☐ G5 | ☐ G6 | ☐ G7 | ☐ G8 | ☐ G9 | ☐ G10 | ☐ G11 | ☐ G12 | ☐ G13 | ☐ G14 | ☐ G15 |
| ☐ H1 | | | | | | | | | | | |

I understand that this Producer Statement, if accepted, may be relied on by the Council for the purpose of establishing compliance with the Building Consent.

Registration No: Or ☐ N/A

Qualifications/Experience:

15 years experience, licensed applicator.

Address:

Postcode:

35 Mandeville Street

Phone:

Fax:

03 348 1099

Mobile:

Email:

0275 342 915

admin@designastyle.co.nz

Signature:



Date:

28/5/26

SELL SMARTER WITH ARIZTO'S OFFERING

- ✓ A fairer \$12,500 ^{+GST} flat fee *
- ✓ Trade Me Platinum package
- ✓ Online seller's dashboard
- ✓ Marketing across NZ's top Real Estate websites
- ✓ Free professional photos
- ✓ Free 4K video
- ✓ Free property floor plan
- ✓ Free rental appraisal
- ✓ Plus much more...

"No upfront costs
No sale, no fee!"



Kristian Danholt

📞 021 544 934

✉️ kristian.danholt@arizto.co.nz

