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CSIRO MANUFACTURING
& INFRASTRUCTURE TECHNOLOGY

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INDUSTRIAL RESEARCH SERVICES

Registered Testing Authority - Building Code of Australia

22 June, 2005

Our Ref. EN13/1135

TEST REPORT No. 3207

Requested by: Robert Rath
on (date): 27 April 2005
Manufacturer: Wet-seal Management
Product Desc: Wet Seal Pyure Coat 400 System

Sampling details:
Where: Highett
Date: 27 April 2005
By Whom: Robert Rath
How (methods): N/A

The results reported relate only to the sample(s) tested and the information received.

No responsibility is taken for the accuracy of the sampling unless it is done under our own supervision. CSIRO cannot accept responsibility for deviations in the manufactured quality and performance of the product. The reproduction of this test report is only authorised in the form of a complete photographic facsimile. Our written approval is necessary for any partial reproduction.

This test report consists of 10 pages

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REPORT NO: 3207
ISSUE DATE: 23 June, 2005
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SUMMARY OF RESULTS

AS4858:2004 Wet Area Membranes

Appendix A: Assessment of Durability of waterproof membranes

Requirement for Wet-seal Waterproofing Membrane:

The sample requires an elongation at break strain greater than 282% at 56 days.

Table with 3 columns: DUABILITY OF MEMBRANES: Elongation to break, Strain %, Result. Rows include Control, Water Immersion, Bleach Immersion, Detergent Immersion, Heat Ageing.

The Wet-seal Waterproofing Membrane passes the criteria requirement of AS4858 Appendix A: Assessment of Durability of waterproof membranes. The Durability is in excess of 50% of the Control set of samples.

Appendix B: Assessment of Resistance of Waterproofing Membranes to Cyclic Movement

The test sample achieved a control Elongation of Break of 471% as per AS4858 Appendix A. For a Class III membrane type the extension movement used for cycling is 4 mm extension.

Table with 2 columns: Test parameter, Result. Rows include Number of Cycles completed, Surface Crazing, Surface Tears, Membrane Rupture.

Meets requirement for Moving Joint Test.

ASTM 96 Desiccant Method: Moisture Vapour Transmission Rate

Result: 1.15 g/m²/24 hrs PASS

Assessment of Water Absorption – AS 3558.1-1999

Result: Maximum Mass difference (%) 0.33%



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TEST CARRIED OUT IN ACCORDANCE WITH
AS4858:2004 Wet Area Membranes
Appendix A: Assessment of Durability of waterproof membranes

Test Date: 27 May 2005

RESULTS: Location: Ceramic Tile Laboratory
Conditions: 7 days at 23°C 55%RH
Sample Number: 3207-1 (Numbered 1 to 5)
Samples: Average of 5 samples
Load rate: 150mm/min

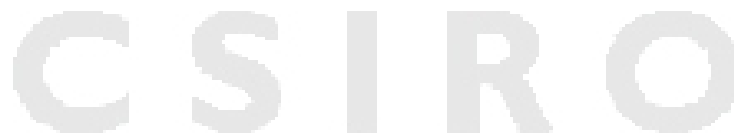
Elongation at Break

CONTROL SET

Sample Number	Sample Thickness Mean (mm)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
3207-1-1 to 5	1.10	164.89	7.79	500

Requirement for Class III: The specimens have an average percentage strain of ≥300%.

Classification: Class III (High Extensibility)





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TEST CARRIED OUT IN ACCORDANCE WITH
 AS4858:2004 Wet Area Membranes
 Appendix A: Assessment of Durability of waterproof membranes

Test Date: 22 June 2005

RESULTS: Location: Ceramic Tile Laboratory
 Conditions: 7 days at 23°C 55%RH
 Sample Number: 3207-2 (Numbered 1 to 12)
 Samples: Average of 3 samples
 Load rate: 150mm/min
 Solution: 1L of deionised water

**Elongation at Break
 WATER IMMERSION**

Sample and Number	Sample Thickness Mean (mm)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
7 Days 3207-2-1 to 3	1.05	254.35	5.22	771
28 Days 3207-2-4 to 6	1.07	268.92	5.11	815
56 Days 3207-2-7 to 9	1.07	244.75	5.43	742

Requirement: The sample requires an elongation at break strain greater than 236% at 56 days.

Result: **742%** **PASS**



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TEST CARRIED OUT IN ACCORDANCE WITH
AS4858:2004 Wet Area Membranes
Appendix A: Assessment of Durability of waterproof membranes

Test Date: 22 June 2005

RESULTS: Location: Ceramic Tile Laboratory
Conditions: 7 days at 23°C 55%RH
Sample Number: 3207-3 (Numbered 1 to 12)
Samples: Average of 3 samples
Load rate: 150mm/min
Solution: 1L of 10.5 g/L sodium hypochlorite & 2.25 g/L of sodium hydroxide

Elongation at Break

BLEACH IMMERSION

Sample and Number	Sample Thickness Mean (mm)	Maximum Extension (mm)	Maximum Tensile MPa	Maximum Strain %
7 Days 3207-3-1 to 3	1.05	246.13	5.22	746
28 Days 3207-3-4 to 6	1.08	282.60	4.92	856
56 Days 3207-3-7 to 9	1.05	276.95	5.26	839

Requirement: The sample requires an elongation at break strain greater than 236% at 56 days.

Result: **839%** **PASS**



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TEST CARRIED OUT IN ACCORDANCE WITH
AS4858:2004 Wet Area Membranes
Appendix A: Assessment of Durability of waterproof membranes

Test Date: 22 June 2005

RESULTS: Location: Ceramic Tile Laboratory
Conditions: 7 days at 23°C 55%RH
Sample Number: 3207-4 (Numbered 1 to 12)
Samples: Average of 3 samples
Load rate: 150mm/min
Solution: 1L of 2% solution N8 detergent

Elongation at Break

DETERGENT IMMERSION

Sample and Number	Sample Thickness Mean (mm)	Maximum Extension (mm)	Maximum Stress MPa	Maximum Strain %
7 Days 3207-4-1 to 3	1.07	280.12	5.72	849
28 Days 3207-4-4 to 6	1.07	271.72	5.12	823
56 Days 3207-4-7 to 9	1.12	279.61	5.26	847

Requirement: The sample requires an elongation at break strain greater than 236% at 56 days.

Result: 847% **PASS**



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TEST CARRIED OUT IN ACCORDANCE WITH AS4858:2004 Wet Area Membranes Appendix A: Assessment of Durability of waterproof membranes

Test Date: 22 June 2005

RESULTS: Location: Ceramic Tile Laboratory
Conditioning: 23°C 55%RH
Sample Number: 3207-5 (Numbered 1 to 3)
Samples: Average of 3 samples
Load rate: 150mm/min

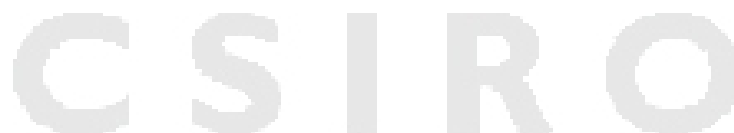
Elongation at Break

HEAT AGEING

Table with 5 columns: Sample and Number, Sample Thickness Mean (mm), Maximum Extension (mm), Maximum Stress MPa, Maximum Strain %. Row 1: 7 Days 3207-5-1 to 3, 1.05, 158.08, 8.78, 479.

Requirement: The sample requires an elongation at break strain greater than 236% at 56 days.

Result: 479% PASS





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 PRODUCT DESC: Wet Seal Pyure Coat 400 System

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TEST CARRIED OUT IN ACCORDANCE WITH

Test Date: 22 June 2005

Appendix B: Assessment of Resistance of Waterproofing Membranes to Cyclic movement
 (Known as the CSIRO Moving Joint Test)

RESULTS:	Location: Test Rig:	Laboratory Applied Test Systems Series 904 Vertical Sealant Tester Number of Cycles: 50 Type of Cycle: Half cycle Cycle Time: 2 hours to complete full half cycle Cycle expansion: 4 mm Sample Size: 65mm x 25mm Sample Span: 2mm between header plates Sample Thickness: 1.05 mm
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The test sample achieved a control Elongation of Break of 471% as per AS4858 Appendix A. For a Class III membrane type the extension movement used for cycling is 4 mm extension.

Number of Cycles completed	50
Surface Crazing	Nil
Surface Tears	Nil
Membrane Rupture	Nil

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TEST CARRIED OUT IN ACCORDANCE WITH
AS4858:2004 Wet Area Membranes
Method: ASTM E96 Desiccant method

Test Date: 22 June 2005

RESULTS: Location: Ceramic Tile Laboratory
Sample Thickness: 2.0mm
Open mouth dish: Diameter 100mm
Test Period: 900 hours
Conditions: 23°C / RH 50%
Membrane to dish sealant: wax
Desiccant: Silica gel

Desiccant Method (Procedure A)

Sample	Thickness mm	Water Vapour Transmission	
		g/m ² /hr	g/m ² /24/hr
Specimen 1	1.05	0.056	1.35
Specimen 2	1.00	0.031	0.75
Specimen 3	1.05	0.056	1.35
Mean			1.15

Requirement: If > 8g/m²/24 hours, additional testing referred to in (e) will be required to establish suitability for use over particleboard.

Result: 1.15 PASS

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TEST CARRIED OUT IN ACCORDANCE WITH
AS4858:2004 Wet Area Membranes
Method: AS 3558.1-1999 Determination of water absorption characteristics

Test Date: 22 June 2005

RESULTS: Location: Ceramic Tile Laboratory
Sample Thickness: 1.1 mm
Test Period: 24 hours
Conditions: 23°C / RH 50%

Sample	Thickness (mm)	Water Absorption		
		Mass (m1)	Mass (m2)	% Mass Difference
Specimen 1	1.10	27.02	27.11	0.33
Specimen 2	1.05	27.12	27.18	0.22
Specimen 3	1.10	27.19	27.19	0.22
Maximum				0.33

Requirement: Determine maximum water absorption as mean difference %

Result: 0.33% **PASS**

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Date and Place 23 June, 2005, Highett, Vic

Name, Title and Digital Signature:

**DAVID WEEKS
SENIOR TECHNICAL OFFICER
INDUSTRIAL RESEARCH SERVICES**

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