TEST
REPORT No.5091
[Rev B]

ASSESSMENT OF DCS WALLING SYSTEM

Industrial Research Services

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Product Manufacturer:	Dincel Construction System Pty. Ltd
Product Description:	DCS Walling System
Sample details:	
Where:	Constructed at CSIRO MSE Highett
Date:	October 2009
Report author:	David Weeks
Tel:	03 9252 6064
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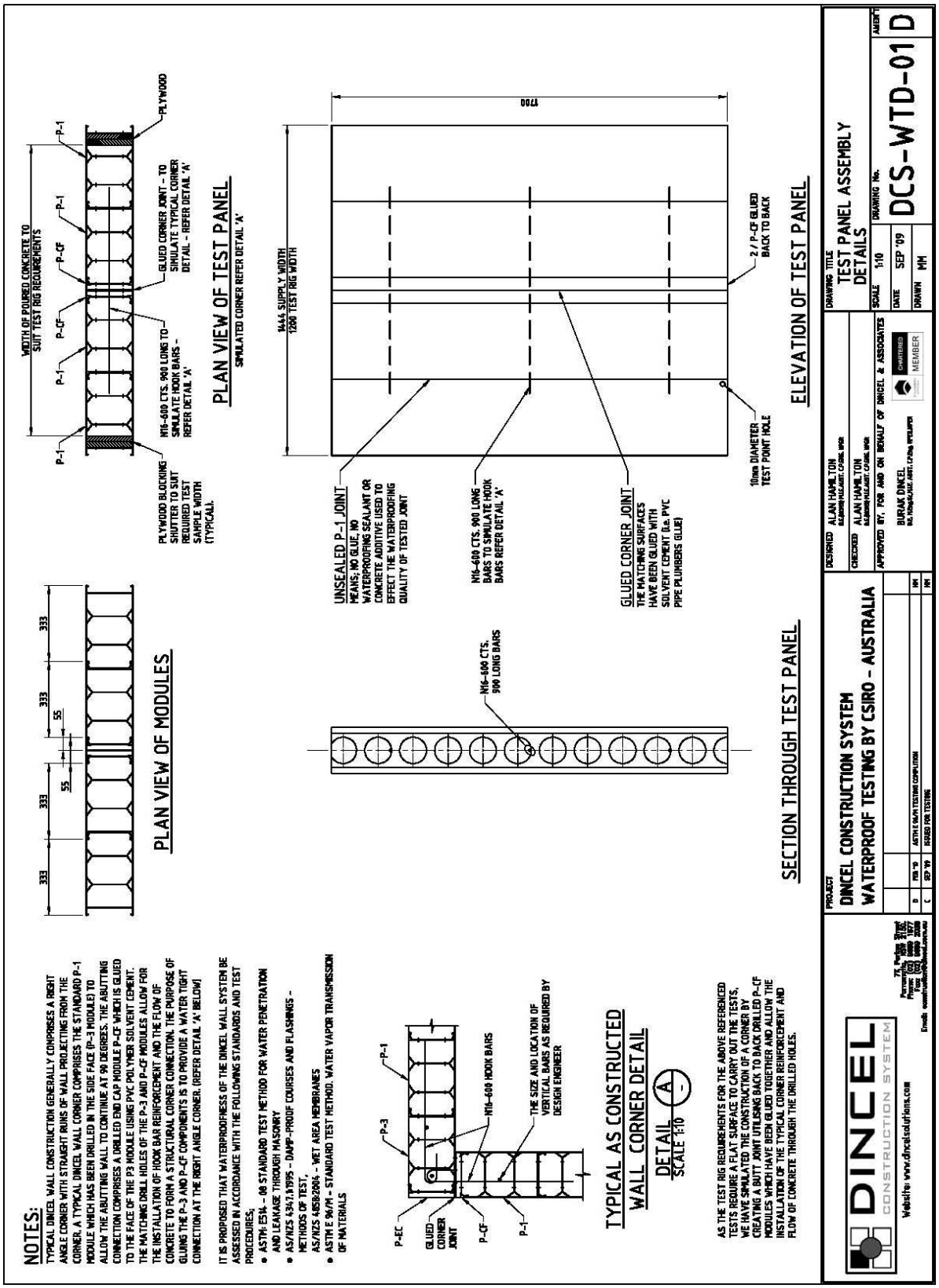
Email:	david.weeks@csiro.au
Date of Report:	22 March 2010
Project objective:	To confirm the waterproofness of the Dincel Walling System, refer .Dincel Test Diagram DCS-WTD-01D.

SUMMARY OF TESTS PERFORMED:

		Result
ASTM E 514 – 03	Standard test Method Water Penetration & Leakage Through Masonry	PASS
AS/NZS 2904:1995	Damp Proof Courses and Flashings Clause 6.2: Impermeability to water AS/NZS 4347: Method 1: Determination of water permeability	PASS
ASTM E 96/M	Standard test Method Water Vapor Transmission of Materials	
	Water Vapor Transmission:	0.044 g/m^2/day
	Permeance:	0.685 Perms (in/lbs) 3.9129 E-05 µg/N.s
	Resistance	25556.73 MN.s/g

DINCEL Construction System Pty. Ltd
Test Diagram DCS-WTD-01D



STATEMENT

The tests conducted by CSIRO, as outlined in our Report No 5091 RevB confirm;

Dincel Construction System when installed in accordance with the Dincel Construction Manual will satisfy the performance requirements of Clause FP 1.4 and FP 1.7 (Volume 1 – Class 2 to Class 9 Buildings) and P 2.4.1 (Volume 2 – Class 1 and Class 10 Buildings) Housing Provisions of the Building Code of Australia as the Dincel Wall meets the waterproofing requirements of AS3740 and the following test methods;

1. ASTM E 514-08 Standard Test Method for Water Penetration and Leakage Through Masonry.
2. AS/NZS 4347.1:1995 Damp-proof courses and flashings – Methods of test – Method 1: Determination of Water Permeability.
3. ASTM E 96/M 96M-05 Standard Test Method for Water Vapor Transmission of Materials

Date and Place 22 March 2010, Highett, Vic

Name, Title and Digital Signature:

David Weeks
Senior Technical Officer
INDUSTRIAL RESEARCH SERVICES

APPENDIX A

TEST RESULTS

Appendix A
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ISSUE DATE: 22 March 2010
MANUFACTURER: Dincel Construction System Pty. Ltd
PRODUCT DESC: DINCEL®-WALL

TEST CARRIED OUT IN ACCORDANCE WITH Test Date: 24 November 2009
ASTM E514-05c
Standard test Method for Water Penetration & Leakage Through Masonry

RESULTS:

Location:	Building 32 External
Test Panel:	DINCEL®-WALL
Concrete Fill:	25 MPa, Max Aggregate size 10mm, Slump 110-120mm
Curing time:	32 days
Test Rig size:	1600mm x 1100mm
Meter	Protimeter Surveymaster
Water Rate:	138 L/m²/Hr
Internal Pressure:	500 Pa
Test duration:	4 hours

Water Penetration

Time	Surface status	Reference	Test Points	
			Unsealed P-1 joint	10mm hole at base of P-1 joint
0	Dry	11.3	11.2	11.4
1.0	Dry	11.4	11.3	11.4
2.0	Dry	11.7	11.8	11.9
3.0	Dry	11.4	11.5	11.7
4.0	Dry	11.6	11.8	11.7

Definition: **Unsealed P1 Joint**
No glue, no waterproofing sealant or concrete additive used to effect the waterproofing quality of the tested joint.

Requirement: Nil water detected on back of panel.

Result: Water did not penetrate the unsealed Dincel panel joints and sealed corner joint.
PASS

Appendix A
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ISSUE DATE:	22 March 2010
MANUFACTURER:	Dincel Construction System Pty. Ltd
PRODUCT DESC:	DINCEL®-WALL

TEST CARRIED OUT IN ACCORDANCE WITH — Test Date: 10 December 2009
Based on:
AS/NZS 4347.1 - Damp-proof courses and flashings-
Methods of test: Method 1: Determination of water permeability

RESULTS:		
	Location:	Building 32 External
	Test Panel:	DINCEL®-WALL
	Concrete Fill:	25 MPa, Max Aggregate size 10mm, Slump 110-120mm
	Equivalent pressure:	6 kN – representing 6 metre water head
	Sample size:	200mm diameter
	Test area:	1964 mm^2
	Time with head:	100 hours

Requirement: No moisture evident on rear of wall.

Result: No loss of water.
Water did not penetrate the unsealed Dincel panels joint and sealed corner joint.
PASS

Appendix A
CMSE Report No. 5091
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ISSUE DATE:	22 March 2010
MANUFACTURER:	Dincel Construction System Pty. Ltd
PRODUCT DESC:	DINCEL®-WALL

TEST CARRIED OUT IN ACCORDANCE WITH **ASTM E96/M**
Water Vapour Transmission of Materials

Test Date: 15 February 2010

RESULTS:

Location:	Ceramic Tile Laboratory
Sample Thickness:	40mm
Sample size:	300x150mm
Test Period:	720 hours
Conditions:	24ºC / RH 60%
Membrane to dish sealant:	wax
Desiccant:	Silica gel

Desiccant Method (Procedure A)

Start date:	11 Jan 2010
Finish date:	15 Feb 2010
Weight gain / loss:	0.2 g
Water vapour transmission	0.044 g/m^2/day
Permeance:	0.685 Perms (in/lbs) 3.9129 E-05 µg/N.s
Resistance	25556.73 MN.s/g

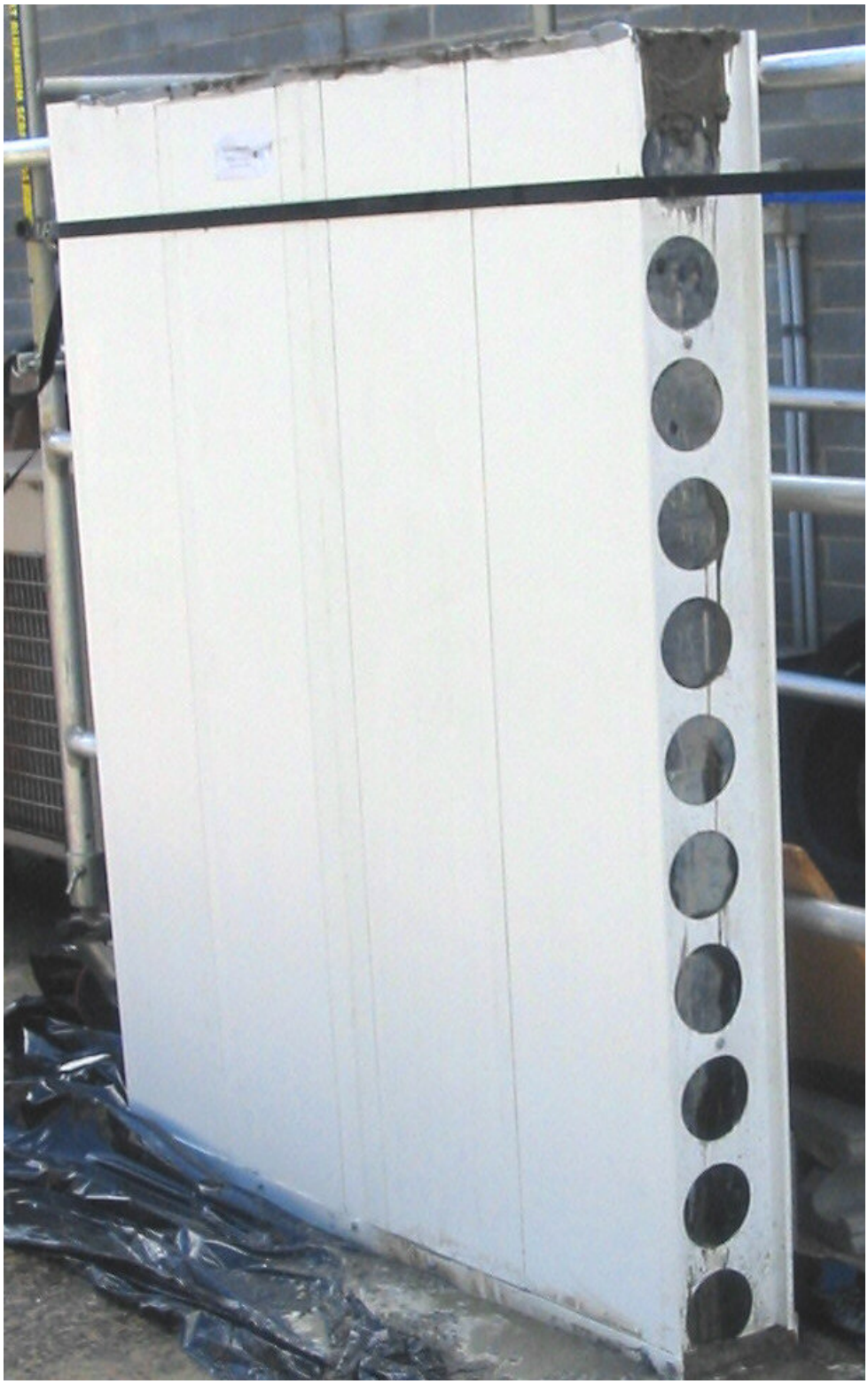
Requirement: There are no specific requirements.
The maximum WVT for waterproofing membrane is 8 g/m^2/day.

Conclusion: The assessed WVT of 0.044 g/m^2/day can be deemed an insignificant water vapour transmission.

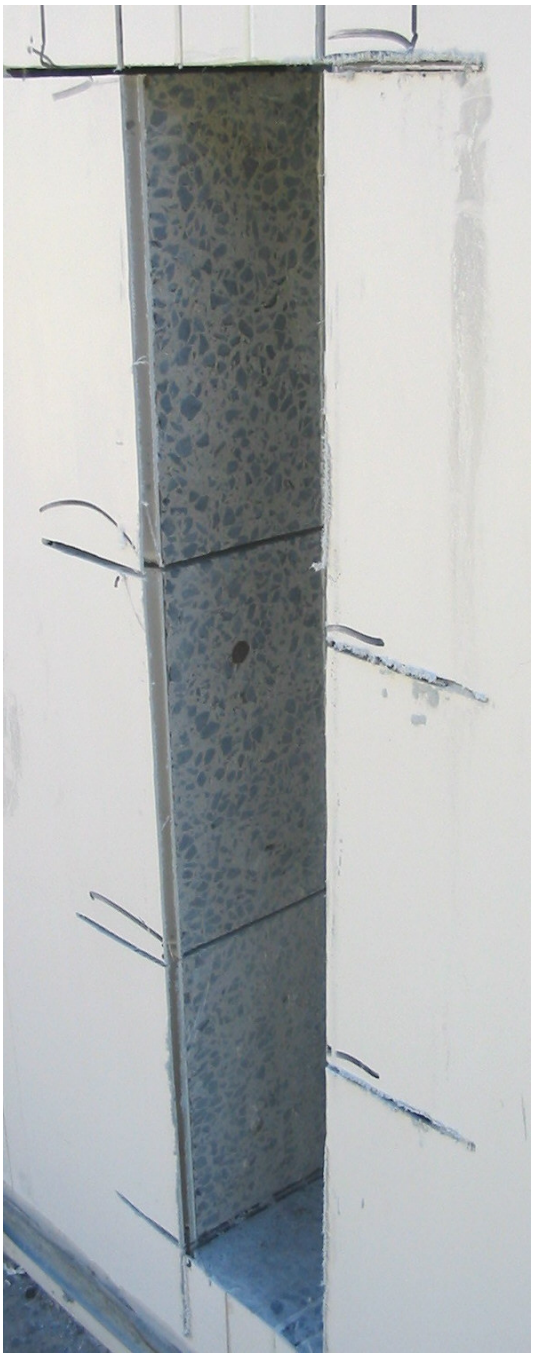
APPENDIX B

IMAGES

PRODUCT IMAGES



DINCEL DCS Walling Sample



Cross Section removed from DINCEL DCS Wall

Cross Section of DINCEL DCS Wall