



TEST  
REPORT No.5091  
[Rev B]

***ASSESSMENT OF DCS WALLING SYSTEM***

***Industrial Research Services***

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# CMSE Report No. 5091 [Rev B]

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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  
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**Date of Report:** 22 March 2010

**Project objective:** To confirm the waterproofness of the Dincel Walling System, refer .Dincel Test Diagram DCS-WTD-01D.

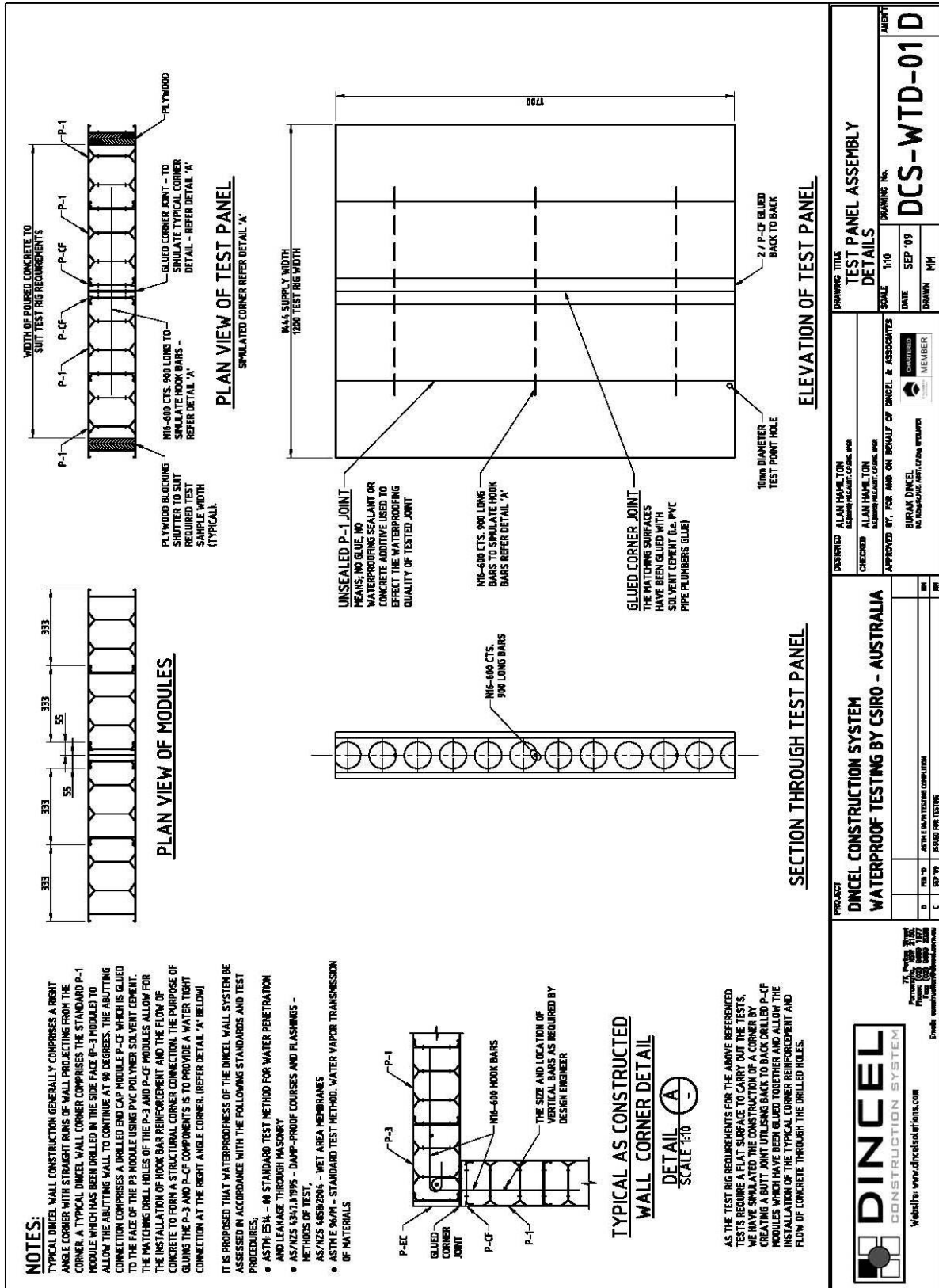
### SUMMARY OF TESTS PERFORMED:

		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 <sup>2</sup> /day
	Permeance:	0.685 Perms (in/lbs)
		3.9129 E-05 µg/N.s
	Resistance	25556.73 MN.s/g

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 supervision. CSIRO cannot accept responsibility for deviations in the manufactured quality and performance of the product. While CSIRO takes care in preparing the reports it provides to clients, it does not warrant that the information in this particular report will be free of errors or omissions or that it will be suitable for the client's purposes. CSIRO will not be responsible for the results or any actions taken by the client or any other person on the basis of the information contained in the report or any opinions expressed in it.

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



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**STATEMENT**

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

Dintel Construction System when installed in accordance with the Dintel 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 Dintel 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**

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**APPENDIX A**

**TEST RESULTS**

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/m<sup>2</sup>/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

## CMSE Report No. 5091

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

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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**

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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<sup>2</sup>  
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**

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**Appendix A**  
**CMSE Report No. 5091**  
**[Rev B]**

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

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

Test Date: 15 February 2010

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RESULTS: Location: Ceramic Tile Laboratory  
Sample Thickness: 40mm  
Sample size: 300x150mm  
Test Period: 720 hours  
Conditions: 24°C / 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<sup>2</sup>/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<sup>2</sup>/day.

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

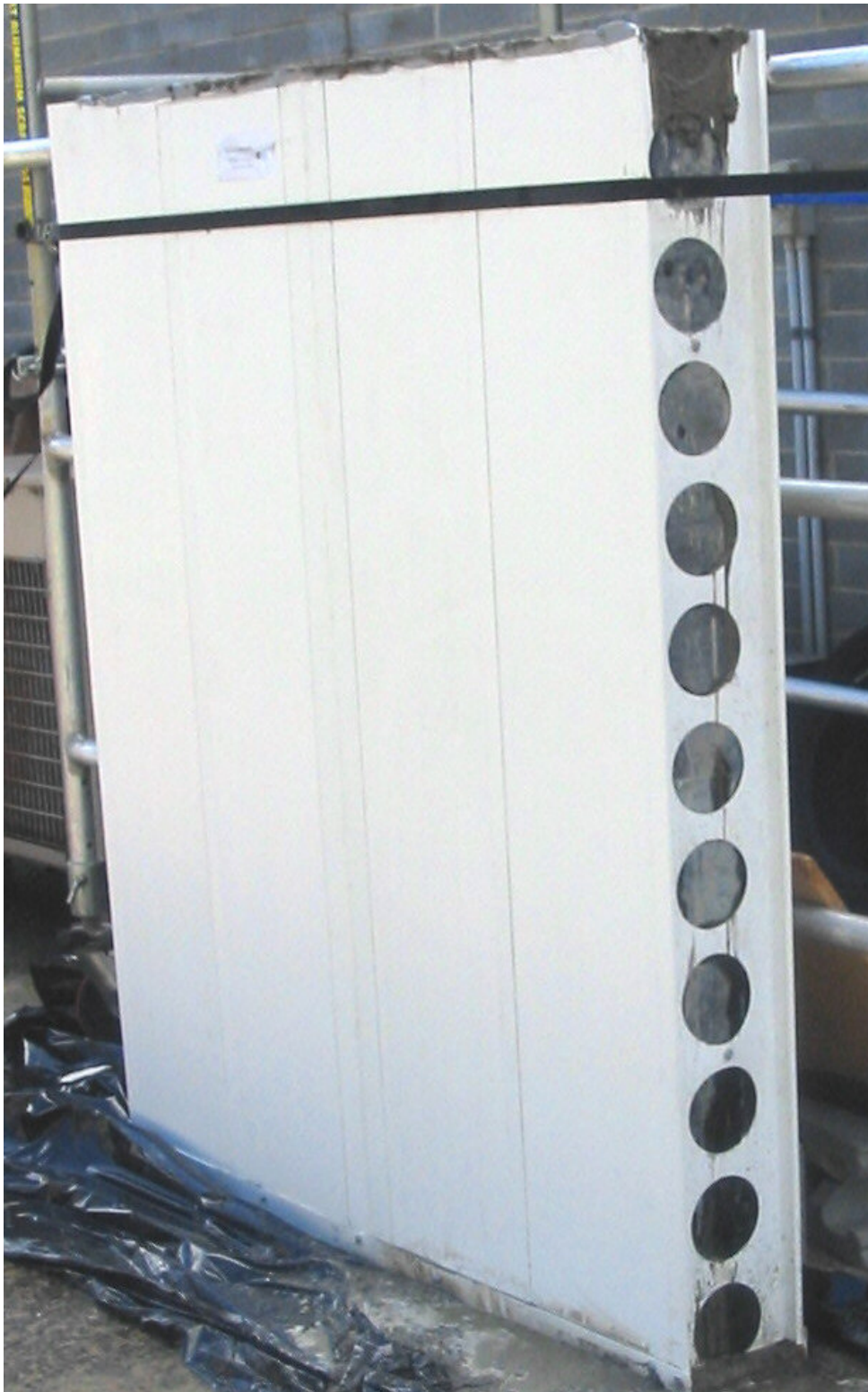
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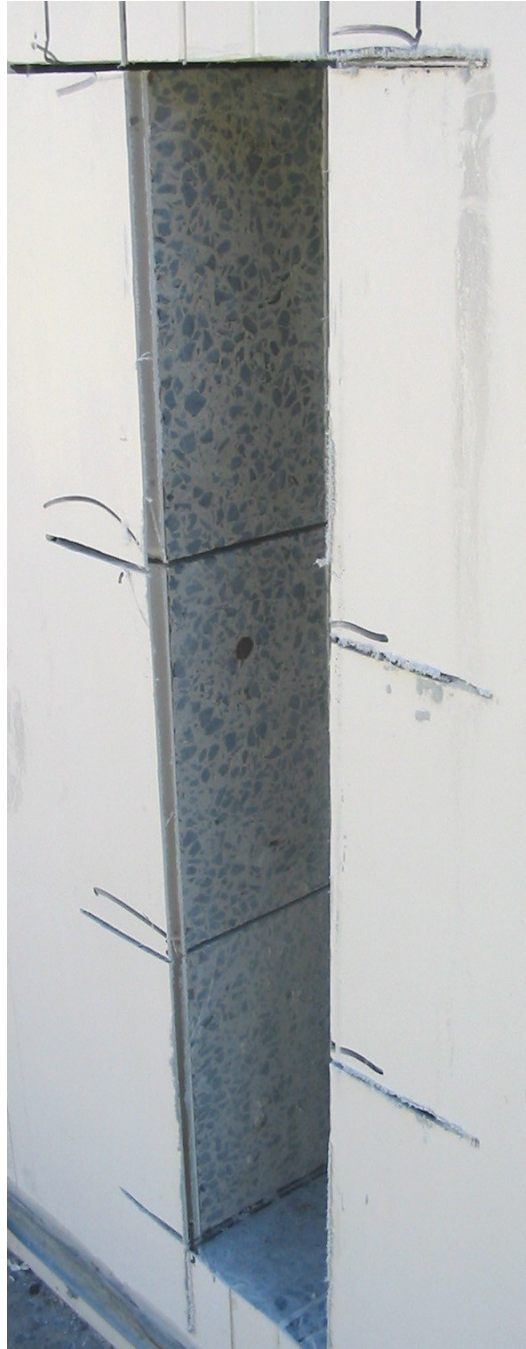
**APPENDIX B**

**IMAGES**

PRODUCT IMAGES



DINCEL DCS Walling Sample



**Cross Section removed from DINCEL DCS Wall**



**Cross Section of DINCEL DCS Wall**