



**Vipac Engineers and Scientists Limited**  
279 Normanby Rd, Port Melbourne, VIC 3207, Australia  
Private Bag 16, Port Melbourne, VIC 3207, Australia  
t. +61 3 9647 9700 | e. melbourne@vipac.com.au  
w. www.vipac.com.au | A.B.N. 33 005 453 627 | A.C.N. 005 453 627

Delta Panels Pty Ltd

Delta Panels - Panel testing to FP1.4 and 4284

Test Report AS\_NZS 4284



30B-20-0134-TRP-16554-0

30 July 2021



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<b>Prepared For:</b> Delta Panels Pty Ltd 731 Boundary Rd Richlands , Queensland, 4077, Australia  <b>Contact:</b> Matt Greene <b>Tel:</b> 0413 962 838	<b>Prepared By:</b> Vipac Engineers and Scientists Limited 279 Normanby Rd, Port Melbourne, VIC 3207, Australia  <b>Tel:</b> +61 3 9647 9700		
<b>Author:</b> Robert Dyck  30 July 2021	 Facades Team Leader		
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## Executive Summary

Testing on Delta Panels Pty Ltd (The client) Insulated panel wall system test sample was carried out at Vipac Engineers and Scientists' (Vipac) Port Melbourne facility. The sample was prepared by the client (the installer) and installed in the rig and tested by Vipac in June 2020.

Testing was undertaken to AS/NZS 4284:2008 for the below building pressures:

*Table 1: Target Building Pressures*

Serviceability Pressure
+1634 Pa
-2450 Pa

The test sample was found to have the below results for AS/NZS 4284:2008 compliance:

*Table 2: Summary of results*

Test Date	AS/NZS 4284:2008 Test	Results
02/06/2021	Clause 8.2 - Preliminary tests	Complies
02/06/2021	Clause 8.4 - Air infiltration test	Complies
11/06/2021	Clause 8.5 - Static water test	Complies
11/06/2021	Clause 8.6 - Cyclic water test	Complies

Full details are contained within the report.

## Table of Contents

<b>1</b>	<b>Introduction .....</b>	<b>5</b>
<b>2</b>	<b>Test Reference and Application Standard .....</b>	<b>5</b>
<b>3</b>	<b>Test Specimen .....</b>	<b>5</b>
<b>4</b>	<b>Test Sequence .....</b>	<b>5</b>
<b>5</b>	<b>Test Equipment.....</b>	<b>6</b>
<b>6</b>	<b>Test Results.....</b>	<b>6</b>
6.1	Clause 8.2 – Preliminary tests .....	6
6.2	Clause 8.4 - Air infiltration test.....	8
6.3	Clause 8.5 – Static water test.....	9
6.4	Clause 8.6 - Cyclic water test .....	9
	Appendix A Test sample drawing .....	10

## 1 Introduction

Document Type:	Test Report
Company:	Delta Panels
Product:	Delta Panels Insulated Wall Panel System
Test Date:	June 2021
Test Authority:	Vipac Engineers and Scientists

## 2 Test Reference and Application Standard

AS/NZS 4284:2008	Testing of Building Facades
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## 3 Test Specimen

The test sample consisted of a Steel structural frame with insulated panels fixed to it, in horizontal and vertical configurations. The sample included an internal and external corner, pipe penetration, electrical enclosure and AS2047 compliant window. Further details are available in the Appendices of this report. The test sample was prepared by Delta Panels.

## 4 Test Sequence

The tests were carried out in the default order as follows:

*Table 3: Test sequence*

Order	AS/NZS 4284:2008 Test
1	Clause 8.2 – Preliminary tests
2	Clause 8.4 - Air infiltration test
3	Clause 8.5 – Static water test
4	Clause 8.6 - Cyclic water test

## 5 Test Equipment

Table 4: Test Equipment

Measurement	Instrument/Make	Model	Asset ID
Distance	Tape Measure	8m	000033666
Pressure	Manometer – PCE	PDA-10L	000033540
Pressure	Manometer – TEC	DG-700	000033498
Water flow rate	Flow Meter – Siemens	MAG6000	000031229
Air Flow Rate	Calibrated fan - TEC	Duct Blaster	000033497
Time	Stopwatch	Y1299	000033567

## 6 Test Results

### 6.1 Clause 8.2 – Preliminary tests

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 02/06/2021

**Criteria:** **Static Pressure** - Test sample shall withstand the Serviceability Limit State pressure with no structural damage or distortion.

**Water tests** - Under static and cyclic water tests there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- Water appears on any inside surface of the façade, visible from an occupied space.
- Uncontrolled water appears on any inside surface of the façade (uncontrolled water is defined as any leakage not contained and drained away after 5 minutes).
- Water appears that is likely to wet insulation, fixtures and finishes.
- Water appears in other locations specified as unacceptable by the Specifier

**Applied Load:** **Static Pressure**

1.63kPa, -2.45kPa

Duration: 10s

**Static water test**

0.49 kPa

Duration: water spray operated for 5 minutes at 0 kPa chamber pressure, followed by water spray and pressure at the test pressure for 15 minutes. Observe for 5 minutes after removal of both water and air pressure.

Water spray: 3.0 L/min/m<sup>2</sup>

37.5 L/min

**Cyclic water test**

Table 5: Cyclic water test pressure conditions

Stage	Lower pressure	Upper pressure	Cycle Duration
Stage 1	0.245 kPa	0.490 kPa	5 minutes
	0 kPa		2 minutes
Stage 2	0.327 kPa	0.654 kPa	5 minutes
	0 kPa		2 minutes
Stage 3	0.490 kPa	0.980 kPa	5 minutes
Observation	0 kPa		5 minutes

**Water spray**

For the static and cyclic water tests the water was plied at the following rates during spray operation; 3.0 L/min/m<sup>2</sup> applied over 12.48m<sup>2</sup> = 37.4L/min.

**Results:** The SLS pressure was achieved and maintained successfully, no water leaks were present during the static and cyclic water pressure tests.

**Conclusion:** The sample complied with the requirements of Clause 8.2 of AS/NZS 4284:2008.

## 6.2 Clause 8.4 - Air infiltration test

<b>Test Standard:</b>	AS/NZS 4284:2008 – Testing of Building Facades
<b>Test Date:</b>	02/06/2021
<b>Criteria:</b>	Air permeability shall not exceed 1.6 L/s/m <sup>2</sup> at ±150Pa.
<b>Applied Load:</b>	±150Pa
<b>Air infiltration limit:</b>	Allowed leakage 20.0 L/s based on measure area of 12.48m <sup>2</sup>
<b>Results:</b>	

Table 6: Air Infiltration Results

Test Pressure	+150 Pa	-150 Pa
Sealed air leakage [L/s]	496.9	538.8
Unsealed air leakage [L/s]	501.4	529.9
Difference in air leakage [L/s]	4.5	8.9
<b>Calculated Permeability [L/ (s.m<sup>2</sup>)]</b>	<b>0.36</b>	<b>0.71</b>

**Conclusion:** The Air infiltration results of the test sample façade comply with the specified limits set out in AS/NZS 4284:2008.



### 6.3 Clause 8.5 – Static water test

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 11/06/2021

**Criteria:** Under static and cyclic water tests there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- Water appears on any inside surface of the façade, visible from an occupied space.
- Uncontrolled water appears on any inside surface of the façade (uncontrolled water is defined as any leakage not contained and drained away after 5 minutes).
- Water appears that is likely to wet insulation, fixtures and finishes.
- Water appears in other locations specified as unacceptable by the Specifier

**Applied Load:** Pressure: 0.49 kPa

Duration: water spray operated for 5 minutes at 0 kPa chamber pressure, followed by water spray and pressure at the test pressure for 15 minutes. Observe for 5 minutes after removal of both water and air pressure.

Water spray: 3.0 L/min/m<sup>2</sup>  
37.4 L/min

**Results:** The Static water test was completed with no water penetration occurring.

**Conclusion:** The Static water results of the test sample comply with the specified limits set out in AS/NZS 4284:2008.

### 6.4 Clause 8.6 - Cyclic water test

**Test Standard:** AS/NZS 4284:2008 – Testing of Building Facades

**Test Date:** 11/06/2021

**Criteria:** Under cyclic water test there shall be no leaks. A leak is considered to occur when one or more of the following occur:

- Water appears on any inside surface of the façade and is visible from an occupied space.
- Uncontrolled water appears on any inside surface of the façade.
- Water appears that is likely to wet insulation, fixtures and finishes.
- Water appears in other locations specified as unacceptable by the Specifier

**Applied Load:** Pressures:

Table 7: Cyclic pressure lower and upper limits, cycle time of 3 seconds to 5 seconds

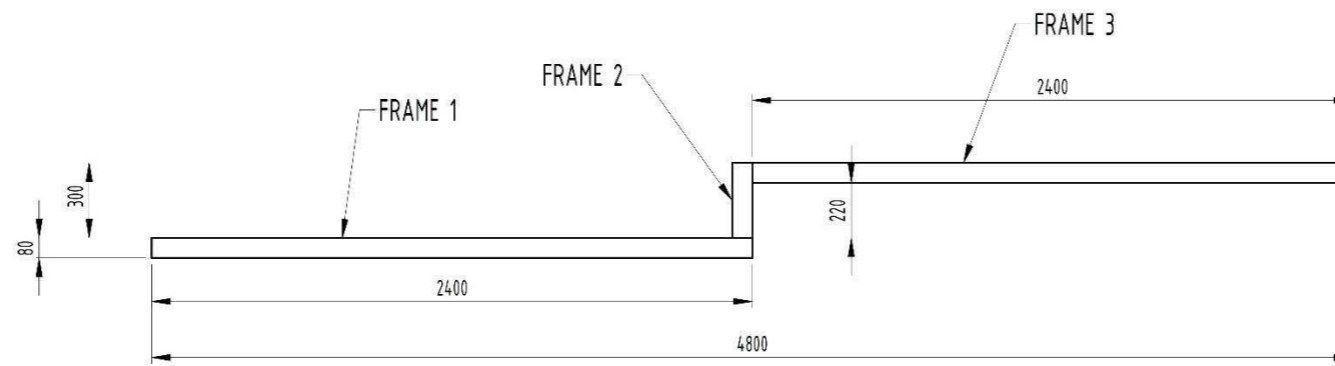
Stage	Lower pressure	Upper pressure	Cycle Duration
Stage 1	0.245 kPa	0.490 kPa	5 minutes
	0 kPa		
Stage 2	0.327 kPa	0.654 kPa	5 minutes
	0 kPa		
Stage 3	0.490 kPa	0.980 kPa	5 minutes
Observation	0 kPa		

Water spray: 3.0 L/min/m<sup>2</sup>  
37.4 L/min

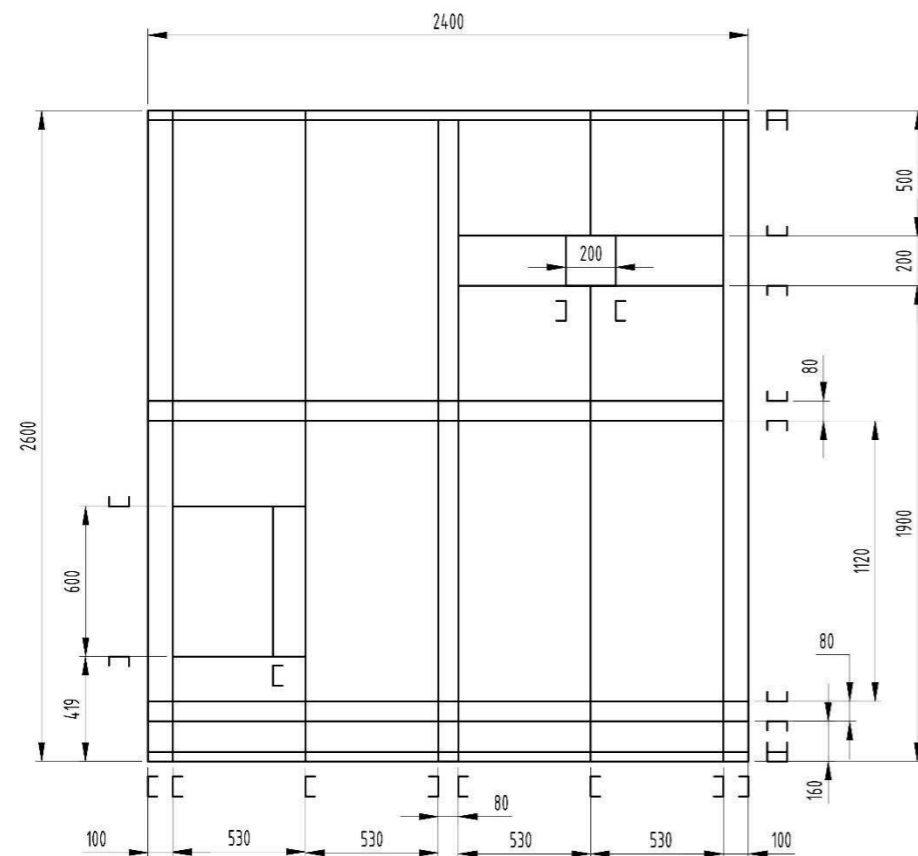
**Results:** The Cyclic water test was completed with the test was completed with no water penetration occurring.

**Conclusion:** The Cyclic water results of the test sample comply with the specified limits set out in AS/NZS 4284:2008.

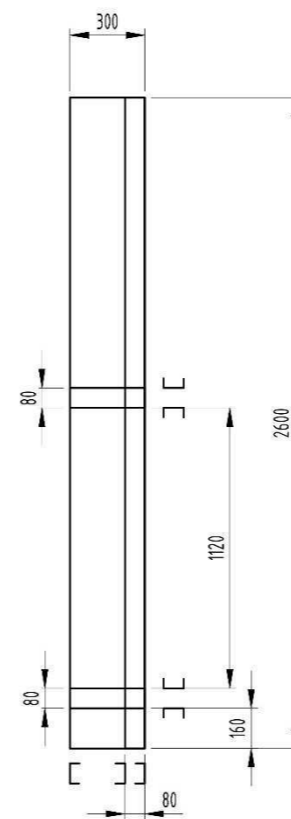
## Appendix A Test sample drawing



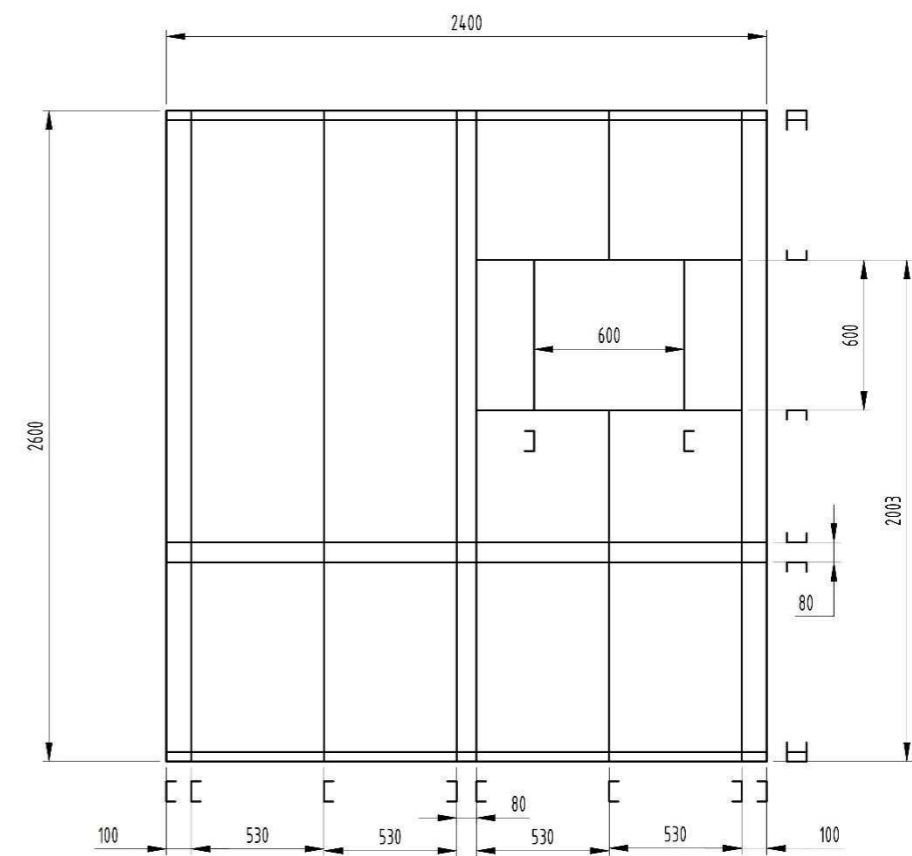
FRAME LAYOUT



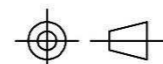
FRAME 1



FRAME 2



FRAME 3



Description WEATHER PROOF PANEL TESTING FRAME		
Filename & Path Z:\Vault\DELTA PANELS & PATIOS\Panel Testing\FTF2001.dwg	Date: 19/07/2021	Designed by DP
Drawing No. FTF2001	Rev: A	Sheet 1/2

