

# TEST REPORT

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## EVALUATION CENTER

INTERTEK TESTING SERVICES NA LTD.  
1500 BRIGANTINE DRIVE  
COQUITLAM, BC V3K 7C1  
CANADA

## RENDERED TO

**WINSPIA WINDOWS (CANADA) INC.**  
**860 BELGRAVE WAY**  
**DELTA, BC V3M 5R8**  
**CANADA**

PRODUCT EVALUATED: Aluminum Window Wall System  
EVALUATION PROPERTY: Air Leakage, Water Penetration, Structural  
Performance and Thermal Cycling

Report of Testing an Aluminum Window Wall system, following the standard test methods of AAMA 501-05 "Methods Of Test For Exterior Walls", AAMA/WDMA/CSA 101/I.S.2/A440-08 & AAMA/WDMA/CSA 101/I.S.2/A440-11 "North American Fenestration Standard/Specification for windows, doors, and skylights", and CSA A440S1-09 "Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440 – North American Fenestration Standard/Specification for windows, doors, and skylights"

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## 2 Introduction

Intertek Testing Services NA Ltd. (Intertek) has conducted testing for WINSPIA Windows (Canada) Inc. on an Aluminium Window Wall System. Testing was conducted in accordance with the following standard test methods/specifications:

- AAMA 501-05, *"Methods Of Test For Exterior Walls"* (AAMA 501)
- AAMA/WDMA/CSA 101/I.S.2/ A440-08 *"Standard/Specification for windows, doors, and unit skylights"* (NAFS-08)
- AAMA/WDMA/CSA 101/I.S.2/ A440-11 *"Standard/Specification for windows, doors, and unit skylights"* (NAFS-11)
- A440S1-09 *"Canadian Supplement to AAMA/WDMA/CSA 101/I.S.2/A440, NAFS – North American Fenestration Standard/Specification for windows, doors, and skylights"* (A440S1)

This evaluation began September 15, 2015 and was completed September 29, 2015.

## 3 Test Samples

### 3.1. SAMPLE SELECTION

The window wall mock-up system was as provided and installed by WINSPIA. Drawings of the mock-up system can be found in Appendix A.

### 3.2. SAMPLE AND ASSEMBLY DESCRIPTION

<b>Type (general)</b>	<ul style="list-style-type: none"><li>• Aluminum Casement / Fixed Combination Window wall System</li></ul>
<b>Series</b>	<ul style="list-style-type: none"><li>• None specified</li></ul>
<b>Frame</b>	<ul style="list-style-type: none"><li>• Material: Aluminum, thermally broken</li><li>• Three 6" x 6" x 1/2" Hollow Structural Steel (HSS) beams were placed at set elevations, allowing WINSPIA's starter track and header attachment to be mounted to. This framing is to simulate the concrete slab found on site.</li><li>• Corners: Butt jointed and secured together using 4x 1/4" x 2" Hex-head stainless steel screws.</li><li>• Specimen to test frame: The sill was secured with an aluminum angle using 1/4" x 2" Hex-head stainless steel screws spaced approx. 178 mm (7") o.c. to the frame and 305 mm (12") o.c. to the Hollow Structural Steel (HSS).</li><li>• Jambs and header tracks installed to the Hollow Structural Steel (HSS) with 1/4" x 2" Hex-head stainless steel screws spaced approx. 165 mm (6-1/2") apart. Track cavity fill with expanding foam.</li><li>• Mainframe jambs and header cavity filled with 22 mm (7/8") thick Styrofoam.</li><li>• All joints sealed with silicone</li></ul>
<b>Size</b>	<ul style="list-style-type: none"><li>• Overall Size:<ul style="list-style-type: none"><li>• Width: 2660 mm (104.7")</li><li>• Height: 5516 mm (217.2")</li></ul></li><li>• Second Level Wall section :Left Section top to bottom</li><li>• Fixed Size:<ul style="list-style-type: none"><li>• Width: 1630 mm (64.2")</li><li>• Height: 355 mm (14.0")</li></ul></li></ul>

	<ul style="list-style-type: none"> <li>• Fixed Size: <ul style="list-style-type: none"> <li>• Width: 1630 mm (64.2")</li> <li>• Height: 1705 mm (67.1")</li> </ul> </li> <li>• Fixed Size: <ul style="list-style-type: none"> <li>• Width: 1630 mm (64.2")</li> <li>• Height: 457 mm (18.0")</li> </ul> </li> <li>• Fixed Size: <ul style="list-style-type: none"> <li>• Width: 1630 mm (64.2")</li> <li>• Height: 427 mm (16.8")</li> </ul> </li> <li>• Second Level Wall section :Right Section top to bottom</li> <li>• Fixed Size: <ul style="list-style-type: none"> <li>• Width: 1030 mm (40.6")</li> <li>• Height: 355 mm (14.0")</li> </ul> </li> <li>• Fixed Size: <ul style="list-style-type: none"> <li>• Width: 1030 mm (40.6")</li> <li>• Height: 1705 mm (67.1")</li> </ul> </li> <li>• Fixed Size: <ul style="list-style-type: none"> <li>• Width: 1030 mm (40.6")</li> <li>• Height: 457 mm (18.0")</li> </ul> </li> <li>• Fixed Size: <ul style="list-style-type: none"> <li>• Width: 1030 mm (40.6")</li> <li>• Height: 427 mm (16.8")</li> </ul> </li> <li>• Lower Level Wall section: Left Section top to bottom</li> <li>• Fixed Size: <ul style="list-style-type: none"> <li>• Width: 1630 mm (64.2")</li> <li>• Height: 360 mm (14.2")</li> </ul> </li> <li>• Fixed Size: <ul style="list-style-type: none"> <li>• Width: 1630 mm (64.2")</li> <li>• Height: 2212 mm (87.1")</li> </ul> </li> <li>• Lower Level Wall section: Right Section top to bottom</li> <li>• Fixed Size: <ul style="list-style-type: none"> <li>• Width: 1030 mm (40.6")</li> <li>• Height: 360 mm (14.2")</li> </ul> </li> <li>• Casement Size: <ul style="list-style-type: none"> <li>• Width: 1030 mm (40.6")</li> <li>• Height: 1352 mm (53.2")</li> </ul> </li> <li>• Fixed Size: <ul style="list-style-type: none"> <li>• Width: 1030 mm (40.6")</li> <li>• Height: 860 mm (33.9")</li> </ul> </li> </ul>
<b>Mullion(s)</b>	<ul style="list-style-type: none"> <li>• Material: Aluminum, thermally broken</li> <li>• Two vertical combination mullions, Top section is 2944 mm (116.0") and Lower section is 2572 mm (101.3") secured together at the sill and head with 8x 1/4" x 2" Hex-head stainless steel screws <ul style="list-style-type: none"> <li>• 2x 3/16" thick by 1-7/8" wide galvanized steel within the exterior portion of the mullion.</li> </ul> </li> <li>• Nine horizontal composite mullions <ul style="list-style-type: none"> <li>• Secured to the mainframe with 4x 1/4" x 2" Hex-head stainless steel screws at the ends and secured to the vertical mullion with 4x 1/4" x 2" hex-head stainless steel screws.</li> </ul> </li> <li>• All mullion joints and fastener locations were sealed with silicone</li> </ul>

<b>Casement</b>	
<b>Operable sash</b>	<ul style="list-style-type: none"> <li>Material: Aluminum, thermally broken</li> <li>Corners: Mitred and joined using corner coupling insert</li> <li>Casement mainframe secured with 3x #8 – 2" Stainless steel flat head screws at the jambs approx. 5" from the corners and one at mid-span. The sill and header are secured by 2x #8 – 2" Stainless steel flathead screws approx. 5" for the corners.</li> <li>Casement mainframe sits on 8 mm thick setting blocks approx. 4-1/2" away from bottom corner and 4 mm thick setting blocks approx. 4-1/2" away for top corners.</li> <li>Reinforcement: None</li> <li>Sash Size: <ul style="list-style-type: none"> <li>Width: 903 mm (35.5")</li> <li>Height: 1307mm (51.5")</li> </ul> </li> </ul>
<b>Locks and Hardware</b>	<ul style="list-style-type: none"> <li>Multi-point (3-point) lock system controlled through a single latch located at mid-span of the sash lock stile, secured in place with 2x #10 x 3/4" flat-head screws. A slotted 35-1/2" lock bar is secured with the same screws. <ul style="list-style-type: none"> <li>Bottom keeper secured into the main frame with 2x #8 2-1/2" stainless steel self tapping screws and 2x #8 -1" stainless steel self tapping screws, keeper is also on top of a 5.8 mm thick spacer. Top and middle keepers are secured by 4x #8 – 1" Stainless steel self tapping screws.</li> <li>Keepers located approx.; 241 mm, 699 mm, and 1041 mm (9-1/2", 27-1/2", and 41") o.c. from the bottom corner of the main frame.</li> </ul> </li> <li>Restrictor located at 15" from the bottom hinge corner and secured by 3x #8 – 1/2" Self tapping screws.</li> <li>Sill riser blocks located at 6-1/2" away from the lock jamb and 8-1/2" from the hinge stile, secured by 2x #8 -3/4" self tapping screws. Guide plates are located at the underside of the sash 7-3/4" from the hinge stile and 5 -5/8" from the lock jamb, secured by 2x #8 – 1/2" stainless steel flat-head screws.</li> <li>Hinge: Full length bar hinge, secured to the jamb and leaf stile with 40x #8 x 1/2" stainless steel flat-head screws</li> </ul>
<b>Drainage</b>	<ul style="list-style-type: none"> <li>Casement track has an 8 mm hole located at bottom lock stile jamb corner.</li> <li>Exterior view: Windows on the right side have 2x 19.8 mm x 7.8 mm slots at 7-1/4" from each corner. Windows on the left side have 2x 19.8 mm x 7.8 mm slots at 12" away from corners</li> </ul>
<b>Weatherstrip</b>	<ul style="list-style-type: none"> <li>Casement: Inner most, exterior facing perimeter of the mainframe has an EPDM bulb seal gasket kerf inserted with mitered corners.</li> <li>Casement sash: Interior facing mid section of sash has a kerf inserted bulb seal gasket.</li> <li>Mainframe track has a kerf inserted bulb seal gasket at the inner most, exterior facing and outer most interior facing parts of the frame.</li> </ul>
<b>Glazing</b>	<ul style="list-style-type: none"> <li>IGU specification: <ul style="list-style-type: none"> <li>6 mm / 6 mm clear annealed with a 13 mm stainless spacer filled with desiccant, sealed together using hot melt poly butyl.</li> <li>Overall thickness, 25 mm (~1")</li> </ul> </li> <li>Laid-in, exterior glazed on top of EPDM gasket with a silicone heel bead and EPDM gasket with a butyl perimeter seal.</li> </ul>

<b>Stainless Steel Back Pan</b>	<ul style="list-style-type: none"> <li>Exterior stainless steel pan: Secured with #8 – 3/4" Self tapping screws spaced at 7-1/2" o.c. with 5 mm backer rod and structural silicone around the perimeter. There is 3" Roxul insulation in the pans cavity sealed with aluminium foil tape.</li> <li>The inside of the pan is split into two sections, top half section is filled with 2" Roxul insulation and covered with aluminium foil tape. The top half is secured to the mainframe with 4x 1/4" x 2" Hex-head stainless steel screws (2 per side).</li> <li>There are 2x 1/4" thick head spacers 5" away from corners.</li> <li>Bottom half section in front of the HSS has Low-E Insulation.</li> <li>Interior have a stainless steel cover sealed with silicone.</li> <li>Drainage: 5 mm hole at the bottom and top corners into the vertical mullion.</li> </ul>
<b>Glass Covered Back Pan</b>	<ul style="list-style-type: none"> <li>Exterior has a 7.5 mm coated annealed single pane glass on top of a thermal break sealed with black poly butyl.</li> <li>Glazing stops: Aluminium angle secured to frame with #8 – 1/2" self tapping screws approx. 9" apart with mitred aluminium snap covers.</li> <li>Top portion of pan has a 2" Roxul insulation secured by installation clips and aluminium foil tape. The pan sits on a full length 7.22 mm Styrofoam spacer.</li> <li>Lower portion of pan has Low-E insulation in front of the HSS held there with aluminium foil tape.</li> <li>Drainage: 5 mm holes at the bottom and top corners into the vertical mullion.</li> </ul>
<b>Drawings</b>	<ul style="list-style-type: none"> <li>Drawing package supplied by WINSPIA can be found in Appendix A.</li> <li>The test specimen and drawings were as provided by the client. Intertek has not verified manufacturing techniques or quality assurance procedures. Intertek accepts no responsibility for any inaccuracies therein.</li> </ul>



Figure 1. Installation



**Figure 2. Installation con't**



**Figure 3. Installation con't**





**Figure 4. Completed Installation and Air Leakage Set-up**



## 4 Test Procedure

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### 4.1. STRUCTURAL PRELOAD

The test sample was loaded to 50% of the positive design load 1080 Pa (23 psf) for 60 seconds.

### 4.2. AIR LEAKAGE RESISTANCE – 75 Pa #1

The Air Leakage test (Infiltration) was conducted in accordance with ASTM E283-04(2012), *“Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen”*. A polyethylene film was applied on the exterior of the system to separate the chamber leakage from the system leakage. A leakage value was recorded then the film was removed and another leakage value was recorded. The test was performed using a pressure differential of 75 Pa (1.56 psf).

### 4.3. STATIC WATER PENETRATION – 510 Pa

The Static Water Penetration test was conducted in accordance with ASTM E331-00(2009) *“Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Static Air Pressure Difference”*. This test was performed at a specified pressure differential of 510 Pa (10.7 psf) with a water spray rate of at least 204 L/m<sup>2</sup> per hour (5.0 U.S. gal/ft<sup>2</sup> per hour). The test was run for 15 minutes, during which the pressure and water spray was continuously applied.

### 4.4. DYNAMIC WATER PENETRATION

The Dynamic Water Penetration test was conducted in accordance with AAMA 501.1. The test was performed using a wind speed of 101 kph (63 mph), pressure differential equivalence of 510 Pa (10.7 psf), generated by a Pratt and Whitney R-2800 Aircraft Engine, and a water spray rate of at least 204 L/m<sup>2</sup> per hour (5.0 U.S. gal/ft<sup>2</sup> per hour). The test was run for 15 minutes, during which the pressure and water spray was continuously applied.



Figure 5. Test Set-up for Dynamic Water Penetration

#### 4.5. CYCLIC WATER PENETRATION – 730 Pa #1

The Static Water Penetration test was conducted in accordance with ASTM E547-00(2009) “Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference”. This test was performed at a specified pressure differential of 730 Pa (15.3 psf) with a water spray rate of at least 204 L/m<sup>2</sup> per hour (5.0 U.S. gal/ft<sup>2</sup> per hour). The air pressure was cycled where it remained on for five minutes and off for one minute during which the water spray was continuously applied. The specimen was cycled 4 times (on, off = 1 cycle), to where the total test duration was 24 minutes.

#### 4.6. STRUCTURAL PERFORMANCE – 100% DESIGN LOAD, 2160 Pa

Structural Performance testing was conducted in accordance with ASTM E330/E330M-14 “Standard Test Method for Structural Performance of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference”, Procedure A. The test was performed in both the positive and negative directions using the following loading sequence for each direction: 60 second hold at preload (50% of design pressure); 1 minute with the pressure released; 60 second hold full test load (100% of design pressure); 60 seconds with the pressure released. Deflections were measured and recorded. Refer to Appendix B for deflection gauge locations.

#### 4.7. CONDENSATION RESISTANCE / THERMAL CYCLING

The Thermal Cycling test was conducted in accordance with AAMA 501.5, by creating an insulated chamber that encompassed the exterior face of the sample. Wall temperatures were measured by placing thermocouples inside the insulated chamber and on the interior of the Window Wall. (See Appendix B for thermocouple locations) Cold temperature conditions inside the insulated chamber were created by an industrial freezer unit powered by 2, 20 hp, liquid cooled compressors. Hot temperature conditions were created with two industrial propane blast heaters. Temperature conditions on the interior of the curtain wall were maintained with the two convection heaters. A static relative humidity was achieved inside the curtain wall with two 65L dehumidifiers.

Three thermal cycles were run using an exterior air temperature range of -18 °C to +60 °C, with the interior air temperature maintained at a constant 21 °C and interior relative humidity stabilized at 45%.



Figure 6. Test Set-up for Thermal Cycling

#### **4.8. AIR LEAKAGE RESISTANCE – 75 Pa #2**

The Air Leakage tests (Air Infiltration) were repeated as described in Section 4.2.

#### **4.9. CYCLIC WATER PENETRATION – 730 Pa #3**

The Static Water Penetration test was repeated as described in Section 4.5.

#### **4.10. STRUCTURAL PERFORMANCE – 150% DESIGN LOAD, 3240 Pa**

Structural Performance testing was repeated as described in Section 4.5 using a test load of 150% Design Pressure. After the test loads were released, the specimen was inspected for failure or permanent deformation of any part of the system that would cause any operational malfunction. Residual deflections were also recorded. No polyethylene film was used.

#### **4.11. DEVIATION FROM STANDARD METHOD**

Due to personnel and equipment safety, during the Structural Performance - 150% of Design Pressure, residual deflections were not taken. Evaluation was based on a visual inspection.

## 5 Test Apparatus

Table 5.1 – Test Apparatus		
Instruments Used in Evaluation	Intertek ID	Calibration Due Date
Fluke Airflow Meter	P60638	September 14, 2016
Stopwatch	60625	July 9, 2016
Type 504, 0 - 3" liquid manometer	D2664	N/A
Digital manometer, 2027P	P60173	May 4, 2016
4" Laminar Flow Element	Z50MC2-4	July 17, 2016
Nova barometer	P51327	N/A
Spray rack	ITS 3	August 10, 2016
Mitutoyo Digital Deflection Gauge	P60016	May 11, 2016
	P60024	May 11, 2016
	02700	May 11, 2016
	02687	May 11, 2016
	P60015	July 8, 2016
	02768	July 8, 2016
	P60021	July 8, 2016
	P60020	July 8, 2016
	P60026	October 17, 2015
	P60175	October 17, 2015
	P60017	October 17, 2015
R-507 Genetron AZ-50 refrigeration unit	N/A	N/A
4 Seabreeze Turbo-Aire fans	N/A	N/A
2 65 L Danby dehumidifiers	N/A	N/A
Graphtec MIDI Logger GL820	P60621	July 22, 2016
1/16" Omega thermocouple wire	N/A	N/A

## 6 Testing and Evaluation Results

### 6.1. TEST HISTORY

Test history is indicated in the following table:

Date	Test	Event	Modification
Sept 15/15	Positive Preload at 1080 Pa	PASS	None
	Air Leakage Test at 75 Pa #1	PASS	None
	Static Water Penetration Test 510 Pa	PASS	None
	Dynamic Water Test at 101 kph	PASS	None
	Cyclic Water Penetration Test 730 Pa #1	PASS	None
Sept 16/15	Structural – 100% of Design Load +2160 Pa / -2160 Pa	PASS	None
Sept 23-25 /15	Thermal Cycling at -18°C to +60°C	PASS	None
Sept 29/15	Air Leakage Test at 75 Pa #2	PASS	None
	Cyclic Water Penetration Test 730 Pa #2	PASS	None
	Structural – 150% of Design Load +3240 Pa / -3240 Pa	PASS	None

## 6.2. STRUCTURAL PRELOAD

The test sample was loaded to 50% of the positive design load at 1080 Pa (23 psf) for 60 seconds. After the test loads were released, the specimen was inspected and there was found to be no permanent deformation or structural distress. The system **met** the requirements of AAMA 501.

## 6.3. AIR LEAKAGE RESISTANCE – 75 Pa #1

Air leakage test data is indicated in the following table:

Overall Assembly	
Area:	14.81 m <sup>2</sup> , 159.37 ft <sup>2</sup>
Infiltration rate:	0.15 L/s*m <sup>2</sup> , 0.03 cfm/ft <sup>2</sup>
Exfiltration rate:	0.13 L/s*m <sup>2</sup> , 0.03 cfm/ft <sup>2</sup>
Casement	
Area:	1.39 m <sup>2</sup> , 14.99 ft <sup>2</sup>
Infiltration rate:	0.13 L/s*m <sup>2</sup> , 0.03 cfm/ft <sup>2</sup>
Exfiltration rate:	0.26 L/s*m <sup>2</sup> , 0.05 cfm/ft <sup>2</sup>
Fixed	
Area:	13.41 m <sup>2</sup> , 144.38 ft <sup>2</sup>
Infiltration rate:	0.15 L/s*m <sup>2</sup> , 0.03 cfm/ft <sup>2</sup>
Exfiltration rate:	0.12 L/s*m <sup>2</sup> , 0.02 cfm/ft <sup>2</sup>
Allowable Leakage Rates	
Maximum allowable air leakage rate (US):	1.5 L/s*m <sup>2</sup> , 0.3 cfm/ft <sup>2</sup>
Maximum allowable air leakage rate (CAN – Fixed):	0.2 L/s*m <sup>2</sup> , 0.04 cfm/ft <sup>2</sup>
Maximum allowable air leakage rate (CAN – A3):	0.5 L/s*m <sup>2</sup> , 0.1 cfm/ft <sup>2</sup>

The system **met** the **A3** and **Fixed** Air Leakage Resistance performance requirements of the NAFS-08 and NAFS-11.

## 6.4. STATIC WATER PENETRATION – 510 Pa

During the 15-minute test period, using a pressure differential of 510 Pa (10.7 psf), there was no water leakage observed. The system **met** the **510 Pa** Static Water Penetration requirements when evaluated to AAMA 501 and A440S1.

## 6.5. DYNAMIC WATER PENETRATION

During the 15-minute test period, using an approximate wind speed of 101 kph (63 mph), there was no water leakage observed. The system **met** the Dynamic Water Penetration requirements of the AAMA 501.1.

## 6.6. CYCLIC WATER PENETRATION – 730 Pa #1

During the 24-minute test period, using a pressure differential of 730 Pa (15.3 psf), there was no water leakage observed. The system **met** the **PG100 (CAN)** Static Water Penetration requirements of NAFS-08, NAFS-11 and A440S1.

## 6.7. STRUCTURAL PERFORMANCE – 100% DESIGN LOAD, 2160 Pa

Refer to the following table for the deflection data. After the test loads were released, the specimen was inspected and there was no permanent deformation or structural distress within the system. The system **met** the 100% Design Load performance requirements of the NAFS-08 and NAFS-11.

<b>Test Pressures</b> <b>Pos: +2160 Pa (+45 psf) Neg: -2160 Pa (-45 psf)</b>						
Gauge Number	Location	Wind Load Direction	Read Deflection, mm	Residual Deflection, mm	Allowable Deflection	Pass/Fail
1, 2, 3	Vertical Mullion	Positive	8.64	0.21	L = 2642 mm L/175 = 15.10 mm	Pass
		Negative	12.99	1.98		
4	Center of Horizontal Mullion	Positive	10.41	0.73	N/A	Info Only
		Negative	14.85	1.45		
5	Center of Large IGU (1 <sup>st</sup> Floor)	Positive	24.71	0.63	N/A	Info Only
		Negative	25.15	2.82		
6	Corner of Large IGU (1 <sup>st</sup> Floor)	Positive	2.79	0.15	N/A	Info Only
		Negative	3.54	0.55		
7, 8, 9	Casement Latch Stile	Positive	0.74	0.08	L = 1300 mm L/175 = 7.43 mm	Pass
		Negative	2.14	0.88		

## 6.8. CONDENSATION RESISTANCE / THERMAL CYCLING

During the Condensation Resistance / Thermal Cycling testing, minimal condensation was observed throughout the interior system during the test. After the testing was complete, the system did not show any signs of permanent damage or deformation. The system **met** the performance requirements for Condensation Resistance / Thermal Cycling of AAMA 501.5.



## 6.9. AIR LEAKAGE RESISTANCE – 75 Pa #2

Air leakage test data is indicated in the following table:

Overall Assembly	
Area:	14.81 m <sup>2</sup> , 159.37 ft <sup>2</sup>
Infiltration rate:	0.20 L/s*m <sup>2</sup> , 0.04 cfm/ft <sup>2</sup>
Exfiltration rate:	0.16 L/s*m <sup>2</sup> , 0.03 cfm/ft <sup>2</sup>
Casement	
Area:	1.39 m <sup>2</sup> , 14.99 ft <sup>2</sup>
Infiltration rate:	0.31 L/s*m <sup>2</sup> , 0.06 cfm/ft <sup>2</sup>
Exfiltration rate:	0.37 L/s*m <sup>2</sup> , 0.07 cfm/ft <sup>2</sup>
Fixed	
Area:	13.41 m <sup>2</sup> , 144.38 ft <sup>2</sup>
Infiltration rate:	0.18 L/s*m <sup>2</sup> , 0.04 cfm/ft <sup>2</sup>
Exfiltration rate:	0.13 L/s*m <sup>2</sup> , 0.03 cfm/ft <sup>2</sup>
Allowable Leakage Rates	
Maximum allowable air leakage rate (US):	1.5 L/s*m <sup>2</sup> , 0.3 cfm/ft <sup>2</sup>
Maximum allowable air leakage rate (CAN – Fixed):	0.2 L/s*m <sup>2</sup> , 0.04 cfm/ft <sup>2</sup>
Maximum allowable air leakage rate (CAN – A3):	0.5 L/s*m <sup>2</sup> , 0.1 cfm/ft <sup>2</sup>

The system **met** the **A3** and **Fixed** Air Leakage Resistance performance requirements of the NAFS-08 and NAFS-11.

## 6.10. CYCLIC WATER PENETRATION – 730 Pa #2

During the 24-minute test period, using a pressure differential of 730 Pa (15.3 psf), there was no water leakage observed. The system **met** the **PG100 (CAN)** Static Water Penetration requirements of NAFS-08, NAFS-11 and A440S1.

## 6.11. STRUCTURAL PERFORMANCE – 150% DESIGN LOAD, 3240 Pa

As noted in Section 4.11, residual deflections were not taken. After the test loads were released, the specimen was inspected and there was no permanent deformation or structural distress within the system. The system **met** the 150% Design Load performance requirements of the NAFS-08 and NAFS-11.

## 7 Conclusion

The WINSPIA Aluminum Window Wall Mock-Up system tested and described in this report has **met** the test performance requirements as summarized below.

Evaluation Property	Specification / Standard	Results	
Air Leakage Resistance	NAFS-08 NAFS-11 A440S1	Canadian Air Leakage Rating: Casement – <b>A3</b> Fixed – <b>Fixed</b>	
Cyclic Water Penetration Resistance		PG100 (Can.), 730 Pa (15.3 psf)	Overall Performance Grade: <b>PG45</b>
Uniform Load*		PG45, 2160 Pa (45.1 psf)	
Static Water Penetration Resistance	ASTM E331 AAMA 501 A440S1	510 Pa (10.7 psf)	
Dynamic Water Penetration Resistance	AAMA 501.1	Pass	
Condensation Resistance / Thermal Cycling	AAMA 501.5	Pass	

\*Refer to deviation noted in Section 4.11

### INTERTEK TESTING SERVICES NA LTD.

Reported by:   
David Park  
**Technician – Building Products**

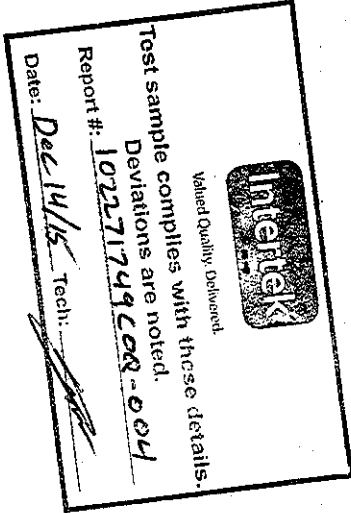
Reviewed by:   
Riccardo DeSantis  
**Manager – Building Products**

## **APPENDIX A**

### Mock-Up Drawings – 21 Pages

MOCK UP(Concept) SHOP DRAWING FOR  
ALUMINUM WINDOWWALL

PROJECT



Mock Up dwg:1st.

JUN. 18, 2015

4th.		
3rd.		
2nd.		
1st.		
REV	DATE	DESCRIPTION



WINSPIA  
680 Bellevue Way Delta BC V8M 5B8  
www.winspia.ca  
TEL: +1-604-860-4490

PROJECT TITLE

ARCHITECT

CONTRACTOR

SHEET TITLE

COVER SHEET

DATE : JUN. 08, 2015

DRAWN BY : MO LEE

CHECKED BY

APPROVED BY


SCALE

SHEET

ET-00

DRAWING INDEX


DRAWING TITLE				DRAWING TITLE				
	1ST	2ND	3RD	4TH	1ST	2RD	3TH	4TH
ET-00	COVER SHEET							
ET-01	DRAWING INDEX							
SH-01	SHAPE SCHEDULE							
SH-02	SHAPE SCHEDULE							
SH-03	SHAPE SCHEDULE							
SH-04	SHAPE SCHEDULE							
SH-05	SHAPE SCHEDULE							
ML-01	MATERIAL LIST							
ML-02	MATERIAL LIST							
MP-01	MOCK UP TEST ELEVATION							
SD-01	SECTION DETAIL							
SD-02	SECTION DETAIL							
SD-03	SECTION DETAIL							
SD-04	SECTION DETAIL							
SD-05	SECTION DETAIL							
SD-06	SECTION DETAIL							
SD-07	SECTION DETAIL							
SD-08	SECTION DETAIL							
SD-09	SECTION DETAIL							
SD-10	SECTION DETAIL							

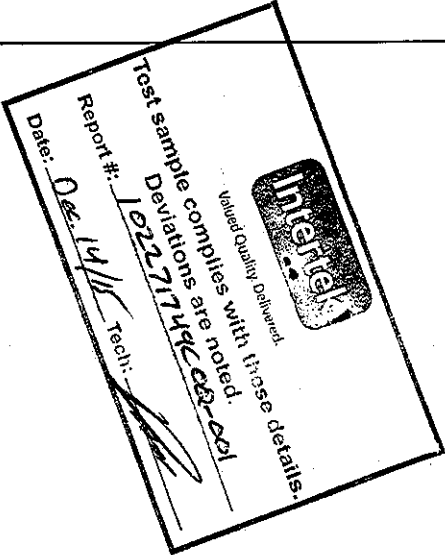


Valued Quality Delivered

Test sample complies with those details.  
Deviations are noted.

Report #: 10227749C000-001

Date: 08/14/15 Tech: 



4th.		
3rd.		
2nd.		
1st.		
REV	DATE	DESCRIPTION



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890 Beagrove Way Delta BC V9M 5H8  
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PROJECT TITLE.

ARCHITECT

CONTRACTOR

SHEET TIME

DATE : JUN. 09 2015

DRAWN BY : MGLTE

CHECKED BY

APPROVED BY

SCALE

SHEET

## ■ SHAPE SCHEDULE

SHAPE NAME	TOP FLASHING(IN-OUT)	SHAPE NO.	WM-09	SHAPE NAME	TOP FLASHING CAP	SHAPE NO.	WM-10	SHAPE NAME	TOP FLASHING(OUT)	SHAPE NO.	WM-11	SHAPE NAME	TOP FLASHING(IN-OUT)	SHAPE NO.	WM-12
FINISH	MILL FINISH			FINISH	MILL FINISH			FINISH	MILL FINISH			FINISH	MILL FINISH		
ALLOY & TEMP	A6063-T5			ALLOY & TEMP	A6063-T6			ALLOY & TEMP	A6063-T6			ALLOY & TEMP	A6063-T6		
SHAPE NAME	OUTWARD FRAME	SHAPE NO.	WM-05	SHAPE NAME	OUTWARD VENT	SHAPE NO.	WM-06	SHAPE NAME	TOP FLASHING(OUT)	SHAPE NO.	WM-07	SHAPE NAME	TOP FLASHING(IN-OUT)	SHAPE NO.	WM-08
FINISH	MILL FINISH			FINISH	MILL FINISH			FINISH	PVOID 3COAT			FINISH	MILL FINISH		
ALLOY & TEMP	A6063-T5			ALLOY & TEMP	A6063-T6			ALLOY & TEMP	A6063-T5			ALLOY & TEMP	A6063-T5		
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SHAPE NAME	FEMALE MULLION(OUT)	SHAPE NO.	WM-01	SHAPE NAME	FEMALE MULLION(IN)	SHAPE NO.	WM-02	SHAPE NAME	MALE MULLION(OUT)	SHAPE NO.	WM-03	SHAPE NAME	MALE MULLION(IN)	SHAPE NO.	WM-04
FINISH	PVOID 3COAT			FINISH	PVOID 3COAT			FINISH	PVOID 3COAT			FINISH	PVOID 3COAT		
ALLOY & TEMP	A6063-T5			ALLOY & TEMP	A6063-T5			ALLOY & TEMP	A6063-T5			ALLOY & TEMP	A6063-T5		

4th.		
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REV	DATE	DESCRIPTION

  
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880 Belgrave Way, Della BC V3M 5R8  
www.winspia.ca  
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PROJECT TITLE

APPLIED TEC

**PRIME CONTRACTOR**

SHEET TITLE

DIES SHAPE(W/W)

DATE : 15/05/2015

**DRAWN BY**

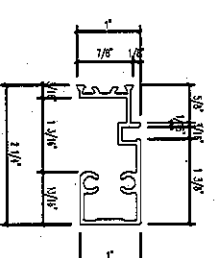
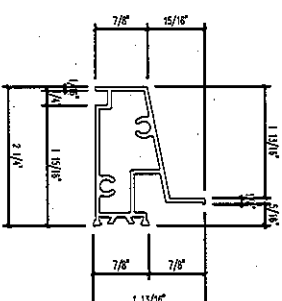
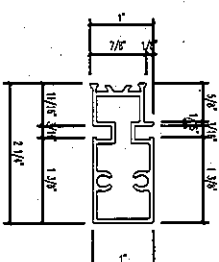
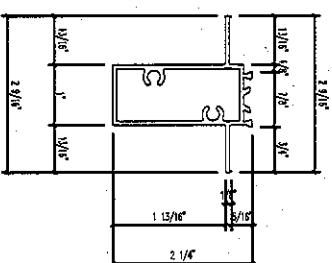
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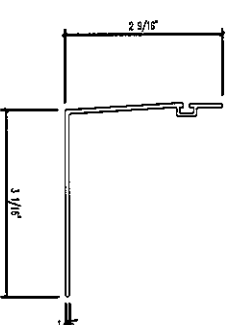
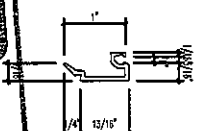
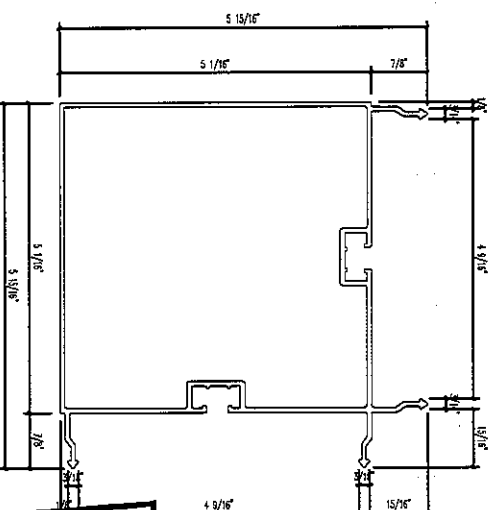
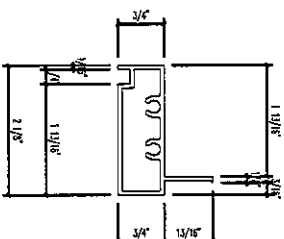
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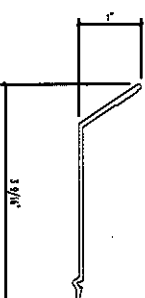
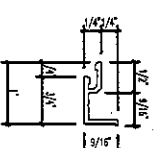
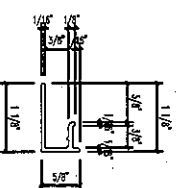
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FINISH	PVDF 3COAT			FINISH	PVDF 3COAT			FINISH	PVDF 3COAT			FINISH	PVDF 3COAT		
ALLOY & TEMP	A6068-T5			ALLOY & TEMP	A6068-T5			ALLOY & TEMP	A6068-T5			ALLOY & TEMP	A6068-T5		




SHAPE NAME	BOTTOM TRANSOM(SG 2)	SHAPE NO.	WW-17	SHAPE NAME	CORNER MULLION	SHAPE NO.	WW-18	SHAPE NAME	TOP FLASHING CAP	SHAPE NO.	WW-20
FINISH	PVDF 3COAT			FINISH	PVDF 3COAT			FINISH	PVDF 3COAT		
ALLOY & TEMP	A6063-T5			ALLOY & TEMP	A6063-T5			ALLOY & TEMP	A6063-T5		



SHAPE NAME	SG FRAME COVER	SHAPE NO.	WW-21	SHAPE NAME	SG FRAME	SHAPE NO.	WW-22	SHAPE NAME	INSTALL ANGLE	SHAPE NO.	WW-23	SHAPE NAME	SHAPE NO.
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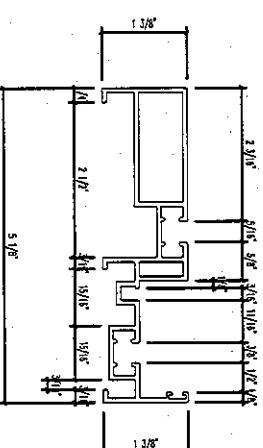
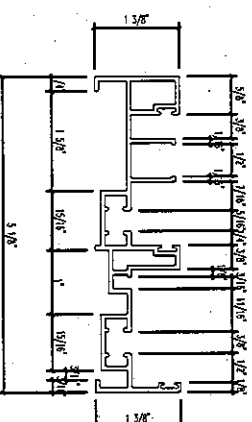
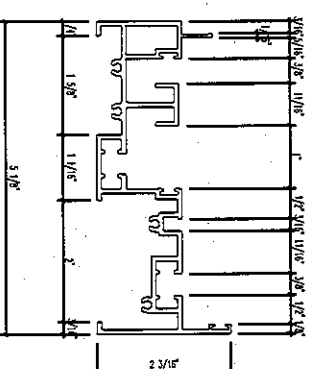
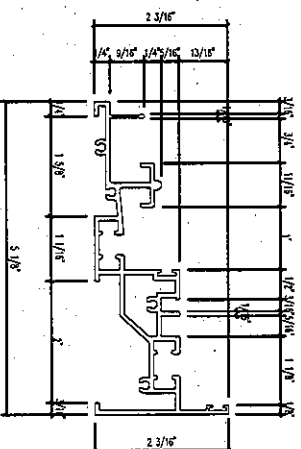
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3rd		
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1st		

  
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880 Badgerway Way Delta BC V3M 5R6  
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TEL: +1-604-800-4490

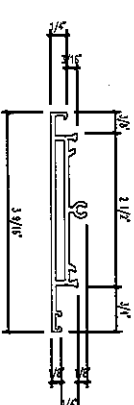
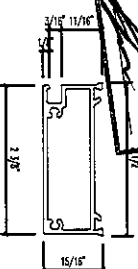
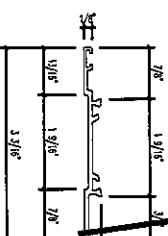
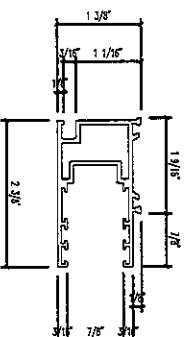
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DATE : 18/06/2015	
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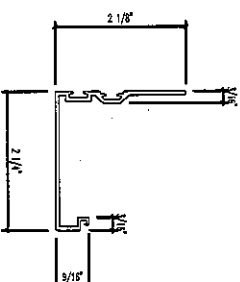
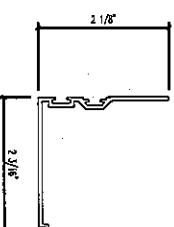
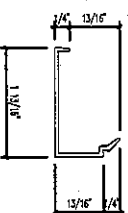
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ALLOY & TEMP	A6063-T5			ALLOY & TEMP	A6063-T5			ALLOY & TEMP	A6063-T5			ALLOY & TEMP	A6063-T5		



Value: Quality Delivered.  
Test sample complies with these details.  
Deviations are noted.  
1/9/02-064

Date: Dec 14/13 Tech

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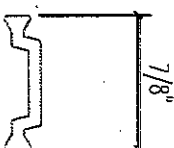
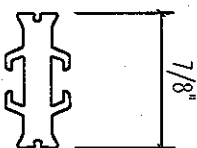
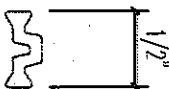
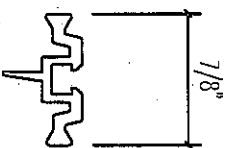
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REV	DATE	DESCRIPTION
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3rd.		
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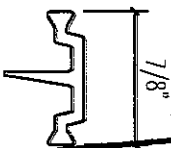
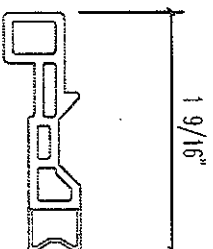
**WINSPIA**  
880 Belgiano Way Delta BC V3M 5H8  
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TEL: +1-604-800-4490

PROJECT TITLE	
ARCHITECT	
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SHEET TITLE	DIES SHAPE(M/M)
DATE	18/09/2015
DRAWN BY	
CHECKED BY	
APPROVED BY	
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■ SHAPE SCHEDULE



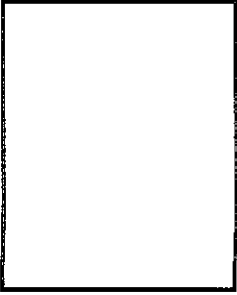
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**Intertek**  
Valued Quality Delivered.  
Test sample complies with these details.  
Deviations are noted.  
Report #: 102221749COR-001  
Date: Dec. 14/16 Tech: *[Signature]*

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2nd		
1st		
REV	DATE	DESCRIPTION

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PROJECT TITLE \_\_\_\_\_

ARCHITECT \_\_\_\_\_

PRIME CONTRACTOR \_\_\_\_\_

SHEET TITLE \_\_\_\_\_

DIES SHAPE(W/W)

DATE : 15/05/2015

DRAWN BY \_\_\_\_\_

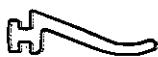
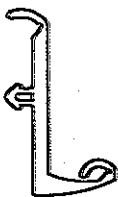
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■ SHAPE SCHEDULE



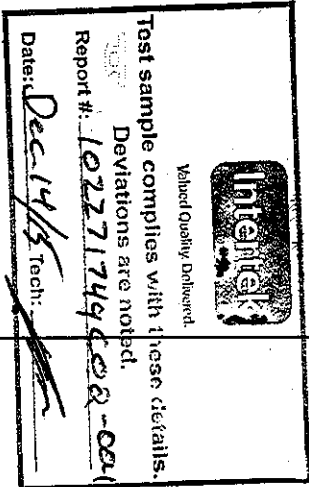
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Hardness : 65 ± 5

경도 : 65 ± 5

Hardness : 65 ± 5

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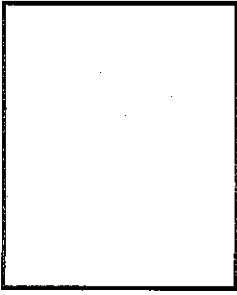


Hardness : 65 ± 5

Hardness : 65 ± 5

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ALLOY & TEMP		ALLOY & TEMP		ALLOY & TEMP		ALLOY & TEMP	



4th		
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REV	DATE	DESCRIPTION



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PROJECT TITLE

ARCHITECT





















FRAME CONTRACTOR

SHEET TITLE

DIES SHAPE(W/M)


DATE : 15/05/2015
DRAWN BY
CHECKED BY
APPROVED BY
SCALE : 1/NOVE (A3)
SHEET SS-05

MATERIAL LIST

NO.	SIZE, DESCRIPTION	APPLICATION	SHAPE	NO.	SIZE, DESCRIPTION	APPLICATION	SHAPE
1. MATERIAL							
1	Φ6X50LG. HEX HD.SCREW (STAINLESS 304)	FRAME ASSEMBLY		11	AZON THERMAL BREAK	VENT	
2	Φ4X16LG. C/SUNK.HD.SCREW (STAINLESS 304)	BACK-PAN & ETC.		12	E.P.D.M WEATHER STRIP (HARDNESS:80±5 DUROMETER)	GLAZING GASKET	
3	Φ4.5X15LG. C/SUNK.HD.SCREW (STAINLESS 304)	VENT GEARED HINGE		13	E.P.D.M WEATHER STRIP (HARDNESS:60±5 DUROMETER)	VENT FRAME & TRACK	
4	Φ5X25LG. C/SUNK.S/D.SCREW (STAINLESS 304)	VENT FRAME		14	E.P.D.M WEATHER STRIP (HARDNESS:80±5 DUROMETER)	VENT	
5	Φ6X20LG. HEX HD STITCH LAP SCREW	INSTALLATION		15	REPERM CELL AIR STOP	TRANSOM	
6	Φ6X50LG. HH TAPCON(CLIMASEAL)	INSTALLATION		16	GLASS SETTING BLOCK (HARDNESS:85±5 DUROMETER)	GLASS	
7	POLYAMIDE THERMAL BREAK (BLACK)	WINDOW FRAME		17	2mm Butyl TAPE	ALUM. SHEET & ETC.	
8	POLYAMIDE THERMAL BREAK (BLACK)	WINDOW FRAME		18	3mm Butyl TAPE	GLAZING	
9	POLYAMIDE THERMAL BREAK (BLACK)	TOP & SIDE TRACK		19	NORTON TAPE (V-2100)	STRUCTURAL GLAZING	
10	POLYAMIDE(BLACK)	SPACER		20	DC-983	STRUCTURAL SEALANT(VENT)	

Intertek  
E.P.D.M WEATHER STRIP  
Validated Hardness:80±5 DUROMETER  
Test sample complies with these details.  
Report #: 102271749200-001  
Date: Dec 14, 2010  
REPERM CELL AIR STOP

4th.		
3rd.		
2nd.		
1st.		
REV	DATE	DESCRIPTION

**WINSPIA**  
880 Bridgeave Way Delta BC V4M 5R8  
www.winspia.ca  
TEL : +1-604-800-4490

PROJECT TITLE


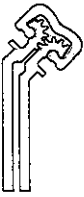
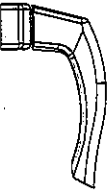
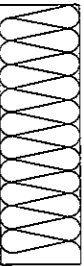
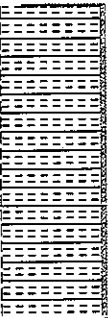

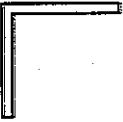

ARCHITECT

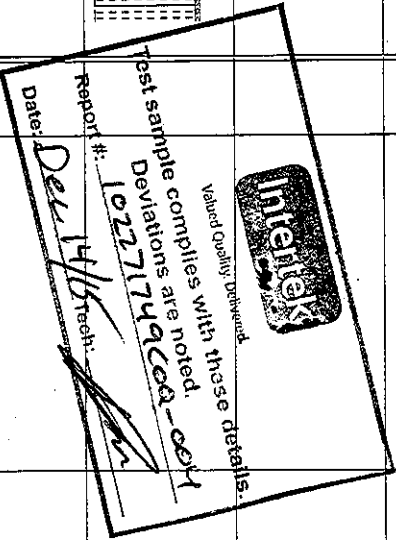
CONTRACTOR

SHEET TITLE  
MATERIAL LIST


DATE : JUN. 09, 2015  
DRAWN BY : MOJIB  
CHECKED BY :  
APPROVED BY :  
SCALE : NONE  
SHEET : ML-01

MATERIAL LIST

NO.	SIZE, DESCRIPTION	APPLICATION	SHAPE	NO.	SIZE, DESCRIPTION	APPLICATION	SHAPE
1. MATERIAL							
21	Sikallex	INTERIOR & EXTERIOR SEALANT					
22	GEARED HINGE ALUM.	AL. STICK VENT					
23	MULTI HANDLE	AL. STICK VENT					
24	THK. 2mm ALUM. PANEL THK. 70mm MINERAL WOOL	ALUM. SHEET PANEL					
25	THK. 1.2mm GALVANIZING STEEL BACK-PAN THK. 50 & 75mm MINERAL WOOL	BACK-PANEL					
26	STYROFOAM INSULATION	WINDOW FRAME					
27	Urethane Foam	WINDOW FRAME					
28	ALUM. ANGLE 35x35x3T	START TRACK					
28	4.5T GALV. STEEL REINFORCE	MULLION					
30							



4th.		
3rd.		
2nd.		
1st.		
REV	DATE	DESCRIPTION



**WINSPIA**  
880 Delgadoe Way Delta BC V9M 5B8  
www.winspia.ca  
TEL: +1-604-900-4490

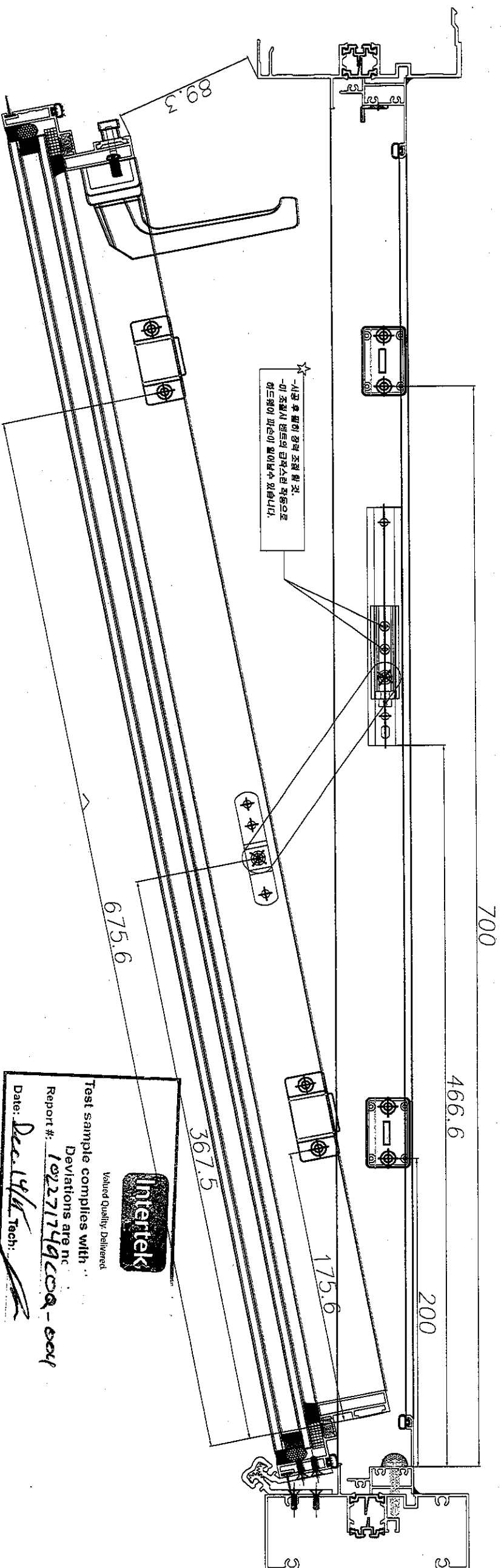
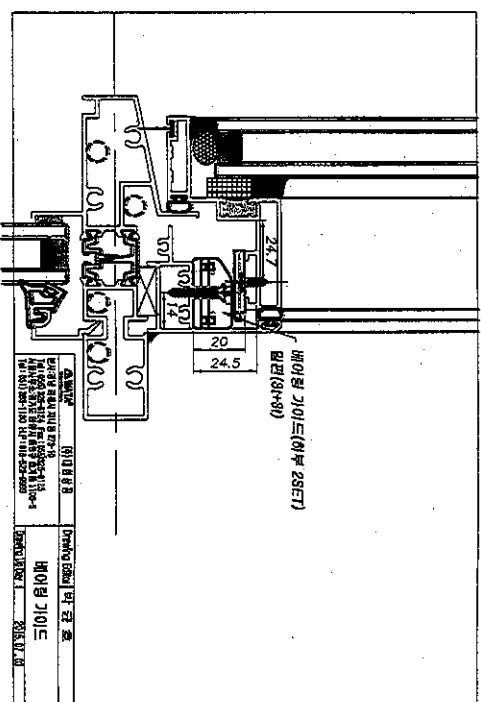
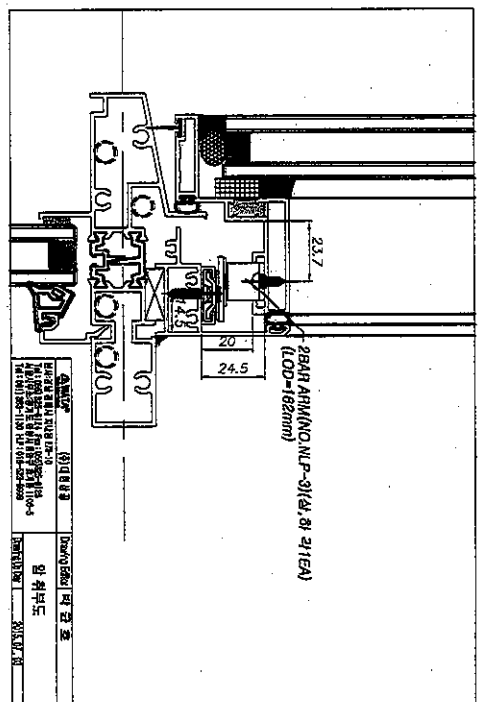
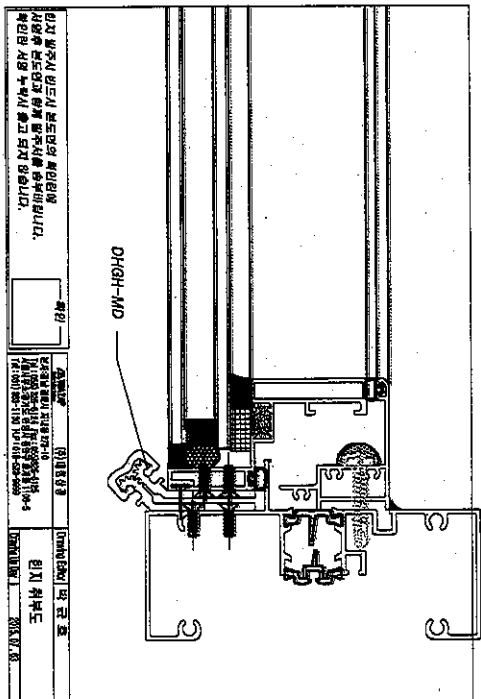
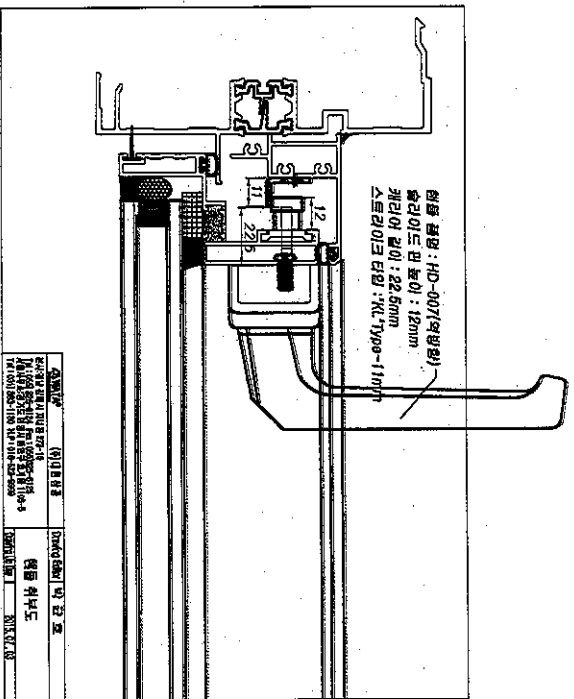
PROJECT TITLE: \_\_\_\_\_

ARCHITECT: \_\_\_\_\_

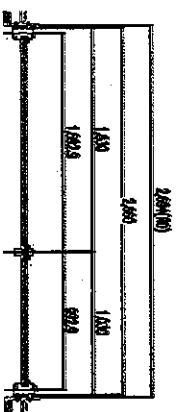
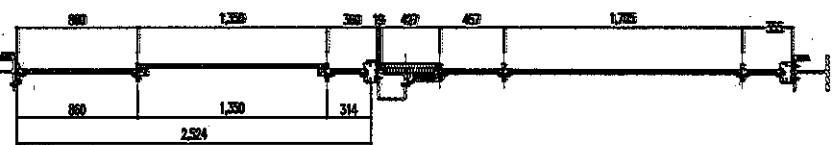
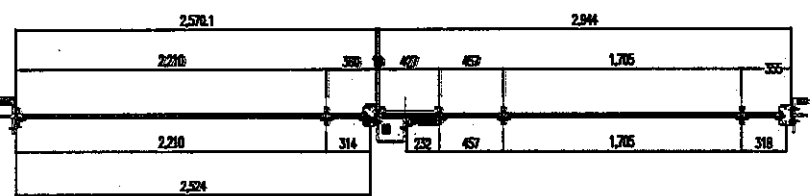
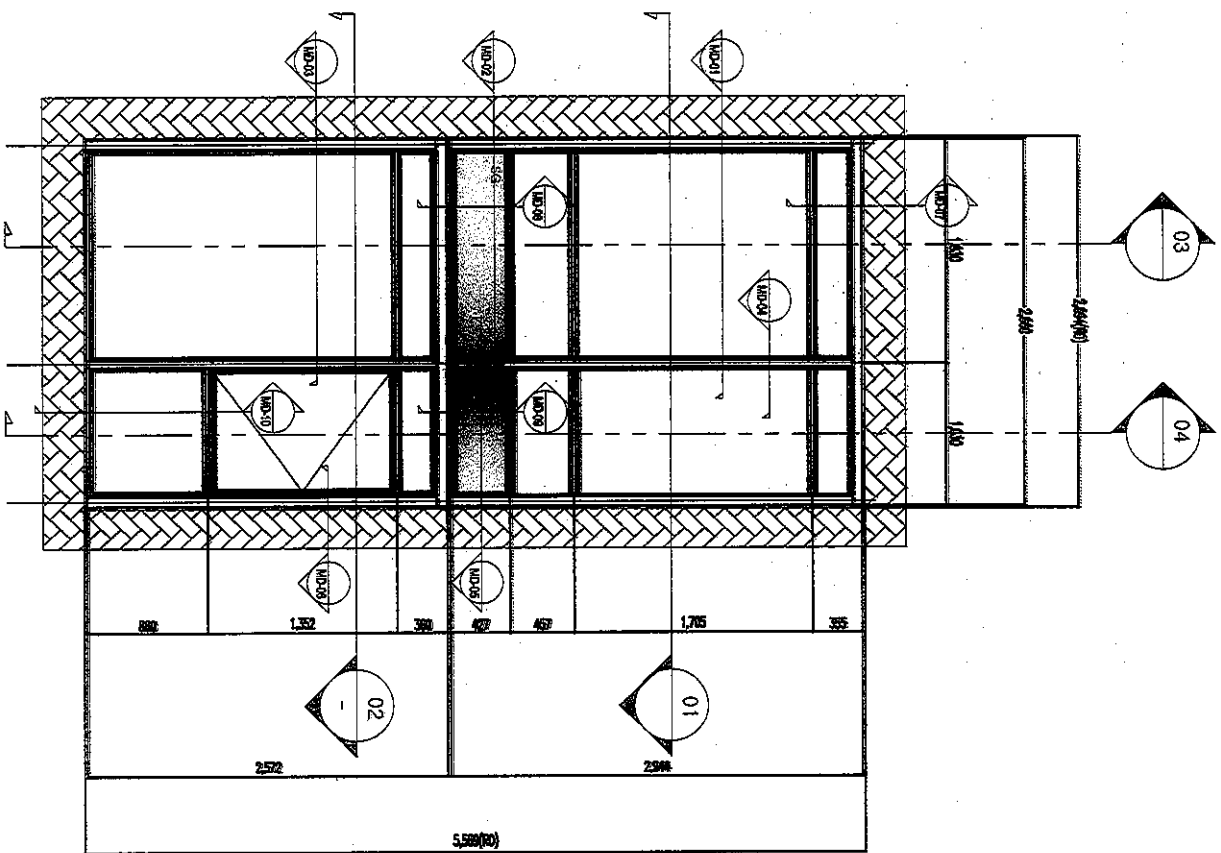
CONTRACTOR: \_\_\_\_\_

SHEET TITLE: MATERIAL LIST

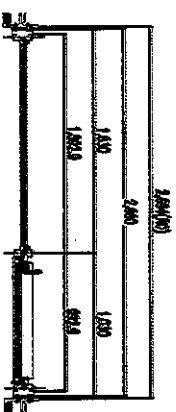
DATE: JUN. 02, 2015  
DRAWN BY: HQ LEE  
CHECKED BY: \_\_\_\_\_  
APPROVED BY: \_\_\_\_\_  
SCALE: NONE  
SHEET: ML-02



Intertek  
 Valued Quality. Delivered.  
 Test sample complies with  
 Deviations are not  
 Report #: 102271749000-004  
 Date: Dec. 14/11 Tech:



1 HORIZONTAL SECTION DETAIL  
AS 111



2 HORIZONTAL SECTION DETAIL  
AS 111

**Inteltek**  
Valued Quality Delivered

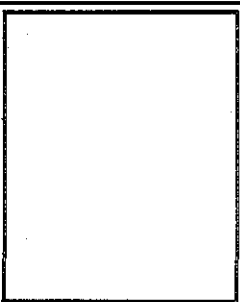
Test sample complies with these details.  
Deviations are noted.

Report #: 102271749C00-001

Date: Dec. 14/15 Tech: *[Signature]*

1 HORIZONTAL SECTION DETAIL  
AS 111

1 HORIZONTAL SECTION DETAIL  
AS 111



4th.		
3rd.		
2nd.		
1st.		
REV	DATE	DESCRIPTION

**WINSPIA**  
680 Bayshore Way Delta BC V9M 5H8  
www.winspia.ca  
TEL: +1-604-800-4490

PROJECT TITLE

ARCHITECT

CONTRACTOR

SHEET TITLE

MOCK UP TEST ELEVATION

DATE: JAN. 09, 2015

DRAWN BY: NG LEE

CHECKED BY:

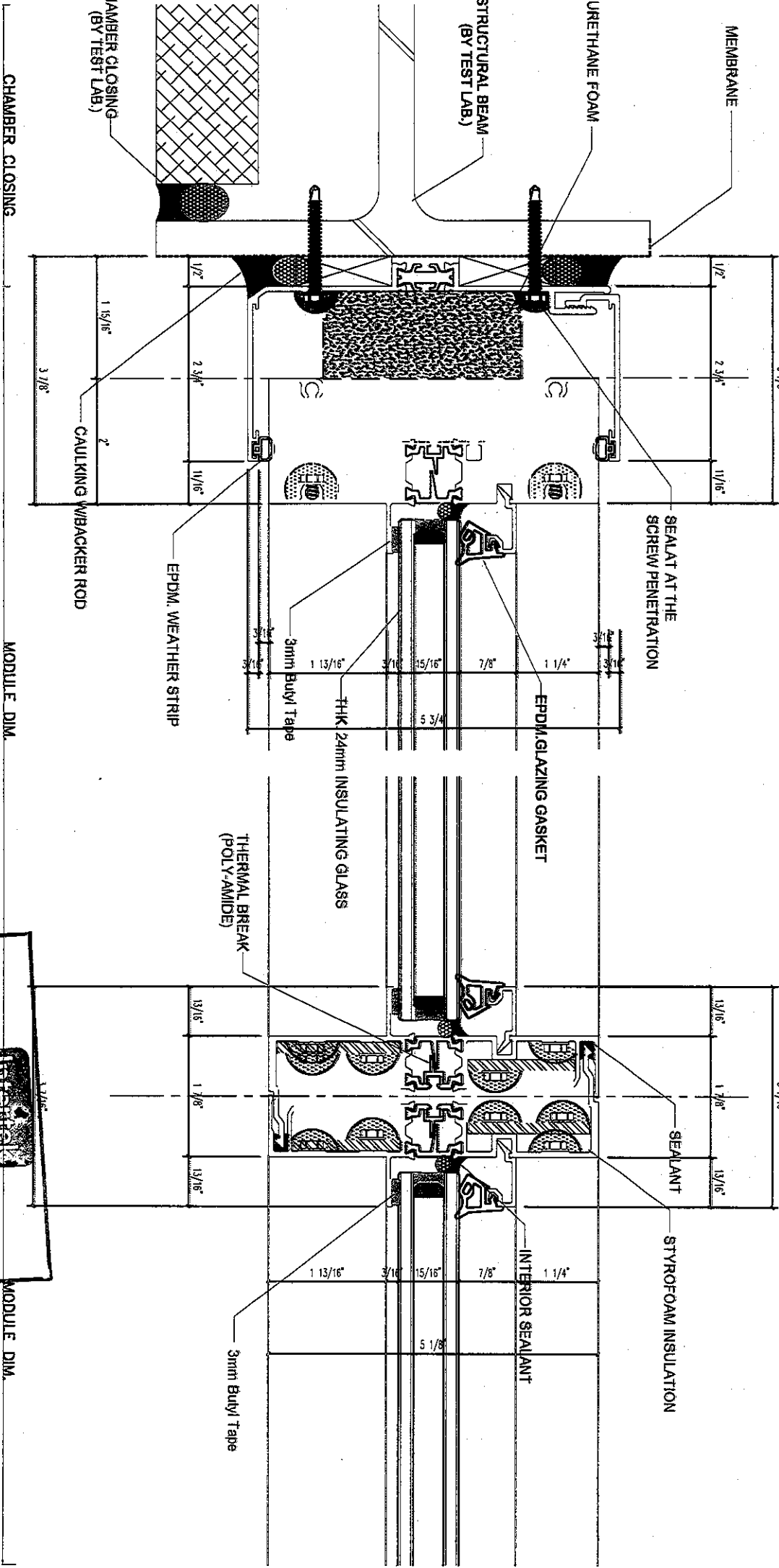
APPROVED BY:

SCALE

SHEET MP-01



# INTERIOR



## EXTERIOR

1 HORIZONTAL SECTION  
D-01 @SIDE VISION PART

1-1762

**Intertek**

Valued Quality Delivered.

Test sample complies with these details.  
Deviations are noted.


Report #: 102271749 CEN-004

Date: Dec 14/16 Tech: [Signature]

4th.		
3rd.		
2nd.		
1st.		
REV	DATE	DESCRIPTION

800 Badgerme Way Dallas BC 75248  
 WWW.WINSPiA.ca  
 TEL: +1-800-800-4490

WINSPiA



PROJECT TITLE.

ARCHITECT

CONTRACTOR

**SHEET TITLE**

SECTION DETAIL

DATE : JUN. 09. 2015

**DRAIN BY THE LEAK**

APPROVED BY

## SOCAL

SD-01



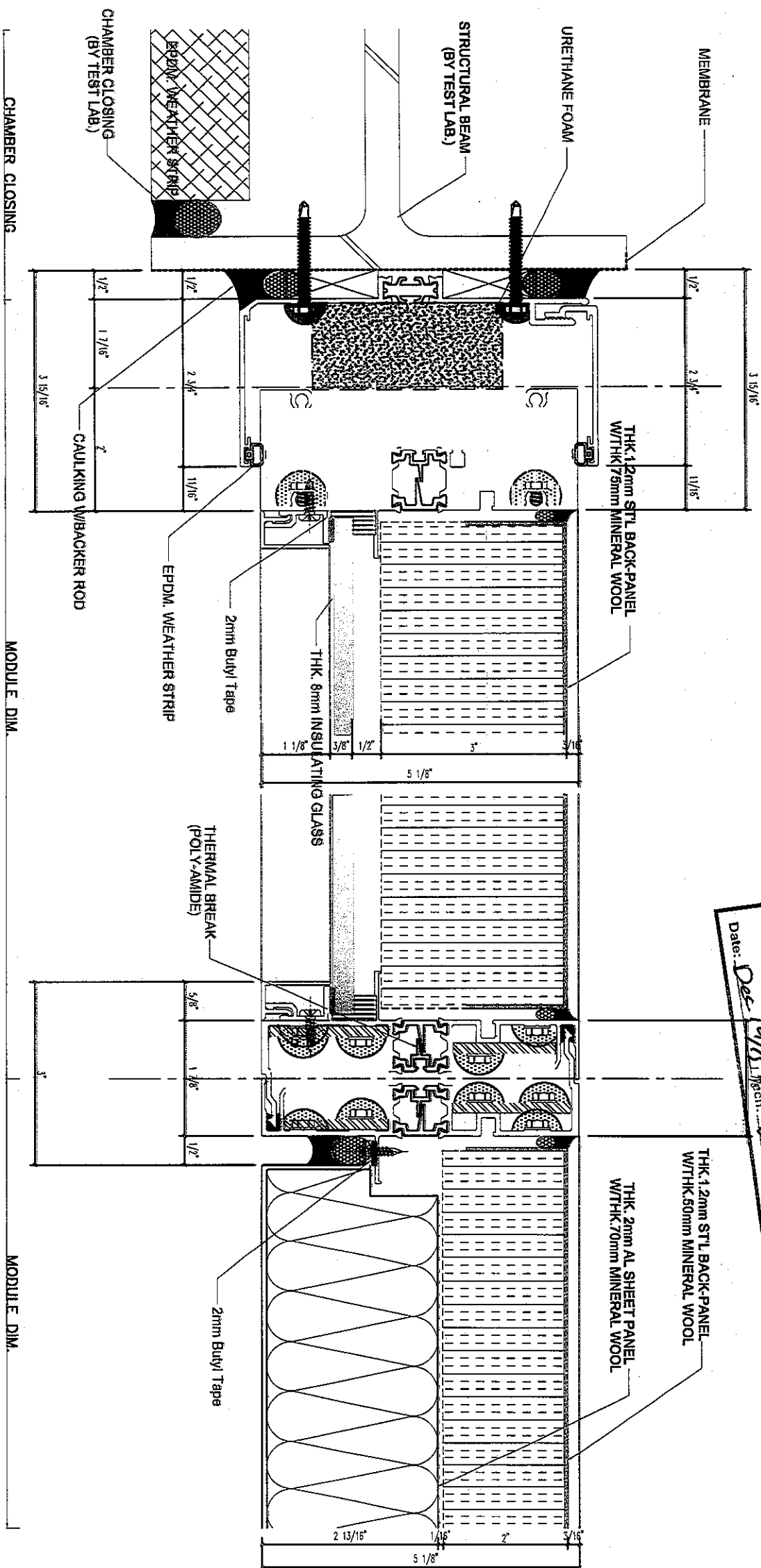
Validated Quality Delivered.

Test sample complies with these details.  
Deviations are noted.

Report #: 10227749C00-0004

Date: Dec 14/16 Tech: [Signature]

INTERIOR



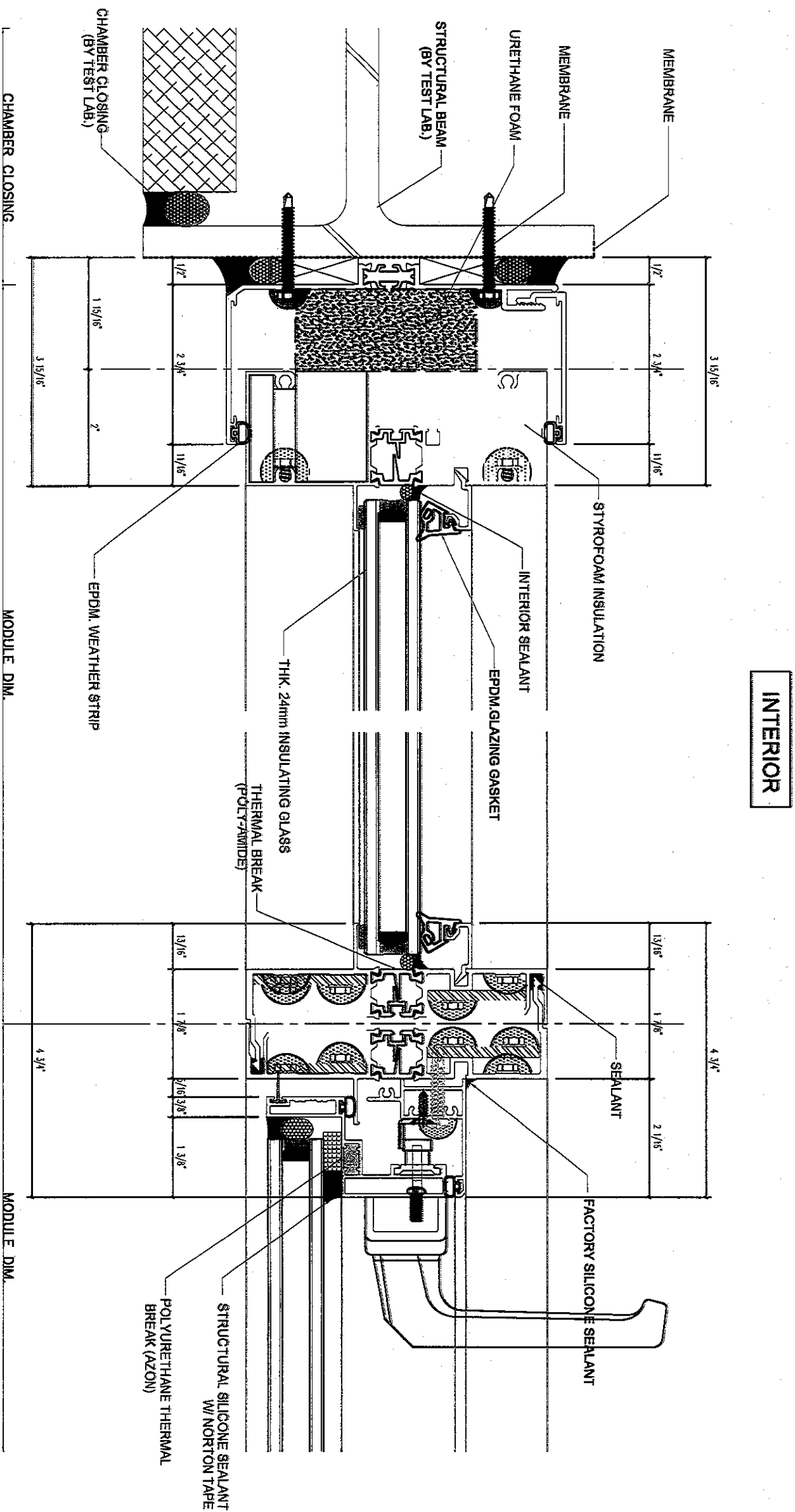
EXTERIOR

1 HORIZONTAL SECTION  
D-01 @SIDE S.G & S.P PART

4th.		
3rd.		
2nd.		
1st.		
REV	DATE	DESCRIPTION

**WINSPIA**  
880 Delgave Way Delta BC V9M 5H8  
www.winspia.ca  
TEL: +1-604-900-4190

PROJECT TITLE	
ARCHITECT	
CONTRACTOR	
SHEET TITLE	SECTION DETAIL
DATE	JUN. 09, 2015
DRAWN BY	MO LEE
CHECKED BY	
APPROVED BY	
SCALE	SD-02
SHEET	



1 HORIZONTAL SECTION  
D-01 @SIDE VISION PART

**Intertek**  
Validated Quality Delivered

Test sample complies with these details.  
Deviations are noted.

Report #: 10221749CEQ-004

Date: Dec 14/15 Tech: [Signature]

REV	DATE	DESCRIPTION
4th.		
3rd.		
2nd.		
1st.		

**WINSPIA**  
890 Badgeway Way Delta BC V9M 5R8  
www.winspia.ca  
TEL: +1-604-860-4400

PROJECT TITLE: \_\_\_\_\_

ARCHITECT: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

SHEET TITLE: SECTION DETAIL

DATE: JUN 09 2015


DRAWN BY: M. LEE

CHECKED BY: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

SCALE: \_\_\_\_\_


SHEET: SD-03

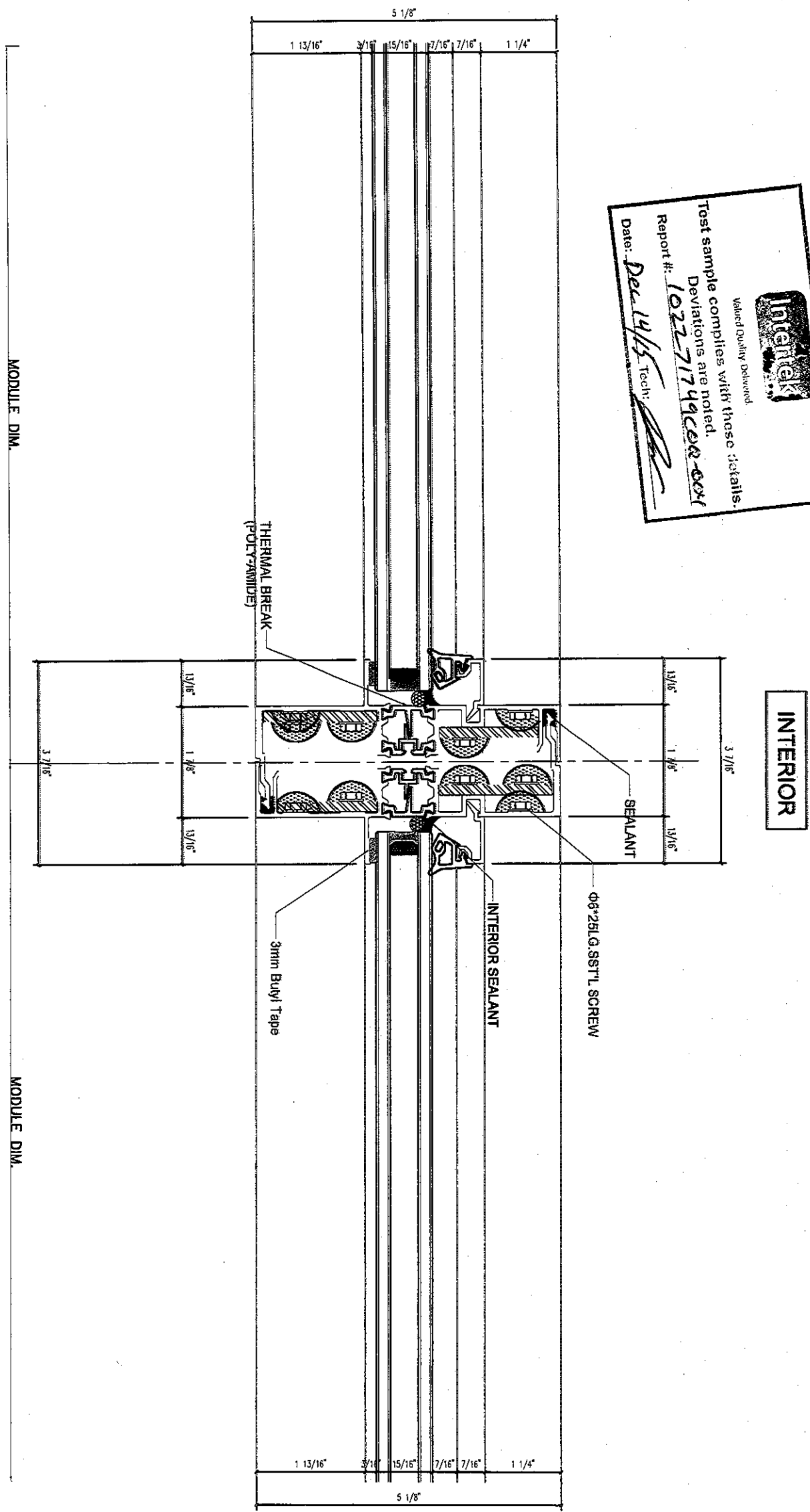


Valued Quality Delivered

Test sample complies with these details.  
Deviations are noted.


Report #: 102271749ce02-001

Date: Dec 14/15 Tech: 



1 HORIZONTAL SECTION  
D-01 @MULLION VISION PART


4th.		
3rd.		
2nd.		
1st.		
REV	DATE	DESCRIPTION



WINSPIA

880 Seagrave Way, Suite 80, Yuma, AZ 85309  
www.winspia.com  
TEL: +1-604-900-4490

PROJECT TITLE	
ARCHITECT	
CONTRACTOR	
SHEET TITLE	SECTION DETAIL
DATE	JUN. 06, 2015
DRAWN BY	MO LEE
CHECKED BY	
APPROVED BY	
SCALE	SD-04
SHEET	

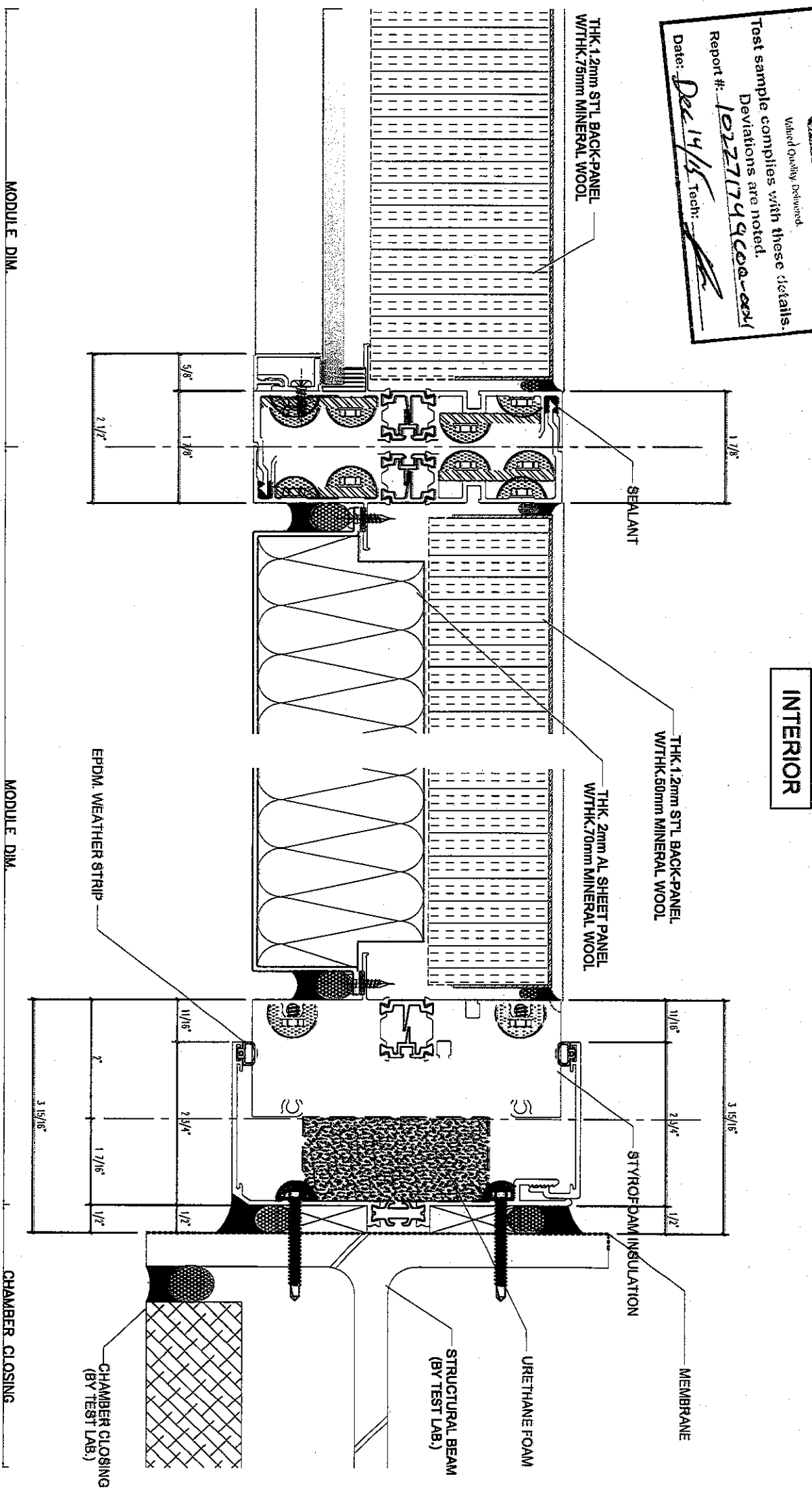


Valued Quality Delivered

Test sample complies with these details.  
Deviations are noted.

Report #: 102271744000-001

Date: Dec 14/15 Tech: *[Signature]*



1 HORIZONTAL SECTION  
D-01 @SIDE S.G & S.P PART

4th.		
3rd.		
2nd.		
1st.		
REV	DATE	DESCRIPTION



WINSPIA

880 Redstone Way Delta BC V9M 5B8

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TEL: +1-604-800-4680

PROJECT TITLE	
ARCHITECT	
CONTRACTOR	
SHEET TITLE	SECTION DETAIL
DATE	JAN. 09, 2015
DRAWN BY	MJ LEE
CHECKED BY	
APPROVED BY	
SCALE	
SHEET	6D-05



Valued Quality. Delivered

Valued Quality Delivered.  
Test sample complies with these details.  
Deviations are noted.

Report #: 1001

Date \_\_\_\_\_

## STYROFOAM INSULATION

MEMBRANE

## URETHANE FOAM

STRUCTURAL BEAM  
(BY TEST LAB.)

EPDM. WEATHER STRIP

CHAMBER CLOSING  
(BY TEST LAB.)

## MODULE DIM

**CHAMBER CLOSING**

## EXTERIOR

## 1 HORIZONTAL SECTION

B-01 @SIDE VENT PART

**WINSPIA**  
890 Bellinger Way Delta BC V3M 5R6  
WWW.WINSPIA.CA  
TEL: +1-604-860-4450

PROJECT TITLE

ARCHITECT

**CONTRACTOR**

SHEET TITLE

## SECTION DETAIL

DATE : JUN. 09. 2015

DRAWN BY MGL

**CHECKED BY**

APPROVED BY

SCALE

SHEET

1883

90-08

CHAMBER CLOSING

MEMBRANE

STYROFOAM INSULATION

URETHANE FOAM

MODULE DIM.

EXTERIOR

INTERIOR

3mm Butyl Tape

INTERIOR SEALANT

MODULE DIM.



Unfused Quality Delivered

Test sample complies with these details.  
Deviations are noted.

Report #: 10227144C00-004

Date: Dec 14/15 Tech: [Signature]

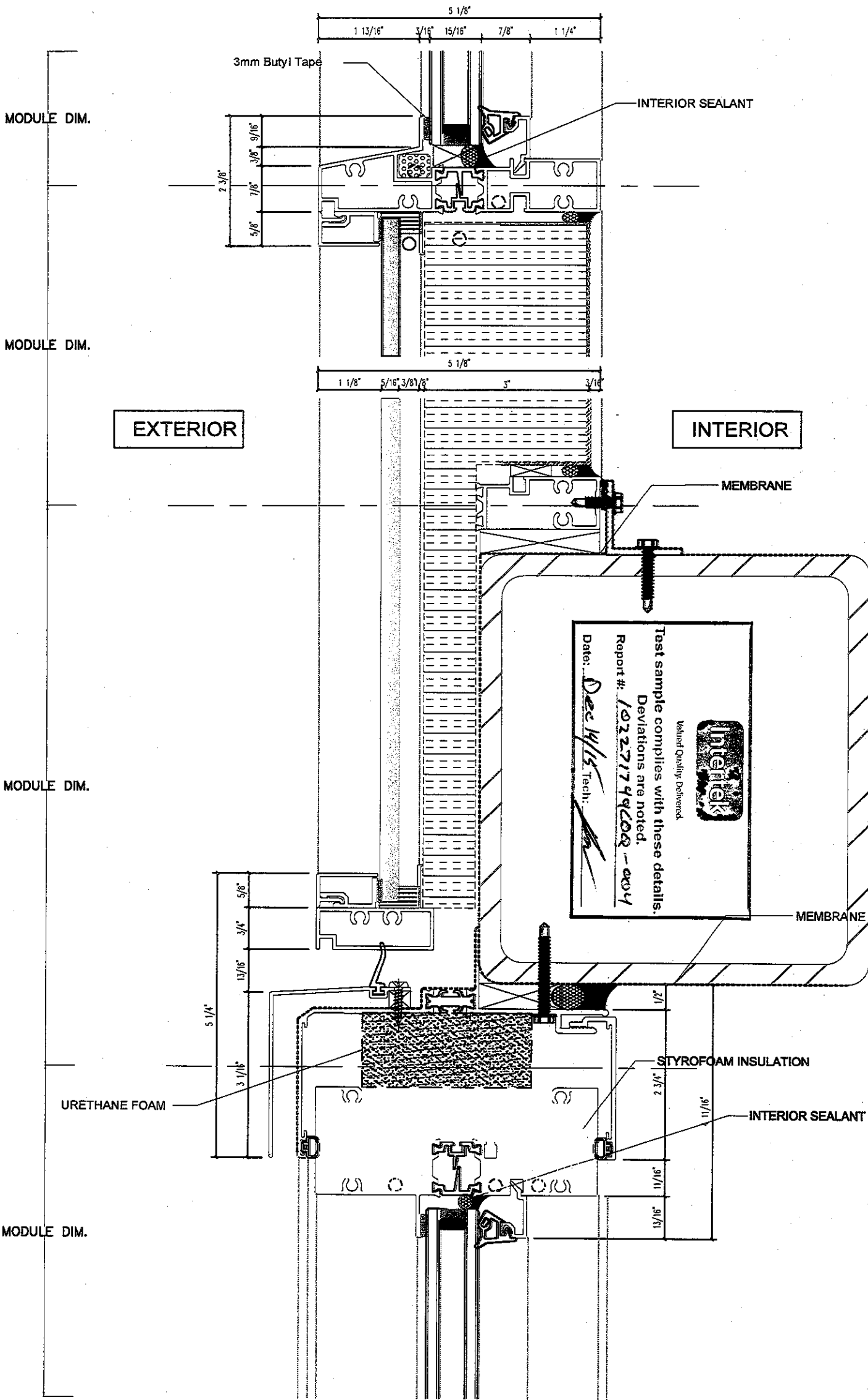
REV	DATE	DESCRIPTION
4th.		
3rd.		
2nd.		
1st.		



**WINSPIA**  
880 Belgrave Way Delta BC V9M 6R8  
www.winspia.ca  
TEL: +1-800-800-4490


PROJECT TITLE	
ARCHITECT	
PRIME CONTRACTOR	
SHEET TITLE	VERTICAL SECTION DETAIL
DATE	28/11/2014
DRAWN BY	
CHECKED BY	
APPROVED BY	
SCALE	
SHEET	SD-07





Inteltek  
 Valued Quality Delivered  
 Test sample complies with these details.  
 Deviations are noted.  
 Report #: 102271749200 - 0004  
 Date: Dec 14/15, Tech: [Signature]

REV	DATE	DESCRIPTION
4th.		
3rd.		
2nd.		
1st.		

  
**WINSPIA**  
 880 Belgrave Way Delta BC V4M 6R8  
 www.winspia.ca  
 TEL: +1-604-800-4490

PROJECT TITLE: \_\_\_\_\_

ARCHITECT: \_\_\_\_\_

PAINE CONTRACTOR: \_\_\_\_\_

SHEET TITLE: \_\_\_\_\_

VERTICAL SECTION DETAIL

DATE: 28/11/2014

DRAWN BY: \_\_\_\_\_

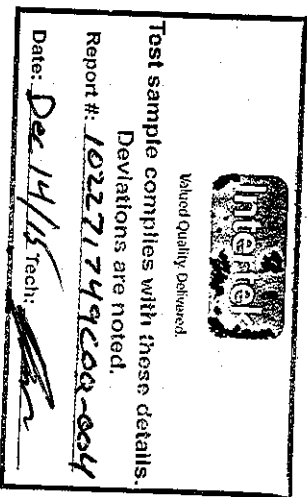
CHECKED BY: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

SCALE: \_\_\_\_\_

SHEET: SD-08





4th.		
3rd.		
2nd.		
1st.		
REV	DATE	DESCRIPTION

**WINSPIA**  
890 Belgrave Way Delta BC V3M 6R8  
www.winspia.ca  
TEL : +1-800-800-4490

**PROJECT TITLE.**

ARCHITECT

## PRIME CONTRACTOR

**SHEET 1111**

### VERTICAL SECTION DETAIL

DATE : 28/11/2014

**DRAWN BY**

**CHECKED BY**

**APPROVED BY**

SCALE

DATE	TIME	LOCATION	REMARKS
------	------	----------	---------

**श्रीराम**

1

## **APPENDIX B**

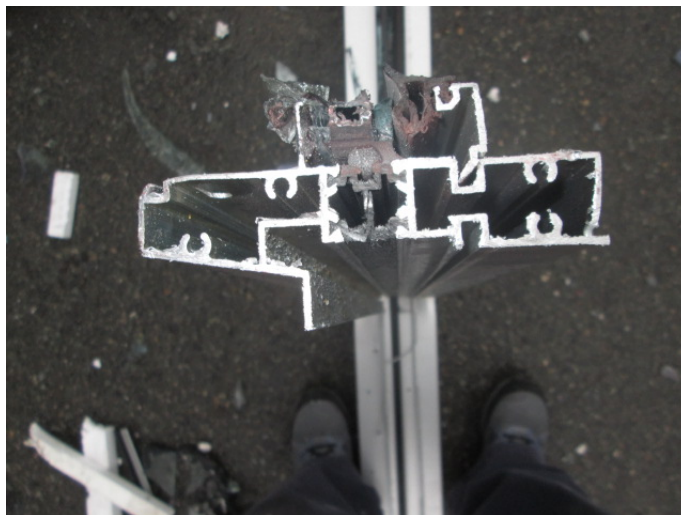
Additional Photographs – 4 Pages



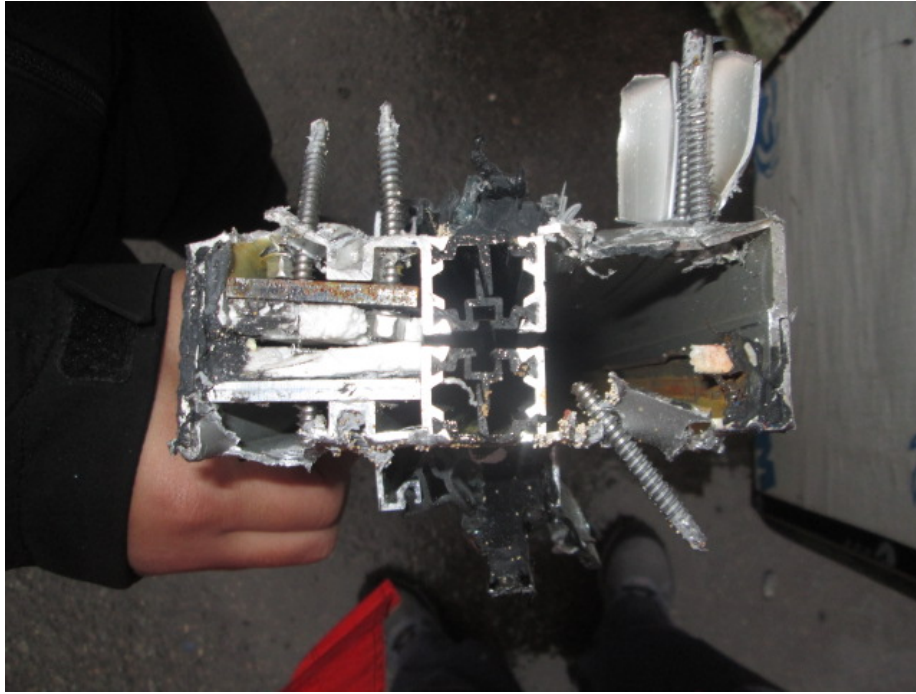
**Casement Sash Profile – Latch Rail, Left; Bottom Rail, Right**



**Casement Main Frame Insert Profile**



**Horizontal Mullion – Casement Below, Fixed Above**

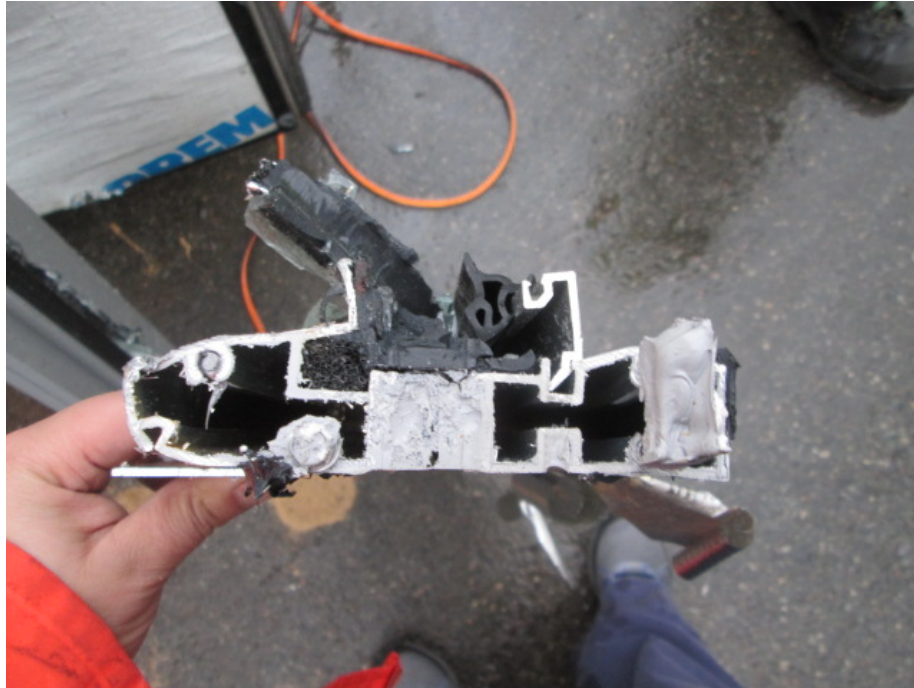


**Vertical Mullion**



**Inside Jamb Track**





**Sill Profile**



**Inside the Stainless Steel Back-Pan w/ Glazed Exterior**

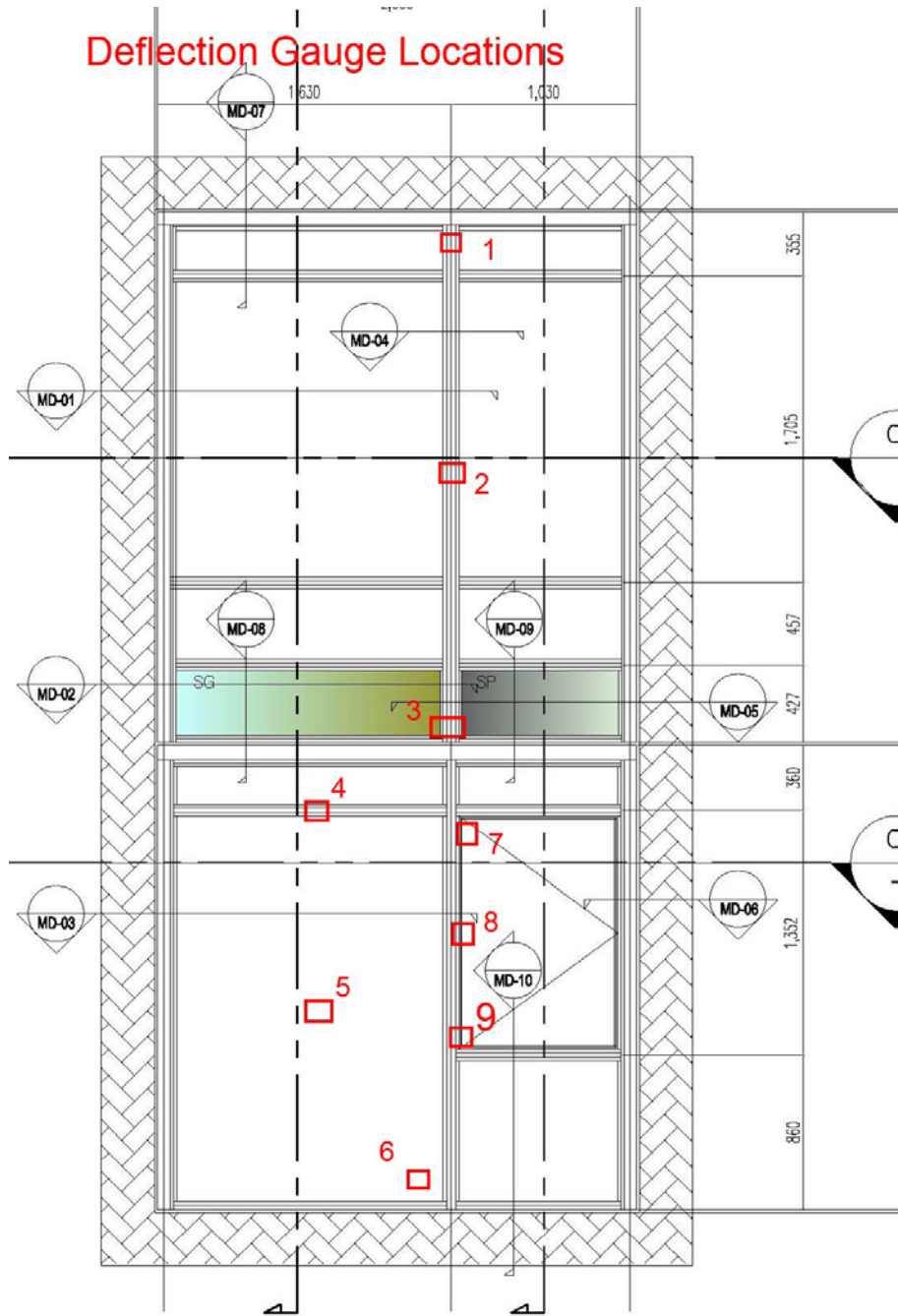


**Inside Stainless Steel Back-Pan w/ Stainless Pan Exterior**

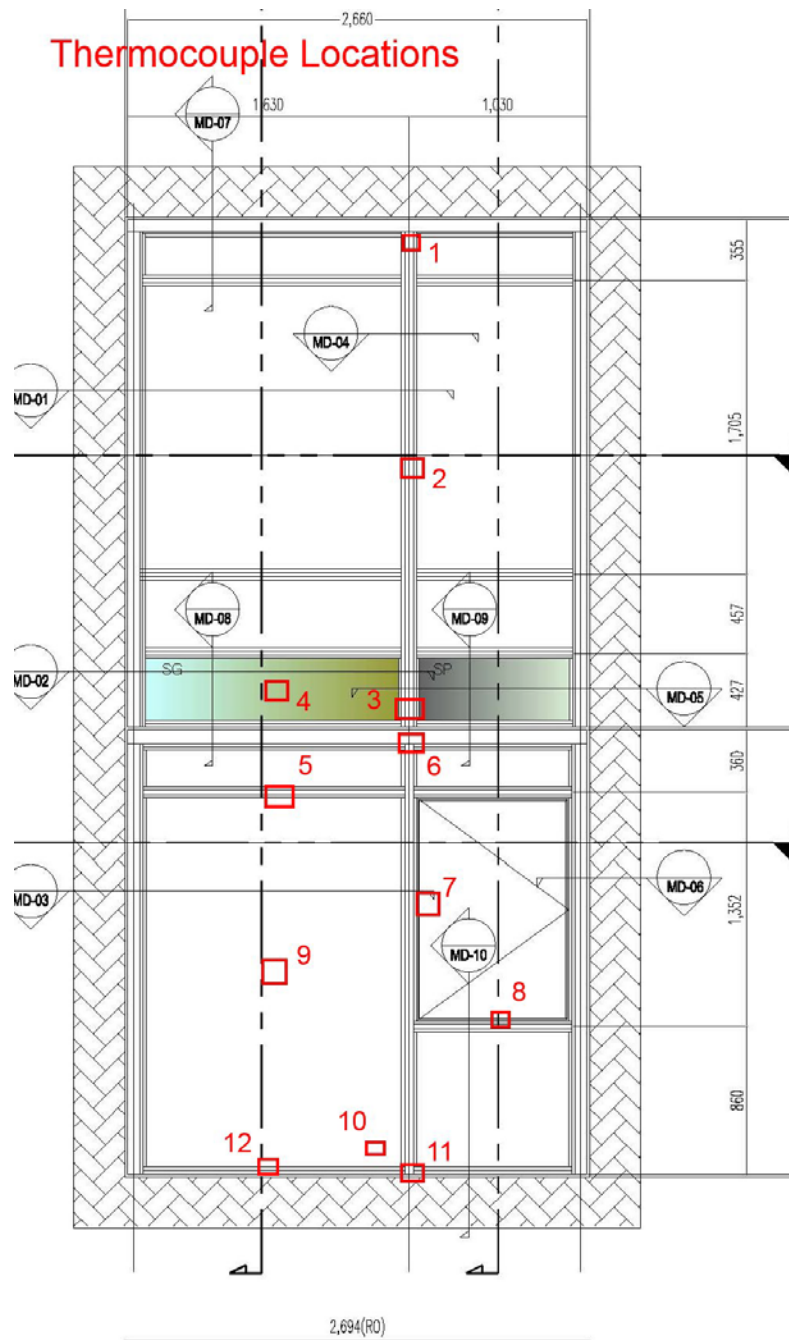


## **APPENDIX C**

Deflection Gauge and Thermocouple Locations – 2 Pages



2.694(RN)  
Deflection Gauge Locations



## **APPENDIX D**

Revision Table – 1 Page

<b><u>Revision Table</u></b>				
<b><u>Date</u></b>	<b><u>Section</u></b>	<b><u>Description</u></b>	<b><u>Technician</u></b>	<b><u>Reviewer</u></b>
Dec 16/15	----	Original Issue Date	----	----