

**TESTING
LABORATORIES, INC.**

**TESTING
LISTING
EVALUATION**

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**TAS 201 - IMPACT TEST PROCEDURES, TAS 202 - UNIFORM
STATIC AIR PRESSURE, AND TAS 203 - CRITERIA FOR TESTING
PRODUCTS SUBJECT TO CYCLIC WIND PRESSURE LOADING:
SINOCORE® PREFINISHED ARCHITECTURAL WALL PANELS
WITH ONE PIECE EXTRUDED ALUMINUM TRIM MOLDINGS**

Prepared for:
**Citadel Architectural Products, Inc.
3131-A North Franklin Road
Indianapolis, Indiana 46226**

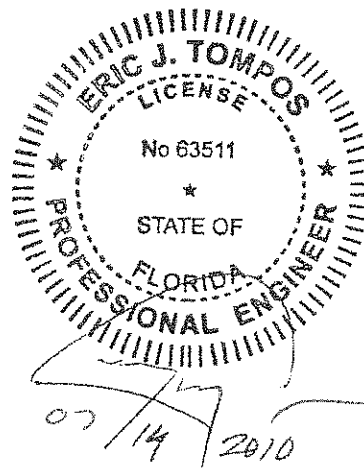
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Test Report: CIT070805-24 Rev1
Issued: October 21, 2005
Revised: July 14, 2010

Prepared By:
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Reviewed By:
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1. INTRODUCTION

Citadel Architectural Products, Inc. retained NTA Testing Laboratories, Inc. to evaluate the structural performance of SinoCore[®] prefinished architectural wall panels in accordance with TAS 201¹, TAS 202², and TAS 203³. All tests were conducted at the NTA Testing Laboratory, Inc. facility located in Nappanee, Indiana.

2. TEST PROGRAM

2.1. DESCRIPTION OF TEST SPECIMENS

Four similar test assemblies were constructed from the sample composite panel provided by the client. The client also provided the trim moldings, reinforcing anchors, wood sealer, flashing materials, fasteners, sealant, backer rod, bond breaker tape and foam tape. NTA Testing Laboratories, Inc. did not oversee or verify the sampling procedure used by the client when selecting the sample material provided.

A summary of the construction materials is provided in Table 1, with a summary of the attachment methods provided in Table 2. Figures 1, 2 and 3 provide overall specimen construction, panel adhesive / foam tape diagrams and flashing details, respectively.

Table 1: Materials

Location	Material
Composite Panel	SinoCore® Prefinished Architectural Wall Panels: High Density Polypropylene Core (5/32-in.) Between (2) Layers of Primed Smooth Aluminum Facings made of Alloy 3105 Temper H24, Gauge .024-in., Fy = 25.6 ksi, Fu = 28.7 ksi (Figure 4)
Reinforcing Anchor	7011-RA Reinforcing Anchor
Plywood Sheathing	19/32-in. 5 Ply, 40/20 Rated, Exposure 1
Framing	2x6 #1 SYP, 16-in. oc
Trim Molding	One-Piece Aluminum Extrusions MLD E-301 H 12-ft. Mill Finish (Figure 5) MLD E-304 J 12-ft. Mill Finish (Figure 6) made of Alloy 6063 Temper T-5
Panel Adhesive	Franklin Titebond™ Heavy Duty Construction Adhesive
Wood Sealer	Sher-Wood® Homoclad® Sealer (V81V1) Manufactured by Sherwin Williams
Flashing	0.040 Mill Finish Aluminum
Foam Tape	1-1/2-in. x 3/16-in. (WxT) Light Density Black Foam Tape Manufactured by Gaska Tape Inc.
Backer Rod	1/2-in. (Bulb) Gray Backing Rod
Bond Breaker Tape	Patco® 502A 1/2-in. Wide Clear Low Density Polyethylene Tape with Acrylic Based Pressure Sensitive Adhesive
Joint Sealant	Tremco® Spectrum® 2 High Performance Silicone

Table 2: Fastening and Application Schedule

Material(s)	Fastener/Application	Quantity or Spacing
Composite Panel-to-Plywood Sheathing	Application of Panel Adhesive 100% Coverage Over a 2-1/2-in. to 3-in Circular Area, 1/4-in. to 3/8-in High	16-in. oc (Figure 2)
Plywood Sheathing-to-Framing	0.131-in. x 2-1/2-in. Nail	8-in. oc Edge 8-in. oc Field
Trim Moldings-to-Sheathing	#7 x 1-5/8-in. Flat Head Screw, Hi-Lo Threads, Painted Bronze	16-in oc
Flashing-to-Plywood Sheathing	#7 x 1-5/8-in. Flat Head Screw, Hi-Lo Threads, Painted Bronze	32-in. oc
Sealant	Applied to Top Side of Plywood	(2) Coats
Flashing-to-Plywood Sheathing	Tremco® Spectrum® 2 High Performance Silicone, Continuous 3/16-in. Bead	As Shown per Figure 11
Composite Panel-to-Trim Molding	Tremco® Spectrum® 2 High Performance Silicone, (1) Continuous 3/16-in. Bead	As Shown per Figures 8 thru 10 and 12
Bulk Frame-to-Trim Molding	Tremco® Spectrum® 2 High Performance Silicone, Sufficient Sealant to Fill Gap (Flush with Top Surface of Trim Molding)	As Shown per Figures 8,10 and 12

2.2. TEST PROCEDURE

The tests were conducted in accordance with testing application standard's (TAS) 201¹, 202², and 203³.

Accordingly, three replicate samples were tested in accordance to TAS 201 and 203. The test setup for TAS 201 consisted of missile cannon capable of firing a 9 lbm 2x4 #2 Southern Pine at speeds of 50 ft./sec. After successful completion of this test, the same (3) specimens are subjected to a cyclic wind pressure loading that was in accordance with TAS 203.

In accordance with TAS 203, the sample is mounted to an airtight enclosure of sufficient depth to allow for unobstructed deflection of the specimen. A 2 mil polyethylene film is used to seal the specimen to subject positive and negative cyclic loads as specified in Table 1626 of the Florida Building Code¹. The film is pleated at each corner and at all offsets so that no fillet develops in the plastic.

A fourth sample was tested in accordance with TAS 202. This testing application standard consists of three individual test procedures: static pressure, water intrusion, and air leakage. The static pressure test consists of apply a uniform static air pressure difference, inward and outward, equal to one and one-half times the design pressure and held for a minimum of 30 seconds. The water intrusion test is performed by delivering and maintaining a water spray at the rate of 5 gph/sf to the exterior surface of the wall assembly while maintaining a differential pressure of not less than 15% of the design pressure for a minimum of 15 minutes. The air leakage test is to determine the rate of air leakage through the sample by maintaining a specified pressure difference across the sample while measuring the air flow thru the specimen.

Instrumentation consisted of a pressure sensors, manometer and dial indicators. Dial indicators, with a resolution of 0.001-in., is positioned along selected elements to measure the maximum deflection along with permanent deflections. Where the specimen is continuous over multiple supports, the gauges are positioned at the points of theoretical maximum deflection. Exact gauge location as shown in Figure 7.

3. RESULTS

Four replicate specimens were tested using the procedures outlined herein. Three specimens were impact tested and subject to a simulated positive and negative cyclic wind pressures. The additional specimen was tested to a simulated uniform static air pressure, water spray, and air infiltration tests. A summary of the test results are provided in Table 3, 4, 5, and 6 below with detailed test data provided in the Appendix.

Table 3: TAS 201 Test Results

Specimen	Impact	Missile Velocity (ft./sec.)	Condition of Test Specimen After Testing	Result
4038	1	53.2	Missile Rejected. No Crack Formed Longer than 5-in. and no wider than 1/16-in.	Pass
	2	51.6	Missile Rejected. No Crack Formed Longer than 5-in. and no wider than 1/16-in.	Pass
4039	1	52.1	Missile Rejected. No Crack Formed Longer than 5-in. and no wider than 1/16-in.	Pass
	2	50.2	Missile Rejected. No Crack Formed Longer than 5-in. and no wider than 1/16-in.	Pass
04040	1	51.6	Missile Rejected. No Crack Formed Longer than 5-in. and no wider than 1/16-in.	Pass
	2	50.6	Missile Rejected. No Crack Formed Longer than 5-in. and no wider than 1/16-in.	Pass
Overall				Pass

Table 4: TAS 202 Uniform Static Air Pressure Test Results

Specimen	Specimen Pressure ^a (in-use)	Test Pressure ^b (psf)	Applied Pressure (psf)	Maximum Deflection (in.)	Maximum Permanent Deformation (in.)	Result
4042	Positive	87.0	87.4	0.065	0.0055	Pass
	Negative	117.0	117.0	0.096	0.0039	

^a Pressure differential across specimen under normal installation conditions.

^b Test pressure is 1.5 times the design pressure.

Table 5: TAS 202 Water Spray Test Results

Specimen	Applied Pressure ^a (psf)	Spray Rate (gph/sf)	Water Infiltration	Result
4042	12.48	5	No Water Present	Pass

^a Applied pressure is 15% of the negative design pressure.

Table 6: TAS 202 Air Infiltration Test Results

Specimen	Specimen Pressure ^a (in-use)	Direction of Air Flow	Air Leakage per Unit Length of Operable Crack Perimeter (ft ³ /min ft.)	Air Leakage per Unit Area (ft ³ /min ft.)
4042	Positive	Infiltration	n/a	0.002

^a Pressure differential across specimen under normal installation conditions.

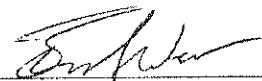
4. CONCLUSION

Citadel Architectural Products, Inc. retained NTA Testing Laboratories, Inc. to evaluate the structural performance of SinoCore[®] prefinished architectural wall panels in accordance with TAS 201, 202, and 203. The overall results of this evaluation are summarized in Table 4, below.

Table 4: Conclusion

Specimen	Maximum Panel Size Tested (ft.)	Maximum Design Pressure Rating (psf)	Overall Results
SinoCore [®] Prefinished Architectural Wall Panels with One Piece Extruded Aluminum Trim Molding Fastened and Constructed as Detailed Herein.	5 x 12	+58 / -78	Complies with TAS 201, 202, and 203 for assemblies up to and including 30 ft.

PREPARED BY:

 7-14-10
Brad Wear
Test Engineer

REVIEWED BY:


Eric Tompos, P.E.
Test Engineer

REFERENCES



1. Florida Building Code (FBC) Test Protocols for High-Velocity Hurricane Zones. *Impact Test Procedures*. Testing Application Standard (TAS) 201-94. International Code Council, Inc., Country Club Hills, IL, 2008. 6pp.
2. Florida Building Code (FBC) Test Protocols for High-Velocity Hurricane Zones. *Criteria for Testing Impact and Non-Impact Resistant Building Envelope Components Using Uniform Static Air Pressure*. Testing Application Standard (TAS) 202-94. International Code Council, Inc., Country Club Hills, IL, 2008. 6pp.
3. Florida Building Code (FBC) Test Protocols for High-Velocity Hurricane Zones. *Criteria for Testing Products Subject to Cyclic Wind Pressure Loading*. Testing Application Standard (TAS) 203-94. International Code Council, Inc., Country Club Hills, IL, 2008. 5pp.

FIGURES

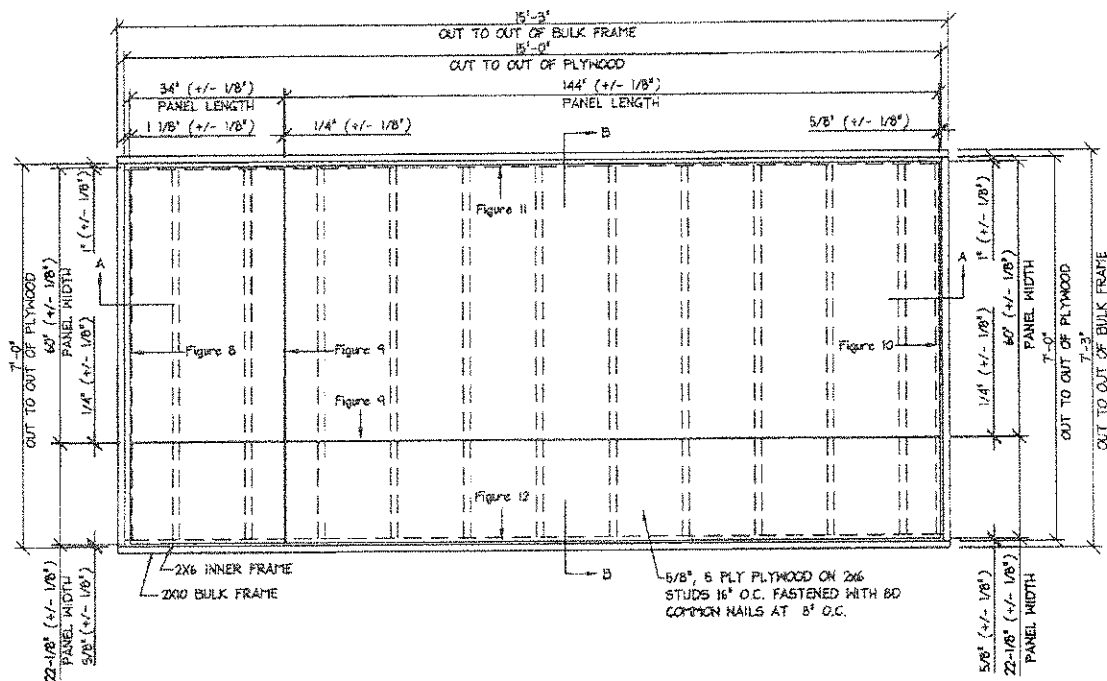


Figure 1: Test Specimen

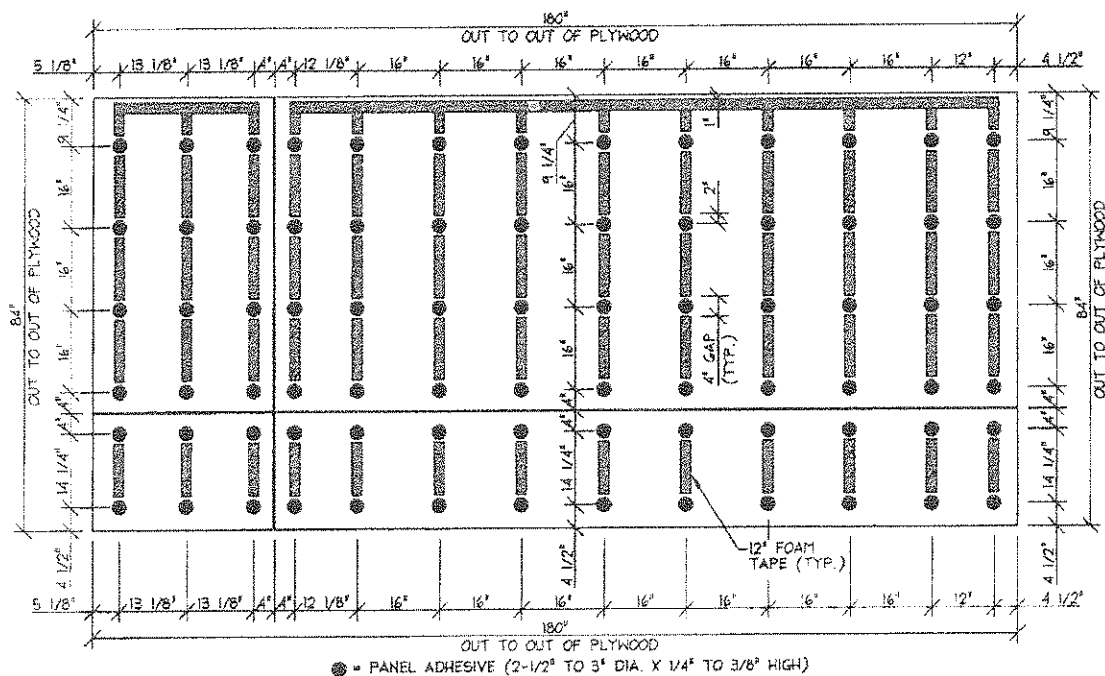


Figure 2: Panel Adhesive and Tape Layout

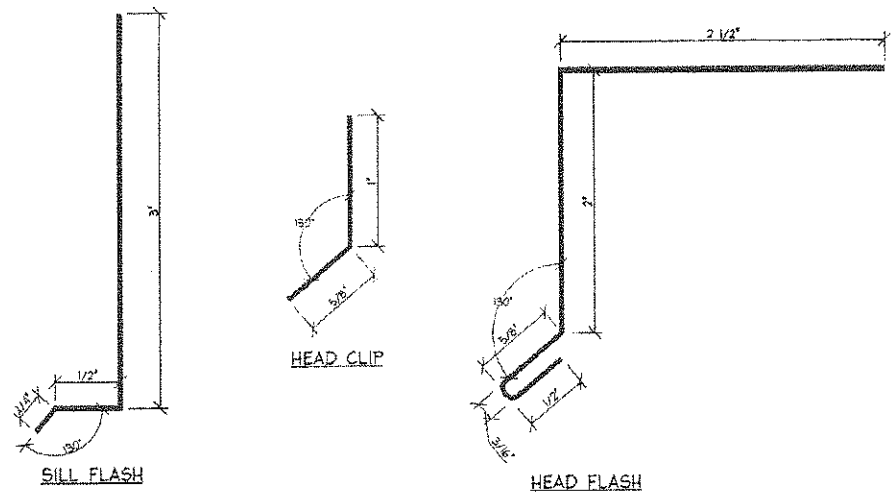


Figure 3: Flashing Details

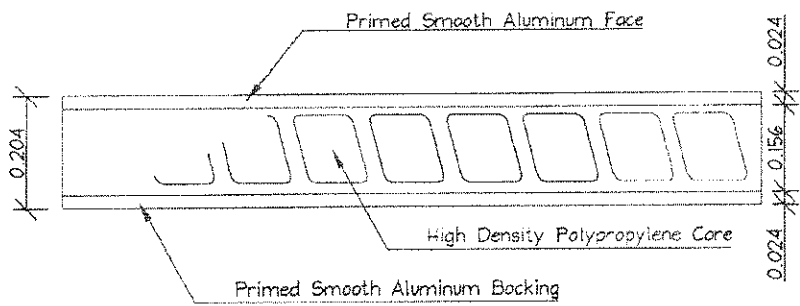
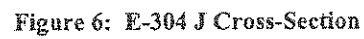
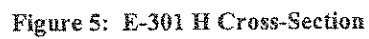


Figure 4: SinoCore® Cross-Section



FIGURES

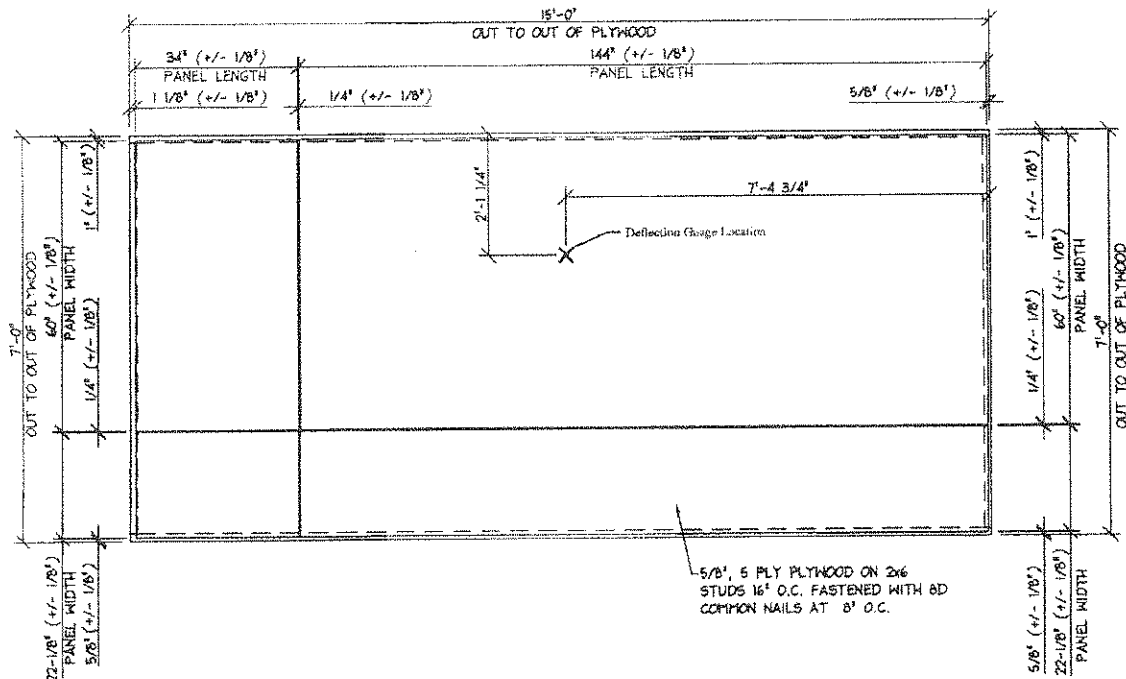


Figure 7: Dial Gauge Locations

FIGURES

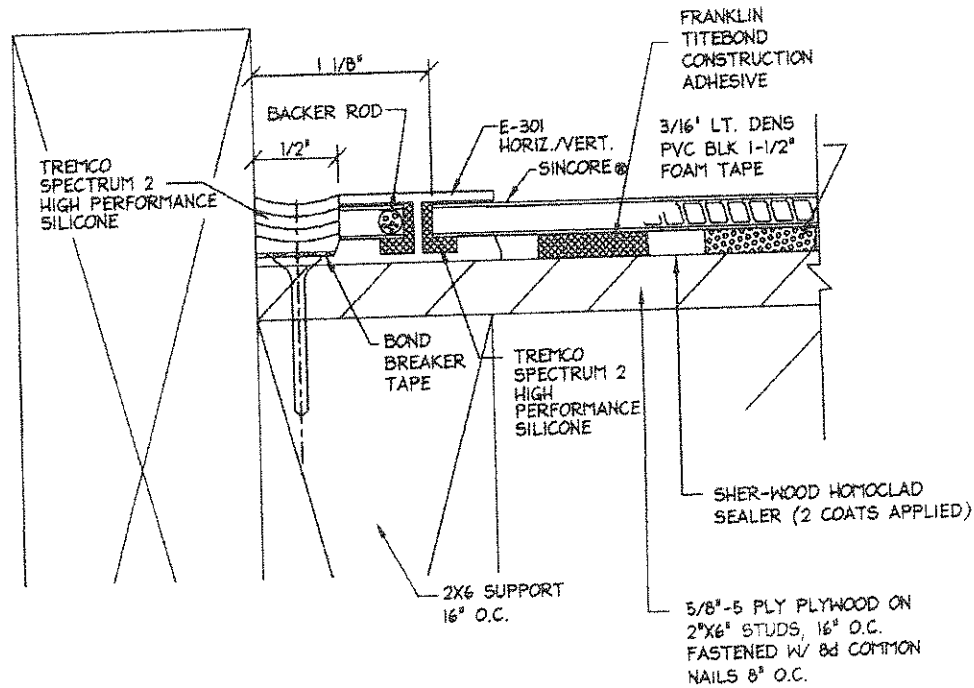


Figure 8

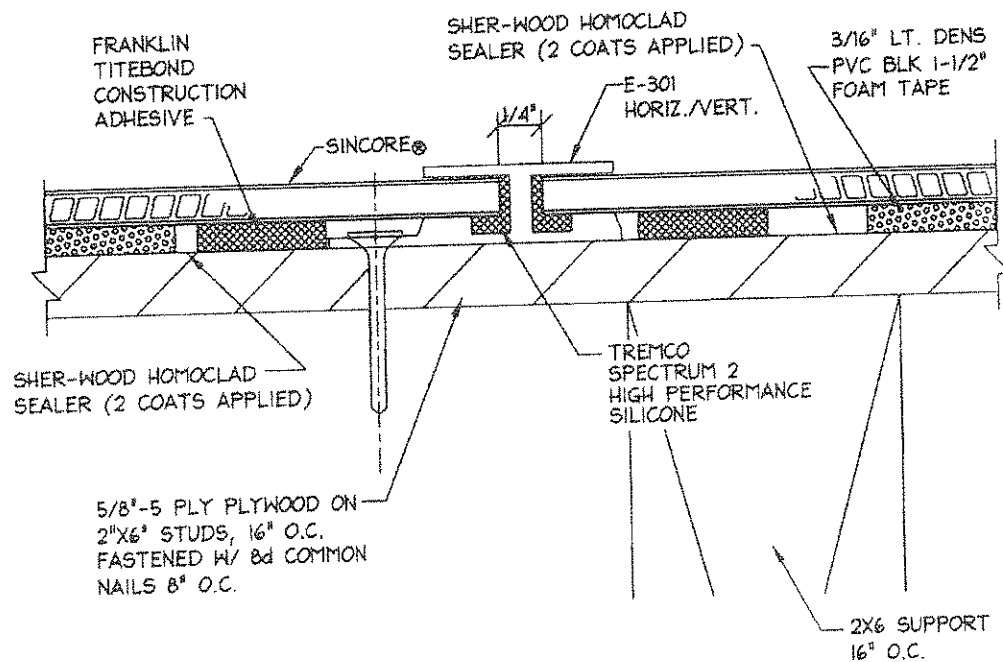


Figure 9

FIGURES

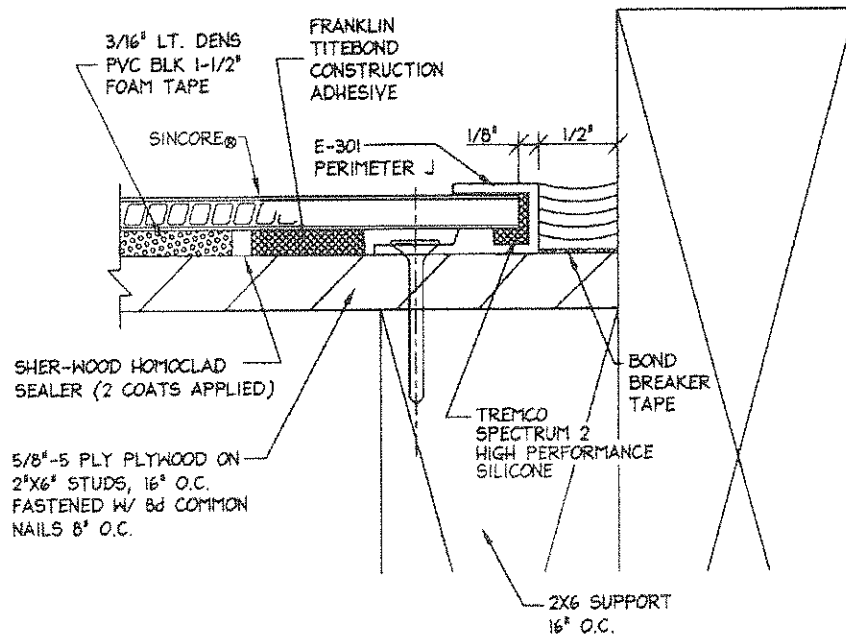


Figure 10

FIGURES

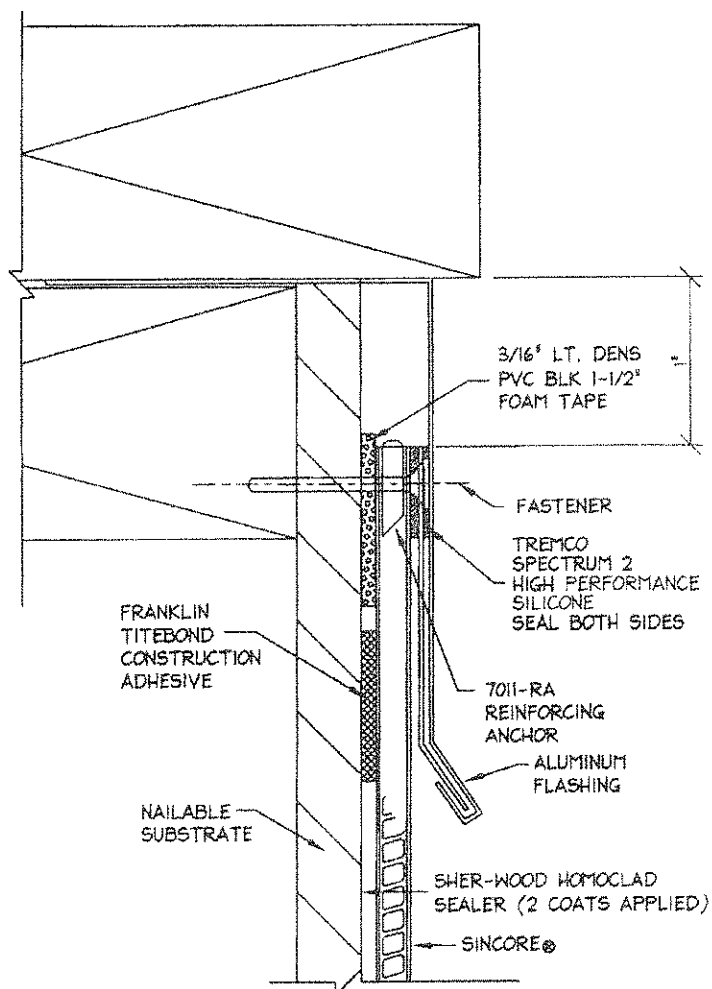


Figure 11

FIGURES

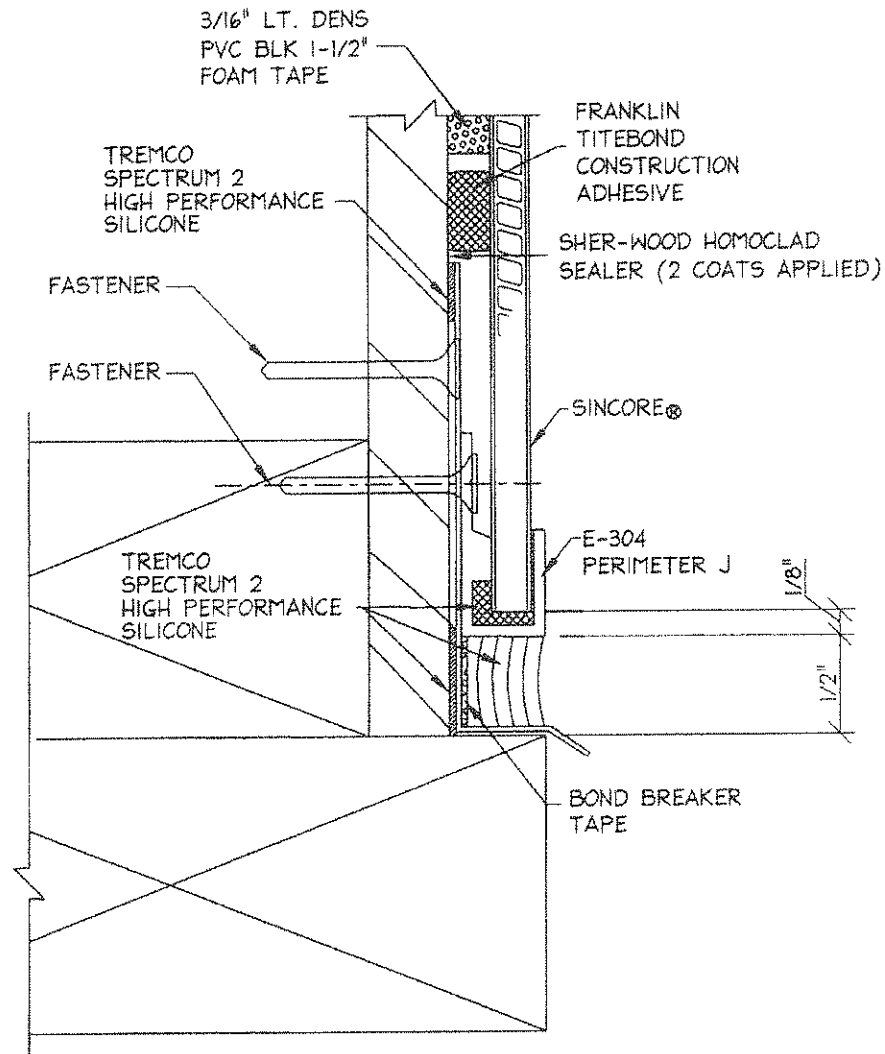


Figure 12

FIGURES

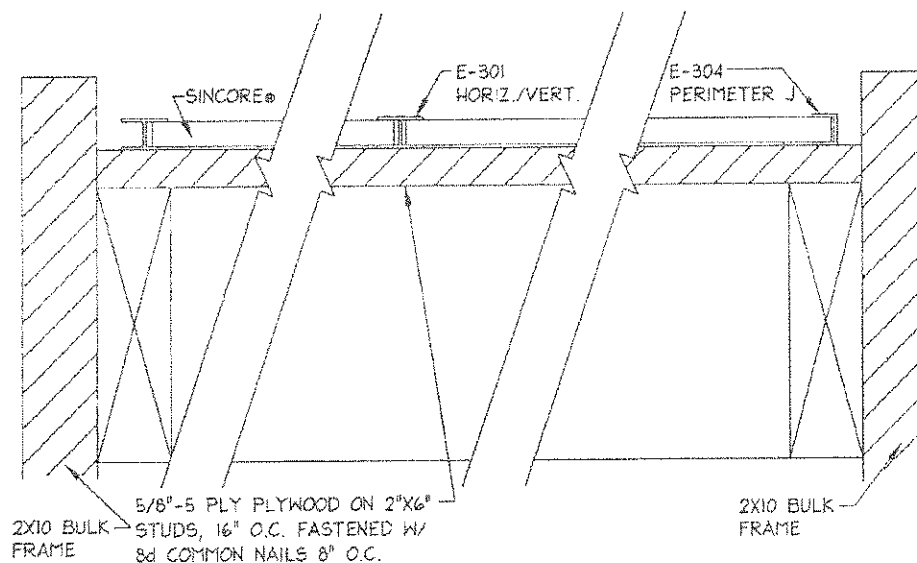


Figure 13: Section A-A

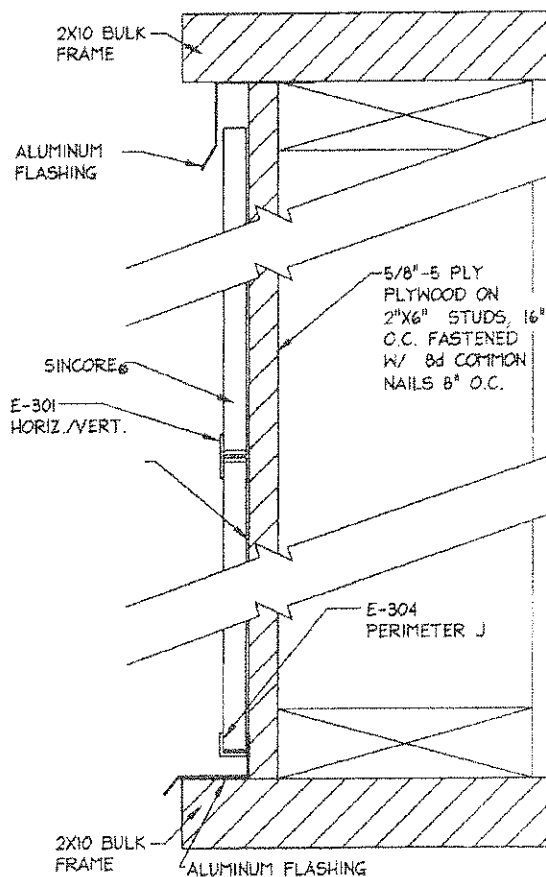


Figure 14: Section B-B

APPENDIX



CIT070805-24 sample #4038-4040 TAS 201 Impact Test Procedure Large Missile, Wall Assembly 2004-12-21.xls
Out

NTA Testing Laboratories, Inc.

Florida Building Code, Section 1626.2.3 Testing Application Standard (TAS) 201 Impact Test Procedures Exterior Wall Assembly Specimen 1

Client: Citadel Architectural Products, Inc.
Job Number: CIT070805-24

Performed By: Dale Arter
Witnessed By: David R Tompos

General:	Apparatus:	Asset No.	Ambient Conditions:
Received: 8/8/2005	Missile Cannon	00495	Ambient Temp.: 82.6 deg. F
Fabrication Date: 8/12/2005	Speed Measurement	00499	Ambient R.H.: 56%
Test Date: 9/8/2005	Digital Dial Gauge:	n/a	Sensor Asset No.: 00200
Test Location: NTA Testing Laboratories, Inc. Nappanee, Indiana	Balance:	00328	

Specimen Description:

Specimen No.: 04038
Description: SinoCore Prefinished Architectural Panels
Manufacture: Citadel Architectural Products, Inc.
Test Variable(s): Joint Configuration: One-Piece Extrusion

Table A1: Specimen 1 Test Data

	Missile Weight (lbm)	Missile Velocity (ft./sec.)	Impact Location ^a		Condition After Impact
			X Coordinate (in.)	Y Coordinate (in.)	
1	9.3	53.2	43.5625	31.1250	Missile rejected. No crack formed longer than 5-in. and 1/16-in wide.
2	9.3	51.6	111.0000	54.2500	Missile rejected. No crack formed longer than 5-in. and 1/16-in wide.

^a Center of impact located from the lower left corner of the specimen or from the lower left inside edge of the door or window frame.

Notes:

Yes film was used to seal the specimen.
The film did not influence the test results.

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Created By: Eric Tompos
Reviewed & Approved By: Dale Arter

Issued /Revised 12/21/04
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APPENDIX



CIT070805-24 sample #4038-4040 TAS 201 Impact Test Procedure Large Missile, Wall Assembly 2004-12-21.xls
 Out

NTA Testing Laboratories, Inc.

Florida Building Code, Section 1626.2.3 Testing Application Standard (TAS) 201 Impact Test Procedures Exterior Wall Assembly Specimen 2

Client: Citadel Architectural Products, Inc.
 Job Number: CIT070805-24

Performed By: Dale Arter
 Witnessed By: Daved R Tompos

General:	Apparatus:	Asset No.	Ambient Conditions:
Received: 8/8/2005	Missile Cannon	00495	Ambient Temp.: 83.5 deg. F
Fabrication Date: 8/11/2005	Speed Measurement	00499	Ambient R.H.: 55%
Test Date: 9/8/2005	Digital Dial Gauge:	n/a	Senor Asset No.: 00200
Test Location: NTA Testing Laboratories, Inc. Nappanee, Indiana	Balance:	00328	

Specimen Description:
 Specimen No.: 04039
 Description: SinoCore Prefinished Architectural Panels
 Manufacture: Citadel Architectural Products, Inc.
 Test Variable(s): Joint Configuration: One-Piece Extrusion

Table A2: Specimen 2 Test Data

	Missile Weight (lbm)	Missile Velocity (ft./sec.)	Impact Location ^a		Condition After Impact
			X Coordinate (in.)	Y Coordinate (in.)	
1	9.3	52.1	43.5625	30.3125	Missile rejected. No crack formed longer than 5-in. and 1/16-in wide.
2	9.1	50.2	110.3125	54.5625	Missile rejected. No crack formed longer than 5-in. and 1/16-in wide.

^a Center of impact located from the lower left corner of the specimen or from the lower left inside edge of the door or window frame

Notes:
 Yes film was used to seal the specimen.
 The film did not influence the test results.

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 Reviewed & Approved By: Dale Arter

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APPENDIX

CIT070805-24 sample #4038-4040 TAS 201 Impact Test Procedure Large Missile, Wall Assembly 2004-12-21.xls
Out

NTA Testing Laboratories, Inc

Florida Building Code, Section 1626.2.3 Testing Application Standard (TAS) 201 Impact Test Procedures Exterior Wall Assembly Specimen 3

Client: Citadel Architectural Products, Inc.
Job Number: CIT070805-24

Performed By: Dale Arter
Witnessed By: David R Tompos

General:	Apparatus:	Asset No.	Ambient Conditions:
Received: 8/8/2005	Missile Cannon	00495	Ambient Temp.: 83.7 deg. F
Fabrication Date: 8/13/2005	Speed Measurement	00499	Ambient R.H.: 55%
Test Date: 9/8/2005	Digital Dial Gauge:	n/a	Senor Asset No.: 00200
Test Location: NTA Testing Laboratories, Inc. Napanea, Indiana	Balance:	00328	

Specimen Description:
Specimen No.: 04040
Description: SinoCore Prefinished Architectural Panels
Manufacture: Citadel Architectural Products, Inc.
Test Variable(s): Joint Configuration: One-Piece Extrusion

Table A3: Specimen 3 Test Data

	Missile Weight (lbm)	Missile Velocity (ft./sec.)	Impact Location ^a		Condition After Impact
			X Coordinate (in.)	Y Coordinate (in.)	
1	9.1	51.6	43.8125	27.7500	Missile rejected. No crack formed longer than 5-in. and 1/16-in wide.
2	9.1	50.6	109.1250	54.5000	Missile rejected. No crack formed longer than 5-in. and 1/16-in wide.

^a Center of impact located from the lower left corner of the specimen or from the lower left inside edge of the door or window frame

Notes:
Yes tape was used to seal the specimen.
The tape did not influence the test results.

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APPENDIX



CIT070805-24 sample #4042 TAS 202 , Wall Assembly 2005-08-03.xls
Out- Uniform Static Pressure

NTA Testing Laboratories, Inc

**Florida Building Code
Testing Application Standard (TAS) 202
Criteria For Testing Impact & Nonimpact Resistant
Building Envelope Components Using Uniform Static Air Pressure
Specimen 1: Uniform Static Air Pressure**

Client: Citadel Architectural Products, Inc.
Job Number: CIT070805-24

Performed By: Jeff Byrd
Witnessed By: David R. Tompos

General:	Apparatus:	Asset No.	Ambient Conditions:
Received: 8/8/2005	Servo Valve System:	00506	Ambient Temp.: 68.6 deg. F
Fabrication Date: 8/16/2005	Vacuum Table:	n/a	Ambient R.H.: 71%
Test Date: 10/14/2005	Timing Device:	00324	Senor Asset No.: 00200
Test Location: NTA Testing Laboratories, Inc. Nappanee, Indiana			

Specimen Description:
Specimen No.: 04042
Description: SinoCore Prefinished Architectural Panels
Manufacture: Citadel Architectural Products, Inc.
Test Variable(s): Joint Configuration: One-Piece Extrusion
Nominal Size: 180 x 84-in. (LxH)

Loading Conditions:
Support Conditions: SinoCore panel attachment to plywood 16-in. oc.
Positive Design Pressure: 58 psf Postive Test Load: 87 psf (1.5 x Design Pressure)
Negative Design Pressure: 78 psf Negative Test Load: 117 psf (1.5 x Design Pressure)

Table A1: Specimen 1 Test Data

Load Stages	Applied Pressure (psf)	Maximum Deflection Readings ^a						Duration (sec)
		Gauge A	Gauge B	Gauge C	Gauge D	Gauge E	Gauge F	
		00458	--	--	--	--	--	
1/2 Positive Test Load	43.7	0.0505	--	--	--	--	--	34
1/2 Negative Test Load	58.8	0.0510	--	--	--	--	--	35
Positive Test Load	87.4	0.0652	--	--	--	--	--	33
Negative Test Load	117.0	0.0964	--	--	--	--	--	30
Load Stages	Applied Pressure (psf)	Permanent Deformation Readings ^a						Duration (sec)
		Gauge A	Gauge B	Gauge C	Gauge D	Gauge E	Gauge F	
		00458	--	--	--	--	--	
1/2 Positive Test Load	43.7	0.0022	--	--	--	--	--	62
1/2 Negative Test Load	58.8	0.0038	--	--	--	--	--	60
Positive Test Load	87.4	0.0055	--	--	--	--	--	63
Negative Test Load	117.0	0.0039	--	--	--	--	--	61

^a See results summary page for dial gauge location descriptions.

Failure Mode (If any):

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Reviewed & Approved By: Dale Arter

Issued /Revised 10/11/04
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APPENDIX



CIT070805-24 sample #4042 TAS 202 - Wall Assembly 2005-08-03.xls
Out-Water Spray

NTA Testing Laboratories, Inc

**Florida Building Code
Testing Application Standard (TAS) 202
Criteria For Testing Impact & Nonimpact Resistant
Building Envelope Components Using Uniform Static Air Pressure
Specimen 1: Water Spray Test**

Client: Citadel Architectural Products, Inc.
Job Number: CIT070805-24

Performed By: Jeff Byrd
Witnessed By: David R. Tompos

General:	Apparatus:	Asset No.	Ambient Conditions:
Received: 8/8/2005	Servo Valve System:	00506	Ambient Temp.: 68.6 deg. F
Fabrication Date: 8/16/2005	Vacuum Table:	n/a	Ambient R.H.: 71%
Test Date: 10/14/2005	Timing Device:	00324	Senor Asset No.: 00200
Test Location: <i>NTA Testing Laboratories, Inc. Nappanee, Indiana</i>			

Specimen Description:

Specimen No.: 04042
Description: *SinoCore Prefinished Architectural Panels*
Manufacture: *Citadel Architectural Products, Inc.*
Test Variable(s): *Joint Configuration: One-Piece Extrusion*
Nominal Size: *180 x 84-in. (LxH)*

Loading Conditions:

Applied Pressure: 12.48 psf (15% of Negative Design Pressure)
Water Spray Rate: A minimum of 5 gph/sf applied for 15 minutes

Notes:

Yes tape and film was used to seal the specimen.
The tape and the film did not influence the test results.

Results:

Specimen passes the water spray test, no water infiltration occurred.

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Reviewed & Approved By: Dale Arter

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APPENDIX



CIT070805-24 sample #4042 TAS 202 , Wall Assembly 2005-08-03.xls
Out-Air Infiltration

NTA Testing Laboratories, Inc.

**Florida Building Code
Testing Application Standard (TAS) 202
Criteria For Testing Impact & Nonimpact Resistant
Building Envelope Components Using Uniform Static Air Pressure
Specimen 1: Air Infiltration**

Client: Citadel Architectural Products, Inc.
Job Number: CIT070805-24

Performed By: Jeff Byrd
Witnessed By: David R. Tompos

General:	Apparatus:	Asset No.	Ambient Conditions:
Received: 8/8/2005	Servo Valve System:	00506	Ambient Temp.: 67.1 deg. F
Fabrication Date: 8/16/2005	Vacuum Table:	n/a	Ambient R.H.: 71%
Test Date: 10/14/2005	Timing Device:	00324	Senor Asset No.: 00200
Test Location: NTA Testing Laboratories, Inc. Nappanee, Indiana			

Specimen Description:
Specimen No.: 04042
Description: SinoCore Prefinished Architectural Panels
Manufacture: Citadel Architectural Products, Inc.
Test Variable(s): Joint Configuration: One-Piece Extrusion
Nominal Size: 180 x 84-in. (LxH)

Loading Conditions:
Test Pressure: 77.5 Pa
Specimen Pressure (in-use): Positive
Direction of Air Flow: Infiltration
Length of Operable Crack Perimeter (L): n/a
Specimen Area (A): 105 sq. ft.
Temperature of Air at Flow Meter (T): 67.1 deg. F
Barometric Pressure at Test Site (B): 29.51 in. Hg
Total Air Flow (Q_t): 4.97 cfm
Extraneous Leakage (Q_e): 4.72 cfm
Air Leakage Through Test Specimen (Q_s = Q_t-Q_e): 0.24 cfm

Results:
Air Leakage per Unit Length of Operable Crack Perimeter (q_L = Q_s/L): n/a ft³/min ft
Air Leakage per Unit Area (q_A = Q_s/A): 0.002 ft³/min ft

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APPENDIX



CIT070805-24 Spec 4038-4040 TAS 203 Cyclic Wind Pressure Loading, Wall Assembly 2005-08-03.xls
Oct

NTA Testing Laboratories, Inc.

Florida Building Code, Section 1626.2 Testing Application Standard (TAS) 203 Cyclic Wind Pressure Loading Exterior Wall Assembly Specimen 1

Client: Citadel Architectural Products
Job Number: CIT070805-24

Performed By: Jeff Byrd
Witnessed By: David R Tompos

General:	Apparatus:	Asset No.	Ambient Conditions:
Received: 8/8/2005	Servo Valve System:	00506	Ambient Temp.: 83.7 deg. F
Fabrication Date: 8/12/2005	Vacuum Chamber:	n/a	Ambient R.H.: 62%
Test Date: 9/22/2005			Senor Asset No.: 00200
Test Location: NTA Testing Laboratories, Inc. Nappanee, Indiana			

Specimen Description:

Specimen No.: 04038
Description: SinoCore Prefinished Architectural Panels
Manufacture: Citadel Architectural Products, Inc.
Test Variable(s): Joint Configuration: One-Piece Extrusion

Loading Conditions:

Positive Test Pressure: 75 psf
Negative Test Pressure: 100 psf
Support Conditions: 16-in. oc, continuous over 3 or more supports

Table A1: Specimen 1 Test Data

Load Stages ^a	Specimen Pressure (in-use) ^b	Minimum Applied Pressure (psf)	Maximum Applied Pressure (psf)	Maximum Deflection Readings ^c			
				Gauge A	Gauge B	Gauge C	Gauge D
				00458	--	--	--
0.2P-0.5P	Inward	15.0	37.5	0.032	--	--	--
0.0P-0.6P	Inward	0.0	45.0	0.034	--	--	--
0.5P-0.8P	Inward	37.5	60.0	0.037	--	--	--
0.3P-1.0P	Inward	22.5	75.0	0.042	--	--	--
0.3P-1.0P	Outward	30.0	100.0	0.035	--	--	--
0.5P-0.8P	Outward	50.0	80.0	0.034	--	--	--
0.0P-0.6P	Outward	0.0	60.0	0.026	--	--	--
0.2P-0.5P	Outward	20.0	50.0	0.026	--	--	--

^a Each cycle duration was between 1 to 3 seconds.

^b Pressure differential across specimen under normal installation conditions.

^c See page 4 for dial gauge location descriptions.

Inward Pressure

Maximum Deflection: 0.0416-in.
Permanent Deformation: 0.003-in.

Outward Pressure

Maximum Deflection: 0.0354-in.
Permanent Deformation: 0.001-in.

Failure Mode

None, No Crack Formed Longer than 5-in. and 1/16-in. Wide

Notes:

Yes tape and film was used to seal the specimen.
The tape and the film did not influence the test results.

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APPENDIX

CIT070805-24 Spec 4038-4040 TAS 203 Cyclic Wind Pressure Loading Wall Assembly 2005-08-03.xls
Out

NTA Testing Laboratories, Inc

Florida Building Code, Section 1626.2 Testing Application Standard (TAS) 203 Cyclic Wind Pressure Loading Exterior Wall Assembly Specimen 2

Client: Citadel Architectural Products
Job Number: CIT070805-24

Performed By: Jeff Byrd
Witnessed By: David R Tompos

General:	Apparatus:	Asset No.	Ambient Conditions:
Received: 8/8/2005	Servo Valve System:	00506	Ambient Temp.: 75.7 deg. F
Fabrication Date: 8/11/2005	Vacuum Chamber:	n/a	Ambient R.H.: 62%
Test Date: 9/21/2005			Sensor Asset No.: 00200
Test Location: NTA Testing Laboratories, Inc. Nappanee, Indiana			

Specimen Description:
Specimen No.: 04039
Description: SinoCore Prefinished Architectural Panels
Manufacture: Citadel Architectural Products, Inc.
Test Variable(s): Joint Configuration: One-Piece Extrusion

Loading Conditions:
Positive Test Pressure: 75 psf
Negative Test Pressure: 100 psf
Support Conditions: 16-in. oc, continuous over 3 or more supports

Table A2: Specimen 2 Test Data

Load Stages ^a	Specimen Pressure (in-use) ^b	Minimum Applied Pressure (psf)	Maximum Applied Pressure (psf)	Maximum Deflection Readings ^c			
				Gauge A	Gauge B	Gauge C	Gauge D
				00458	--	--	--
0.2P-0.5P	Inward	15.0	37.5	0.010	--	--	--
0.0P-0.6P	Inward	0.0	45.0	0.011	--	--	--
0.5P-0.8P	Inward	37.5	60.0	0.014	--	--	--
0.3P-1.0P	Inward	22.5	75.0	0.016	--	--	--
0.3P-1.0P	Outward	30.0	100.0	0.020	--	--	--
0.5P-0.8P	Outward	50.0	80.0	0.019	--	--	--
0.0P-0.6P	Outward	0.0	60.0	0.014	--	--	--
0.2P-0.5P	Outward	20.0	50.0	0.013	--	--	--

^a Each cycle duration was between 1 to 3 seconds

^b Pressure differential across specimen under normal installation conditions

^c See page 4 for dial gauge location descriptions

Inward Pressure

Maximum Deflection: 0.0155-in.

Permanent Deformation: 0.001-in.

Outward Pressure

Maximum Deflection: 0.0195-in.

Permanent Deformation: 0.002-in.

Failure Mode

None, No Crack Formed Longer than 5-in. and 1/16-in. Wide.

Notes:

Yes tape and film was used to seal the specimen.

The tape and the film did not influence the test results.

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APPENDIX

CIT070805-24 Spec 4038-4040 TAS 203 Cyclic Wind Pressure Loading, Wall Assembly 2005-08-03.x18
Out

NTA Testing Laboratories, Inc

**Florida Building Code, Section 1626.2
Testing Application Standard (TAS) 203
Cyclic Wind Pressure Loading
Exterior Wall Assembly
Specimen 3**

Client: Citadel Architectural Products
Job Number: CIT070805-24

Performed By: Jeff Byrd
Witnessed By: David R Tompos

General:	Apparatus:	Asset No.	Ambient Conditions:
Received: 8/8/2005	Servo Valve System:	00506	Ambient Temp.: 72.8 deg. F
Fabrication Date: 8/13/2005	Vacuum Chamber:	n/a	Ambient R.H.: 68%
Test Date: 9/22/2005			Senior Asset No.: 00200
Test Location: NTA Testing Laboratories, Inc. Nappanee, Indiana			

Specimen Description:
Specimen No.: 04040
Description: SinoCore Prefinished Architectural Panels
Manufacture: Citadel Architectural Products, Inc.
Test Variable(s): Joint Configuration: One-Piece Extrusion

Loading Conditions:
Positive Test Pressure: 75 psf
Negative Test Pressure: 100 psf
Support Conditions: 16-in. oc, continuous over 3 or more supports

Table A3: Specimen 3 Test Data

Load Stages ^a	Specimen Pressure (in-use) ^b	Minimum Applied Pressure (psf)	Maximum Applied Pressure (psf)	Maximum Deflection Readings ^c			
				Gauge A	Gauge B	Gauge C	Gauge D
0.2P-0.5P	Inward	15.0	37.5	0.019	--	--	--
0.0P-0.6P	Inward	0.0	45.0	0.019	--	--	--
0.5P-0.8P	Inward	37.5	60.0	0.016	--	--	--
0.3P-1.0P	Inward	22.5	75.0	0.024	--	--	--
0.3P-1.0P	Outward	30.0	100.0	0.058	--	--	--
0.5P-0.8P	Outward	50.0	80.0	0.025	--	--	--
0.0P-0.6P	Outward	0.0	60.0	0.017	--	--	--
0.2P-0.5P	Outward	20.0	50.0	0.013	--	--	--

^a Each cycle duration was between 1 to 3 seconds

^b Pressure differential across specimen under normal installation conditions

^c See page 4 for dial gauge location descriptions

Inward Pressure

Maximum Deflection: 0.0235-in.

Permanent Deformation: 0.001-in.

Outward Pressure

Maximum Deflection: 0.0575-in.

Permanent Deformation: 0.004-in.

Failure Mode

None. No Crack Formed Longer than 5-in. and 1/16-in. Wide.

Notes:

Yes tape and film was used to seal the specimen.

The tape and the film did not influence the test results.

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APPENDIX



CIT070805-24 Spec 4038-4040 TAS 203 Cyclic Wind Pressure Loading, Wall Assembly 2005-08-03.xls
Out

NTA Testing Laboratories, Inc.

Florida Building Code, Section 1626.2 Testing Application Standard (TAS) 203 Cyclic Wind Pressure Loading Results Summary

Client: Citadel Architectural Products
Job Number: CIT070805-24

Specimen Description:

Description: SinoCore Prefinished Architectural Panels

Manufacture: Citadel Architectural Products, Inc.

Test Variable(s): Joint Configuration: One-Piece Extrusion

Loading Conditions:

Positive Test Pressure:

Negative Test Pressure:

Support Conditions:

Table A4: Overall Test Results^a

Specimen	Specimen No.	Specimen Pressure (in-use) ^a	Maximum Deflection (in.)	Premenant Deformation At Max. Deflection (in.)	Pressure At Max. Deflection (psf)	Specimen Recovered at least 90% of Maximum Deflection (Pass/Fail)
1	04038	Inward	0.0416	0.003	75.0	Pass
		Outward	0.0354	0.001	100.0	Pass
2	04039	Inward	0.0155	0.001	75.0	Pass
		Outward	0.0195	0.002	100.0	Pass
3	04040	Inward	0.0235	0.001	75.0	Pass
		Outward	0.0575	0.004	100.0	Pass
Overall Result						Pass

^a Pressure differential across specimen under normal installation conditions

Dial Gauge Location:

Dial Gauge A: Located 88-3/4-in. horizontally and 25-1/4" vertically from upper right hand corner of plywood edge.

Notes:

Specimen 1 showed no signs of failure. No crack formed longer than 5-in. and 1/16-in. wide.

Specimen 2 showed no signs of failure. No crack formed longer than 5-in. and 1/16-in. wide.

Specimen 3 showed no signs of failure. No crack formed longer than 5-in. and 1/16-in. wide.

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