

#### AAMA 501-05 AND ASTM E 1886 / ASTM E 1996 TEST REPORT

#### Rendered to:

#### **CORAL ARCHITECTURAL PRODUCTS**

SERIES/MODEL: PW256 Impact-Resistant Curtain Wall System PRODUCT TYPE: Aluminum Curtain Wall with 90° Corner

Title	Summary of Results
Design Pressure	3840 Pa (80.25 psf)
Air Infiltration	$<0.05 \text{ L/s/m}^2$ ( $<0.01 \text{ cfm/ft}^2$ )
Water Penetration Resistance Test Pressure	960 Pa (20.06 psf)
Uniform Load Structural Test Pressure	±5760 Pa (±120.38 psf)

**Test Completion Date**: 03/26/09

This report contains in its entirety:

Cover Page: 1 page
Report Body: 10 pages
Test Equipment: 1 page
Photograph: 1 page
Sketches: 2 pages

Sketches: 2 pages Drawings: 16 pages

Reference must be made to Report No. 85731.01-401-44, dated 06/23/09 for complete test specimen description and data.

2250 Massaro Blvd Tampa, FL 33619 phone: 813-628-4300 fax: 813-628-4433 www.archtest.com



#### AAMA 501-05 and ASTM E 1886 / ASTM E 1996 TEST REPORT

#### Rendered to:

# CORAL ARCHITECTURAL PRODUCTS 310 Rice Mine Road Tuscaloosa, Alabama 35406

Report No.: 85731.01-401-44
Test Dates: 03/25/09
And: 03/26/09
Report Date: 06/23/09
Expiration Date: 03/26/13

**Project Summary**: Architectural Testing, Inc. was contracted by Coral Architectural Products to perform testing on a Series/Model PW256 Impact-Resistant Curtain Wall System, aluminum curtain wall with 90° corner at the Architectural Testing, Inc. test facility in Tampa, Florida. Test specimen description and results are reported herein. The sample was provided by the client.

**Test Specifications**: The test specimen was evaluated in accordance with the following:

AAMA 501-05, Methods of Tests for Exterior Walls.

ASTM E 1886-05, Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.

ASTM E 1996-05, Standard Specification for Performance of Exterior Windows, Glazed Curtain Walls, Doors and Storm Shutters Impacted by Wind Borne Debris in Hurricanes.

#### **Test Specimen Description:**

**Series/Model**: PW256 Impact-Resistant Curtain Wall System

**Product Type**: Aluminum Curtain Wall with 90° Corner



**Test Specimen Description**: (Continued)

**Overall Size**: Long side: 5575 mm (219-1/2") wide by 3823 mm (150-1/2") high

Short side: 1610 mm (63-3/8") wide by 3823 mm (150-1/2") high

**Bottom Daylight Opening Size (3)**: 1454 mm (57-1/4") wide by 2426 mm (95-1/2") high

**Bottom Daylight Opening Size (2)**: 1156 mm (45-1/2") wide by 2426 mm (95-1/2") high

**Top Daylight Opening Size (3)**: 1454 mm (57-1/4") wide by 1175 mm (46-1/4") high

**Top Daylight Opening Size (2)**: 1156 mm (45-1/2") wide by 1175 mm (46-1/4") high

**Overall Area**: 27.5 m<sup>2</sup> (295.6 ft<sup>2</sup>)

Finish: All aluminum was anodized

**Frame Construction**: The frame was constructed of extruded aluminum. The corners and vertical mullions were straight cut and secured with three #14 x 1" square head screws located through jambs into the head and sill screw bosses. The horizontal mullions were secured with the same screws located through the jambs and vertical mullions into the horizontal mullion screw bosses. Aluminum 2-1/2" wide pressure plates were applied to secure the exterior of the glass and were secured with #12 x 1" self-drilling screws located 3" from ends and 14" on center. The  $90^{\circ}$  corner utilized an aluminum snap-in glazing tee and a corner pressure bar.

#### Weatherstripping:

<u>Description</u>	<b>Quantity</b>	Location
3/4" wide by 1/4" high custom dry glazed vinyl gasket	1 Row	Behind all glass
5/8" wide by 1/4" high custom vinyl exterior glazing gasket	2 Row	Each side of exterior pressure plates
5/8" wide by 1/4" high custom vinyl pressure plate setting gasket	1 Row	Center of all pressure plates

**Drainage**: No drainage utilized.

Hardware: No hardware was utilized.



**Test Specimen Description**: (Continued)

**Glazing Details**: The five bottom lites utilized a 9/16" overall thickness laminated glass consisting of two sheets of 1/4" heat strengthened glass and a 0.075" thick Vanceva interlayer. The five top lites utilized a 9/16" overall thickness laminated glass consisting of two sheets of 1/4" heat strengthened glass and a 0.120" thick UVEKOL® type "S" interlayer. All the lites were exterior glazed onto a custom vinyl strip and secured with aluminum pressure bars. The pressure bars were secured with #12 x 1" self-drilling screws located 3" from ends and 14" on center. The lites utilized a typical 3/4" glazing bite.

**Reinforcement**: The vertical mullions utilized a 4-1/2" steel "C" channel with a 3-3/4" wide by 1/2" thick flat bar welded to the "C" channel. The reinforcement ran the length of the vertical mullion and was secured with  $1/4-20 \times 3$ " through bolts located 1" from head, sill and horizontal mullion through the vertical mullion and secured on the opposite side with a nut and lock washer. The vertical corner mullion utilized a 4-1/2" steel "C" channel and was secured with  $1/4-20 \times 3$ " through bolts located 1" from head, sill and horizontal mullion through the vertical mullion and secured on the opposite side with a nut and lock washer.

**Installation**: The curtain walls were secured into a 10" wide by 2-1/2" thick steel "C" channel buck and secured with 1/2"-13 x 2" bolt with washer and nut. The bolts were located 4" from head and sill ends and 4" from vertical mullions through the head into the steel buck. A bolt was also added at the vertical mullion through the jambs into the steel buck. The sill was secured with 1/2" diameter by 5" long concrete bolts located 4" from jambs and vertical mullions through the sill into the concrete floor. Silicone was utilized around the exterior perimeter.

**Test Results**: The temperature during testing was 22°C (71°F). The results are tabulated as follows:

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	Allowed
2.2	Preload at 50% of Design per A (Loads were held for 30 second 1920 Pa (40.13 psf) (positive)		
2.3	Air Leakage Resistance per AS	TM E 283	
	75 Pa (1.6 psf)	$<0.05 \text{ L/s/m}^2$ ( $<0.01 \text{ cfm/ft}^2$ )	$0.5 \text{ L/s/m}^2$ (0.06 cfm/ft <sup>2</sup> ) max.
	300 Pa (6.2 psf)	$<0.05 \text{ L/s/m}^2$ ( $<0.01 \text{ cfm/ft}^2$ )	$0.5 \text{ L/s/m}^2$ (0.06 cfm/ft <sup>2</sup> ) max.
2.4	Water Penetration Resistance p	er ASTM E 331	
	960 Pa (20.06 psf)	No leakage	No leakage



<u>Paragraph</u>	Title of Test - Test Method	Results	Allowed				
2.9		Uniform Load Deflection per ASTM E 330 Loads were held for 30 seconds					
	Deflections taken on the horizon 3840 Pa (80.25 psf) (positive) 3840 Pa (80.25 psf) (negative)	ntal mullion 2nd lite f 2.03 mm (0.08") 2.54 mm (0.10")	From 90° corner 6.6 mm (0.26") max. 6.6 mm (0.26") max.				
	Deflections taken on the middle 3840 Pa (80.25 psf) (positive) 3840 Pa (80.25 psf) (negative)	vertical mullion 17.5 mm (0.69") 20.6 mm (0.81")	21.1 mm (0.83") max. 21.1 mm (0.83") max.				
	Deflections taken on the left ver 3840 Pa (80.25 psf) (positive) 3840 Pa (80.25 psf) (negative)	rtical mullion, no mul 17.0 mm (0.67") 18.5 mm (0.73")	1 cap 21.1 mm (0.83") max. 21.1 mm (0.83") max.				
	Deflections taken on the vertica 3840 Pa (80.25 psf) (positive) 3840 Pa (80.25 psf) (negative)	l corner mullion 0.51 mm (0.02") 1.27 mm (0.05")	21.1 mm (0.83") max. 21.1 mm (0.83") max.				
2.10	Water Penetration Resistance pe 960 Pa (20.06 psf)	er ASTM E 331 No leakage	No leakage				
2.11	Uniform Load Structural per AS Loads were held for 30 seconds						
	Permanent sets taken on the hor 5760 Pa (120.38 psf) (positive) 5760 Pa (120.38 psf) (negative)	1.5 mm (0.06")	ite from 90° corner 2.3 mm (0.09") max. 2.3 mm (0.09") max.				
	Permanent sets taken on the mid 5760 Pa (120.38 psf) (positive) 5760 Pa (120.38 psf) (negative)	1.8 mm (0.07")	7.4 mm (0.29") max. 7.4 mm (0.29") max.				
	Permanent sets taken on the left 5760 Pa (120.38 psf) (positive) 5760 Pa (120.38 psf) (negative)	1.5 mm (0.06")	mull cap 7.4 mm (0.29") max. 7.4 mm (0.29") max.				
	Permanent sets taken on the ver 5760 Pa (120.38 psf) (positive) 5760 Pa (120.38 psf) (negative)	0.5 mm (0.02")	7.4 mm (0.29") max. 7.4 mm (0.29") max.				

 ${\it Note}\colon {\it See Architectural Testing Sketch \#1 for indicator locations}.$ 



#### ASTM E 1886, Large Missile Impact

**Conditioning Temperature**: 23.3°C (74°F)

Missile Weight: 4173 g (9.2 lbs) Missile Length: 2.4 m (8' 0")

**Muzzle Distance from Test Specimen**: 5.2 m (17 ft.)

Test Unit #1

**Impact #1**: Missile Velocity: 15.4 m/s (50.5 fps); orientation within  $\pm 5^{\circ}$  of

vertical

**Impact Area**: 2nd bottom lite from corner, center of glass

**Observations**: Missile hit target area, fractured lite

**Results**: Pass

**Impact #2**: Missile Velocity: 15.0 m/s (49.3 fps); orientation within  $\pm 5^{\circ}$  of

vertical

**Impact Area**: 2nd bottom lite from corner, upper right corner of glass

**Observations**: Missile hit target area, fractured lite

**Results**: Pass

**Impact #3**: Missile Velocity: 15.4 m/s (50.4 fps); orientation within  $\pm 5^{\circ}$  of

vertical

**Impact Area**: 1st bottom lite from corner, lower left corner of glass

**Observations**: Missile hit target area, fractured lite

**Results**: Pass

**Impact #4**: Missile Velocity: 15.1 m/s (49.4 fps); orientation within  $\pm 5^{\circ}$  of

vertical

**Impact Area**: 1st bottom lite from corner, center of glass

**Observations**: Missile hit target area, fractured lite

**Results**: Pass

**Impact #5**: Missile Velocity: 15.2 m/s (49.7 fps); orientation within  $\pm 5^{\circ}$  of

vertical

**Impact Area**: Short side bottom lite, upper right corner of glass

**Observations**: Missile hit target area, fractured lite

**Results**: Pass



#### ASTM E 1886, Large Missile Impact

**Impact #6**: Missile Velocity: 15.8 m/s (51.9 fps); orientation within  $\pm 5^{\circ}$  of

vertical

**Impact Area**: Short side bottom lite, midspan of glass **Observations**: Missile hit target area, fractured lite

Results: Pass

**Impact #7**: Missile Velocity: 15.3 m/s (50.1 fps); orientation within  $\pm 5^{\circ}$  of

vertical

Impact Area: Horizontal mullion, midspan

**Observations**: Missile hit target area, dented aluminum horizontal mullion

**Results**: Pass

**Impact #8**: Missile Velocity: 15.2 m/s (49.9 fps); orientation within  $\pm 5^{\circ}$  of

vertical

Impact Area: Center vertical mullion, midspan of mullion

**Observations**: Missile hit target area, dented aluminum vertical mullion

**Results**: Pass

**Impact #9**: Missile Velocity: 15.3 m/s (50.1 fps); orientation within  $\pm 5^{\circ}$  of

vertical

**Impact Area**: Vertical mullion without mull cap, midspan of mullion

**Observations**: Missile hit target area, fractured lite

**Results**: Pass

**Impact #10**: Missile Velocity: 15.2 m/s (49.7 fps); orientation within  $\pm 5^{\circ}$  of

vertical

**Impact Area**: Corner vertical mullion, midspan of mullion **Observations**: Missile hit target area, dented aluminum corner

**Results**: Pass

*Note*: See Architectural Testing Sketch #2 for impact locations.



ASTM E 1886, Air Pressure Cycling

**Test Unit** #1

**Design Pressure**: ±80.0 Pa (±80.0 psf)

#### **POSITIVE PRESSURE**

Pressure	Number of	Average Cycle Time  Maximum Deflection at Indicator mm (inch)				nch)		
Range Pa (psf)	Cycles	(seconds)	#1	#2	#3	#4	#5	#6
766 to 1915 (16 to 40)	3500	4.17	4.57 (0.18)	15.5 (0.61)	4.32 (0.17)	2.54 (0.10)	12.7 (0.50)	3.30 (0.13)
0 to 2298 (0 to 48)	300	10.0	6.10 (0.24)	17.8 (0.70)	5.33 (0.21)	2.54 (0.10)	14.0 (0.55)	3.56 (0.14)
1915 to 3064 (40 to 64)	600	2.60	6.86 (0.27)	20.8 (0.82)	6.35 (0.25)	2.54 (0.10)	15.8 (0.62)	3.56 (0.14)
1149 to 3830 (24 to 80)	100	8.17	6.86 (0.27)	24.1 (0.95)	6.60 (0.26)	3.05 (0.12)	19.8 (0.78)	4.57 (0.18)
			Permanent Set					
			2.54	5.84	2.03	1.02	2.03	1.52
			(0.10)	(0.23)	(0.08)	(0.04)	(0.08)	(0.06)

#### **NEGATIVE PRESSURE**

Pressure	Number of	Average	Ma	ximum D	eflection a	at Indicat	or mm (ir	nch)
Range Pa (psf)	Cycles	Cycle Time (seconds)	#1	#2	#3	#4	#5	#6
1149 to 3830	50	8.88	9.14	29.0	4.32	4.57	29.0	8.89
(24 to 80)	50	0.00	(0.36)	(1.14)	(0.17)	(0.18)	(1.14)	(0.35)
1915 to 3064	1050	2.01	8.64	24.4	4.32	4.32	24.1	8.64
(40 to 64)	1050	2.81	(0.34)	(0.96)	(0.17)	(0.17)	(0.95)	(0.34)
0 to 2298	50	10.6	7.87	20.8	4.32	4.32	20.6	8.13
(0 to 48)	50	10.6	(0.31)	(0.82)	(0.17)	(0.17)	(0.81)	(0.32)
766 to 1915	2250	2.89	6.86	17.5	3.81	4.06	18.3	5.33
(16 to 40)	3330	3350 2.89	(0.27)	(0.69)	(0.15)	(0.16)	(0.72)	(0.21)
			Permanent Set					
			2.54	5.33	1.52	1.52	6.10	2.79
			(0.10)	(0.21)	(0.06)	(0.06)	(0.24)	(0.11)



ASTM E 1886, Air Pressure Cycling

**Test Unit** #1 (Continued)

**Design Pressure**: ±80.0 Pa (±80.0 psf)

#### **POSITIVE PRESSURE**

Pressure	Number of	Average	Maximum Deflection at Indicator mm (inch)					
Range Pa (psf)	Cycles	Cycle Time (seconds)	#7	#8	#9	#10	#11	#12
766 to 1915	3500	4.17	3.05	15.0	3.30	0.51	3.56	1.27
(16 to 40)	3300	4.17	(0.12)	(0.59)	(0.13)	(0.02)	(0.14)	(0.05)
0 to 2298	300	10.0	3.05	16.8	3.56	0.51	3.81	1.27
(0 to 48)	300	10.0	(0.12)	(0.66)	(0.14)	(0.02)	(0.15)	(0.05)
1915 to 3064	600	2.60	3.30	19.3	4.06	0.51	4.57	1.52
(40 to 64)	600	2.00	(0.13)	(0.76)	(0.16)	(0.02)	(0.18)	(0.06)
1149 to 3830	100	0.17	3.81	21.3	4.32	1.02	5.33	2.03
(24 to 80)	100	100 8.17	(0.15)	(0.84)	(0.17)	(0.04)	(0.21)	(0.08)
			Permanent Set					
			1.52	4.83	2.03	0.25	1.27	0.51
			(0.06)	(0.19)	(0.08)	(0.01)	(0.05)	(0.02)

#### **NEGATIVE PRESSURE**

Pressure	Number of	Average	Ma	ximum D	eflection a	at Indicat	or mm (ir	nch)
Range Pa (psf)	Cycles	Cycle Time (seconds)	#7	#8	#9	#10	#11	#12
1149 to 3830	50	8.88	4.83	24.9	5.59	1.52	2.03	0.76
(24 to 80)	30	0.00	(0.19)	(0.98)	(0.22)	(0.06)	(0.08)	(0.03)
1915 to 3064	1050	2.81	4.57	20.8	4.83	1.27	1.78	0.51
(40 to 64)	1050	2.81	(0.18)	(0.82)	(0.19)	(0.05)	(0.07)	(0.02)
0 to 2298	50	10.6	4.57	17.8	4.32	0.76	1.52	0.25
(0 to 48)	30	30 10.0	(0.18)	(0.70)	(0.17)	(0.03)	(0.06)	(0.01)
766 to 1915	3350	2.89	4.06	13.0	3.81	0.51	1.02	0.25
(16 to 40)	3330	2.89	(0.16)	(0.51)	(0.15)	(0.02)	(0.04)	(0.01)
			Permanent Set					
			1.02	5.33	1.78	0.25	0.51	0.25
			(0.04)	(0.21)	(0.07)	(0.01)	(0.02)	(0.01)

Observations: No additional damage or deglazing was observed.

Result: Pass

*Note*: See Architectural Testing Sketch #1 for indicator locations.



Tape and film were not used to seal against air leakage during structural testing.

**Drawing Reference**: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen reported herein.

#### **List of Official Observers:**

<u>Name</u>	<u>Company</u>
William Smith Sr.	Impact Glazing Consultants
William Smith Jr.	Impact Glazing Consultants
Tony Kline	Architectural Testing, Inc.
Mark A. Hess	Architectural Testing, Inc.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. If test specimen contains glazing, no conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen can be made. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

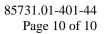
For ARCHITECTURAL TESTING, INC.

Mark A. Hess	Joseph A. Reed, P.E.
Technician	Director – Engineering and Product Testing

MAH:ck/cmd

Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Alteration Addendum (1) Appendix-B: Test Equipment (1) Appendix-C: Photograph (1) Appendix-D: Sketches (2) Appendix-E: Drawings (16)





### **Revision Log**

<u>Rev. #</u>	<b>Date</b>	Page(s)	Revision(s)
0	06/23/09	N/A	Original report issue



### Appendix A

#### **Alteration Addendum**

 ${\it Note}\colon {\it No alterations were required.}$ 



## Appendix B

## **Test Equipment**

Instrument	Manufacturer	Asset #
1" Dial Indicator	Starrett	004271
1" Dial Indicator	Starrett	62024
1" Dial Indicator	Starrett	004270
1" Dial Indicator	Starrett	004272
1" Dial Indicator	Starrett	004268
1" Dial Indicator	Starrett	004263
20" Linear Transducer	Celesco	004285
20" Linear Transducer	Celesco	004279
20" Linear Transducer	Celesco	005429
20" Linear Transducer	Celesco	62348
20" Linear Transducer	Celesco	005427
20" Linear Transducer	Celesco	62261-3
Mini-Mule	Architectural Testing, Inc.	004784
6" Dial Calipers	N/A	330-1
Air Cannon	Architectural Testing, Inc.	004273
Control Panel	Architectural Testing, Inc.	004821
Weather Meter	Davis	004330



## Appendix C Photograph



Photo No. 1 Overall view of aluminum curtain wall



Appendix D

**Sketches** 



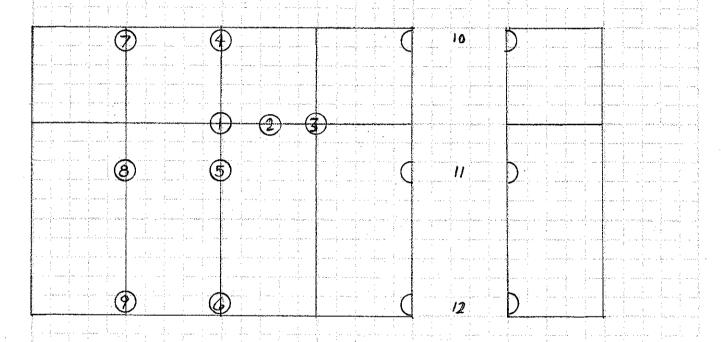
DATE: 4/14/09

BY: Mark A Hess

PROJECT NO. \$5731 01-401-44 SHEET / OF 2

PROJECT NAME: Coral Architectural Products

## INDICATOR LOCATIONS





DATE: 4/14/09
BY: Mark A. Hess

PROJECT NO. 85731.01-401-44 SHEET 2 OF 2

PROJECT NAME: Coral Architectural Products

IMPACT LOCATIONS



Appendix E

**Drawings** 

			BILL OF	MATERIALS	·		
ITEM NO.	P/N	DESCRIPTION	DIMENSIONS	MATERIAL	MANUFACTURER	3NOTES	
1	NG5	BULB GASKET - DOORFRAME STOP	0.165 SPACE	EPDM	VARIES	· · · · · · · · · · · · · · · · · · ·	
2	NG10	EXTERIOR GLAZING GASKET	0.250 SPACE	EPDM	VARIES		
3	NG11	EXTERIOR PERIMETER GASKET	0.300 SPACE	EPDM	VARIES		
4	NG12	PRESSURE BAR GASKET (ISOLATOR)	0.140 SPACE	EPDM	VARIES		
5	NG14	INTERIOR SPACER GASKET	0.250 SPACE	EPDM	VARIES		
6	SM5601	JOINT SEALANT TAPE	0.500 X 0.125 X VARIES	BUTYL	SCHNEE-MOOREHEAD		
7	795	SILICONE - PERIMETER SEALANT	FILL SPACE	SILICONE	DOW CORNING	USED @ PERIMETER	
8	995	SILICONE - GLASS TO METAL	FILL SPACE	SILICONE	DOW CORNING	GLASS TO METAL AND INTERNAL	
9	SB14	SETTING BLOCK @ SILL & HORIZONTAL	0.875 X 0.188 X 4.000	EPDM	VARIES	2 PER LITE	
10	SP202	END DAM @ CAPTURED MULLION	1.287 X 1.068 X 0.745	INJECTION MOLDED PLASTIC	CORAL INDUSTRIES, INC.	LOCATE 1 @ EACH END OF HORIZONTAL	
11	SP206	BRIDGE DAM @ B.G. MULLION	3.123 X 0.843 X 0.745	INJECTION MOLDED PLASTIC	CORAL INDUSTRIES, INC.	LOCATE 1 @ HORIZONTAL AND B.G. MULLION	
12	SP210	MULLION CAP	3.000 X 1.925 X 0.048	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.	LOCATE © TOP AND BOTTOM OF VERTICAL	
13	2086	JACKSON 2086 PANIC	36.000 X 7.3125 X 3.000	ALUMINUM	JACKSON	ECONIE & TOT AIR BOTTOM OF VERTICAL	
14	PW151	B.G. MULLION	2.500 X 5.000 X 0.094	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
15	PW202	OPEN BACK MULLION FILLER	0.681 X 4.484 X 0.094	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
16	PW203	HEAD/ SILL/ HORIZONTAL TRIM	2.500 X 4.980 X 0.078	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
17	PW204	PRESSURE BAR	2.443 X 0.433 X 0.125	5063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
18	PW205	FACE COVER	2.500 X 0.500 X 0.062	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
19	PW208	FEMALE HALF 90° CORNER	1.625 X 6.110 X 0.094	5063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
20	PW209	MALE HALF 90° CORNER	1.875 X 6.110 X 0.094	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
21	PW210	INTERIOR CORNER TRIM	2.500 X 1.288 X 0.078	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
22	PW214	SUB DOORFRAME	1.000 X 4.500 X 0.080	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
23	PW513	POCKET FILLER FOR PW550	0.937 X 1.193 X 0.078				
24	PW550	VERTICAL MULLION	2.500 X 5.843 X 0.094	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
25	PW552	HEAD/SILL	2.390 X 5.637 X 0.094	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
26	PW555	INTERMEDIATE HORIZONTAL	2.390 X 5.730 X 0.094	6063-T6 ALUMINUM 6063-T6 ALUMINUM	CORAL INDUSTRIES, INC. CORAL INDUSTRIES, INC.		
27	PW556	GLAZING TEE - 90° CORNER	2.584 X 2.584 X 0.094	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.	•	
28	DS200	DOORFRAME STOP	0.882 X 1.149 X 0.050	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
29	TH4	THRESHOLD	0.500 X 4.000 X 0.125	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.		
30	TH403	THRESHOLD CLIP					
30	IH403	THRESHOLD CLIP	1.390 X 1.516 X 1.909	STEEL	VARIES		
			(CONTINUED (	ON SHEET 15)		Architectural Testing lie complies with these details. Deviations are noted.	
						Test sample complement (ST31.	

TEST REPORT DRAWINGS PW256 IMPACT-RESISTANT CURTAIN WALL SYSTEM

BILL OF MATERIALS

DATE 4/14/2009

DRAWN CHECKED APPROVED DCW DCW DCW

PROJECT NO.

DRAMING NO.
PW256\_01
SHEET 14 OF 16

			BILL OF	MATERIALS		
ITEM NO.	P/N	DESCRIPTION	DIMENSIONS	MATERIAL	MANUFACTURER	3NOTES
31	SR150	REINFORCEMENT CHANNEL	4.500 X 1.875 X 0.250	A36 STEEL	VARIES	STEEL REINFORCEMENT FOR (4) AND (24)
32	SR504	REINFORCEMENT CHANNEL	4.562 X 1.250 X 0.250	A36 STEEL	VARIES	STEEL REINFORCEMENT FOR (4) AND (24)
33		SR150 WITH REINFORCEMENT BAR	3.750 X 0.500	A36 STEEL	VARIES	STEEL REINFORCEMENT FOR (4) AND (24)
34		SR150 WITH REINFORCEMENT BAR	3.750 X 0.750	A36 STEEL	VARIES	STEEL REINFORCEMENT FOR (4) AND (24)
35	FL207	DOOR HEADER	1.750 X 4.500 X 0.085	6063-T6 ALUMINUM	CORAL INDUSTRIES, INC.	
36	AS13	SQUARE NUT	1.475 X1.475 X .180	STEEL	VARIES	
37	AS16	FASTENER	#14 X 1" HHSTS	STEEL	VARIES	TYP. SPLINE SCREW
38	AS19	FASTENER	#12 x 1" HWH SELF DRILL	STEEL	VARIES	
39	AS25	FASTENER	#12 x 3/4" HWH SELF DRILL	STEEL	VARIES	
40	AS37	FASTENER	#12 X 2" HWH SELF DRILL	STEEL	VARIES	
41	FASTENER	PERIMETER ANCHOR TO STEEL SUBSTRATE	1/2"-13 X 2" BOLT WITH WASHER AND NUT	STEEL	VARIES	
42	FASTENER	PERIMETER ANCHOR TO STEEL SUBSTRATE	1/2"-13 X 4-1/2" BOLT WITH WASHER AND NUT	STEEL	VARIES	
43	FASTENER	PERIMETER ANCHOR TO CONCRETE SUBSTRATE	1/2" LDT OR WEDGE ANCHOR	STEEL	VARIES	
44	FASTENER	PERIMETER ANCHOR TO STEEL SUBSTRATE	#12 X 1-1/2" PFH SELF DR!LL	STEEL	VARIES	
45	FASTENER	STEEL REINFORCEMENT ATTACHMENT	1/4-20 X 2" BOLT WITH WASHER AND NUT	STEEL	VARIES	
46	FASTENER	THROUGH BOLT	1/4-20 X 3" BOLT WITH WASHER AND NUT	STEEL	VARIES	USED @ HORIZONTALS
47	NG16	DRY GLAZE INTERIOR SPACER GASKET	0.260 SPACE	EPDM	VARIES	
48	PW158	CORNER FACE COVER	3.752 X .500 X .062	6063-T6 ALUM	CORAL INDUSTRIES, INC.	
49	PW154	CORNER PRESSURE BAR	3.637 X 3.637 X 125	6063-T6 ALUM	CORAL INDUSTRIES, INC.	-

GLAZING SCHEDULE						
GLASS MARK	GLASS DESCRIPTION	MANUFACTURER	MAXIMUM D.L.O. SIZE (INCHES)	SQUARE FEET	MAXIMUM DESIGN PRESSURE (PSF)	
A	9/16" OVERALL THICKNESS LAMINATED GLASS CONSISTING OF TWO 1/4" H.S. GLASS AND A 0.075 VENCEVA INTERLAYER	SOLUTIA	57-1/2" X 96"	38.3	± 80	
В	9/16" OVERALL THICKNESS LAMINATED GLASS CONSISTING OF TWO 1/4" H.S. GLASS AND A 0.090 SOLUTIA SAFLEX PVB INTERLAYER	SOLUTIA	45-1/2" X 96"	30.3	± 65	
B6	9/16" OVERALL THICKNESS LAMINATED GLASS CONSISTING OF TWO 1/4" H.S. GLASS AND A 0.060 SOLUTIA SAFLEX PVB INTERLAYER	SOLUTIA	57-1/2" X 96"	38.3	± 80	
0	9/16" OVERALL THICKNESS LAMINATED GLASS CONSISTING OF TWO 1/4" H.S. GLASS AND A SGP (SENTRY GLASS PLUS) INTERLAYER	DUPONT	57-1/2" X 96"	38.3	± 65	
٥	9/16" OVERALL THICKNESS LAMINATED GLASS CONSISTING OF TWO 1/4" H.S. GLASS AND A 0.120 UVEKOL TYPE "S" INTERLAYER	CORAL INDUSTRIES, INC.	45-1/2" X 96"	30.3	± 65	
(V6)	9/16" OVERALL THICKNESS LAMINATED GLASS CONSISTING OF TWO 1/4" H.S. GLASS AND A 0.060 UVEKOL TYPE "S" INTERLAYER	CORAL INDUSTRIES, INC.	57-1/2" X 96"	38.3	± 80	



TEST REPORT DRAWINGS PW256 IMPACT-RESISTANT CURTAIN WALL SYSTEM Tech MAH 85731.01-401-44

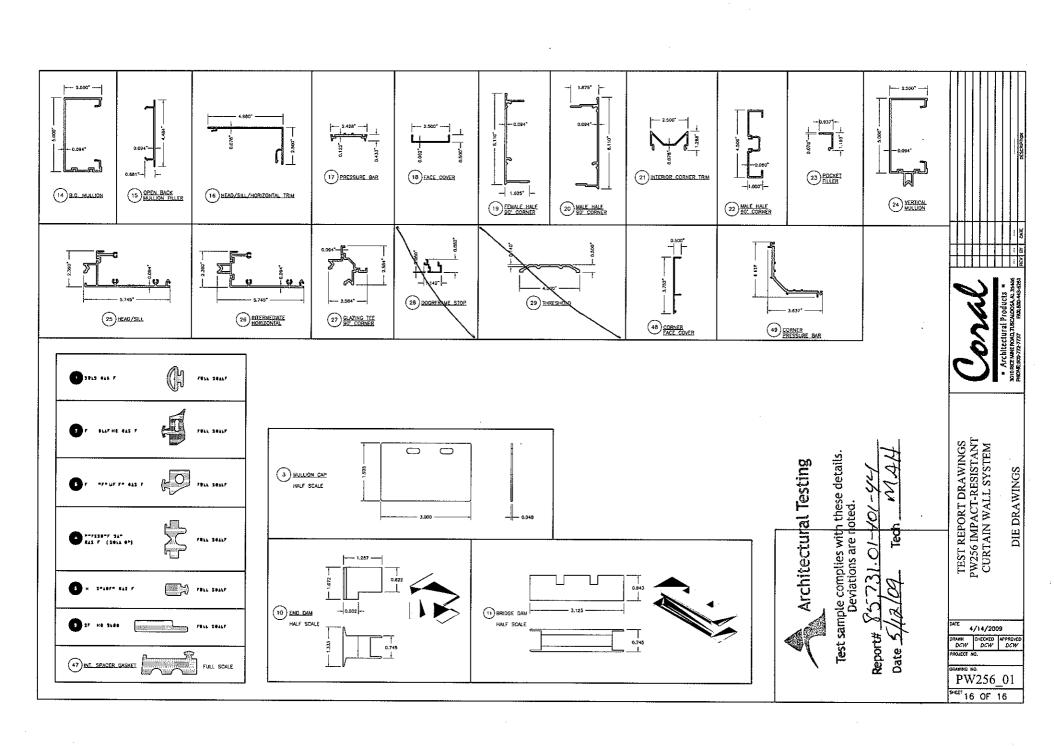
Report# Date 2/ BILL OF MATERIALS AND GLAZING SCHEDULE

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4/14/2009

DRAWN CHECKED APPROVED DCW DCW DCW

PROJECT NO.

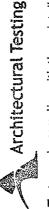
PW256\_01 SHEET 15 OF 16



## TEST REPORT DRAWINGS PW256 IMPACT-RESISTANT CURTAIN WALL SYSTEM

# FOR USE IN HURRICANE ZONES REQUIRING LARGE MISSILE IMPACT PROTECTION

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1	INDEX TO DRAWINGS AND NOTES
2 3	FRAMING ELEVATION - E1 CAPTURED AND B.G. MULLIONS WITH STEEL -LONG SPAN-
3	FRAMING ELEVATION - E2 CAPTURED MULLION WITHOUT STEEL -SHORT SPAN-
4	FRAMING ELEVATION - E3 B.G. MULLION WITHOUT STEEL -SHORT SPAN-
5	FRAMING ELEVATION - E4 CAPTURED MULLION WITH STEEL -LONG SPAN- SMALL MISSILE
6	FRAMING ELEVATION FOR DOORS - E5 CAPTURED MULLION WITH STEEL -LONG SPAN-
7.	FRAMING ELEVATION - E6 CAPTURED MULLION WITH STEEL - LONG SPAN- LARGE MISSILE
8	FRAMING DETAILS
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11	DOOR AND FRAMING DETAILS
12	DOOR AND FRAMING DETAILS
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15	BILL OF MATERIALS AND GLAZING SCHEDULE
16	DIE DRAWINGS
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Test sample complies with these details.
Deviations are noted.

TEST REPORT DRAWING PW256 IMPACT-RESISTAN CURTAIN WALL SYSTEM INDEX TO DRAWINGS AND NOTES

DATE 4/14/2009

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TEST NAMES NO. PW256\_01

<sup>948ET</sup> 1 OF 16

ABBREVIATIONS:

D.L.O. = DAY LIGHT OPENING D.O.H. = DOOR OPENING HEIGHT

D.O.W. = DOOR OPENING HEIGHT

ELEVS = ELEVATIONS

EXT. = EXTERIOR INT. = INTERIOR MAX. = MAXIMUM MIN. = MINIMUM

OPP. = OPPOSITE

