

WDMA HALLMARK CERTIFICATION PROGRAM REPORT SUBMISSION FORM

THIS FORM IS TO BE COMPLETED BY THE MANUFACTURER AND SUBMITTED TO AMS ALONG WITH SUBMISSION OF EACH NEW OR REVISED TEST REPORT FOR CERTIFICATION TO THE HALLMARK PROGRAM. ANY QUESTIONS PLEASE CONTACT AMS AT 315-646-2234 OR staff@amscert.com.

Manufacturer:

Contact:

Plant Location(s):

Phone:

Test Report #:

Email:

Product Relationship:

Extension of currently certified product ? yes no If yes, what CCL # ?

Extension of currently pending product ? yes no If yes, what test report # ?

Difference from Certified Product:

Does this report require a Gateway Report # ? yes no Report #:

Impact Report:

If this is not an impact report check here:

AWS Report #

Test Plan # ? yes no

Installation Instructions submitted ? yes no

Additional Information:

WDMA HALLMARK CERTIFICATION PROGRAM REPORT SUBMISSION FORM

Product Name:

(As to be listed on CCL – must match test report)

Product Type:

Additional Manufacturer ID #:

n/a

Check here for **individual** CCL listing

Check here for **full** CCL listing

<u>Hallmark CCL</u>	<u>Standard</u>	<u>Rating</u>
	ANSI/AAMA/NWWDA 101/I.S. 2 97	
	101/I.S.2/NAFS-02	
	AAMA/WDMA/CSA/101/I.S.2/A440-05	
	AAMA/WDMA/CSA/101/I.S.2/A440-08	
	ASTM E 1996 99 / E1886-97	
	ASTM E 1996 01 / E1886-97	
	ASTM E 1996 02 / E1886-02	
	ASTM E 1996 03 / E1886-02	
	ASTM E 1996 04 / E1886-04	
	ASTM E 1996 05 / E1886-05	
	ASTM E330 02	
	TAS 201-94	
	TAS 202-94	
	TAS 203-94	
	AAMA 450-06	
	Other:	

**MIAMI-DADE COUNTY
PERFORMANCE TEST REPORT**

Rendered to:

KML WINDOWS, INC.

**SERIES/MODEL: Coastal Aluminum Clad Casement
PRODUCT TYPE: Aluminum Clad Wood Casement with Impact Glazing**

This report contains in its entirety:

**Cover Page: 1 page
Report Body: 21 pages
Sketches: 2 pages
Drawings: 19 pages**

**Report No.: 91032.05-201-44
Test Dates: 03/24/10
And: 03/25/10
Report Date: 07/06/10
Test Record Retention Date: 03/25/20
Miami-Dade County Notification No.: ATIMN 09015**

MIAMI-DADE COUNTY PERFORMANCE TEST REPORT

Rendered to:

KML WINDOWS, INC.
71 Second Street
Strathroy, Ontario N7G 3H8
CANADA

Report No.: 91032.05-201-44
Test Dates: 03/24/10
And: 03/25/10
Report Date: 07/06/10
Test Record Retention Date: 03/25/20
Miami-Dade County Notification No.: ATIMN 09015

Project Summary: Architectural Testing, Inc. was contracted by KML Windows, Inc. to perform testing per Florida Building Code, Test Protocols for High Velocity Hurricane Zone, Protocols TAS 201-94, TAS 202-94 and TAS 203-94 on four Series/Model Coastal Aluminum Clad Casement, aluminum clad wood casement with impact glazing windows. The samples tested met the performance requirements set forth in the protocols for a +50.0/-65.0 psf *Design Pressure* rating. Test specimen description and results are reported herein. The samples were provided by the client.

Test Procedures: The test specimens were evaluated in accordance with the following:

TAS 201-94, *Impact Test Procedures.*

TAS 202-94, *Criteria for Testing Impact and Non Impact Resistant Building Envelope Components Using Uniform Static Air Pressure Loading.*

TAS 203-94, *Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.*

Drawing Reference: The test specimen drawings have been reviewed and verified by Architectural Testing and are representative of the samples tested.

Test Specimen Description:

Series/Model: Coastal Aluminum Clad Casement

Product Type: Aluminum Clad Wood Casement with Impact Glazing

Test Specimen Description: (Continued)

Overall Size: 913 mm (35-15/16") wide by 1829 mm (72") high

Sash Size: 864 mm (34") wide by 1778 mm (70") high

Overall Area: 1.7 m² (18.0 ft²)

Finish: The exterior cladding was painted and interior wood was unfinished.

Frame Construction: The frame was comprised of pine members with the corners step/butted, sealed with silicone and secured with three #8 x 2" screws per corner. Aluminum cladding was miter-cut and snap-fit onto frame members and secured with 1/4" x 3/8" staples located 51 mm (2") from corners and 203 mm (8") on center. The corners of the cladding were secured with two #6 x 3/4" screws per corner.

Sash Construction: The interior consisted of pine members with mortise and tenon joinery secured with one 7/16" x 1-1/2" staple. The exterior was extruded aluminum cladding that was miter-cut and secured with one #6 x 3/4" screw through clad stiles into the clad rails. The cladding was secured to the wood sash with #6 x 3/4" screws in the glazing pocket 51 mm (2") from each corner and spaced 152 mm (6") on center.

Weatherstripping:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Q-Lon	1 Row	Perimeter of frame
Vinyl leaf	1 Row	Perimeter of sash

Glazing Details:

Test Unit #1: The window was glazed with 16 mm (0.648") insulating glass comprised of a 3.0 mm annealed exterior sheet and a 10.1 mm laminated sheet on the interior separated by a silicone foam spacer system. The laminated sheet was comprised of two 3.9 mm annealed sheets separated by a 2.3 mm (0.090") Cardinal Sea-Storm® PVB interlayer. The glass was set from the interior into a bed of Dow Corning 995 structural sealant. Structural sealant was also used around the full perimeter in the glazing cavity. Wood glazing beads with 1.5 mm by 13 mm (1/16" by 1/2") acrylic double sided adhesive glazing tape were secured with 31 mm (1-1/4") brad nails 51 mm (2") from each corner and spaced 203 mm (8") on center. The glass bite was 1/2".

Test Specimen Description: (Continued)

Glazing Details: (Continued)

Test Unit #2: The window was glazed with 16 mm (0.648") insulating glass comprised of a 3.0 mm tempered exterior sheet and a 10.1 mm laminated sheet on the interior separated stainless steel spacer system. The laminated sheet was comprised of two 3.9 mm annealed sheets separated by a 2.3 mm (0.090") Cardinal Sea-Storm® PVB interlayer. The glass was set from the interior into a bed of Dow Corning 995 structural sealant. Structural sealant was also used around the full perimeter in the glazing cavity. Wood glazing beads with 1.5 mm by 13 mm (1/16" by 1/2") acrylic double-sided adhesive glazing tape were secured with 31 mm (1-1/4") brad nails 51 mm (2") from each corner and spaced 203 mm (8") on center. The glass bite was 1/2".

Test Unit #3 and Test Unit #4: The unit was glazed with 10.1 mm laminated monolithic glass comprised of two 3.9 mm annealed sheets with a 2.3 mm (0.090") Cardinal Sea-Storm® PVB interlayer. The glass was set from the interior into a bed of Dow Corning 995 structural sealant. Structural sealant was also used around the full perimeter in the glazing cavity. Wood glazing beads with 1.5 mm by 13 mm (1/16" by 1/2") acrylic double-sided adhesive glazing tape were secured with 31 mm (1-1/4") brad nails 51 mm (2") from each corner and spaced 203 mm (8") on center. The glass bite was 1/2".

Drainage: No drainage was utilized.

Hardware:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
4-point lock	1	Locking stile of frame and sash 254 mm (10") from top and bottom of sash and 762 mm (30") and 1295 mm (51") from bottom of sash
Butt hinges	3	Hinge stile of frame and sash 203 mm (8") from head and sill and midpoint
Roto hardware	1	Sill

Reinforcement: No reinforcement was utilized.

Test Specimen Description: (Continued)

Test Unit #4 Mullion Construction: The unit was mullied jamb to jamb. Two beads of Dow Corning 1199 were utilized; one between the cladding at the nail flange kerf and the other at the accessory kerf. The units were secured on the exterior with a U-shaped aluminum piece that was snap-fit to the accessory kerf. The interior was secured through each jamb with #6 x 1-3/4" screws staggered 4" on center from each end and spaced 12" on center. The interior was additionally secured with 1" x 1/2" corrugated staples 2" from each end and spaced 8" on center. The mullion ends were sealed with silicone.

Installation:

Test Unit #1 and Test Unit #3: The windows were installed within Spruce-Pine-Fir test bucks and secured with steel installation clips. The clips were secured to the window frame with three #8 x 3/4" screws. The clips were located 152 mm (6") from corners and midspan on jambs and 152 mm (6") from corners on the head and sill. The installation clips were secured to the buck on the interior with two #8 x 1-1/2" screws and on the exterior, through the nail flange and through the clip, with one #8 x 1-1/2" screw. Test unit was additionally secured through nail fin with 1-1/2" roofing nails 102 mm (4") from corners and spaced 305 mm (12") on center. The nail fin was sealed to the buck with silicone.

Test Unit #2 and Test Unit #4: The windows were installed within Spruce-Pine-Fir test bucks. The test unit was secured through the frame with #10 x 3" screws 152 mm (6") from each corner and spaced 305 mm (12") on center. Test unit was additionally secured through nail fin with 1-1/2" roofing nails 102 mm (4") from corners and spaced 305 mm (12") on center. The nail fin was sealed to the buck with silicone.

Test Results: The following results have been recorded:

Protocol TAS 202-94, Static Air Pressure Tests

Test Unit #1

Design Pressure: +50.0/-65.0 psf

Title of Test	Results					
	Indicator Readings (inch)					
	#1	#2	#3	#4	#5	#6
Structural Loads						
50% of Test Pressure (+37.5 psf)						
Maximum Deflection	0.04	0.04	0.01	0.01	0.01	0.05
Permanent Set	0.01	0.01	0.01	0.01	0.01	0.01
Design Pressure (+50.0 psf)						
Maximum Deflection	0.05	0.05	0.02	0.01	0.02	0.05
Permanent Set	0.02	0.01	0.02	0.01	0.01	0.01
50% of Test Pressure (-48.75 psf)						
Maximum Deflection	0.06	0.06	0.03	0.01	0.02	0.10
Permanent Set	0.01	0.01	0.01	0.01	0.01	0.02
Design Pressure (-65.0 psf)						
Maximum Deflection	0.08	0.07	0.03	0.02	0.03	0.11
Permanent Set	0.02	0.02	0.01	0.01	0.01	0.03
Test Pressure (+75.0 psf)						
Maximum Deflection	0.08	0.07	0.04	0.01	0.03	0.08
Permanent Set	0.02	0.02	0.02	0.01	0.01	0.08
Test Pressure (-97.5 psf)						
Maximum Deflection	0.17	0.16	0.09	0.05	0.07	0.24
Permanent Set	0.04	0.03	0.01	0.03	0.02	0.05

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

Test Results: The following results have been recorded:

Protocol TAS 202-94, Static Air Pressure Tests

Test Unit #2

Design Pressure: +50.0/-65.0 psf

Title of Test	Results					
	Indicator Readings (inch)					
	#1	#2	#3	#4	#5	#6
Structural Loads						
50% of Test Pressure (+37.5 psf)						
Maximum Deflection	0.05	0.05	0.02	0.01	0.02	0.05
Permanent Set	0.01	0.01	0.01	<0.01	<0.01	0.01
Design Pressure (+50.0 psf)						
Maximum Deflection	0.07	0.07	0.03	0.01	0.03	0.07
Permanent Set	0.01	0.02	0.01	<0.01	<0.01	0.01
50% of Test Pressure (-48.75 psf)						
Maximum Deflection	0.06	0.08	0.03	0.01	0.03	0.08
Permanent Set	<0.01	0.01	<0.01	<0.01	<0.01	0.01
Design Pressure (-65.0 psf)						
Maximum Deflection	0.09	0.12	0.06	0.02	0.04	0.11
Permanent Set	0.01	0.02	0.01	0.01	0.01	0.02
Test Pressure (+75.0 psf)						
Maximum Deflection	0.10	0.13	0.06	0.02	0.04	0.11
Permanent Set	0.01	0.02	0.02	0.01	0.01	0.01
Test Pressure (-97.5 psf)						
Maximum Deflection	0.19	0.25	0.17	0.06	0.07	0.21
Permanent Set	0.01	0.03	0.02	0.05	0.02	0.03

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

Test Results: The following results have been recorded:

Protocol TAS 202-94, Static Air Pressure Tests

Test Unit #3

Design Pressure: +50.0/-65.0 psf

Title of Test	Results					
Air Infiltration						
1.57 psf (25 mph)	<0.01 cfm/ft ²					
6.24 psf (50 mph)	<0.01 cfm/ft ²					
	Indicator Readings (inch)					
	#1	#2	#3	#4	#5	#6
Structural Loads						
50% of Test Pressure (+37.5 psf)						
Maximum Deflection	0.05	0.04	0.01	0.01	0.02	0.06
Permanent Set	0.01	0.01	<0.01	<0.01	<0.01	0.01
Design Pressure (+50.0 psf)						
Maximum Deflection	0.08	0.07	0.02	0.01	0.03	0.08
Permanent Set	0.01	0.01	<0.01	<0.01	<0.01	0.01
50% of Test Pressure (-48.75 psf)						
Maximum Deflection	0.09	0.10	0.05	0.02	0.03	0.13
Permanent Set	0.01	0.02	0.01	0.01	0.01	0.02
Design Pressure (-65.0 psf)						
Maximum Deflection	0.10	0.12	0.07	0.03	0.04	0.15
Permanent Set	0.01	0.01	0.01	0.01	0.01	0.02
Water Infiltration						
15% Positive Design Pressure (+7.50 psf)	No Penetration					
Test Pressure (+75.0 psf)						
Maximum Deflection	0.09	0.09	0.04	0.02	0.05	0.10
Permanent Set	0.02	0.01	0.01	0.01	0.01	0.02
Test Pressure (-97.5 psf)						
Maximum Deflection	0.20	0.20	0.08	0.06	0.07	0.24
Permanent Set	0.04	0.04	0.01	0.05	0.01	0.02
Forced Entry - ASTM F 588-97	Pass					

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

Test Results: The following results have been recorded:

Protocol TAS 202-94, Static Air Pressure Tests

Test Unit #4

Design Pressure: +50.0/-65.0 psf

Title of Test	Results				
Air Infiltration					
1.57 psf (25 mph)	<0.01 cfm/ft ²				
6.24 psf (50 mph)	<0.01 cfm/ft ²				
	Indicator Readings (inch)				
Structural Loads	#1	#2	#3	#4	#5
50% of Test Pressure (+37.5 psf)					
Maximum Deflection	0.04	0.15	0.03	0.04	0.05
Permanent Set	0.01	0.01	0.01	0.01	0.01
	#6	#7	#8	#9	
Maximum Deflection	0.03	0.10	0.11	0.09	
Permanent Set	0.01	0.01	0.01	0.01	
	#1	#2	#3	#4	#5
Design Pressure (+50.0 psf)					
Maximum Deflection	0.06	0.21	0.04	0.06	0.06
Permanent Set	0.01	0.02	0.01	0.01	0.01
	#6	#7	#8	#9	
Maximum Deflection	0.04	0.12	0.15	0.10	
Permanent Set	0.01	0.01	0.01	0.01	
	#1	#2	#3	#4	#5
50% of Test Pressure (-48.75 psf)					
Maximum Deflection	0.07	0.22	0.03	0.08	0.08
Permanent Set	0.01	0.02	0.01	0.03	0.02
	#6	#7	#8	#9	
Maximum Deflection	0.08	0.11	0.14	0.19	
Permanent Set	0.03	0.01	0.02	0.02	

Test Results: (Continued)

Protocol TAS 202-94, Static Air Pressure Tests

Test Unit #4 (Continued)

Design Pressure: +50.0/-65.0 psf

Title of Test	Results								
	#1	#2	#3	#4	#5	#6	#7	#8	#9
Design Pressure (-65.0 psf)									
Maximum Deflection	0.10	0.32	0.04	0.10	0.10				
Permanent Set	0.02	0.03	0.01	0.03	0.02				
Maximum Deflection	0.10	0.16	0.20	0.27					
Permanent Set	0.04	0.02	0.03	0.03					
Water Infiltration									
15% Positive Design Pressure (+7.50 psf)	No Penetration								
Test Pressure (+75.0 psf)									
Maximum Deflection	0.10	0.34	0.06	0.09	0.07				
Permanent Set	0.02	0.03	0.02	0.02	0.03				
Maximum Deflection	0.10	0.18	0.23	0.14					
Permanent Set	0.03	0.01	0.02	0.02					
Test Pressure (-97.5 psf)									
Maximum Deflection	0.18	0.56	0.08	0.13	0.14				
Permanent Set	0.02	0.06	0.02	0.03	0.03				
Maximum Deflection	0.10	0.30	0.33	0.38					
Permanent Set	0.03	0.05	0.04	0.05					
Forced Entry - ASTM F 588-97	Pass								

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

Test Results: (Continued)

Protocol TAS 201-94, *Impact Test Procedures*

Conditioning Temperature: 68°F

Missile Weight: 9.2 lbs

Missile Length: 96-1/2"

Muzzle Distance from Test Specimen: 16' 0"

Test Unit #1

Impact #1: Missile Velocity: 49.3 fps

Impact Area: Center of glazing

Observations: No rips, tears or penetrations

Results: Pass

Impact #2: Missile Velocity: 49.6 fps

Impact Area: Lower right corner of glazing

Observations: No rips, tears or penetrations

Results: Pass

Note: Refer to Architectural Testing Sketch #2 for impact locations.

Test Results: (Continued)

Protocol TAS 203-94, Cyclic Wind Pressure Loading

Test Unit #1

Design Pressure: +50.0/-65.0 psf

POSITIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)					
			#1	#2	#3	#4	#5	#6
10.0 to 25.0	3500	1.46	0.05	0.05	0.04	0.03	0.02	0.08
0 to 30.0	300	1.42	0.06	0.06	0.05	0.04	0.04	0.09
25.0 to 40.0	600	1.58	0.06	0.07	0.06	0.05	0.05	0.10
15.0 to 50.0	100	1.37	0.07	0.08	0.06	0.06	0.09	0.12
			Permanent Set (inch)					
			0.03	0.02	0.02	0.02	0.01	0.02

NEGATIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)					
			#1	#2	#3	#4	#5	#6
19.5 to 65.0	50	1.53	0.10	0.13	0.04	0.03	0.05	0.14
32.5 to 52.0	1050	1.13	0.07	0.11	0.03	0.02	0.04	0.11
0 to 39.0	50	1.41	0.06	0.09	0.03	0.02	0.04	0.09
13.0 to 32.5	3350	1.09	0.05	0.08	0.02	0.01	0.03	0.08
			Permanent Set (inch)					
			0.03	0.03	0.01	0.01	0.01	0.02

Result: Pass

Note: Refer to Architectural Testing Sketch #1 for indicator locations.

Test Results: (Continued)

Protocol TAS 201-94, *Impact Test Procedures*

Conditioning Temperature: 68°F

Missile Weight: 9.2 lbs

Missile Length: 96-1/2"

Muzzle Distance from Test Specimen: 16' 0"

Test Unit #2

Impact #1: Missile Velocity: 49.2 fps

Impact Area: Center of glazing

Observations: No rips, tears or penetrations

Results: Pass

Impact #2: Missile Velocity: 49.8 fps

Impact Area: Upper left corner of glazing

Observations: No rips, tears or penetrations

Results: Pass

Note: Refer to Architectural Testing Sketch #2 for impact locations.

Test Results: (Continued)

Protocol TAS 203-94, Cyclic Wind Pressure Loading

Test Unit #2

Design Pressure: +50.0/-65.0 psf

POSITIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)					
			#1	#2	#3	#4	#5	#6
10.0 to 25.0	3500	1.90	0.07	0.07	0.02	0.03	0.03	0.05
0 to 30.0	300	1.64	0.08	0.08	0.02	0.03	0.04	0.06
25.0 to 40.0	600	2.16	0.09	0.09	0.03	0.04	0.05	0.07
15.0 to 50.0	100	1.72	0.10	0.10	0.04	0.05	0.06	0.08
			Permanent Set (inch)					
			0.01	0.01	<0.01	0.01	0.01	0.01

NEGATIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)					
			#1	#2	#3	#4	#5	#6
19.5 to 65.0	50	2.18	0.18	0.23	0.13	0.04	0.05	0.16
32.5 to 52.0	1050	1.96	0.16	0.20	0.12	0.03	0.04	0.13
0 to 39.0	50	2.47	0.15	0.19	0.10	0.02	0.03	0.11
13.0 to 32.5	3350	1.94	0.14	0.18	0.09	0.02	0.02	0.10
			Permanent Set (inch)					
			0.07	0.08	0.07	0.02	0.02	0.04

Result: Pass

Note: Refer to Architectural Testing Sketch #1 for indicator locations.

Test Results: (Continued)

Protocol TAS 201-94, *Impact Test Procedures*

Conditioning Temperature: 68°F

Missile Weight: 9.2 lbs

Missile Length: 96-1/2"

Muzzle Distance from Test Specimen: 16' 0"

Test Unit #3

Impact #1: Missile Velocity: 49.8 fps

Impact Area: Center of glazing

Observations: No rips, tears or penetrations

Results: Pass

Impact #2: Missile Velocity: 49.2 fps

Impact Area: Lower left corner of glazing

Observations: No rips, tears or penetrations

Results: Pass

Note: Refer to Architectural Testing Sketch #2 for impact locations.

Test Results: (Continued)

Protocol TAS 203-94, Cyclic Wind Pressure Loading

Test Unit #3

Design Pressure: +50.0/-65.0 psf

POSITIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)					
			#1	#2	#3	#4	#5	#6
10.0 to 25.0	3500	1.90	0.07	0.07	0.02	0.02	0.03	0.07
0 to 30.0	300	1.64	0.08	0.08	0.03	0.02	0.04	0.07
25.0 to 40.0	600	2.16	0.09	0.09	0.04	0.02	0.04	0.08
15.0 to 50.0	100	1.72	0.10	0.10	0.05	0.03	0.05	0.08
			Permanent Set (inch)					
			0.01	0.01	0.01	0.01	0.01	0.01

NEGATIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)					
			#1	#2	#3	#4	#5	#6
19.5 to 65.0	50	2.18	0.14	0.14	0.05	0.03	0.05	0.17
32.5 to 52.0	1050	1.96	0.11	0.11	0.04	0.02	0.04	0.14
0 to 39.0	50	2.47	0.10	0.10	0.03	0.02	0.03	0.13
13.0 to 32.5	3350	1.94	0.09	0.09	0.03	0.02	0.02	0.11
			Permanent Set (inch)					
			0.03	0.02	0.02	0.01	0.01	0.04

Result: Pass

Note: Refer to Architectural Testing Sketch #1 for indicator locations.

Test Results: (Continued)

Protocol TAS 201-94, *Impact Test Procedures*

Conditioning Temperature: 68°F

Missile Weight: 9.2 lbs

Missile Length: 96-1/2"

Muzzle Distance from Test Specimen: 16' 0"

Test Unit #4

Impact #1: Missile Velocity: 49.1 fps

Impact Area: Left sash, center of glazing.

Observations: No rips, tears or penetrations

Results: Pass

Impact #2: Missile Velocity: 49.6 fps

Impact Area: Left sash, lower right corner of glazing.

Observations: No rips, tears or penetrations

Results: Pass

Impact #3: Missile Velocity: 49.1 fps

Impact Area: Midspan of mullion

Observations: No structural damage

Results: Pass

Note: Refer to Architectural Testing Sketch #2 for impact locations.

Test Results: (Continued)

Protocol TAS 203-94, Cyclic Wind Pressure Loading

Test Unit #4

Design Pressure: +50.0/-65.0 psf

POSITIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)				
			#1	#2	#3	#4	#5
10.0 to 25.0	3500	1.42	0.02	0.17	0.02	0.04	0.04
0 to 30.0	300	1.49	0.02	0.18	0.03	0.05	0.05
25.0 to 40.0	600	1.41	0.05	0.22	0.03	0.07	0.05
15.0 to 50.0	100	1.47	0.06	0.27	0.03	0.07	0.05
			Permanent Set (inch)				
			0.01	0.03	0.01	0.02	0.01

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)			
			#6	#7	#8	#9
10.0 to 25.0	3500	1.42	0.02	0.06	0.08	0.11
0 to 30.0	300	1.49	0.03	0.07	0.08	0.12
25.0 to 40.0	600	1.41	0.04	0.07	0.11	0.12
15.0 to 50.0	100	1.47	0.05	0.09	0.13	0.12
			Permanent Set (inch)			
			0.02	0.01	0.01	0.01

Test Results: (Continued)

Test Unit #4 (Continued)

Design Pressure: +50.0/-65.0 psf

NEGATIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)				
			#1	#2	#3	#4	#5
19.5 to 65.0	50	1.47	0.10	0.55	0.05	0.14	0.12
32.5 to 52.0	1050	1.16	0.08	0.47	0.04	0.13	0.09
0 to 39.0	50	1.60	0.06	0.38	0.04	0.10	0.07
13.0 to 32.5	3350	1.20	0.05	0.37	0.03	0.08	0.06
			Permanent Set (inch)				
			0.02	0.12	0.02	0.03	0.02

Pressure Range (psf)	Number of Cycles	Average Cycle Time (sec.)	Maximum Deflection at Indicator (inch)			
			#6	#7	#8	#9
19.5 to 65.0	50	1.47	0.05	0.18	0.30	0.31
32.5 to 52.0	1050	1.16	0.05	0.15	0.26	0.26
0 to 39.0	50	1.60	0.04	0.12	0.21	0.21
13.0 to 32.5	3350	1.20	0.03	0.11	0.19	0.18
			Permanent Set (inch)			
			0.02	0.03	0.08	0.08

Result: Pass

Note: Refer to Architectural Testing Sketch #1 for indicator locations.

Test Equipment:

Cannon: Steel pipe barrel utilizing compressed air to propel the missile

Missile: 2x4 Southern Pine

Timing Device: Electronic Beam Type

Cycling Mechanism: Computer controlled centrifugal blower with electronic pressure measuring device

Deflection Measuring Device: Linear transducers

Laboratory Compliance Statements: The following are provided as required by the protocols for the testing reported herein.

Upon completion of testing, specimens tested for TAS 201-94 met the requirements of Section 1626 of the Florida Building Code.

Upon completion of testing, specimens tested for TAS 202-94 met the requirements of Section 1620 of the Florida Building Code.

Upon completion of testing, specimens tested for TAS 203-94 met the requirements of Section 1626 of the Florida Building Code.

Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

Testing was conducted at the Architectural Testing, Inc. laboratory located in St. Paul, Minnesota.

List of Official Observers:

<u>Name</u>	<u>Company</u>
Gene Loubert	KML Windows, Inc.
Jon P. Kasuboski	Architectural Testing, Inc.
Tony D. Gavin	Architectural Testing, Inc.
Karl A. Lips-Eakins	Architectural Testing, Inc.
Joseph A. Reed, P.E.	Architectural Testing, Inc.
Eric J. Schoenthaler	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 ten 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. 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(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.

Eric J. Schoenthaler
Project Manager

Joseph A. Reed, P.E.
Director - Engineering and Product Testing

EJS:es/cmd

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

Appendix-A: Sketches (2)

Appendix-B: Drawings (19)

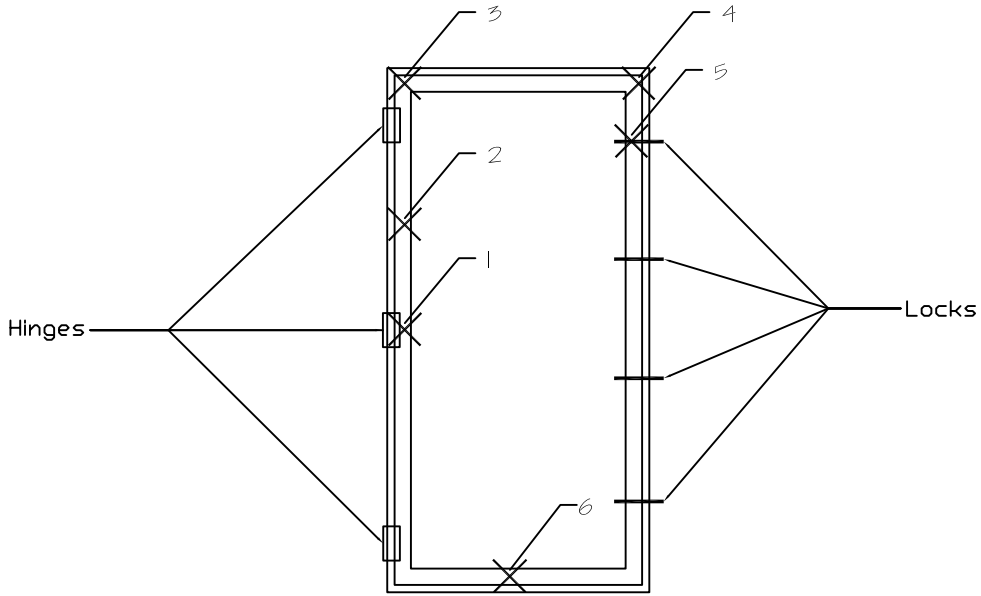
Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	07/06/10	N/A	Original report issue. Report and drawings forwarded to AMS for Hallmark Certification.

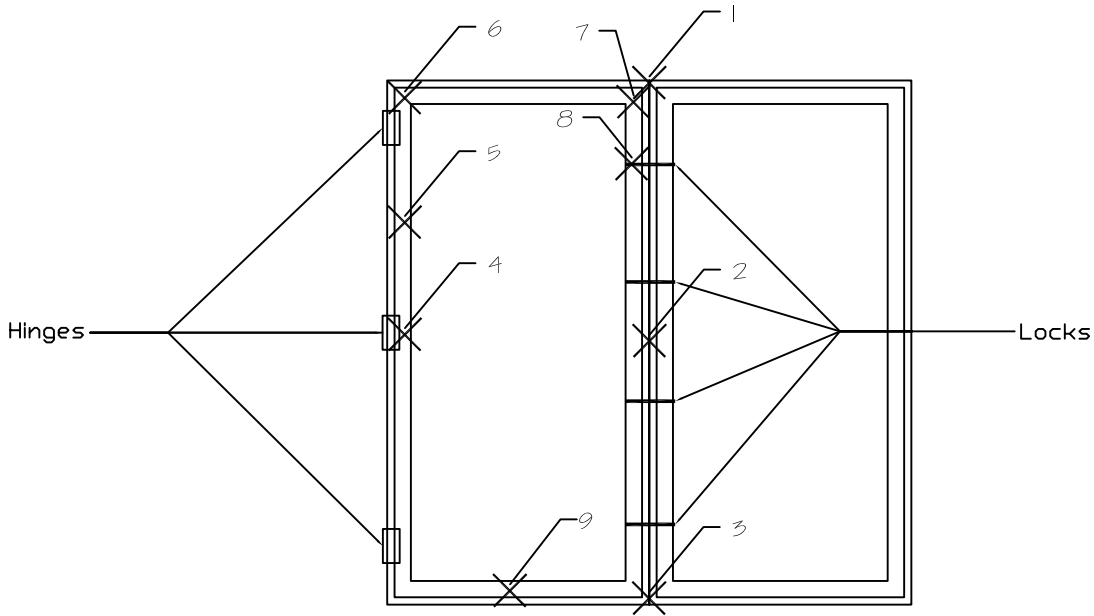
Appendix A

Sketches

SKETCH #1



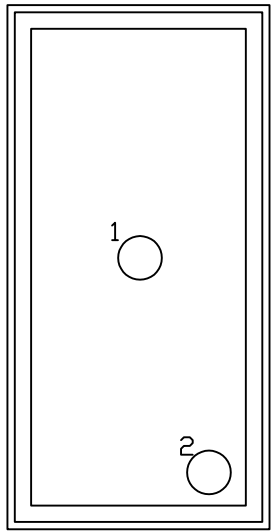
ASSEMBLIES #1, #2, and #3



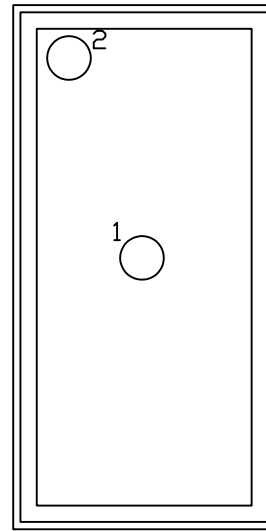
ASSEMBLY #4

X = INDICATOR LOCATION

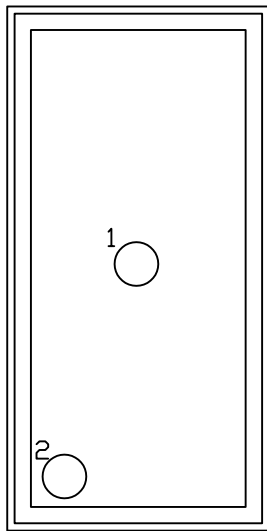
SKETCH #2



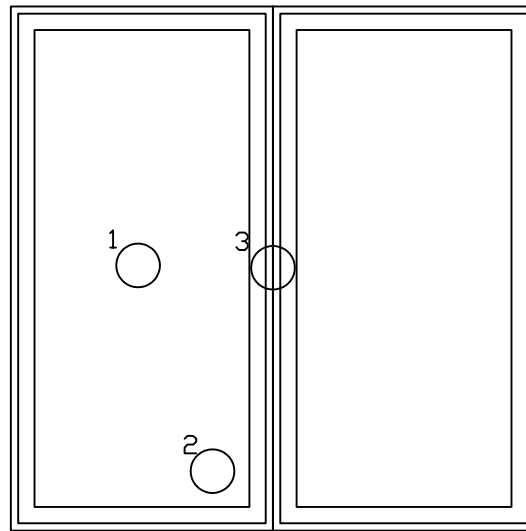
ASSEMBLY #1



ASSEMBLY #2



ASSEMBLY #3

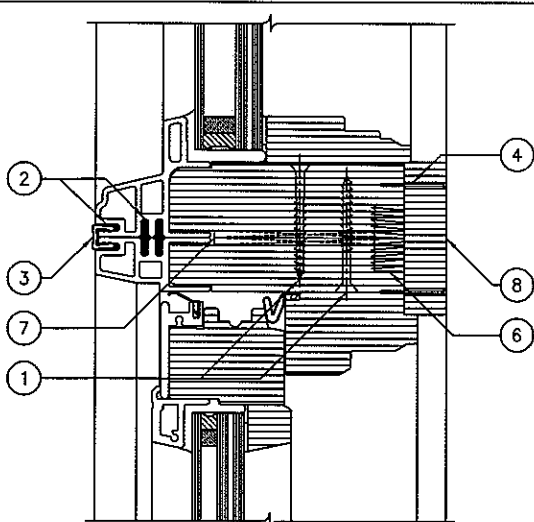


ASSEMBLY #4

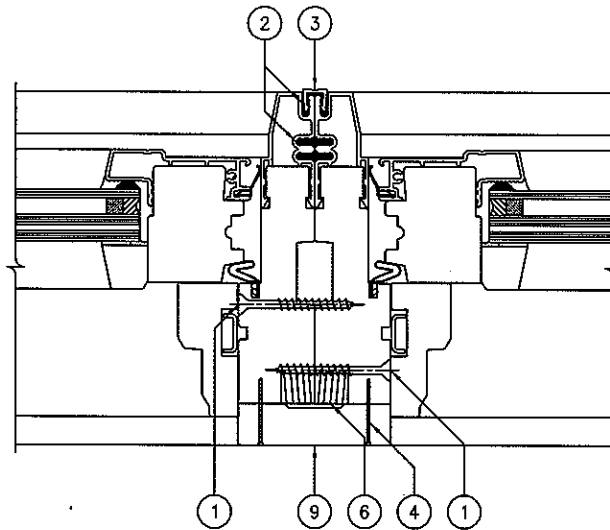
X ○ = IMPACT LOCATION

Appendix B

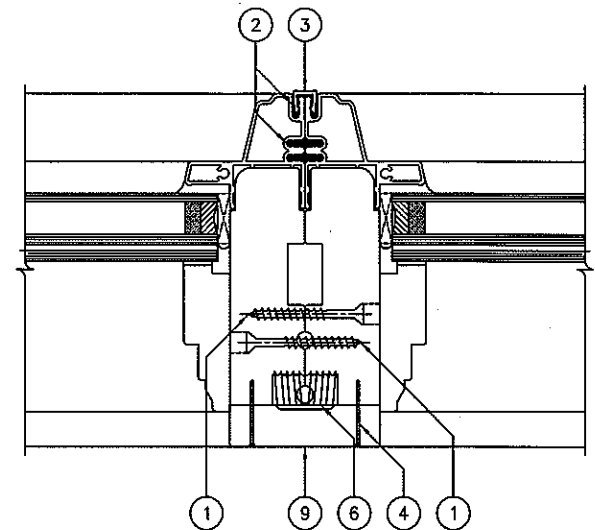
Drawings



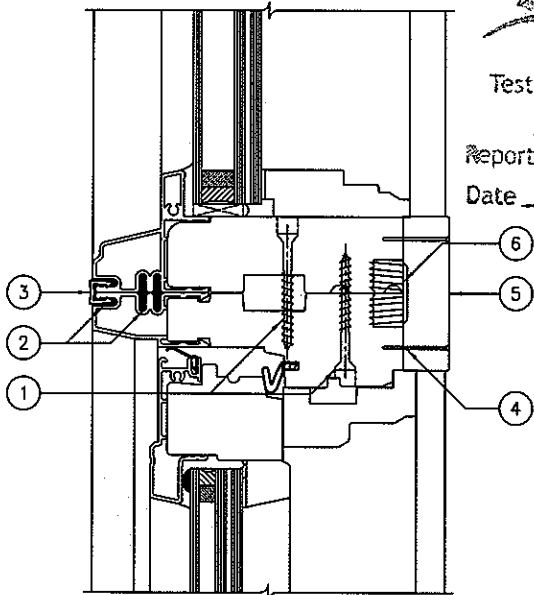
SECTION B
CURVED CASEMENT HEAD TO
CURVED TRANSOM SILL MULL DETAIL



SECTION C
VERTICAL CASEMENT TO CASEMENT
MULL DETAIL



SECTION D
VERTICAL TRANSOM TO TRANSOM
MULL DETAIL



SECTION A
HORIZONTAL CASEMENT HEAD TO
TRANSOM SILL MULL DETAIL

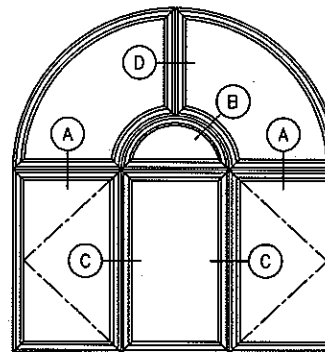
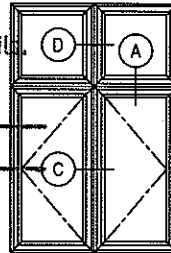


Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 91032

Date 6/23/10 Tech SK



COMPOSITE ELEVATION - N.T.S.
(AS VIEWED FROM EXTERIOR)

NOTE:

* PROFILE OR PART DOES NOT APPEAR IN SECTIONS SHOWN

ITEM	DESCRIPTION	PROFILE/PART NO.	FASTENER & SEALANT FREQUENCY
▲	* 2" X 1/4" VERTICAL MULLION COVER - CURVED	PF2049	USE FOR BACK TO BACK MULLING WITH JAMB EXTENSIONS
▲	* 2" X 1/4" VERTICAL MULLION COVER - LINEAL	PF2049	USE FOR BACK TO BACK MULLING WITH JAMB EXTENSIONS
▲	* 2" X 3/8" HORIZONTAL MULLION COVER - LINEAL	PF2048	USE FOR BACK TO BACK MULLING WITH JAMB EXTENSIONS
▲	* 2" X 3/8" HORIZONTAL MULLION COVER - LINEAL	PF2048	USE FOR BACK TO BACK MULLING WITH JAMB EXTENSIONS
▲	* 2-19/64" X 11/16" HORIZONTAL MULLION COVER - CURVED	PF1797	USE FOR BACK TO BACK MULLING WITH JAMB EXTENSIONS
▲	2-19/64" X 5/8" VERTICAL MULLION COVER - LINEAL	PF1796 ✓	
▲	2-19/64" X 5/8" VERTICAL MULLION COVER - CURVED	PF1796	
7	USE GLAZING SHIMS TO MAINTAIN JAMB SPACING		SPACED AT SAME INTERVALS AS JAMB FASTENERS
6	CORRUGATED STAPLE	P/N-1744	USED TO TEMPORARILY HOLD UNIT TOGETHER FOR MULLING
5	2-19/64" X 11/16" HORIZONTAL MULLION COVER - LINEAL	PF1797	
4	1" GALVANIZED BRAD NAIL	P/N-1401	FROM CORNERS & MAX. 12" O.C.
3	ALUMINUM DOUBLE MULLION CAP	PMC73 ✓	APPLY SILICONE BEFORE APPLYING MULL CAP
2	DOW 1199 SILICONE - CLEAR (TYP. BOTH SIDES)	P/N-102598	CONTINUOUS APPLIED BETWEEN CLADDING AND MULL CAP
1	#8 X 1-3/4" F.H., S.Q., S.M.S. SCREW	P/N-876	ALTERNATE 4" FROM CORNERS & MAX. 12" O.C.

***NOTES:**

JAMB FASTENERS ARE TO ALTERNATE ON BOTH SIDES OF JAMB AT 4" FROM CORNERS AND MAX. 12" O/C - STAGGERED BY 1/2" SO AS NOT TO INTERFERE WITH EACH OTHER.

MULLING DETAILS APPLY TO BOTH OPERATING AND FIXED - CASEMENT, TRANSOM & AWNING UNITS.

BACK TO BACK REINFORCED MULLIONS DO NOT REQUIRE TO BE MINIMUM JAMB EXTENDED TO 4-9/16".

REINFORCED MULLION DETAILS MAY BE USED IN CONJUNCTION WITH NON REINFORCED MULLION DETAILS. REF: SK2061 FOR NON-REINFORCED MULLION DETAILS.

NO.	DESCRIPTION	BY	DATE	ECN NO.
03	PF2048 & PF2049 Mull Covers Added	GMM	27 FEB 08	200072
02	Revised to Provide Additional Information	GMM	01 FEB 08	200030

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Title:
CLAD COASTAL CASEMENT VERTICAL & HORIZ.
BACK TO BACK REINFORCED MULL B.O.M.

Drawn: GMM Chk'd: _____
Date: 02 SEPT 2005 Scale: HALF SIZE

Drawing Number **SK2339** (1 of 3)




Process Specification

Title:
Specifications for Operating
Clad Casement Windows

Number:
PP09KM0006
Page:
2 of 3

Issued By: Graham Marks

Approved By: Sean Dixon

	Standard Hallmark Certified Products	Impact Certified Products (Coastal IR)
Specifications	ANSI/AAMA/NWDA 101/I.S.2-NAFS-02, A440-05 & A440-08	ASTM E1886/E1996-02 Missile Level C & D Wind Zone 3 & 4
Rating	C-C60 (LC-PG60-C) 36" x 84"	DP +50-65
Frame Member Corner Assembly	✓ All shapes - (3) #8 x 2" P.H., S.Q., Screws per corner.	
Frame Member Corner Sealing	Tremco 830 caulking for wood to wood corner joint.	
Springline Unit Frame Member - Leg to Curved Head Assembly Butt Joint	Castel drill method - butt joint (3 or 4 as required) #8 x 2" PH, SQ, Screws. 	
Springline Unit Frame Member - Leg to Curved Head Sealing Butt Joint	PVA wood glue for wood to wood butt joint Report# <u>91032</u> Date <u>6/23/10</u> Tech <u>EPK</u>	
Frame Cladding Assembly & Frame Cladding Corner Assembly	✓ 1/4" x 3/8" staples @ 2" from corners & 8" O.C. maximum (2) #6 x 3/4" FH, SQ, screws per corner.	
Frame Cladding Sealing & Frame Cladding Corner Sealing	One continuous bead of Dow Corning 1199 silicone sealant in the rebate on the interior side of the wood jamb. Drill & pump Dow Corning 1199 silicone sealant into frame extrusion cavity at corner joints.	Two continuous beads of Dow Corning 1199 silicone sealant in the rebates on the interior & exterior sides of the wood jamb. Drill & pump Dow Corning 1199 silicone sealant into frame extrusion cavity at corner joints.
Sash Member Corner Assembly	✓ Mortis & Tenon joints with PVA wood glue. (1) - 7/16" x 1-1/2" x 16 GA. staples per M&T joint. (Ref. SK1919)	
Springline Unit Sash Member - Leg to Curved Head Assembly	Mortis & Tenon joints with PVA wood glue. (1) - 7/16" x 1-1/2" x 16 GA staple per M&T joint. (Ref. SK1919)	
Sash Cladding Assembly & Sash Cladding Corner Assembly	The interior glass lip 1/4" x 3/8" staples @ 2" from corners & 6" O.C. maximum. Curved portion on Springline have #6 x 3/4" screws @ 2" from corners & 6" O.C. on both interior & exterior of sash. (1) - #6 x 3/4" screw per corner.	The interior glazing lip has #6 x 3/4" screws @ 2" from corners & 6" O.C. maximum. Curved portion on Springline have #6 x 3/4" screws @ 2" from corners & 6" O.C. on both interior & exterior of sash. (1) - #6 x 3/4" screw per corner.
Sash Cladding Sealing & Sash Cladding Corner Sealing	One continuous bead of Dow Corning 1199 silicone sealant under glass lip. Drill & pump Dow Corning 1199 silicone sealant into sash glazing stop extrusion cavity at corner joints.	Two continuous beads of Dow Corning 1199 silicone sealant under glass lip and underside of sash cladding. Drill & pump Dow Corning 1199 silicone sealant into sash glazing stop extrusion cavity at corner joints.

Architectural Testing
 Test sample complies with these details.
 Deviations are noted.

**Controlled Network
Version Only**



Process Specification


Title:
Specifications for Operating
Clad Casement Windows

Number:
PP09KM0006
Page:
3 of 3

Issued By: Graham Marks

Approved By: Sean Dixon

	Standard Hallmark Certified Products	Impact Certified Products (Coastal IR)
Sash Stop Assembly	✓ 1-1/4" brad nails @ 2" from corners and 8" O.C. maximum	
Hinges	Rectangular units – concealed hinges Standard finish & corrosion resistant option ✓ Shaped units – stainless steel butt hinges	All shapes – stainless steel butt hinges
Operators	Corrosion resistant fastened to the sill with (5) #10 x 1 1/2" FH, PD, SS, SMS	Corrosion resistant fastened to the sill with (5) #10 x 1 1/2" FH, PD, SS, SMS
Locks & Keepers	✓ Multi-point lock & keeper system (2) #8 x 1" FH, PD, SS, SMS per lock point (1, 2 & 3 lock points) (2) #8 x 1" FH, PD, SS, SMS per keeper	
Glazing Method	Glass is set from interior against a bed of Dow Corning 1199 Gray silicone sealant. Wood glazing stops with double sided adhesive tape and fastened with 1-1/4" brad nails @ 2" from corners and 8" O.C. maximum.	Glass is set from the interior against a 1/8" thick bed of Dow Corning 995 structural silicone sealant using glazing bump-on spacers to obtain glazing bead thickness. Black 995 Silicone is used for all color options except for White cladding color option uses White 995 Silicone. 995 Structural silicone is also used in the full perimeter in the glazing cavity. ✓ Wood glazing stops with double sided adhesive tape and fastened with 1-1/4" brad nails @ 2" from corners and 6" O.C. maximum.
Glass Options	Any monolithic or Insulated unit that meets the size and wind load requirements of ASTM E1300 that does not exceed the product DP rating.	Up to 35-15/16" x 84" frame size use 5/32" AN/0.090 PVB/ 5/32" AN laminated glass. Laminated glass can be used as monolithic or in an insulated unit with 1/8" anneal glass. **Insul units can use Superspacer or Cardinal's metal spacer.**
Frame Size Restrictions	35-15/16" Wide 84" Tall **CAN NOT exceed either dimension**	
Frame Installation Clip Options	Standard installation clip fastened to the frame with (2) #8 x 3/4", FH, PD, SS, screws. Clip spacing: 4" to 6" from corners and O.C. spacing as noted on the production order paperwork. ✓ Sheer screw option through jamb #10 x 3" @ 4" to 6" from corners and per Engineered O.C. spacing.	Coastal installation clip fastened to the frame with (1) #8 x 3/4", FH, PD, SS, SMS screws @ 2" spacing. ✓ 6" from corners and O.C. spacing as noted on the production order paperwork. An additional (2) #8 x 3/4", FH, PD, SS, SMS screws per clip shipped loose. Sheer screw option through jamb #10 x 3" @ 4" to 6" from corners and per Engineered O.C. spacing.


Architectural Testing
 Test sample complies with these details.
 Deviations are noted.

REPORT # 71032
 Date: 12/1/08

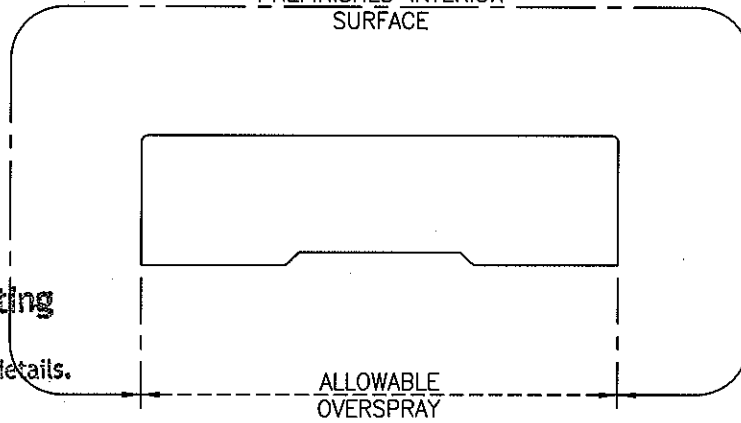
EXPOSED SURFACES

P PRIMARY

S SECONDARY

C CONCEALED

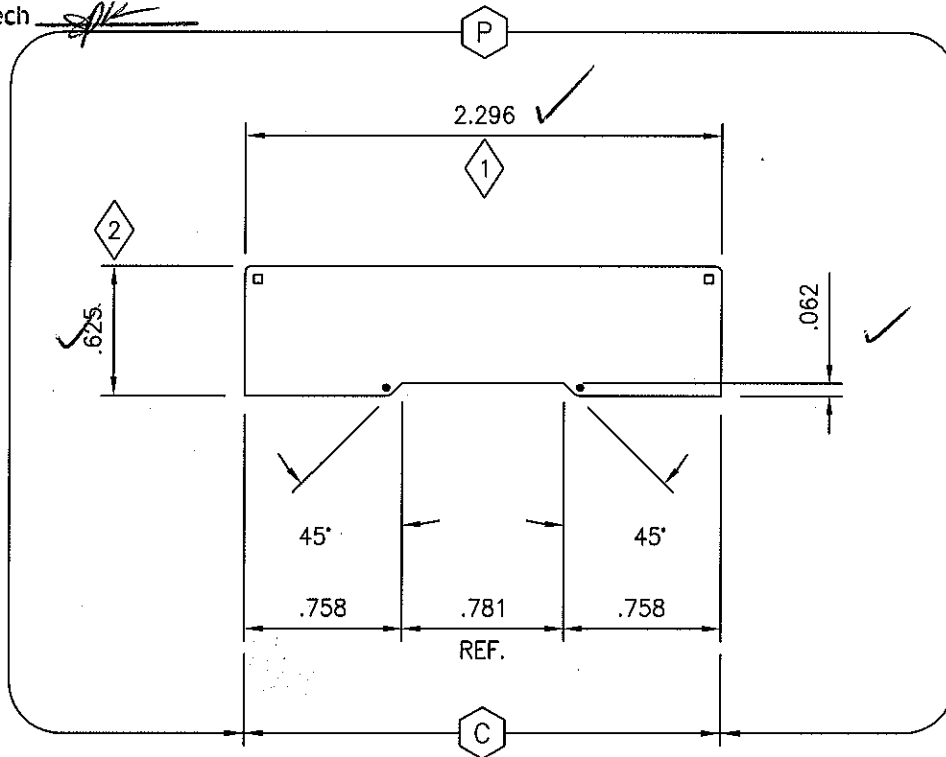
PREFINISHED INTERIOR SURFACE



Architectural Testing

Test sample complies with these details. Deviations are noted.

Report# 91032
Date 6/23/10 Tech [Signature]



NOTES:

1. PRESERVATIVE TREATMENT REQUIRED.
2. CRITICAL DIMENSIONS USED: 1 THRU 2.

TOLERANCE UNLESS OTHERWISE SPECIFIED:

DIMS < or = 1" ±.010	RADII ±.015
DIMS 1" to 3" ±.015	LENGTH DIMS < or = 36" ±.015
DIMS > 3" ±.031	LENGTH DIMS > 36" ±.031
ANGLES ±1°	

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STANDARD RADIUS MARKERS:

● RADII = 0.040 ■ RADII = ○ RADII = □ RADII = 0.031

PINE Resawn 6/4 Clear Solid	P.I. Resawn 6/4 Clear Solid - Pine
MAHOG 5/4 Clear Solid	VG FIR 5/4 Clear Solid
OAK 5/4 Clear Solid	ALDER 5/4 Clear Solid
CHERRY 5/4 Clear Solid	OTHER _____
MAPLE 5/4 Clear Solid	OTHER _____

Title:

INTERIOR VERTICAL MULLION COVER FOR CASEMENT WINDOWS (BACK TO BACK MULL)

Drawn: SMD Chk'd: _____

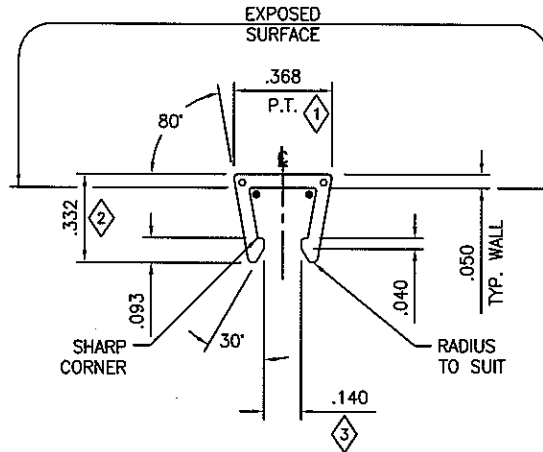
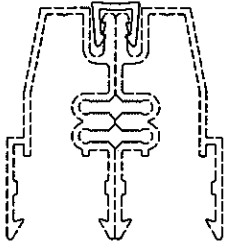
Date: 09 AUG 2004 Scale: FULL SIZE

Drawing Number

PF1796

(1 of 2)

02	Sheet (2 of 2) Curved Version Added	GMM	18 DEC 07	200030
NO.	DESCRIPTION	BY	DATE	ECN NO.



THIS PROFILE IS SYMMETRICAL ABOUT THE \downarrow .



Architectural Testing

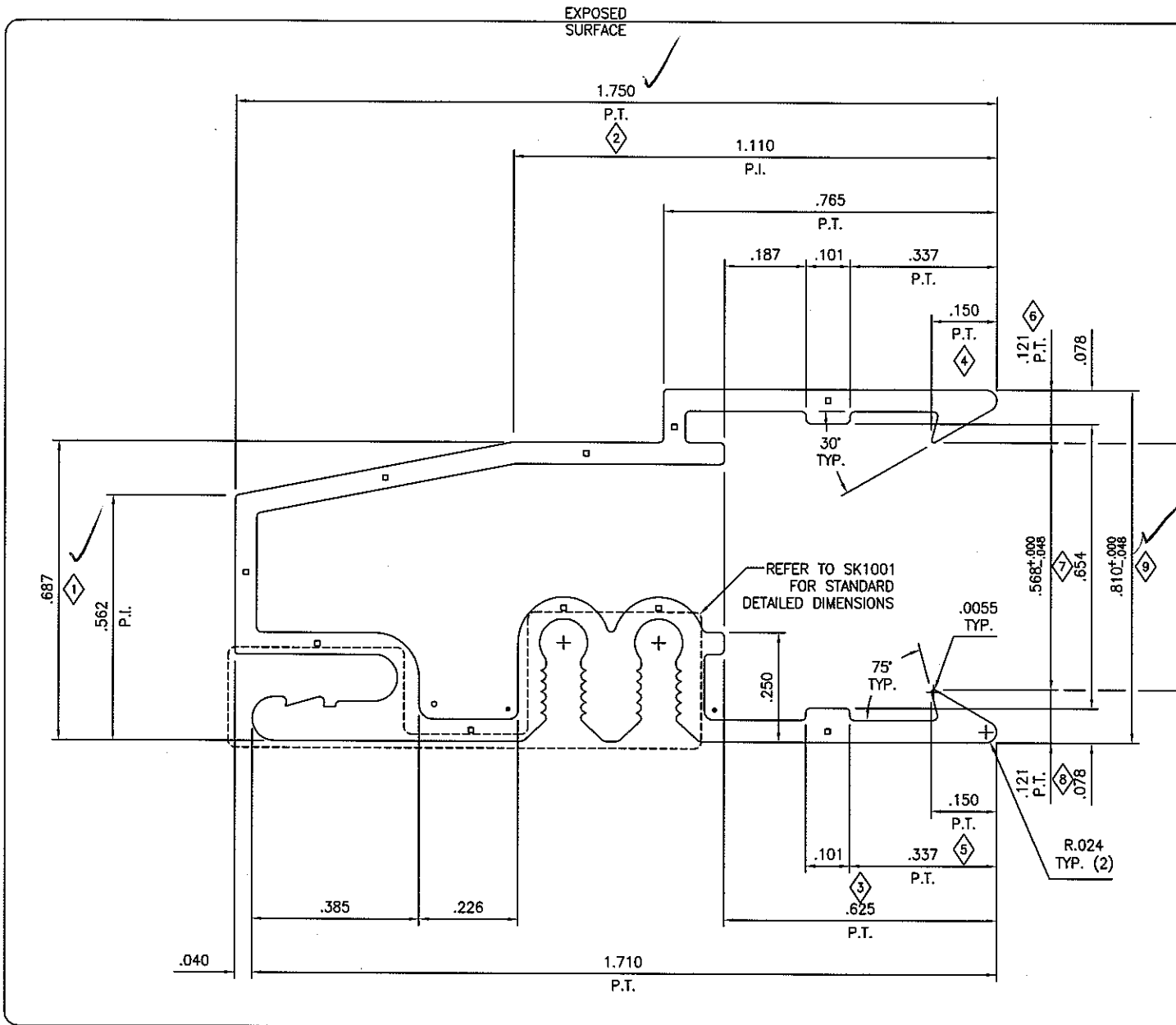
Test sample complies with these details.
Deviations are noted.

Report# 91032
Date 6/23/10 Tech SK

NOTES:

1. CRITICAL DIMENSIONS USED: 1 THRU 3.
2. DIMENSIONS WITHOUT TOLERANCES USE ALUMINIUM INDUSTRY STANDARDS.
3. ALL DIMENSIONS APPLY TO POST PAINTING.
4. FINISH SPECIFICATION:
PRIMED PAINTED - PPO9KMO053

UNLESS OTHERWISE SPECIFIED: □ WALLS = 0.050 ■ WALLS = ○ RADII = 0.015 ● RADII = 0.010 BREAK ALL CORNERS WITH: R 0.0055 P.I. = POINT OF INTERSECTION P.T. = POINT OF TANGENCY				KML WINDOWS INC. an Andersen [®] company	<small>CONFIDENTIAL</small> The information contained in this document is strictly proprietary to Andersen Corporation and may not be disclosed to nonemployees of the company or used in any way or for any purpose outside of the company without the express written consent of Andersen Corporation. Unauthorized use, reproduction, disclosure or retention of any information contained herein is expressly prohibited. Patent, copyright, proprietary and manufacturing rights are reserved.
ALLOY: 6063	TEMPER: T5	Title: ALUMINUM MULLION COVER FOR A BACK TO BACK MULLION			
HARDNESS: WEBSTER 7 OR ABOVE AS EXTRUDED	SHAPE: SOLID	C.C.D. (in.): 0.45035	Drawn: GD Chk'd: _____		
AREA (sq.in.): 0.04785	PERIMETER (in.): 1.93398	WT. (lbs/ft): 0.05570	Date: 17 DEC 1990 Scale: 2x FULL SIZE		
WT. (kg/m): 0.08289	LENGTH: 216" (18'-0")	M.N. BENDING RADIUS: 7.000 @ CENTER LINE			
05 UPDATED TO CURRENT KML FORMAT	SMD 01 AUG 08 200102	Drawing Number PMC73			
NO. DESCRIPTION	BY DATE ECN NO.				



Test sample complies with these details.
Deviations are noted.

Report# 91032
Date 6/23/10 Tech SPK

- NOTES:
1. CRITICAL DIMENSIONS USED: 1 THRU 9.
 2. DIMENSIONS WITHOUT TOLERANCES USE ALUMINUM INDUSTRY STANDARDS.
 3. ALL DIMENSIONS APPLY TO POST PAINTING.
 4. FINISH SPECIFICATION:
PRIME PAINTED - PP09KM0053
PAINTED (2604) - PP09KM0047

UNLESS OTHERWISE SPECIFIED:
 □ WALLS = 0.050 ■ WALLS = ○ RADI = 0.031 ● RADI = 0.020
 BREAK ALL CORNERS WITH: R 0.010
 P.I. = POINT OF INTERSECTION P.T. = POINT OF TANGENCY

ALLOY:	6063	TEMPER:	T5
HARDNESS:	WEBSTER 7 OR ABOVE AS EXTRUDED		
SHAPE:	SOLID	C.C.D. (in.):	1.86789
AREA (sq.in.):	0.30964	PERIMETER (in.):	11.11473
WT. (lbs./ft.):	0.36042	WT. (kg/m):	0.53637

LENGTH: 168.000" & 192.000"

MIN. BENDING RADIUS: LINEAL ONLY

05	Critical Dims Added/Notes Revised	GMM	15 JAN 08	200067
NO.	DESCRIPTION	BY	DATE	ECN NO.

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Title:
 ALUMINUM FRAME CLADDING
 - LINEAL -

Drawn: DS Chk'd: _____
 Date: 18 OCT 1995 Scale: 4x FULL SIZE

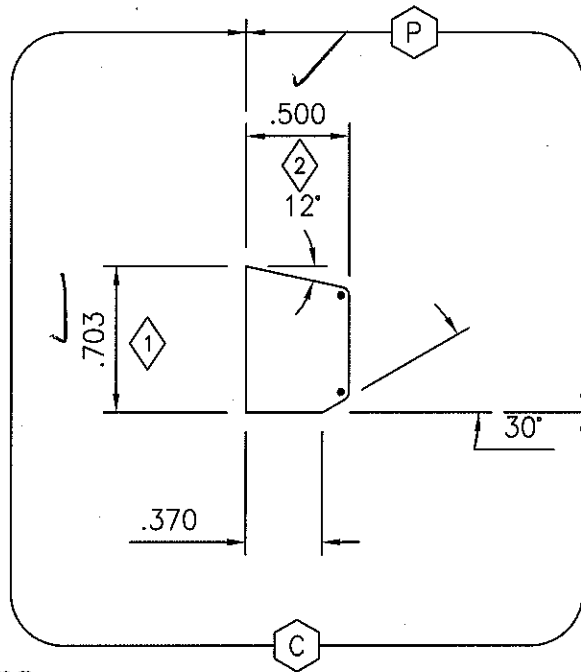
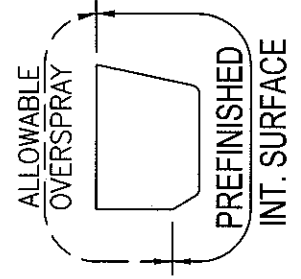
Drawing Number **PF1002**

EXPOSED SURFACES

P PRIMARY

S SECONDARY

C CONCEALED



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 6/23/10 91032

NOTES: 6/23/10 Tech [Signature]

1. PRESERVATIVE TREATMENT REQUIRED.
2. CRITICAL DIMENSIONS USED: 1 THRU 2.
3. TOLERANCE UNLESS OTHERWISE SPECIFIED ±.020.

TOLERANCE UNLESS OTHERWISE SPECIFIED:

DIMS < or = 1" ±.010	RADII ±.015
DIMS 1" to 3" ±.015	LENGTH DIMS < or = 36" ±.015
DIMS > 3" ±.031	LENGTH DIMS > 36" ±.031
ANGLES ±1°	

STANDARD RADIUS MARKERS:

● RADII = .040 ■ RADII = ○ RADII = □ RADII =

PINE 6/4" - RESAWN CLEAR SOLID	P.I. USE PINE PROFILE
MAHOG 6/4" - RESAWN CLEAR SOLID	VG FIR 6/4" - RESAWN CLEAR SOLID
OAK 6/4" - RESAWN CLEAR SOLID	ALDER 6/4" - RESAWN CLEAR SOLID
CHERRY 6/4" - RESAWN CLEAR SOLID	OTHER _____
MAPLE 6/4" - RESAWN CLEAR SOLID	OTHER _____

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Title:

1/2" GLASS STOP

-LINEAL-

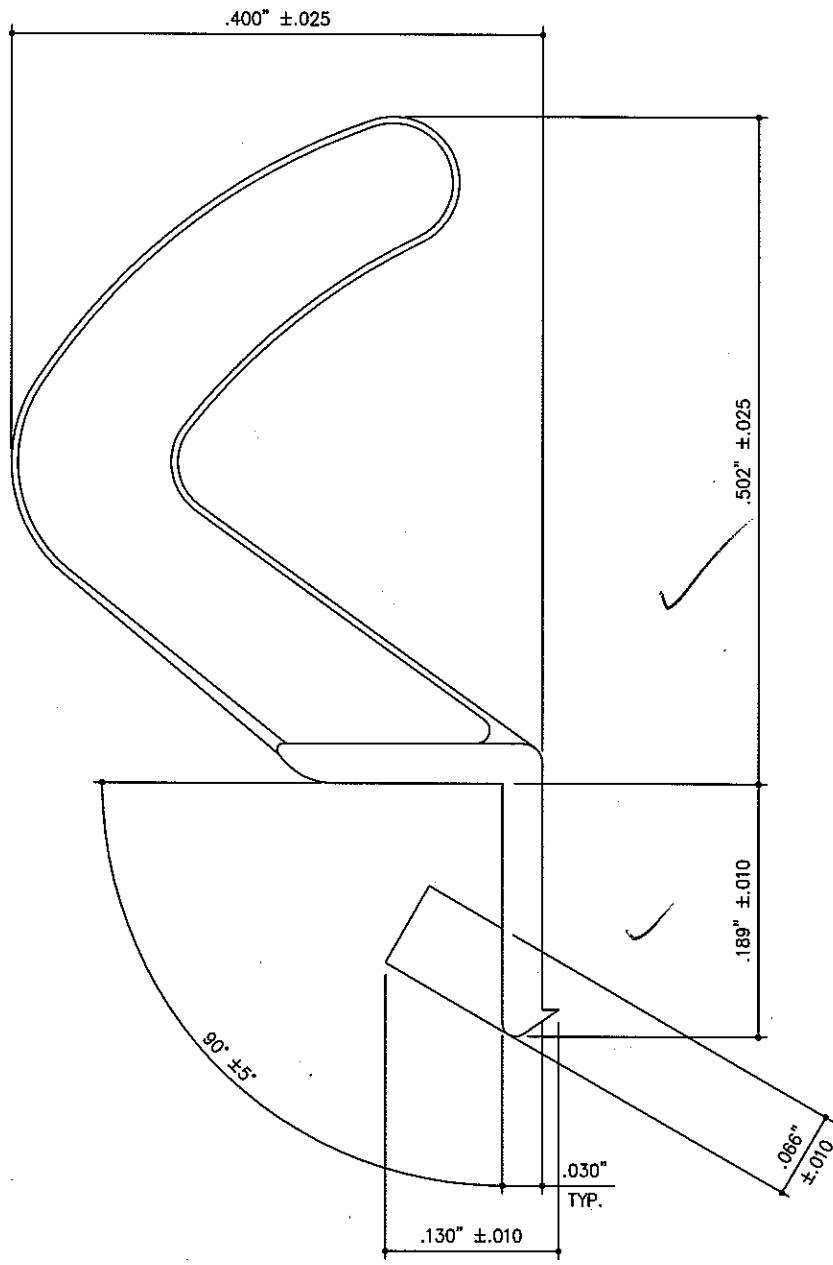
Drawn: BTB Chk'd: _____

Date: 17 NOV 1994 Scale: FULL SIZE

Drawing Number

PF1008

03	REVISED MATERIAL SPECIFICATIONS	RBB	26 MAR 07	100106
NO.	DESCRIPTION	BY	DATE	ECN NO.



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 91032
Date 6/23/10 Tech. [Signature]

- NOTES:**
1. AMESBURY FOAM-TITE SEAL
 2. EXTRUDED COMPOSITE OLEFIN/TPE
 3. CLOSED CELL FOAMED ELASTOMERIC
 4. MONSANTO "SANTOPRENE" TPE SKIN AROUND FOAM CORE
 5. RIGID "L" SHAPED CARRIER
 6. FLEXIBLE BARB FOR RETENTION IN A .125 KERF
 7. SKIN COLOUR: GRAY
 8. REFERENCE AMESBURY CAT. #12085 HOWEVER, DRAWING DETAIL TAKES PRECEDENT OVER CATALOGUE DETAIL OR SUBSEQUENT ALTERATIONS
 9. ALL DIMENSIONS AND TOLERANCES SHOWN ARE FROM AMESBURY GROUP INC. (FOAM-TITE DIVISION) DRAWING #12085 DATED 2-10-93 REV. #1 DATED 7-29-94

01	DRAWING UPDATED TO CURRENT FORMAT	SMD	22 AUG 07	200016
NO.	DESCRIPTION	BY	DATE	EDN NO.

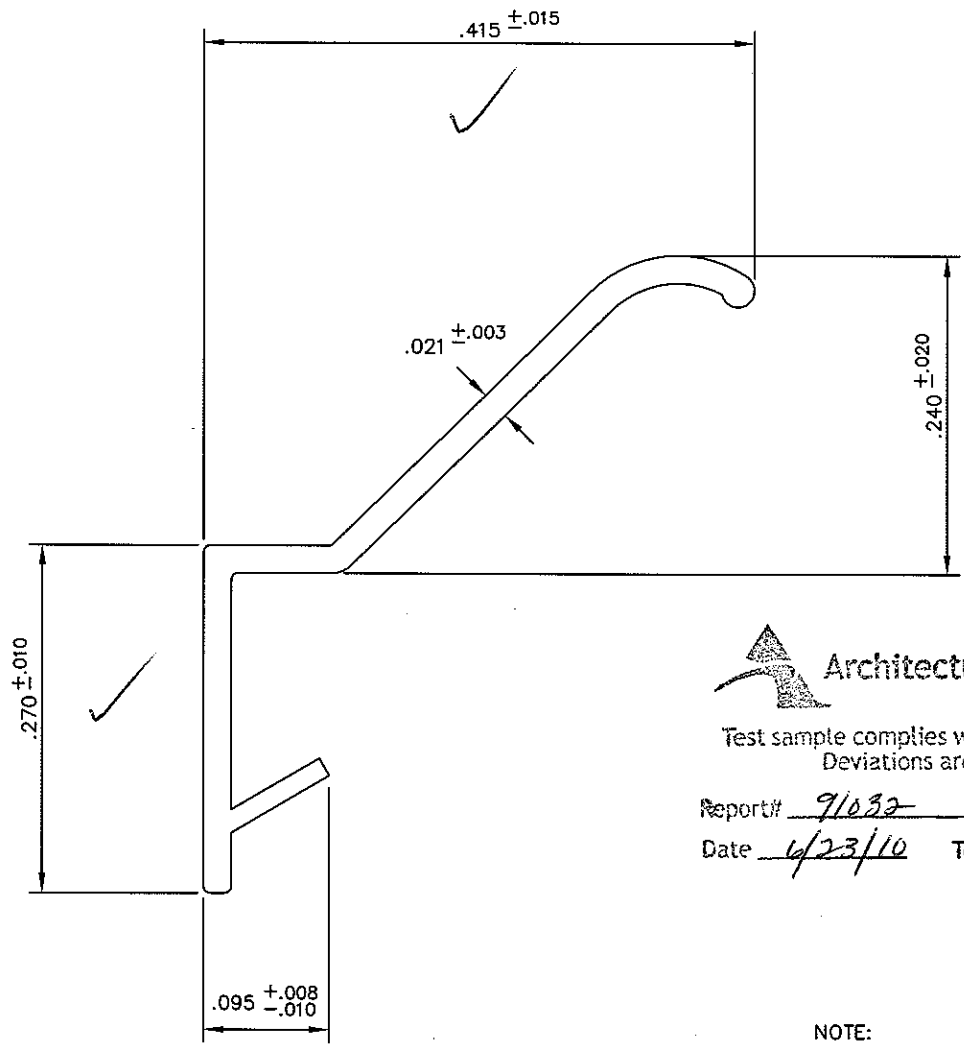
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Title: FRAME WEATHERSEAL

Drawn: BTB Chk'd: _____
Date: 27 NOV 1994 Scale: 10x FULL SIZE

Drawing Number: **PF1013**



Test sample complies with these details.
Deviations are noted.

Report# 91032
Date 6/23/10 Tech [Signature]

NOTE:
- ALL DIMENSIONS AND TOLERANCES SHOWN ARE FROM SCHLEGEL CANADA INC.(OAKVILLE DIVISION) DRAWING #PRO299 C DATED 22NO89 REV. #C2 DATED 02DE91



ACTUAL SIZE

MATERIAL:
- SCHLEGEL " SUPER POLYFLEX " EXTRUDED FLEXIBLE COPOLYMER
- FLEXIBLE BARB FOR RETENTION IN A .080 KERF
- COLOUR : BLACK
- REFERENCE SCHLEGEL CAT. # PFS 101 HOWEVER, DRAWING DETAIL TAKES PRECEDENT OVER CATALOGUE DETAIL OR SUBSEQUENT ALTERATIONS

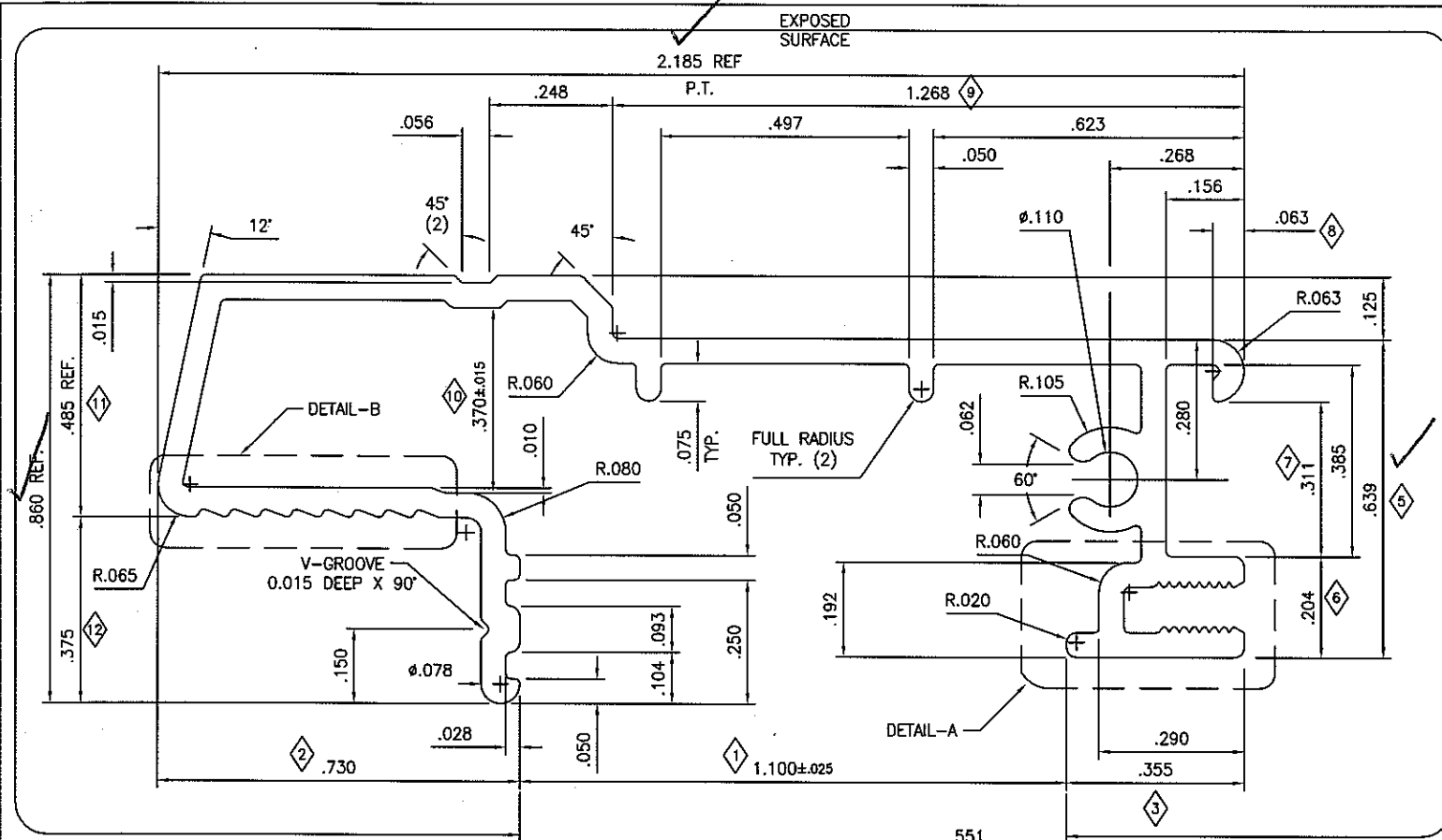
NO.	DESCRIPTION	BY	DATE	ECH NO.

KML ARCHITECTURAL WINDOWS AND DOORS
by Andersen

Title:
VENTING CASEMENT WINDOW
SASH RAIN SKIRT

Drawn: BTB Chk'd:
Date: 14 FEB 1995 Scale: 10 x FULL SIZE

Drawing Number **PF1026**



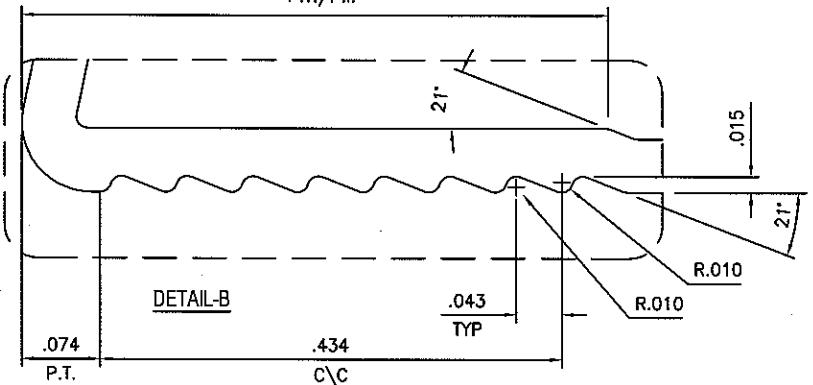
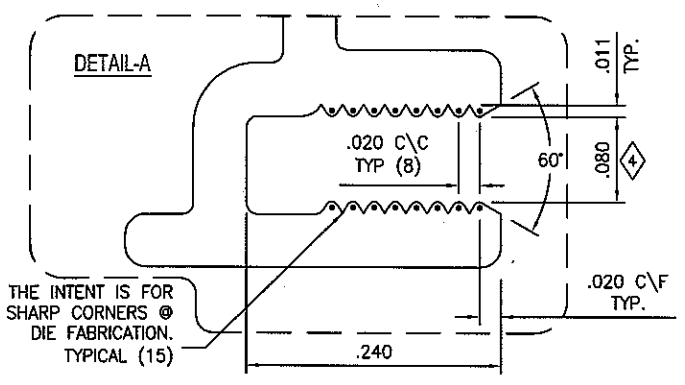
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 91032
Date 6/23/10 Tech JK

- NOTES:**
1. CRITICAL DIMENSIONS USED: 1 THRU 12.
 2. DIMENSIONS WITHOUT TOLERANCES USE ALUMINUM INDUSTRY STANDARDS.
 3. ALL DIMENSIONS APPLY TO POST PAINTING.
 4. FINISH SPECIFICATION:
PRIMED PAINTED - PP09KMO053
PAINTED (2605) - PP09KMO048

UNLESS OTHERWISE SPECIFIED:			
□ WALLS = .050	■ WALLS =	○ RADII =	● RADII = 0.0055
BREAK ALL CORNERS WITH: R 0.010		P.T. = POINT OF TANGENCY	
P.I. = POINT OF INTERSECTION			
ALLOY:	6063	TEMPER:	T5
HARDNESS:	WEBSTER 7 OR ABOVE AS EXTRUDED		
SHAPE:	SOLID	C.C.D. (in.):	2.23136
AREA (sq.in.):	0.27047	PERIMETER (in.):	10.69887
WT. (lbs/ft):	0.31483	WT. (kg/m):	0.46852
LENGTH:	192.000"		
MIN. BENDING RADIUS: LINEAL ONLY			



03	RELEASED FROM REV 02-G TO REV 03	JCA	11 JAN 08	200844
NO.	DESCRIPTION	BY	DATE	ECN NO.

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Title: ALUMINUM SASH GLADDING
LINEAL

Drawn: DS Chk'd: _____
Date: 18 OCT 1995 Scale: 4x FULL SIZE

Drawing Number **PF1074**

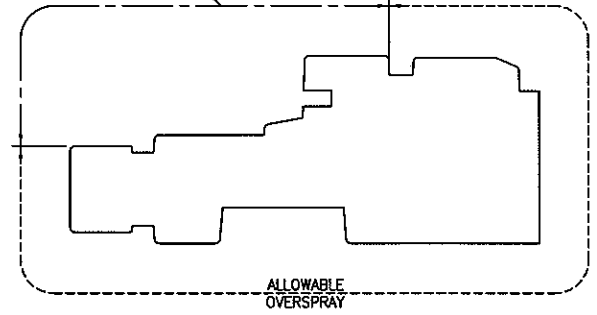
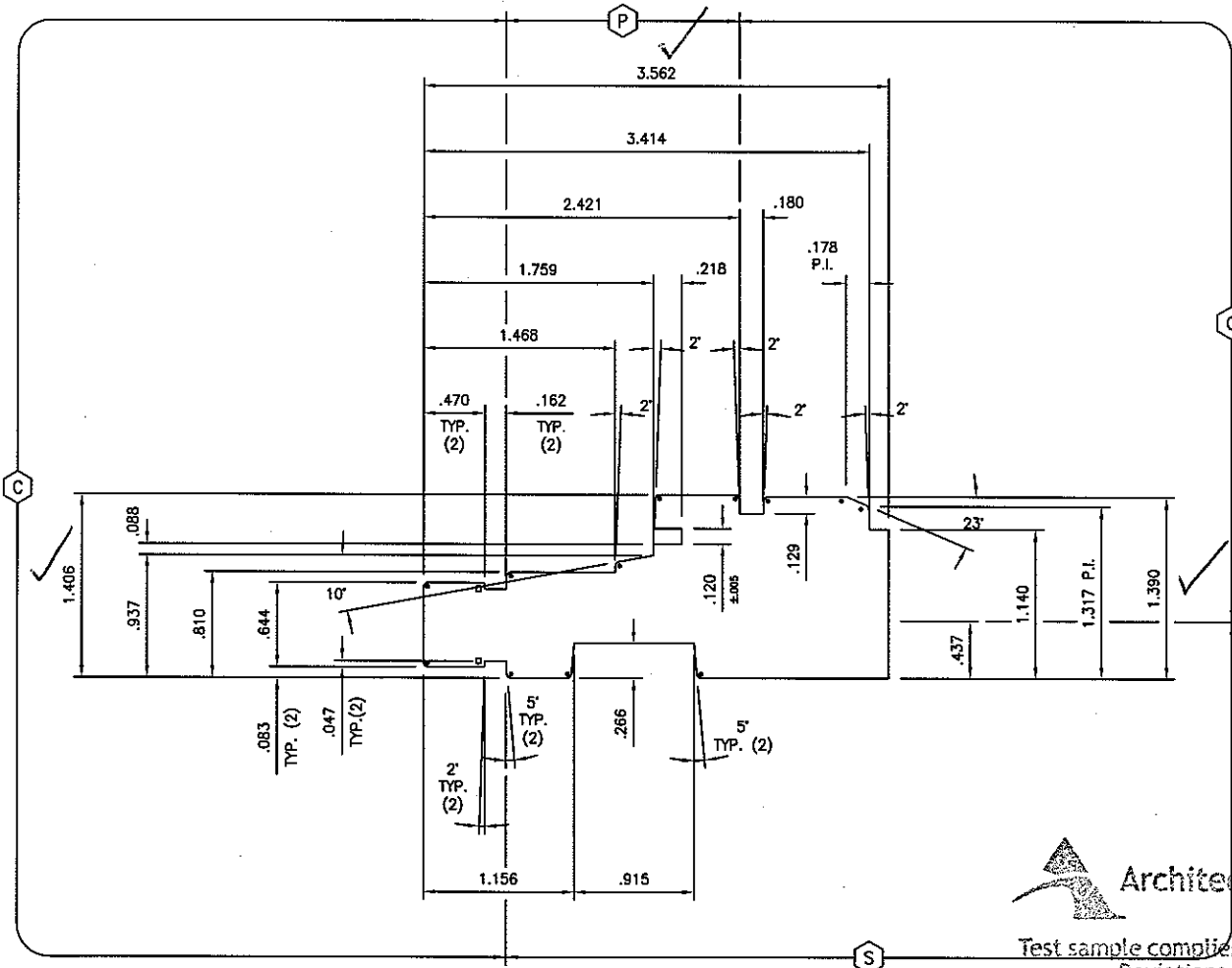
EXPOSED SURFACES

P PRIMARY

S SECONDARY

C CONCEALED

THIS SURFACE IS ALWAYS PAINTED AW GRAY 246, C0003. **2**



STANDARD RADIUS MARKERS:

● RADI = 0.031	■ RADI =	○ RADI =	□ RADI = 0.015
----------------	----------	----------	----------------

TOLERANCE UNLESS OTHERWISE SPECIFIED:

DIMS < or = 1" ±.010	RADI ±.015
DIMS 1" to 3" ±.015	LENGTH DIMS < or = 36" ±.015
DIMS > 3" ±.031	LENGTH DIMS > 36" ±.031
ANGLES ±1°	

PINE	B214 + FACE VENEER	P.I.
MAHOG		ALDER
OAK		HICKORY
CHERRY		WALNUT
MAPLE		OTHER
VG FIR		OTHER

03	B214 BLANK NOW USED	RBB	03 NOV 08	200116
NO.	DESCRIPTION	BY	DATE	ECN NO.

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Title: **CLAD CASEMENT SILL & DEAD FRAME MEMBER - LINEAL -**

Drawn: **GMM** Chk'd: _____
Date: **21 JUNE 2004** Scale: **FULL SIZE**

Drawing Number: **PF1761**

Architectural Testing
Test sample complies with these details.
Deviations are noted.

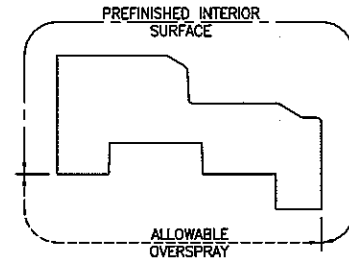
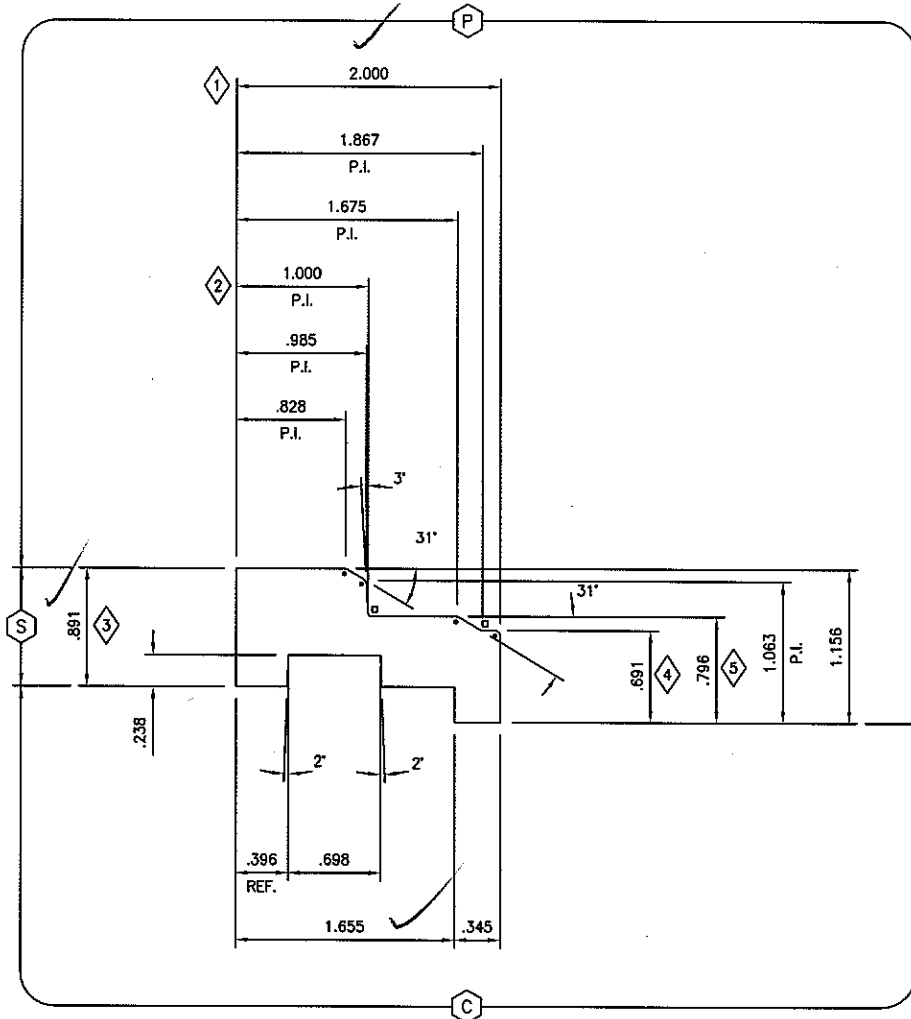
Report# **91032**
Date **6/23/10** Tech **[Signature]**

EXPOSED SURFACES

P PRIMARY

S SECONDARY

C CONCEALED



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 91032
Date 6/23/10 Tech SPK

NOTES:
1. CRITICAL DIMENSIONS USED: 1 THRU 5.

TOLERANCE UNLESS OTHERWISE SPECIFIED: DIMS < or = 1" ±.010 DIMS 1" to 3" ±.015 DIMS > 3" ±.031 ANGLES ±1°		RADI ±.015 LENGTH DIMS < or = 36" ±.015 LENGTH DIMS > 36" ±.031		KML WINDOWS INC. an Andersen® company <small>CONFIDENTIAL The information contained in this document is strictly proprietary to Andersen Corporation and may not be disclosed to nonemployees of the company or used in any way or for any purpose outside of the company without the express written consent of Andersen Corporation. Unauthorized use, reproduction, disclosure or reliance on any information contained herein is expressly prohibited. All patent, copyright, proprietary and manufacturing rights are reserved.</small>
STANDARD RADIUS MARKERS: ● RADI = .040 ■ RADI = ○ RADI = □ RADI = .031				
PINE 5/4" CLEAR SOLID	P.I. USE PINE PROFILE	Title: CASEMENT & AWNING INTERIOR		
MAHOG 6/4" CLEAR SOLID	VC FIR 6/4" CLEAR SOLID	SASR STOP - LINEAL -		
OAK 6/4" CLEAR SOLID	ALDER 6/4" CLEAR SOLID	Drawn: <u>GMM</u>	Chk'd: _____	
CHERRY 6/4" CLEAR SOLID	OTHER _____	Date: <u>21 JUNE 2004</u>	Scale: <u>NTS</u>	
MAPLE 6/4" CLEAR SOLID	OTHER _____	Drawing Number PF1773		
02 REVISED MATERIAL SPECIFICATIONS	RBB	28 MAR 07	100106	
NO. DESCRIPTION	BY	DATE	ECN NO.	

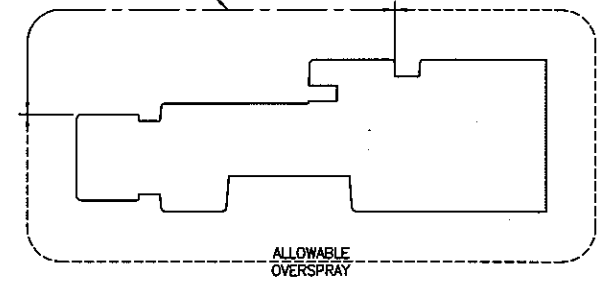
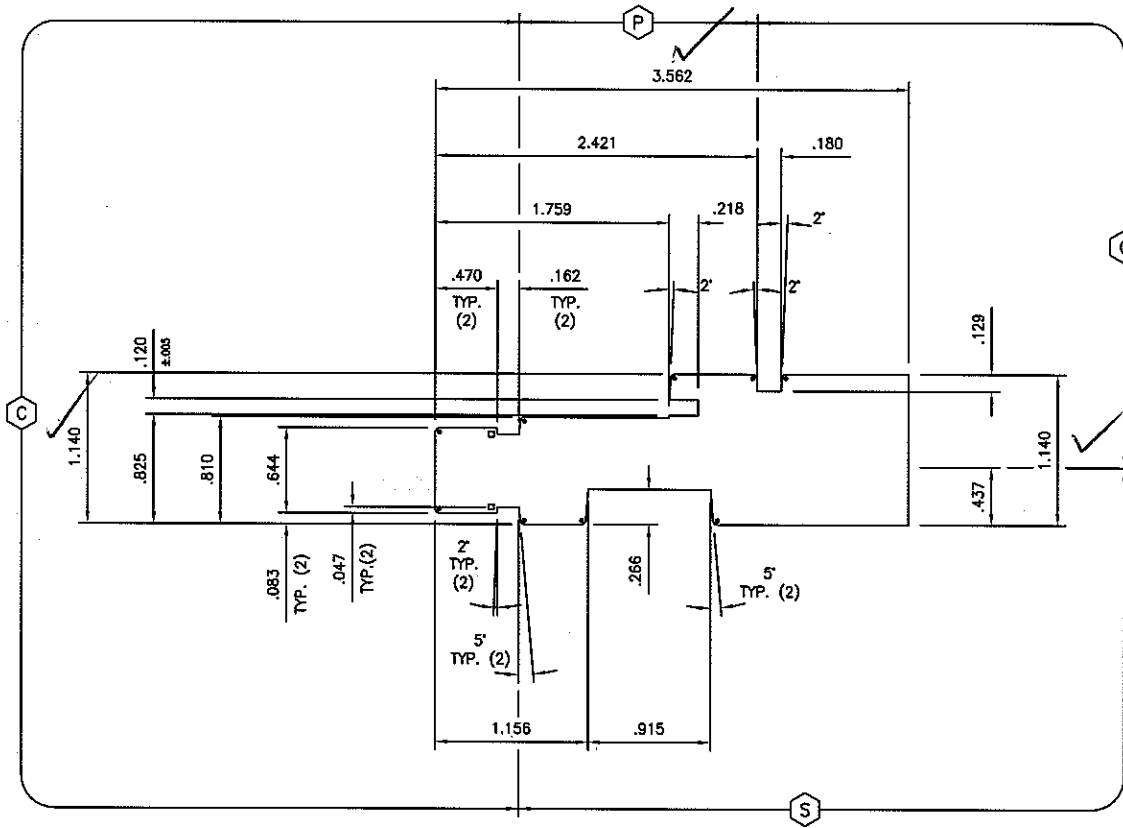
EXPOSED SURFACES

P PRIMARY

S SECONDARY

C CONCEALED

THIS SURFACE IS ALWAYS
PAINTED AW GRAY 246 C0003.



TOLERANCE UNLESS OTHERWISE SPECIFIED:

DIMS < or = 1" ±.010	RADI ±.015
DIMS 1" to 3" ±.015	LENGTH DIMS < or = 36" ±.015
DIMS > 3" ±.031	LENGTH DIMS > 36" ±.031
ANGLES ±1°	

STANDARD RADIUS MARKERS:

● RADI = 0.031	■ RADI =	○ RADI =	□ RADI = 0.015
----------------	----------	----------	----------------

PINE	B214 + FACE VENEER	P.I.	
MAHOG		ALDER	
OAK		HICKORY	
CHERRY		WALNUT	
MAPLE		OTHER	
VG FIR		OTHER	

03	B214 BLANK NOW USED	RBS	03 NOV 08	200116
NO.	DESCRIPTION	BY	DATE	ECN NO.

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Title: CLAD CASEMENT JAMB MEMBER
- LINEAL -

Drawn: GMM Chk'd:
Date: 21 JUNE 2004 Scale: FULL SIZE

Drawing Number PF1762

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 91032
Date 6/23/10 Tech *[Signature]*

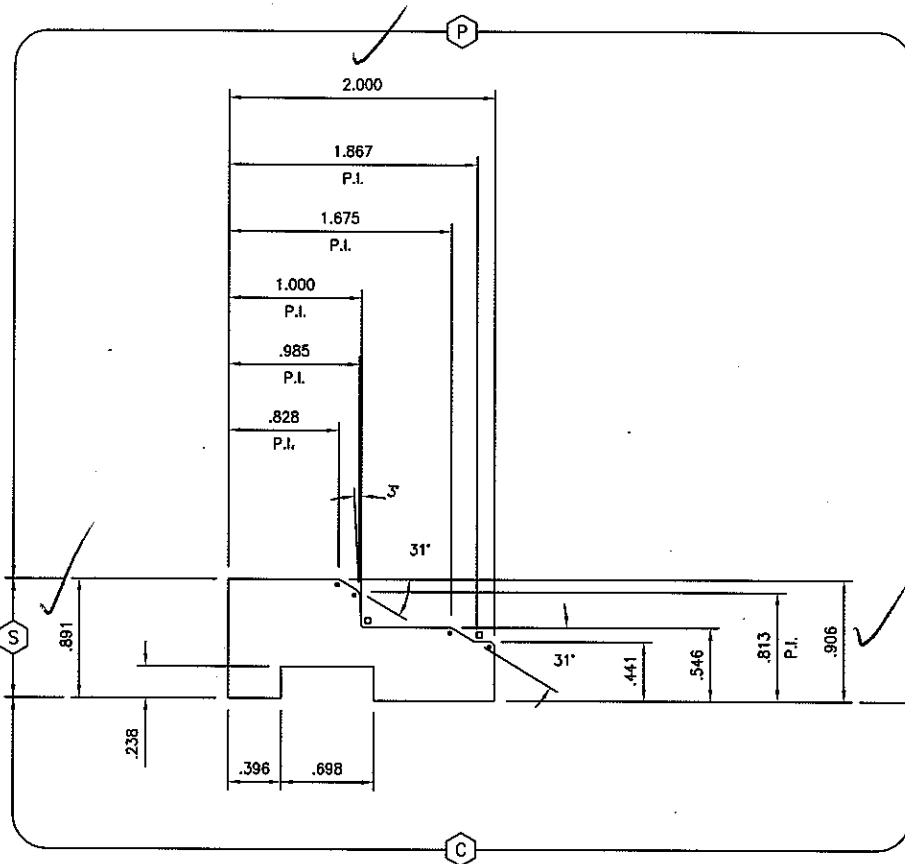
EXPOSED SURFACES

P PRIMARY

S SECONDARY

C CONCEALED

HEAD POSITION	HEAD TYPE	KNIFE TYPE	WADKIN			
B1 - FIRST BOTTOM		STR.	*			
F1 - FIRST FENCE		STR.	*			
O1 - FIRST OUTSIDE		STR.	*			
F2 - SECOND FENCE						
O2 - SECOND OUTSIDE						
T1 - FIRST TOP		STR.	*			
T2 - SECOND TOP		PROFILE	T1091-A			
B2 - SECOND BOTTOM		PROFILE	T1075			
U1 - UNIVERSAL						



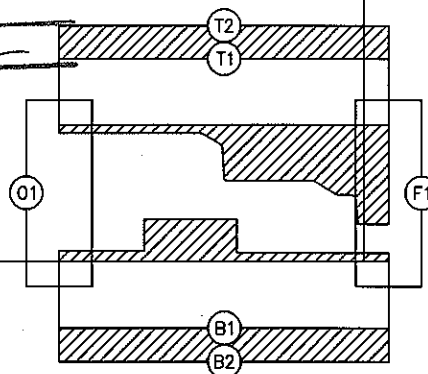
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 91032

Date 6/23/10

Tech. [Signature]



BED

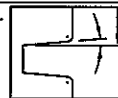
HEAD CONFIGURATION - IN FEED POSITION
SCALE: HALF SIZE FULL SIZE

DETAIL ANYWHERE RELIEF ANGLES ARE SHOWN, CONTROL DIMENSIONS APPLY TO THE BOTTOM OF THE ANGLE.

TOLERANCE AT MOULDER SETUP = ±.005

UNLESS OTHERWISE SPECIFIED:
* RADI = .040 □ RADI = .031

- PINE 5/4" - CLEAR SOLID
- MAHOGANY 5/4" - CLEAR SOLID
- OAK 5/4" - CLEAR SOLID
- CHERRY 5/4" - CLEAR SOLID
- OTHER 5/4" - CLEAR SOLID - MAPLE, ALDER & FIR



KML ARCHITECTURAL
WINDOWS AND DOORS
by Andersen™

Title:
CASEMENT INTERIOR
SASH STOP - LINEAL -

Drawn: GMM Chk'd:
Date: 21 JUNE 2004 Scale: **FULL SIZE**

Drawing Number **PF1765**

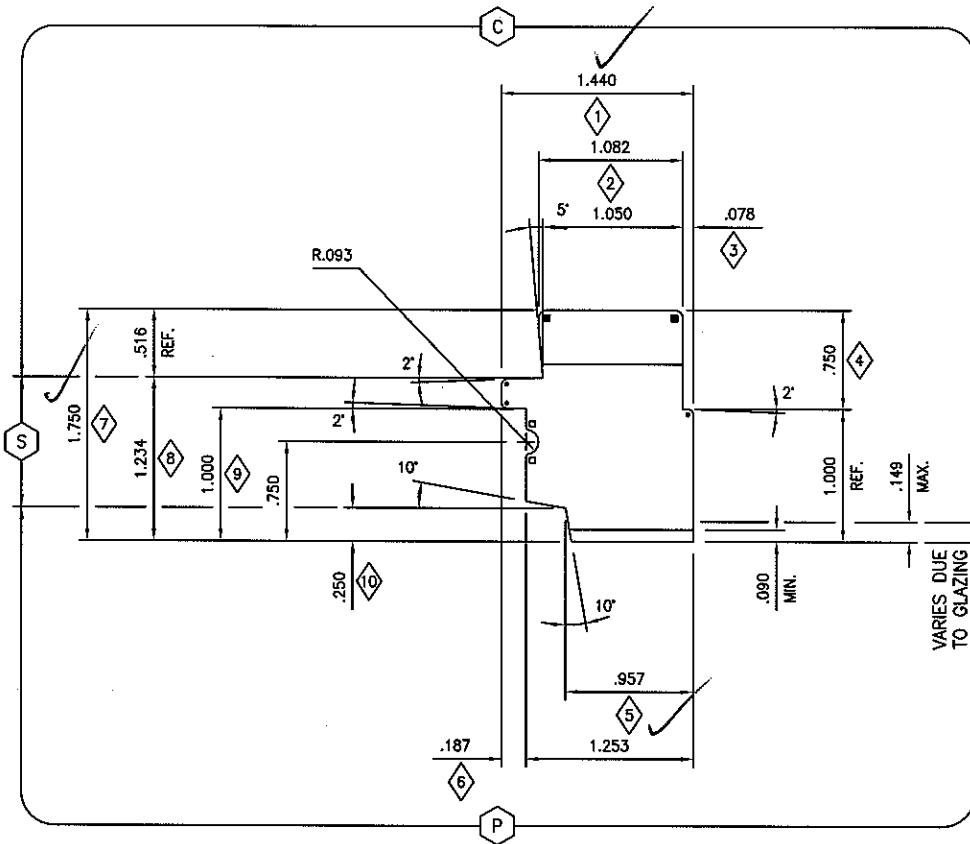
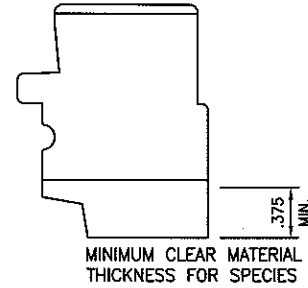
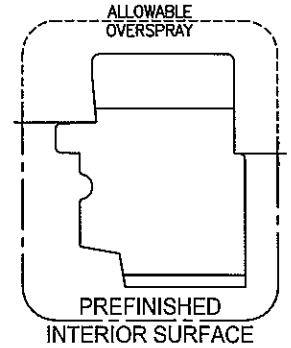
NO.	DESCRIPTION	BY	DATE	ECH NO.

EXPOSED SURFACES

(P) PRIMARY

(S) SECONDARY

(C) CONCEALED



TOLERANCE UNLESS OTHERWISE SPECIFIED:

DIMS < or = 1" ±.010	RADI ±.015
DIMS 1" to 3" ±.015	LENGTH DIMS < or = 36" ±.015
DIMS > 3" ±.031	LENGTH DIMS > 36" ±.031
ANGLES ±1°	

STANDARD RADIUS MARKERS:

● RADII = 0.040	■ RADII = 0.062	○ RADII =	□ RADII = 0.015
-----------------	-----------------	-----------	-----------------

PINE	B214 + FACE VENEER	P.J.	B214 + FACE VENEER
MAHOG	8/4 - CLEAR SOLID	ALDER	B116
OAK	B116	HICKORY	B116
CHERRY	B116	WALNUT	B116
MAPLE	B116	OTHER	
VG FR	B116	OTHER	

06	B214 USED FOR PINE	RBB	11 NOV 06	200118
NO.	DESCRIPTION	BY	DATE	ECN NO.

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Title:
ALUM. CLAD CASEMENT & FRENCH CASEMENT

SASH RAIL - LINEAL -

Drawn: GMM Chk'd:
Date: 21 JUNE 2004 Scale: FULL SIZE

Drawing Number PF1766 (1 of 3)

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 91032
Date 6/23/10 Tech *[Signature]*

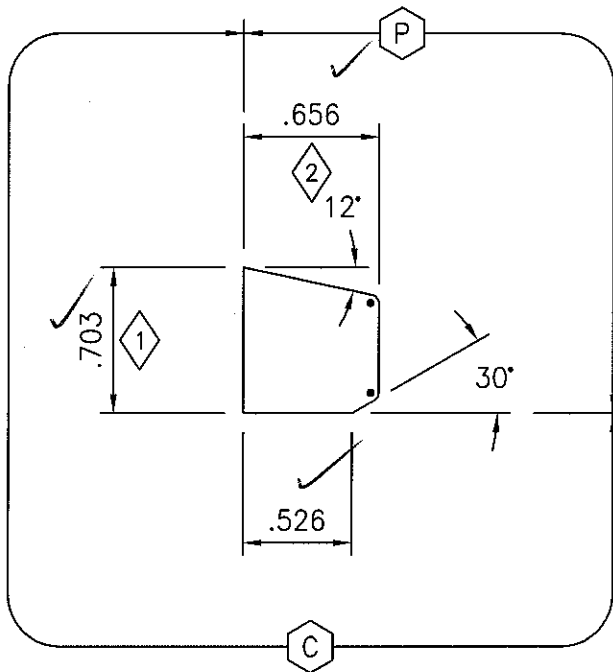
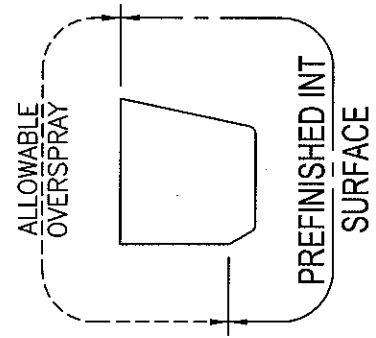
- NOTES:
1. PRESERVATIVE TREATMENT REQUIRED.
 2. CRITICAL DIMENSIONS USED: 1 THRU 10.

EXPOSED SURFACES

P PRIMARY

S SECONDARY

C CONCEALED



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 91032
Date 6/23/10 Tech SK

NOTES:

1. PRESERVATIVE TREATMENT REQUIRED.
2. CRITICAL DIMENSIONS USED: 1 THRU 2.

TOLERANCE UNLESS OTHERWISE SPECIFIED:

DIMS < or = 1" ±.010	RADII ±.015
DIMS 1" to 3" ±.015	LENGTH DIMS < or = 36" ±.015
DIMS > 3" ±.031	LENGTH DIMS > 36" ±.031
ANGLES ±1°	

STANDARD RADIUS MARKERS:

● RADII = .040 ■ RADII = ○ RADII = □ RADII = .031

PINE	RESAWN 6/4" CLEAR SOLID	P.I.	USE PINE PROFILE
MAHOG	RESAWN 6/4" CLEAR SOLID	VG FIR	RESAWN 6/4" CLEAR SOLID
OAK	RESAWN 6/4" CLEAR SOLID	ALDER	RESAWN 6/4" CLEAR SOLID
CHERRY	RESAWN 6/4" CLEAR SOLID	OTHER	
MAPLE	RESAWN 6/4" CLEAR SOLID	OTHER	

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Title:

NOMINAL 5/8" GLASS STOP

- LINEAL -

Drawn: GMM Chk'd: _____

Date: 12 APRIL 2004 Scale: FULL SIZE

Drawing Number

PF1755

(1 of 2)

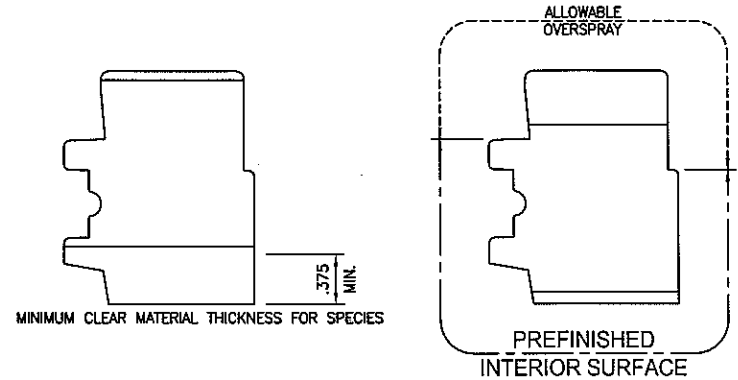
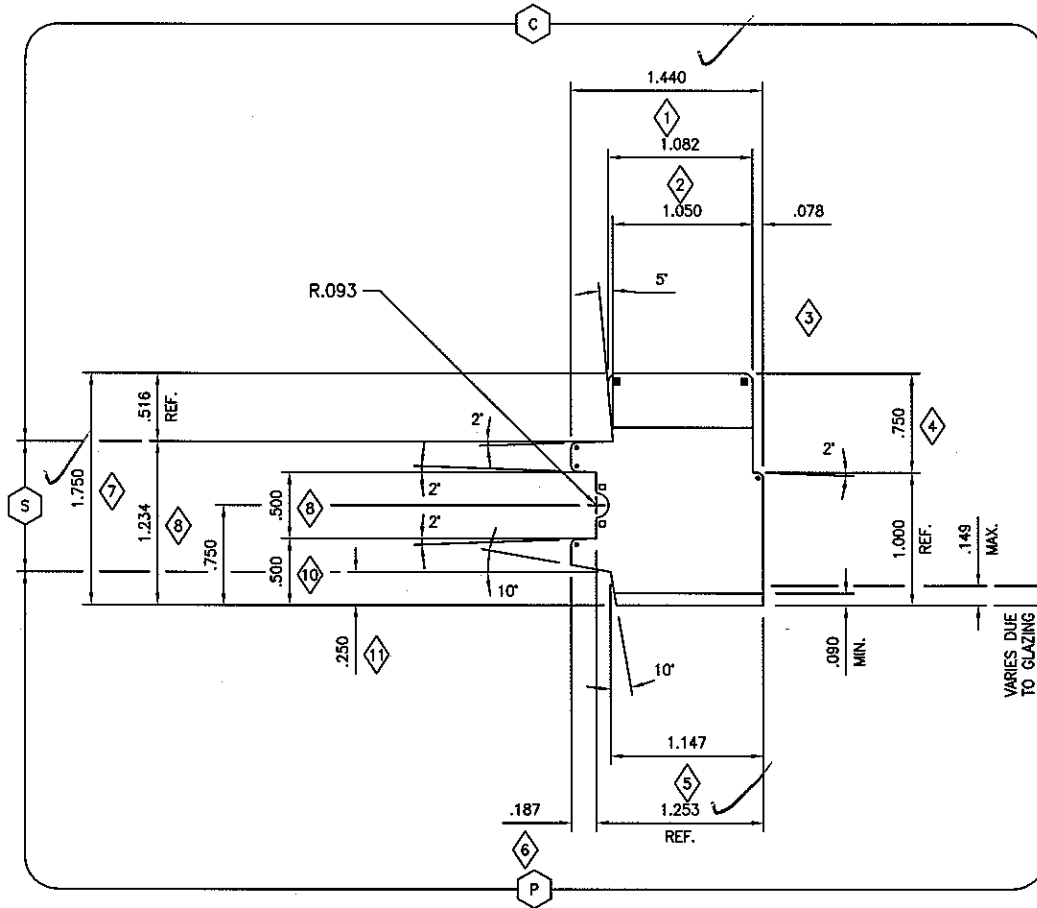
02	REVISION TO MATERIAL SPECIFICATIONS	RBB	26 MAR 07	100106
NO.	DESCRIPTION	BY	DATE	ECN NO.

EXPOSED SURFACES

(P) PRIMARY

(S) SECONDARY

(C) CONCEALED



TOLERANCE UNLESS OTHERWISE SPECIFIED:		
DIMS < or = 1"	±.010	RADI ±.015
DIMS 1" to 3"	±.015	LENGTH DIMS < or = 36" ±.015
DIMS > 3"	±.031	LENGTH DIMS > 36" ±.031
ANGLES ±1°		

STANDARD RADIUS MARKERS:			
● RADI = 0.040	■ RADI = 0.062	○ RADI =	□ RADI = 0.015

PINE	B214 + FACE VENEER	P.I.	B214 + FACE VENEER
MAHOG	8/4 - CLEAR SOLID	ALDER	B118
OAK	B118	HICKORY	B118
CHERRY	B118	WALNUT	B118
MAPLE	B118	OTHER	
YG FIR	B118	OTHER	

NO.	DESCRIPTION	BY	DATE	ECN NO.
04	B214 USED FOR PINE	RBB	11 NOV 08	200116

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Title:
ALUMINUM CLAD CASMENT SASH STILE
LINEAL -

Drawn:	Chk'd:
GMM	
Date:	Scale:
21 JUNE 2004	FULL SIZE

Drawing Number	(1 of 3)
PF1767	

NOTES:
1. PRESERVATIVE TREATMENT REQUIRED.
3. CRITICAL DIMENSIONS USED: 1 THRU 11.

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 9/032
Date 6/23/10 Tech *[Signature]*

EXPOSED SURFACES



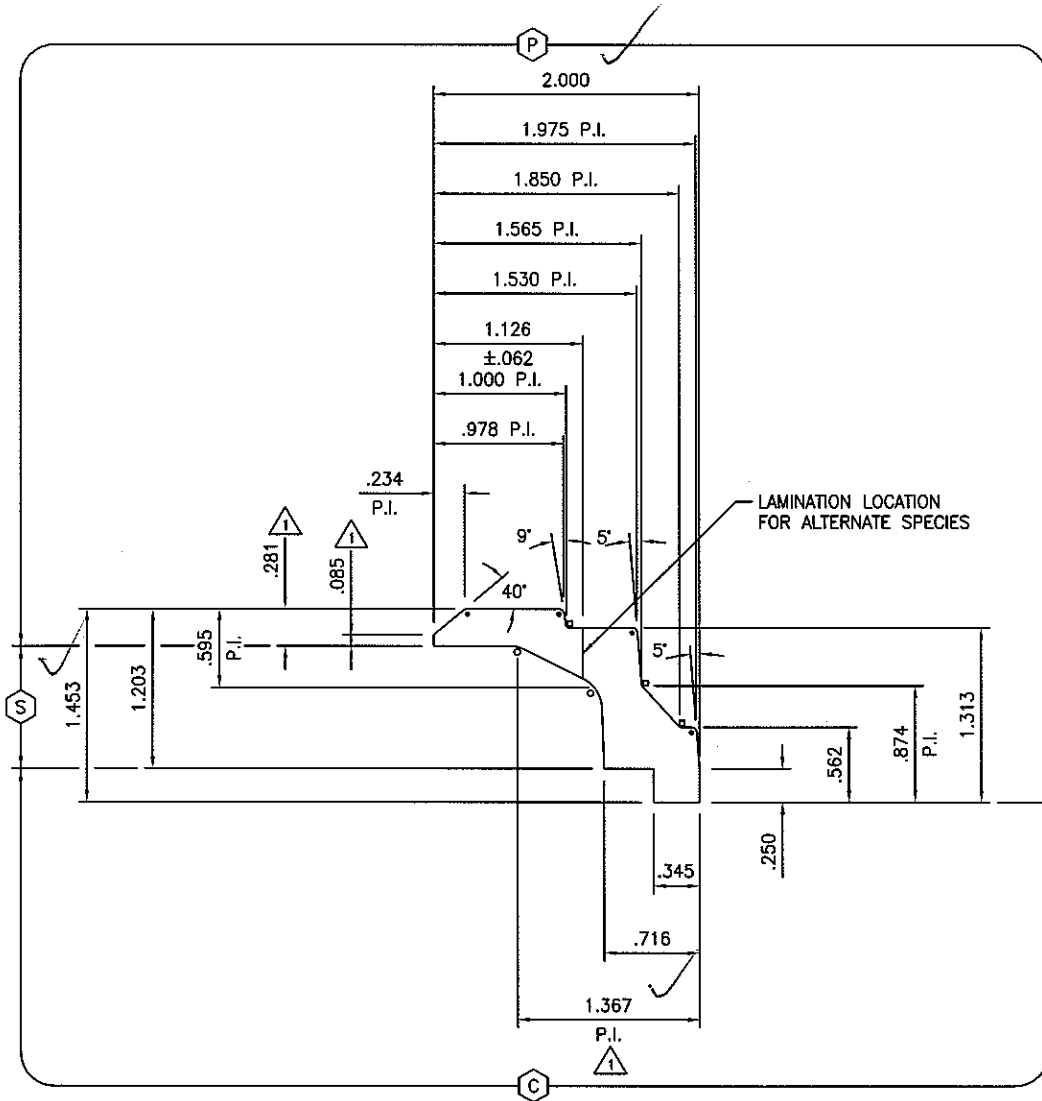
PRIMARY



SECONDARY



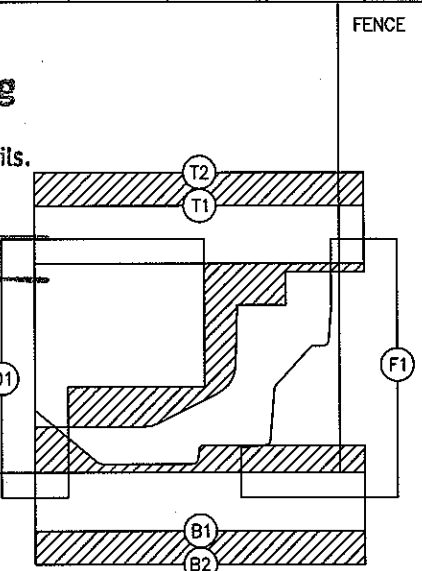
CONCEALED



HEAD POSITION	HEAD TYPE	KNIFE TYPE	WADKIN				
B1 - FIRST BOTTOM		STR.	*				
F1 - FIRST FENCE		PROFILE	T1094-B				
O1 - FIRST OUTSIDE		PROFILE	T1097				
F2 - SECOND FENCE							
O2 - SECOND OUTSIDE							
T1 - FIRST TOP		STR.	*				
T2 - SECOND TOP		PROFILE	T1028-A			⚠	
B2 - SECOND BOTTOM		PROFILE	T1028-B			⚠	
U1 - UNIVERSAL							

Architectural Testing
 Test sample complies with these details.
 Deviations are noted.

Report# 91032
 Date 6/23/10 Tech SPK



HEAD CONFIGURATION - IN FEED POSITION
 SCALE: HALF SIZE FULL SIZE

TOLERANCE UNLESS OTHERWISE SPECIFIED:

DIMS < or = 1" ±.010	RADI ±.015
DIMS 1" to 3" ±.015	LENGTH DIMS < or = 36" ±.015
DIMS > 3" ±.031	LENGTH DIMS > 36" ±.031
ANGLES ±1°	

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STANDARD RADIUS MARKERS:

● RADI = .040	■ RADI =	○ RADI = .250	□ RADI = .020
---------------	----------	---------------	---------------

PINE 5/4" - CLEAR SOLID	P.I. 2 pcs. 5/4" LAMINATED - CLEAR
MAHOG 2 pcs. 5/4" LAMINATED - CLEAR	VG FIR 2 pcs. 5/4" LAMINATED - CLEAR
OAK 2 pcs. 5/4" LAMINATED - CLEAR	ALDER 2 pcs. 5/4" LAMINATED - CLEAR
CHERRY 2 pcs. 5/4" LAMINATED - CLEAR	OTHER
MAPLE 2 pcs. 5/4" LAMINATED - CLEAR	OTHER

Title: SILL OPERATOR COVER

Drawn: GMM Chk'd: _____
 Date: 08 SEPT 2005 Scale: FULL SIZE

NO.	DESCRIPTION	JCA	DATE	ECH NO.
01	Modify Underside for More Clearance	JCA	13 DEC 05	100012

Drawing Number **PF1874**