

**ASTM E 1886 and ASTM E 1996
TEST REPORT**

Rendered to:

VEKA, INC.

**SERIES/MODEL: PD12/17/21WW
PRODUCT TYPE: PVC Sliding Door, Type XO**

**Report No.: 98930.01-501-44
Test Dates: 03/03/10
Through: 04/12/10
Report Date: 04/23/10
Expiration Date: 04/12/14**

ASTM E 1886 and ASTM E 1996 TEST REPORT

Rendered to:

VEKA, INC.
100 Veka Drive
Fombell, Pennsylvania 16123-0250

Report No.: 98930.01-501-44
Test Dates: 03/03/10
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Project Summary: Architectural Testing, Inc. was contracted by Veka Inc. to perform testing on five Series/Model PD12/17/21WW, PVC sliding doors. The samples tested met the performance requirements set forth in the referenced test procedures for a ± 2400 Pa (± 50.16 psf) Design Pressure with missile impacts corresponding to Missile Level D and Wind Zone 3. 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:

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: PD12/17/21WW

Product Type: PVC Sliding Door, Type XO

Overall Size: 2426 mm (95-1/2") wide by 2070 mm (81-1/2") high

Operable Panel Size: 1232 mm (48-1/2") wide by 2016 mm (78-3/8") high

Fixed Daylight Opening Size: 1111 mm (43-3/4") wide by 1873 mm (73-3/4") high

Test Specimen Description: (Continued)

Finish: All PVC was white.

Glazing Details (Test Specimen # 1 through #4): Each unit was exterior glazed with nominal 1" thick sealed insulating glass fabricated from one sheet of 1/8" thick clear tempered glass (exterior), and one sheet of 11/32" thick laminated glass (interior), separated by a rectangular shaped steel spacer system. The laminated glass was fabricated from two pieces of 1/8" thick clear annealed glass and a 0.090" thick Solutia Saflex[®] PVB interlayer. The glass was set against a TruSeal Purfect Glaze[™] sealant.

Glazing Details (Test Specimen # 5): Each unit was exterior glazed with nominal 1" thick sealed insulating glass fabricated from one sheet of 1/8" thick clear tempered glass (exterior), and one sheet of 11/32" thick laminated glass (interior), separated by a rectangular shaped steel spacer system. The laminated glass was fabricated from two pieces of 1/8" thick clear annealed glass and a 0.090" thick Solutia Saflex[®] PVB interlayer. The glass was set against a Novaflex[®] M400 sealant.

Weatherstripping:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
0.187" backed by 0.270" high center fin pile	1 Row	Fixed meeting stile, operable meeting stile
0.187" backed by 0.270" high center fin pile	2 Rows	Top rail, bottom rail, and operable jamb/lock stile

Frame Construction: The extruded PVC frame was of mitered and welded corner construction. The fixed meeting stile was fastened to the frame with four #8 x 2" long truss head screws, two at each end. Snap-in rigid PVC equal glass adapters were located at the head and sill of the fixed lite. A drop-in extruded aluminum roller track was located at the interior sill track. A snap-in rigid PVC threshold was located at the exterior sill track at the operable panel.

Operable Panel Construction: The extruded PVC panel was of mitered and welded corner construction.

Test Specimen Description: (Continued)

Hardware:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Dual adjustable steel roller	2	Active panel bottom rail, one at each end
Lock and handle set with dual adjustable latch	1	Lock stile, approximately 40" up from the bottom
Metal keeper	1	Jamb, approximately 40" up from the bottom

Drainage:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
1" wide by 1/8" high weepslot	2	Exterior sill face, one 3" in from each end
1" wide by 3/16" high weepslot	4	Intermediate sill walls, two at each end
1" wide by 1/4" high weephole	2	Interior sill track, one 3" from each end
1-1/2" wide by 1/4" deep notch	2	Sill roller track, one at each end
1/2" wide by 1/8" high weepslot	2	Sill screen track, one at each end

Reinforcement: The fixed meeting stile contained a "U" shaped formed steel reinforcement, reference Drawing No. 3RFPD34SOM. The operable panel interlock stile contained a "U" shaped formed steel reinforcement, reference Drawing No. 3RFPD24SOM. The operable panel lock stile contained a "U" shaped formed steel reinforcement, reference Drawing No. 3RFPD03SOM.

Test Specimen Description: (Continued)

Installation (Test Specimens # 1, #2, #3 and #5): The unit was installed in a wood test buck constructed of Spruce-Pine-Fir construction lumber and secured through the nail fin with #8 x 2" long screws spaced approximately 9" on center, and beginning approximately 4" in from each corner. The unit was also secured through the frame with eighteen #8 x 2" long screws; four at each jamb evenly spaced and beginning 6" in from each end; and five each in the head and sill, one 6" in from each end, one at mid-span, and one 6" each side of midspan. The nail fin perimeter was sealed with a silicone sealant. A nominal 1/8" gap was maintained at the perimeter between the buck and door frame.

Installation (Test Specimens #4): The unit was installed in a wood test buck constructed of Spruce-Pine-Fir construction lumber and secured through the frame with eighteen #8 x 2" long screws; four at each jamb evenly spaced and beginning 6" in from each end; and five each in the head and sill, one 6" in from each end, one at mid-span, and one 6" each side of midspan. . The exterior perimeter was sealed with a silicone sealant. A nominal 1/8" gap was maintained at the perimeter between the buck and door frame.

Test Results: The following results have been recorded:

ASTM E 1886, *Large Missile Impact*

Conditioning Temperature: 26°C (78°F)

Missile Weight: 4037 g (8.90 lbs)

Missile Length: 2.39 m (7' 9-15/16")

Muzzle Distance from Test Specimen: 5.18 m (17.0 ft.)

Test Unit #1

Impact #1: Missile Velocity: 15.2 m/s (50.6 fps); orientation within $\pm 5^\circ$ of horizontal

Impact Area: Center of operable panel

Observations: Missile hit target area, broke outer annealed lite and fractured inner laminated lite, no penetration

Results: Pass

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

Test Unit #2

Impact #1: Missile Velocity: 15.0 m/s (49.1 fps); orientation within $\pm 5^\circ$ of horizontal

Impact Area: Lower left corner of operable panel

Observations: Missile hit target area, broke outer annealed lite and fractured inner laminated lite, no penetration

Results: Pass

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

Test Results: (Continued):

ASTM E 1886, *Large Missile Impact*

Conditioning Temperature: 26°C (78°F)

Missile Weight: 4037 g (8.90 lbs)

Missile Length: 2.39 m (7' 9-15/16")

Muzzle Distance from Test Specimen: 5.18 m (17 ft.)

Test Unit #3

Impact #1: Missile Velocity: 15.5 m/s (50.9 fps); orientation within $\pm 5^\circ$ of horizontal

Impact Area: Upper right corner of operable panel

Observations: Missile hit target area, broke outer annealed lite and fractured inner laminated lite, no penetration

Results: Pass

Note: See Architectural Testing Sketch #3 for impact locations

Test Unit #4 (Substitution with replacement type frame)

Impact #1: Missile Velocity: 15.2 m/s (49.8 fps); orientation within $\pm 5^\circ$ of horizontal

Impact Area: Center of operable panel

Observations: Missile hit target area, broke outer annealed lite and fractured inner laminated lite, no penetration

Results: Pass

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

Test Unit #5 (Substitution with Novaflex® M400 glazing sealant)

Impact #1: Missile Velocity: 15.1 m/s (49.6 fps); orientation within $\pm 5^\circ$ of horizontal

Impact Area: Center of operable panel

Observations: Missile hit target area, broke outer annealed lite and fractured inner laminated lite, no penetration

Results: Pass

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

Test Results: (Continued)

ASTM E 1886, Air Pressure Cycling

Test Unit #1

Design Pressure: ± 2400 Pa (± 50.16 psf)

POSITIVE PRESSURE

Pressure Range Pa (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator mm (inch)		
			#1	#2	#3
480 to 1201 (10.03 to 25.08)	3500	1.34	6.3 (0.25)	20.3 (0.80)	5.8 (0.23)
0 to 1441 (0.00 to 30.10)	300	2.21	6.5 (0.26)	23.3 (0.92)	6.5 (0.26)
1201 to 1921 (25.08 to 40.13)	600	1.93	8.5 (0.34)	32.3 (1.27)	8.5 (0.34)
721 to 2400 (15.05 to 50.16)	100	1.89	10.0 (0.39)	39.5 (1.56)	10.5 (0.41)
			Permanent Set		
			4.5 (0.18)	7.5 (0.30)	3.0 (0.12)

NEGATIVE PRESSURE

Pressure Range Pa (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator mm (inch)		
			#1	#2	#3
721 to 2400 (15.05 to 50.16)	50	2.23	6.8 (0.27)	35.5 (1.40)	9.0 (0.36)
1201 to 1921 (25.08 to 40.13)	1050	1.90	5.0 (0.20)	28.8 (1.13)	7.3 (0.29)
0 to 1441 (0.00 to 30.10)	50	2.56	3.0 (0.12)	20.8 (0.82)	5.0 (0.20)
480 to 1201 (10.03 to 25.08)	3350	1.82	2.3 (0.09)	17.5 (0.69)	3.8 (0.15)
			Permanent Set		
			+1.3 (+0.05)	0.3 (-0.01)	+1.5 (+0.06)

Observations: *No additional damage or deglazing was observed.*

Result: Pass

Note: *See Architectural Testing Sketch #4 for indicator locations.*

Test Results: (Continued)

ASTM E 1886, Air Pressure Cycling

Test Unit #2

Design Pressure: ± 2400 Pa (± 50.16 psf)

POSITIVE PRESSURE

Pressure Range Pa (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator mm (inch)		
			#1	#2	#3
480 to 1201 (10.03 to 25.08)	3500	2.14	6.0 (0.24)	19.3 (0.76)	5.8 (0.23)
0 to 1441 (0.00 to 30.10)	300	2.40	6.5 (0.26)	21.5 (0.85)	6.5 (0.26)
1201 to 1921 (25.08 to 40.13)	600	1.63	7.5 (0.30)	29.8 (1.17)	9.0 (0.36)
721 to 2400 (15.05 to 50.16)	100	2.97	9.3. (0.37)	36.3 (1.43)	11.5 (0.45)
			Permanent Set		
			1.5 (0.06)	4.5 (0.18)	1.8 (0.07)

NEGATIVE PRESSURE

Pressure Range Pa (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator mm (inch)		
			#1	#2	#3
721 to 2400 (15.05 to 50.16)	50	4.36	13.8 (0.54)	39.3 (1.55)	16.0 (0.63)
1201 to 1921 (25.08 to 40.13)	1050	1.89	12.5 (0.49)	34.8 (1.37)	13.8 (0.54)
0 to 1441 (0.00 to 30.10)	50	4.15	10.0 (0.39)	27.3 (1.07)	10.8 (0.42)
480 to 1201 (10.03 to 25.08)	3350	2.58	8.5 (0.34)	23.3 (0.92)	9.0 (0.36)
			Permanent Set		
			0.5 (0.02)	3.0 (0.12)	1.0 (0.04)

Observations: *No additional damage or deglazing was observed.*

Result: Pass

Note: *See Architectural Testing Sketch #4 for indicator locations.*

Test Results: (Continued)

ASTM E 1886, Air Pressure Cycling

Test Unit #3

Design Pressure: ± 2400 Pa (± 50.16 psf)

POSITIVE PRESSURE

Pressure Range Pa (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator mm (inch)		
			#1	#2	#3
480 to 1201 (10.03 to 25.08)	3500	1.70	4.0 (0.16)	19.5 (0.77)	4.8 (0.19)
0 to 1441 (0.00 to 30.10)	300	2.63	4.0 (0.16)	21.3 (0.84)	5.3 (0.21)
1201 to 1921 (25.08 to 40.13)	600	2.36	5.0 (0.20)	27.5 (1.08)	7.0 (0.28)
721 to 2400 (15.05 to 50.16)	100	2.94	6.0 (0.24)	35.5 (1.40)	9.0 (0.36)
			Permanent Set		
			0.8 (0.03)	2.3 (0.09)	0.8 (0.03)

NEGATIVE PRESSURE

Pressure Range Pa (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator mm (inch)		
			#1	#2	#3
721 to 2400 (15.05 to 50.16)	50	2.98	12.0 (0.47)	42.0 (1.65)	14.8 (0.58)
1201 to 1921 (25.08 to 40.13)	1050	2.29	10.5 (0.41)	35.8 (1.41)	13.0 (0.51)
0 to 1441 (0.00 to 30.10)	50	3.00	9.3 (0.37)	30.5 (1.20)	11.3 (0.44)
480 to 1201 (10.03 to 25.08)	3350	2.21	8.0 (0.32)	26.0 (1.02)	9.8 (0.38)
			Permanent Set		
			2.8 (0.11)	5.0 (0.20)	2.5 (0.10)

Observations: *No additional damage or deglazing was observed.*

Result: Pass

Note: *See Architectural Testing Sketch #4 for indicator locations.*

Test Results: (Continued)

ASTM E 1886, Air Pressure Cycling

Test Unit #4 (Substitution with replacement type frame)

Design Pressure: ± 2400 Pa (± 50.16 psf)

POSITIVE PRESSURE

Pressure Range Pa (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator mm (inch)		
			#1	#2	#3
480 to 1201 (10.03 to 25.08)	3500	1.47	5.8 (0.23)	21.3 (0.84)	5.3 (0.21)
0 to 1441 (0.00 to 30.10)	300	2.52	7.8 (0.31)	25.0 (0.99)	6.8 (0.27)
1201 to 1921 (25.08 to 40.13)	600	1.76	9.0 (0.36)	32.8 (1.29)	8.3 (0.33)
721 to 2400 (15.05 to 50.16)	100	1.94	10.0 (0.40)	37.3 (1.47)	9.0 (0.36)
			Permanent Set		
			4.3 (0.17)	7.0 (0.28)	4.5 (0.18)

NEGATIVE PRESSURE

Pressure Range Pa (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator mm (inch)		
			#1	#2	#3
721 to 2400 (15.05 to 50.16)	50	2.11	7.6 (0.30)	33.5 (1.32)	9.0 (0.36)
1201 to 1921 (25.08 to 40.13)	1050	1.35	5.8 (0.23)	27.0 (1.06)	6.8 (0.27)
0 to 1441 (0.00 to 30.10)	50	2.60	4.5 (0.18)	23.0 (0.91)	5.5 (0.22)
480 to 1201 (10.03 to 25.08)	3350	1.64	3.8 (0.15)	20.0 (0.79)	4.3 (0.17)
			Permanent Set		
			1.8 (0.07)	0.3 (0.01)	0.5 (0.02)

Observations: No additional damage or deglazing was observed.

Result: Pass

Note: See Architectural Testing Sketch #4 for indicator locations

Test Results: (Continued)

ASTM E 1886, Air Pressure Cycling

Test Unit #5 (Substitution with Novaflex® M400 glazing sealant)

Design Pressure: ± 2400 Pa (± 50.16 psf)

POSITIVE PRESSURE

Pressure Range Pa (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator mm (inch)		
			#1	#2	#3
480 to 1201 (10.03 to 25.08)	3500	1.47	6.3 (0.25)	19.8 (0.78)	7.8 (0.31)
0 to 1441 (0.00 to 30.10)	300	2.52	7.3 (0.29)	22.5 (0.89)	10.3 (0.40)
1201 to 1921 (25.08 to 40.13)	600	1.76	9.8 (0.38)	32.0 (1.26)	13.5 (0.53)
721 to 2400 (15.05 to 50.16)	100	1.93	11.8 (0.46)	41.0 (1.62)	16.0 (0.63)
			Permanent Set		
			4.8 (0.19)	9.3 (0.37)	7.3 (0.29)

NEGATIVE PRESSURE

Pressure Range Pa (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator mm (inch)		
			#1	#2	#3
721 to 2400 (15.05 to 50.16)	50	2.42	12.3 (0.48)	36.8 (1.45)	12.3 (0.48)
1201 to 1921 (25.08 to 40.13)	1050	1.55	10.8 (0.42)	30.5 (1.20)	9.8 (0.38)
0 to 1441 (0.00 to 30.10)	50	2.60	6.0 (0.24)	16.8 (0.66)	4.0 (0.16)
480 to 1201 (10.03 to 25.08)	3350	1.64	5.8 (0.23)	15.8 (0.62)	4.0 (0.16)
			Permanent Set		
			-1.0 (-0.04)	+1.0 (+0.04)	+3.5 (+0.14)

Observations: No additional damage or deglazing was observed.

Result: Pass

Note: See Architectural Testing Sketch #4 for indicator locations.

General Note: *Upon completion of testing, the specimens met the requirements of Section 7 of ASTM E 1996.*

Test Equipment: (See Appendix A)

Cannon: Constructed from steel piping 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

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.

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>
Joe Allison	Architectural Testing, Inc.
James Grippo	Architectural Testing, Inc.
Lynn George	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. 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.

Joseph E. Allison
Senior Technician

Lynn George
Director – Regional Operations

JEA:sld

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

Appendix-A: Test Equipment (1)

Appendix-B: Sketches (4)

Appendix-C: Drawings (15)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	04/23/10	N/A	Original report issue

Appendix A

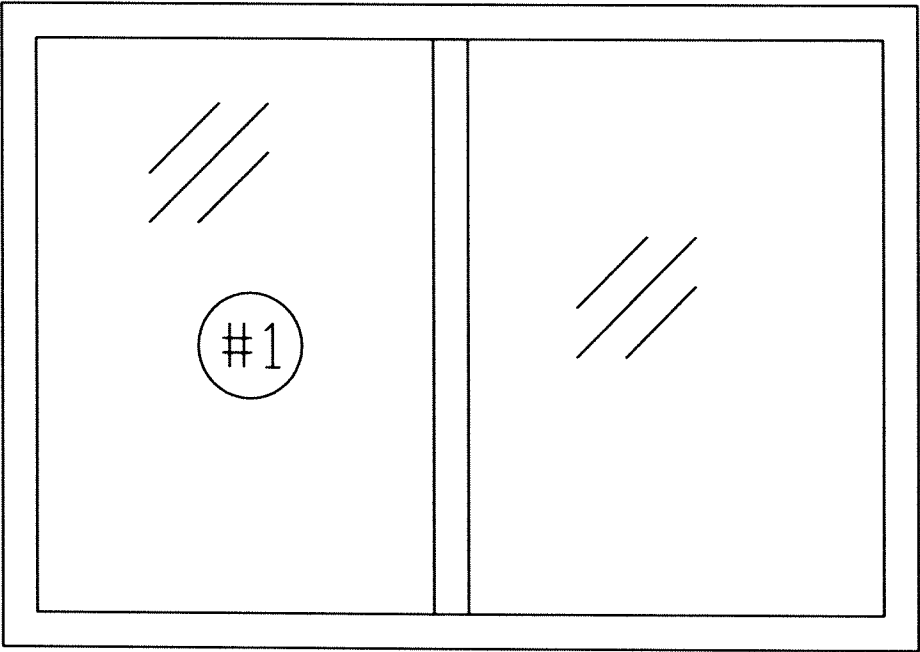
Test Equipment

Instrument	Manufacturer	Asset #
Air Cannon	Architectural Testing, Inc.	004992
Control Panel	Architectural Testing, Inc.	004968
Linear Transducer	Celesco	62162
Linear Transducer	Celesco	62163
Linear Transducer	Celesco	62164
Linear Transducer	Celesco	62165
Linear Transducer	Celesco	62166
Linear Transducer	Celesco	62167

Appendix B

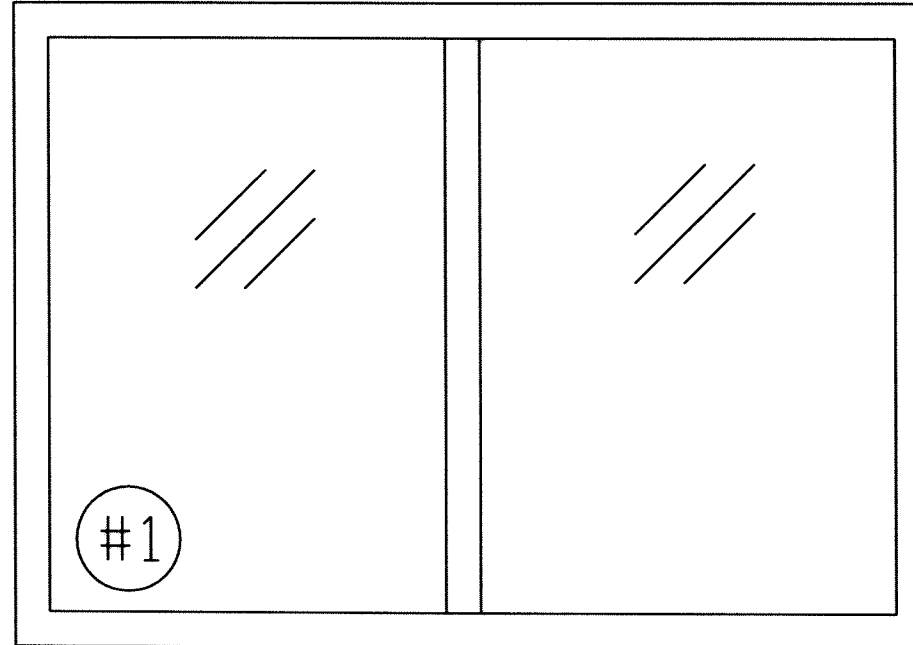
Sketches

REV	DATE	DESCRIPTION	BY
			LG



IMPACT LOCATIONS

REV	DATE	DESCRIPTION	BY
			LG



IMPACT LOCATIONS

PROJECT NO.
98930.01
501-44

PROJECT NAME: PD12
CLIENT: Veka Inc.



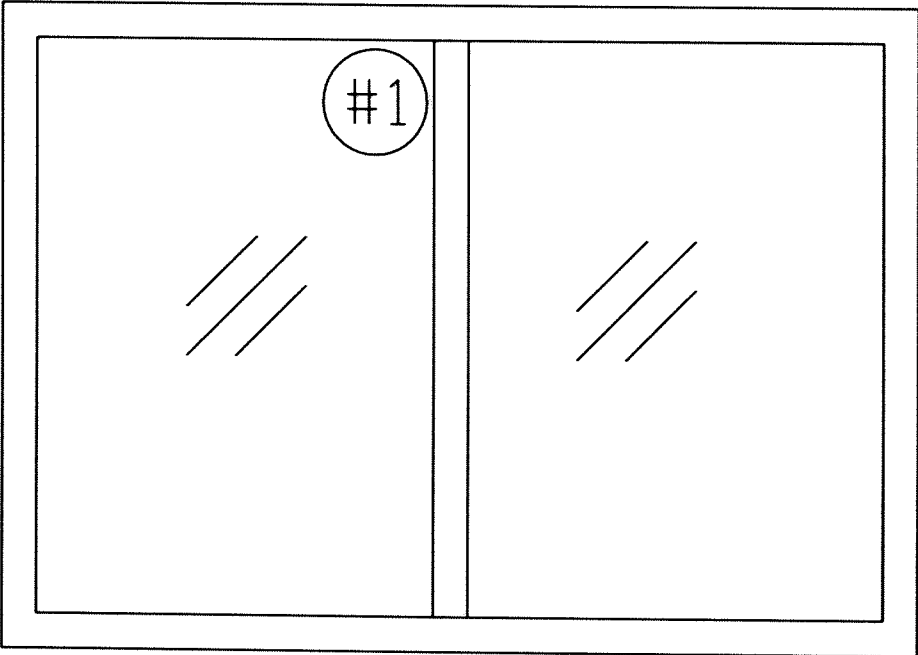
DRAWING

Sketch 2 (Impact Locations)

DWG. BY:
LG
DATE:
-20-2010

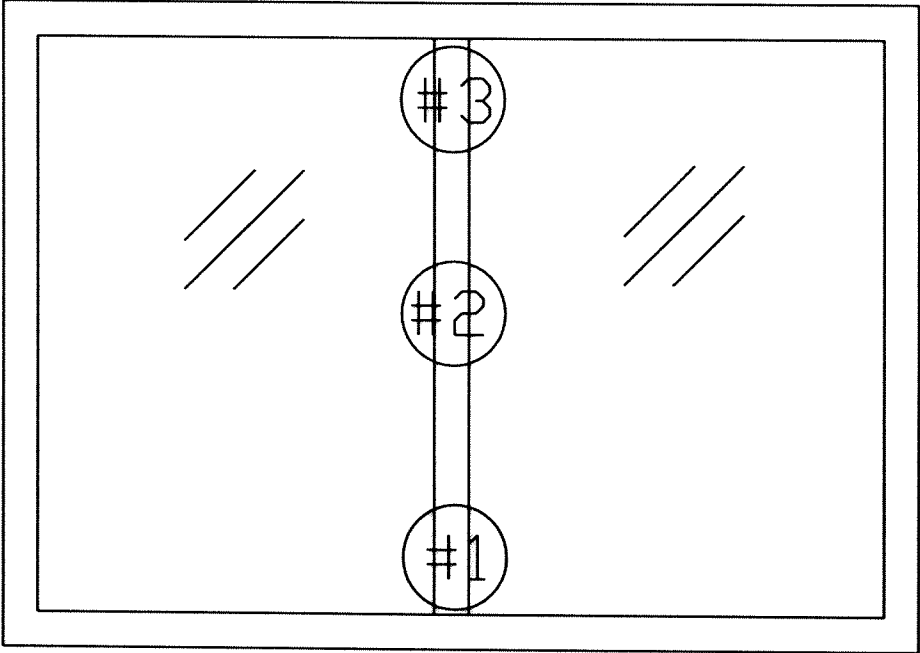
SHEET
2 OF
4

REV	DATE	DESCRIPTION	BY
			LG



IMPACT LOCATIONS

REV	DATE	DESCRIPTION	BY
			LG



INDICATOR LOCATION

Appendix C

Drawings



BILL OF MATERIALS

PATIO DOOR (PD12WW IMPACT VERSION)

Page 1 of 2

NOTE: THIS BILL OF MATERIALS REFLECTS THE SYSTEM AS TESTED. DEVIATION FROM THE BILL OF MATERIALS IS NOT RECOMMENDED BY VEKA INC. AND MAY REDUCE THE PERFORMANCE OF THE FINISHED PRODUCT.

PVC PROFILES:

	<u>PART #</u>	<u># PER UNIT</u>	<u>SOURCE</u>
MASTER FRAME	PD1201	4	VEKA
STILE/RAIL	PD25	3	VEKA
SASH INTERLOCK	PD24	1	VEKA
FIXED INTERLOCK	PD34	1	VEKA
EQUAL GLASS ADAPTOR	PD39	2	VEKA
GLAZING BEAD 1" GLASS	BV22	8	VEKA
THRESHOLD	PD33	1	VEKA
SCREEN TRACK	PD58	1	VEKA

ALUMINUM PROFILES:

SILL TRACK	PD22	1	VEKA
ACTIVE SASH STOP	5207**	1	ATLANTIS PLASTICS

REINFORCING PROFILES:

JAMB STILE (PD25)	RF PD03 SO M	1	VEKA
SASH INTERLOCK (PD24)	RF PD24 SO M	1	VEKA
FIXED INTERLOCK (PD34)	RF PD34 SO M	1	VEKA
EQUAL GLASS ADAPTER (PD39) (8' DOORS)	RF PD03 SO M	A/R	VEKA

HARDWARE:

HANDLE SET	657**	1	BSI/Door Hardware
MULTI POINT LOCK (SS)	2468 SS	1	BSI/Door Hardware
MULTI POINT KEEPER (SS)	2447 SS	1	BSI/Door Hardware
TANDEM ROLLER (SS)	1978-4000 SS	2	TRUTH
	2688-1250	2	BSI/Door Hardware

GLAZING:

	<u>PART #</u>	<u># PER UNIT</u>	<u>SOURCE</u>
GLAZING SHIM	3/16" X 1" X 1" AWT**	A/R	TREMCO
HOT MELT LIQUID BACK BEDDING	PERFECT GLAZE	A/R	NAT. ADHESIVES
INSTALLATION SILICONE	896	A/R	PECORA
	5733	A/R	SCHNEE MOREHEAD
	899	A/R	DOW CORNING



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Port#

Date

98.930

4/14/10

Tech

[Signature]



BILL OF MATERIALS

PATIO DOOR
(PD12WW IMPACT VERSION)

Page 2 of 2

NOTE: THIS BILL OF MATERIALS REFLECTS THE SYSTEM AS TESTED. DEVIATION FROM THE BILL OF MATERIALS IS NOT RECOMMENDED BY VEKA INC. AND MAY REDUCE THE PERFORMANCE OF THE FINISHED PRODUCT.

WEATHERSTRIPPING:

ALL	.260-.187	FS7825-187 (WHITE)	A/R	SCHLEGEL
WEATHERPILE	.260-.187	3026W (WHITE)	A/R	ULTRAFAB
	.260-.187	47126-187 (GRAY)	A/R	AMESBURY

SCREWS:

NOTE: All screws are zinc plated or stainless steel sheet metal type, unless otherwise noted.

ROLLER	#10 X 1/2" FHP (SS)	4	MERCHANTS
FIXED MEETING STILE	#8 X 2" THP	4	MERCHANTS
LOCK HANDLE*	#8-32X 1-7/8" PHP**	2	SASH CONTROLS
MORTISE LOCK	#10 X 1-1/4" FHP(SS)	2	MERCHANTS
KEEPER	#10 X 1-1/4" PHP (SS)	4	MERCHANTS
INSTALLATION SCREWS	#10 X 1-1/4" PHP (SS)	A/R	MERCHANTS

* = HARDWARE SET INCLUDES SCREWS

** = COLOR

A/R = AS REQUIRED

10/02/06



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 9893.0
Date 4/19/10 Tech [Signature]



Test sample complies with these details.
Deviations are noted.

Date
BOTTOM
XTRN. DIR.

Tech

DETAIL D
4X SCALE

DETAIL B
4X SCALE

=CRITICAL
DIMENSION

1.25X SCALE

DIMENSIONS ARE IN MILLIMETERS.

NOTE: ALL DIMENSIONS
CAN BE ASSUMED AS
ORIGINATING FROM SHARP
CORNERS, UNLESS NOTED OTHERWISE.

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* = FLATNESS & SQUARENESS CRITICAL

Low-PDR count

100

A 7 A

[illegible]

MUST NOT BULGE

FILLET.

 = SHARP

▲ = R0.25

■ = R0,75

$$O = R1.0$$

◇ = R1.5

* = DIMENSION TAKEN FROM FURTHEST POINT ON RADIUS

MATERIAL: RIGID PVC

[illegible]

VEKA INC.
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: JMN

DATE: 4 MAR 02

SCALE: AS NOTED

CHK'D:

DATE:

APPV'D:

TITLE PATIO DOOR FRAME

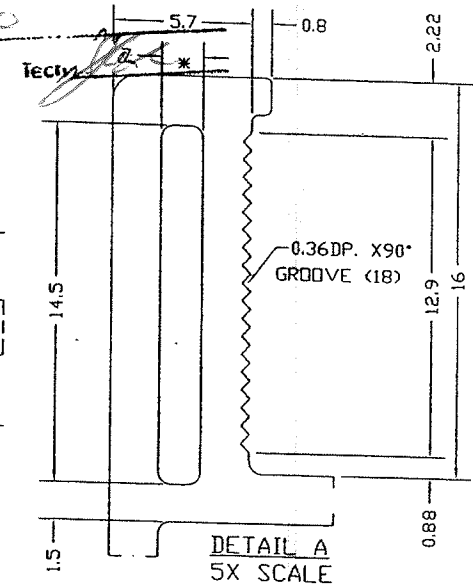
DWG. # PD1201



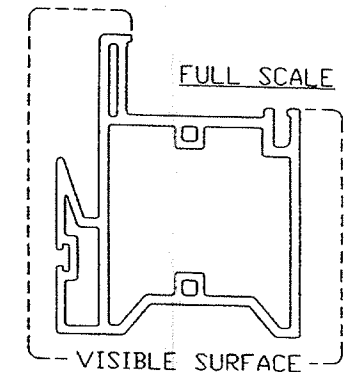
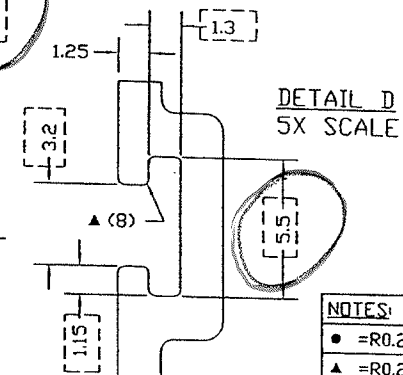
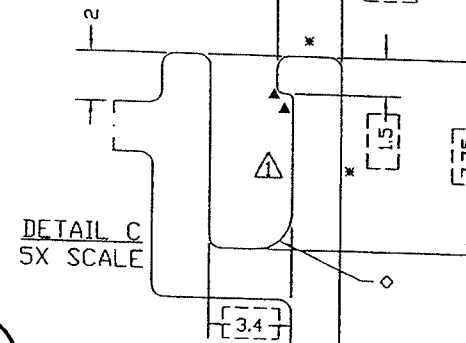
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 98930
Date 4/14/10



NEW DRAWING
DATE: 24 MAR 95
PLEASE DESTROY OLD COPIES

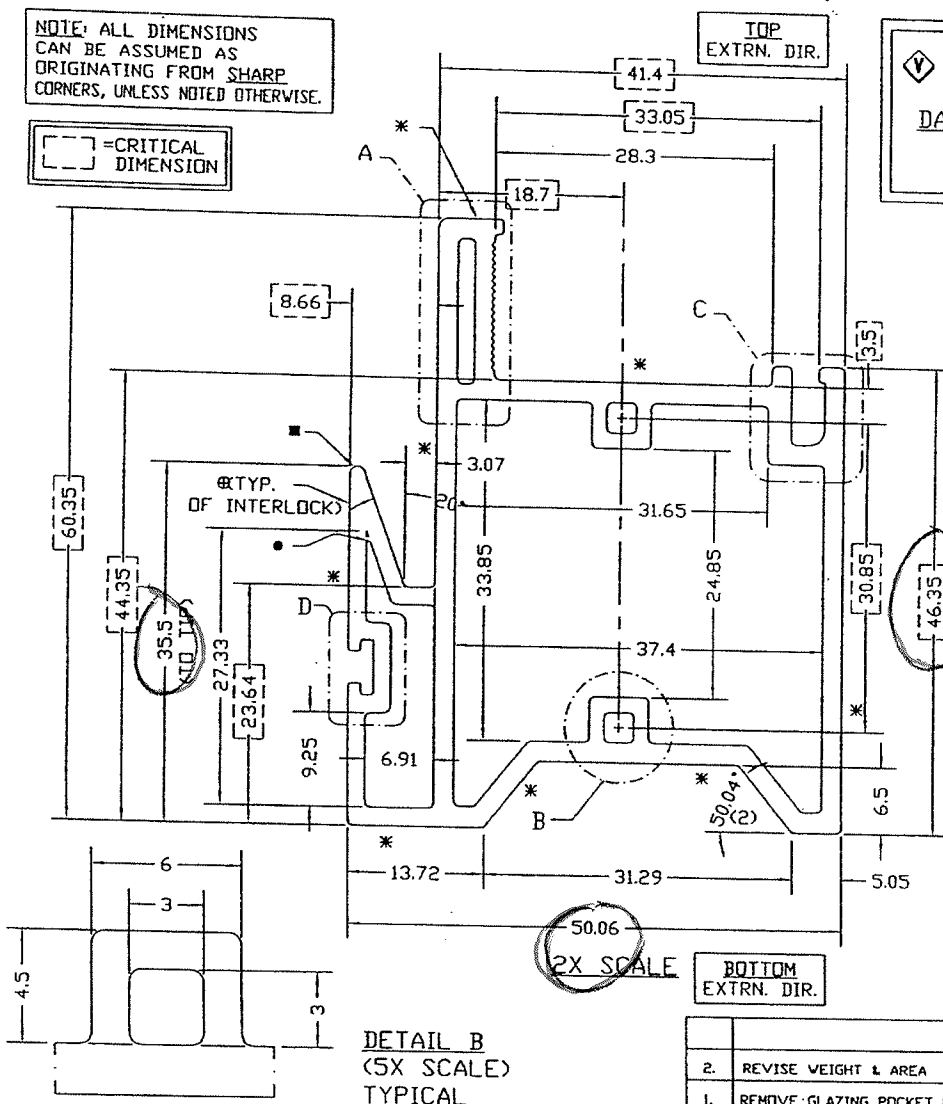


NOTE: ALL DIMENSIONS CAN BE ASSUMED AS ORIGINATING FROM SHARP CORNERS, UNLESS NOTED OTHERWISE.

[] = CRITICAL DIMENSION

TOP
EXTRN. DIR.

BOTTOM
EXTRN. DIR.



NOTES:
● = R0.2 ◊ = R1.5
▲ = R0.25 ⊕ = 1.75 WALL
■ = R0.75

DETAIL B
(5X SCALE)
TYPICAL

MATERIAL: RIGID PVC

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FLATNESS & SQUARENESS CRITICAL			
PER C	PER C	PER C	PER C
A	B	A	B
MUST NOT BULGE PAST AA	OUT OF SQ.	5.0154 PER 100mm	5.0154 PER 100mm
		≤ 0.20mm	≤ 0.20mm
		≤ 0.16mm	≤ 0.16mm
		≤ 0.07mm	≤ 0.07mm

REVISIONS		DATE
2.	REVISE WEIGHT & AREA	24 MAR 95
1.	REMOVE GLAZING POCKET NUB	24 MAR 95
EXTRUDER SIZE: CM80		EXTRUDER SPEED: 3.0 m/min
WEIGHT: 0.560 lb/Ft		AREA: 572.8mm ²
UNSPECIFIED WALL THICKNESS OUTER 1.8mm		INNER 1.5mm
UNSPECIFIED RADII 0.5mm		UNSPECIFIED TOLERANCE ±0.2mm



VEKA INC.
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: JMN	DATE: 24 MAR 95	SCALE: AS NOTED
CHK'D:	DATE:	APPV'D:
TITLE: OX PATIO DOOR MULLION (PD3 SERIES)		DWG. # PD34

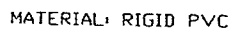


Test sample complies with these details.
Deviations are noted.

Report#

Date

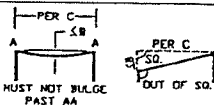
Tech



NOTE: ALL DIMENSIONS CAN BE ASSUMED AS ORIGINATING FROM FILLETED CORNERS OF ZERO, UNLESS NOTED OTHERWISE.

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* = FLATNESS & SQUARENESS CRITICAL



<u>B</u>	<u>PER C</u>
£ 5.0154	PER 10MM
£.20mm.	130mm
£.16mm.	105mm
£.07mm.	45mm

DIMENSIONS ARE IN MILLIMETERS.

2.	UPDATE DRAWING TO CURRENT FORMAT	11 AUG 00	JLB
2.	OFFICIAL AREA & WEIGHT	22 DEC 94	
1.	DIMENSION ADDED	28 SEPT 94	
REVISIONS		DATE	
EXTRUDER SIZE: CM-80 EXTRUDER SPEED: 3.0 n/mln			
WEIGHT: 0.494 lb/ft		AREA: 504.92mm ²	
UNSPECIFIED WALL THICKNESS OUTER 2.0mm		INNER 1.5mm	
UNSPECIFIED RADII 0.5mm		UNSPECIFIED TOLERANCE ±0.2mm	



VEKA INC.
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: JJS

DATE: 1 JULY 94

SCALE: AS NOTED

CHK'D:	
--------	--

DATE:

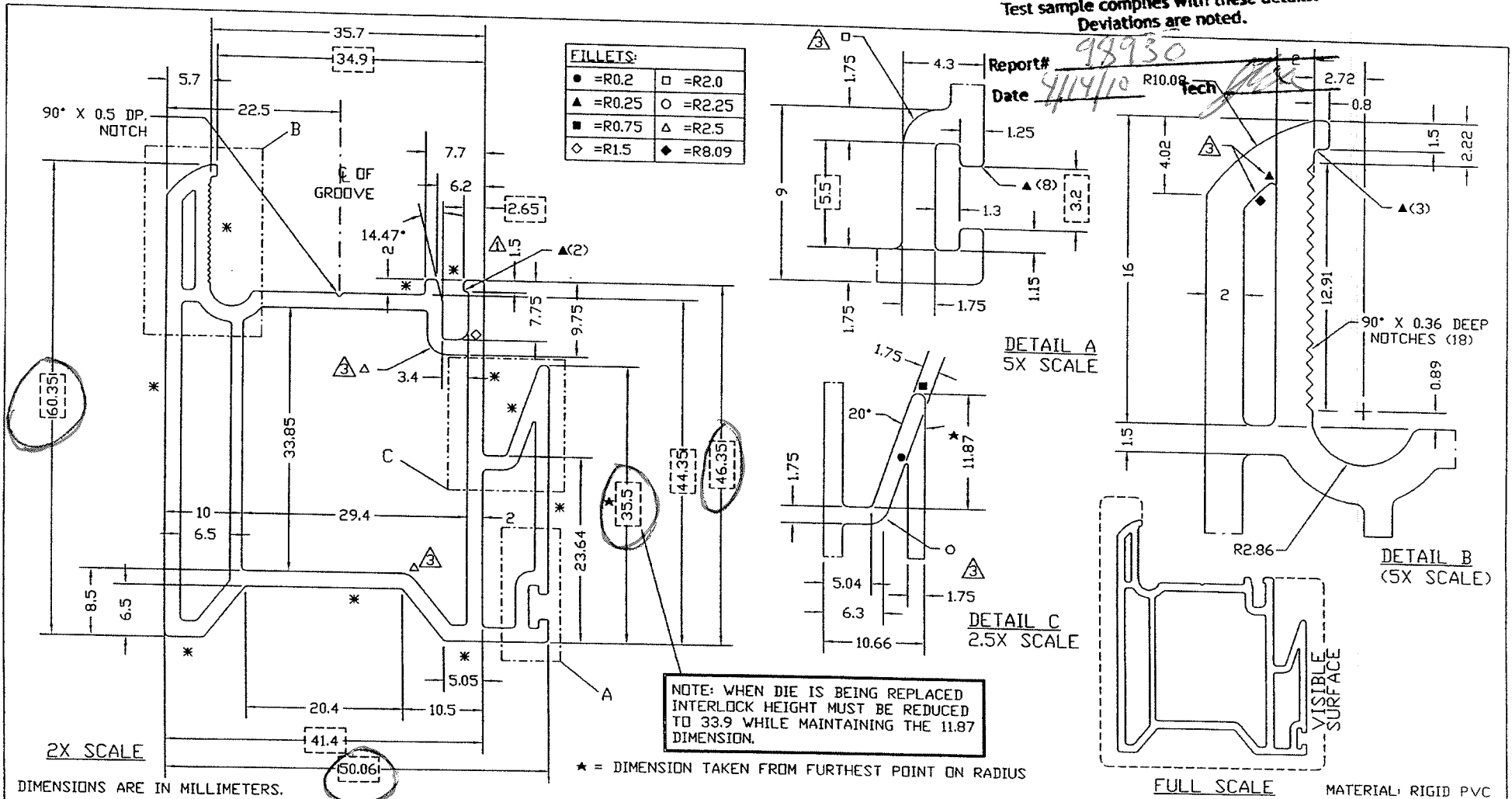
APPROVED:

TITLE	COMMON	SASH
1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27
28	29	30
31	32	33
34	35	36
37	38	39
40	41	42
43	44	45
46	47	48
49	50	51
52	53	54
55	56	57
58	59	60
61	62	63
64	65	66
67	68	69
70	71	72
73	74	75
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79	80	81
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85	86	87
88	89	90
91	92	93
94	95	96
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262	263	264
265	266	267
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298	299	300
301	302	303
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322	323	324
325	326	327
328	329	330
331	332	333
334	335	336
337	338	339
340	341	342
343	344	345
346	347	348
349	350	351
352	353	354
355	356	357
358	359	360
361	362	363
364	365	366
367		

DWG. # PD25



Test sample complies with these details.
Deviations are noted.



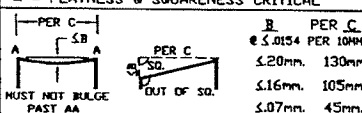
DIMENSIONS ARE IN MILLIMETERS.

NOTE: ALL DIMENSIONS CAN BE ASSUMED AS ORIGINATING FROM SHARP CORNERS, UNLESS NOTED OTHERWISE.

□ = CRITICAL DIMENSION

■ = FLATNESS & SQUARENESS CRITICAL

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3.	REV. RADI R1 TO R2, R0.5 TO R2.25, R1.5 TO R2.5	1 DEC 99
2.	OFFICIAL WEIGHT & AREA	22 DEC 94
1.	DIMENSION ADDED	28 SEPT 94
REVISIONS		DATE
WEIGHT: 0.562 lb/ft		AREA: 574.42mm ²
UNSPECIFIED WALL THICKNESS OUTER 2.0mm		INNER 1.5mm
UNSPECIFIED RADII 0.5mm		UNSPECIFIED TOLERANCE ±0.2mm



VEKA INC.
100 VEKA DRIVE
FOMBELL, PA 16123

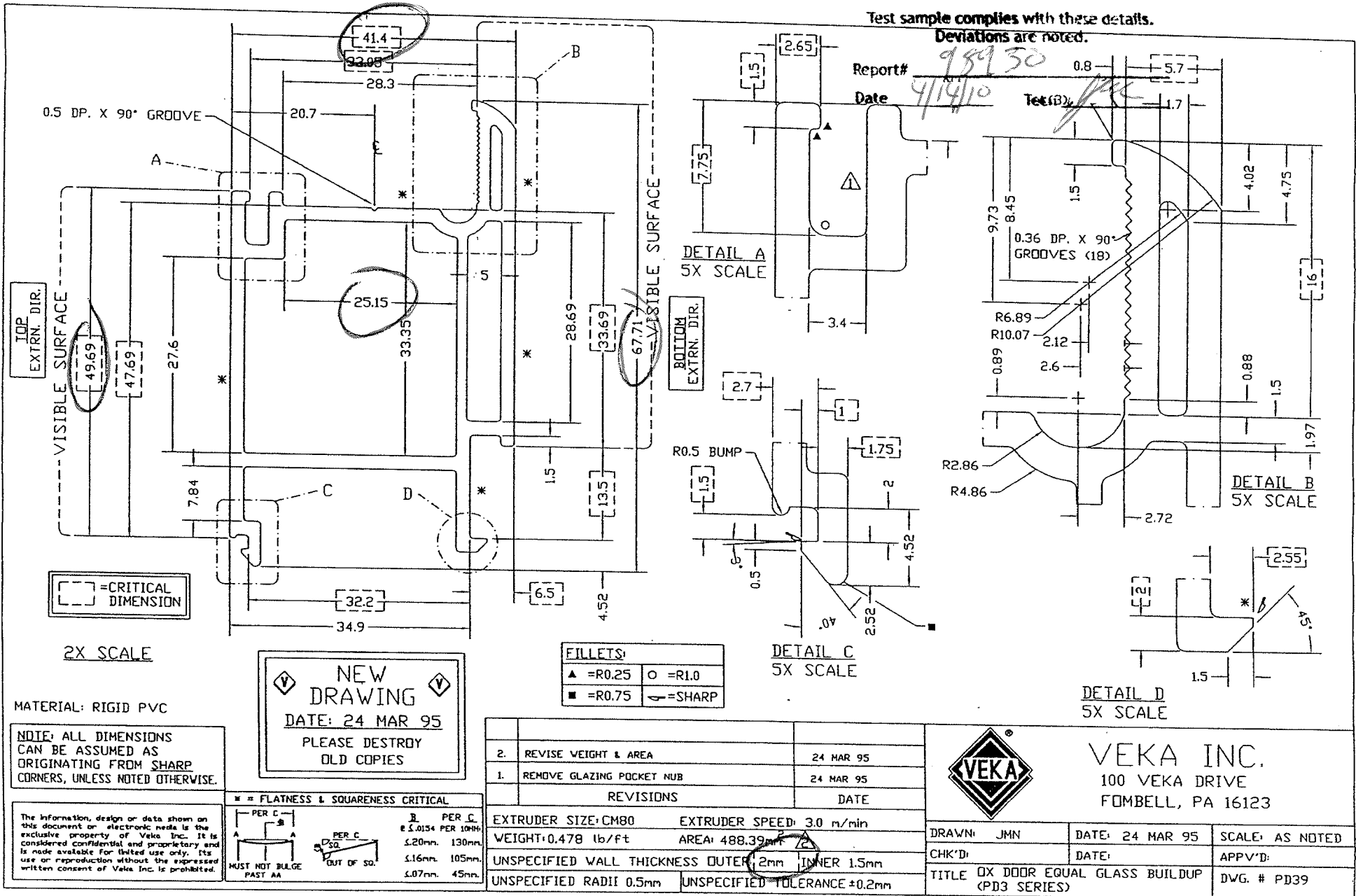
DRAWN: JJS	DATE: 1 JULY 94	SCALE: AS NOTED
CHK'D:	DATE:	APPV'D:
TITLE PATIO DOOR PDIWW/MW INTERLOCK (EXTERIOR)		DWG. # PD24



Architectural Testing

Test sample complies with these details.

Deviations are noted.





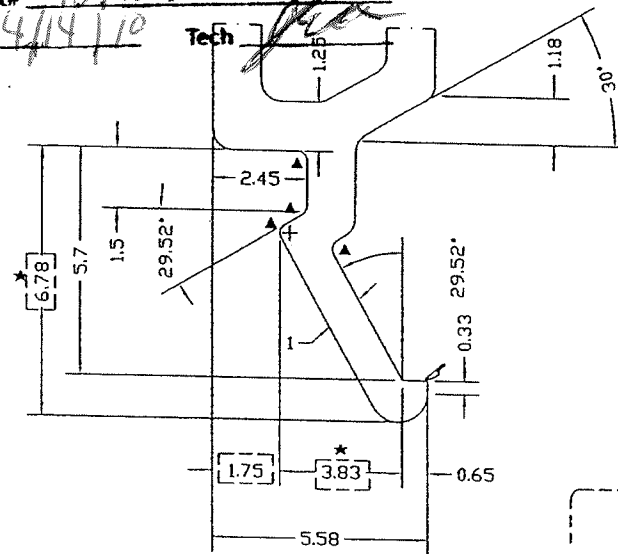
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 98930

Date 4/14/10

Tech [signature]



DETAIL A
8X SCALE

VISIBLE
SURFACE

FULL SCALE

BOTTOM
EXTRN. DIR.

TOP
EXTRN. DIR.

5X SCALE

* = DIMENSION TAKEN FROM FURTHEST POINT ON RADIUS

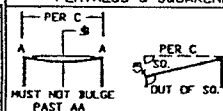
MATERIAL: RIGID PVC

NOTE: ALL DIMENSIONS CAN
BE ASSUMED AS ORIGINATING
FROM FILLETED CORNERS OF
ZERO, UNLESS NOTED OTHERWISE.

[] = CRITICAL
DIMENSION

* = FLATNESS & SQUARENESS CRITICAL

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PER C
5.0154 PER 10MM
5.20mm 130mm
5.16mm 105mm
5.07mm 45mm

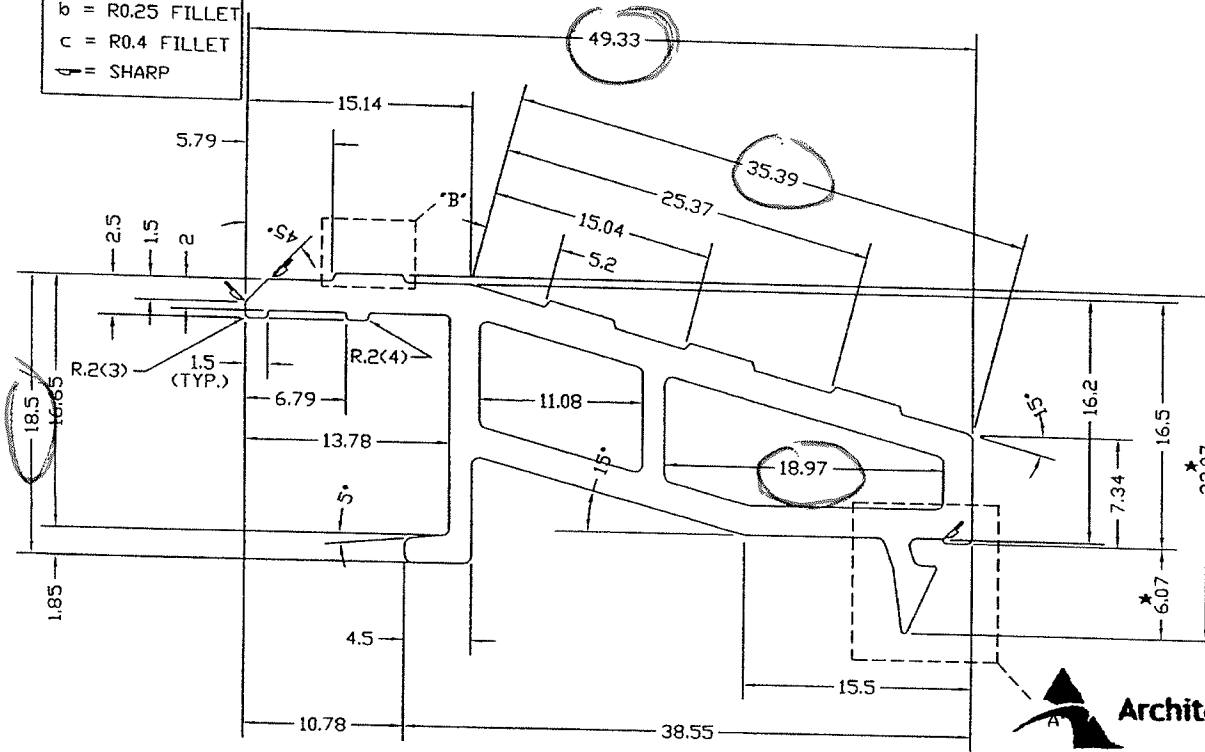
2	OFFICIAL AREA & WEIGHT	22 DEC 94
1	CHANGE SNAP LEG, REVISE AREA/WEIGHT, CENTROID	12 JAN 94 JHN
REVISIONS		DATE
EXTRUDER SIZE: CM35		EXTRUDER SPEED: 4.60 m/min
WEIGHT: 0.054 lb/ft		AREA: 55.63mm ²
UNSPECIFIED WALL THICKNESS		1.25mm
UNSPECIFIED RADIUS		0.5mm
UNSPECIFIED TOLERANCE		±0.2mm



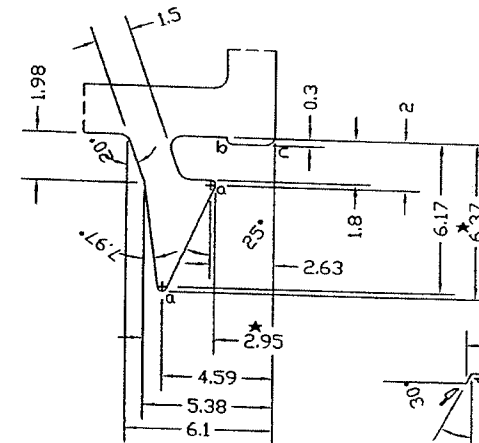
VEKA INC.
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: T.J.F.	DATE: 29 MARCH 93	SCALE: AS NOTED
CHK'D:	DATE:	APPV'D:
TITLE GLAZING BEAD 1' GLASS		DWG. # BV22

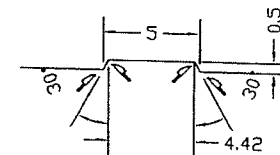
NOTE:
a = R0.2 FILLET
b = R0.25 FILLET
c = R0.4 FILLET
↓ = SHARP



3X SCALE



DETAIL "A"
4X SCALE



DETAIL "B"
4X SCALE
TYPICAL



Architectural Testing

Test sample complies with these details.
Deviations are noted. CENTROID
FULL SCALE

Report#

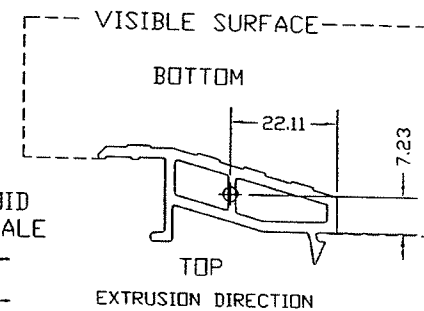
98935

Date

4/14/10

Tech

JMN



MATERIAL: RIGID PVC

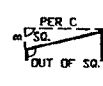
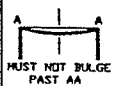
* = DIMENSION TAKEN FROM FURTHEST POINT ON RADIUS

NOTE: ALL DIMENSIONS CAN
BE ASSUMED AS ORIGINATING
FROM FILLETED CORNERS OF
ZERO, UNLESS NOTED OTHERWISE.

* = FLATNESS & SQUARENESS CRITICAL

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≤ .2 REQD.



PER C

≤ .3 MM 60 MM
≤ .2 MM 40 MM
≤ .1 MM 20 MM

1	CORRECTED WEIGHT FROM 0.716 TO 0.237	21 JAN 94 JMN
REVISIONS		DATE
EXTRUDER SIZE: CM55 EXTRUDER SPEED: 3.0 m/min		
WEIGHT: 0.237 lb/ft AREA: 242.47mm ²		
UNSPECIFIED WALL THICKNESS OUTER 2mm INNER 1.5mm		
UNSPECIFIED RADII 0.5mm UNSPECIFIED TOLERANCE ±0.3mm		



VEKA INC.
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: JMN

DATE: 3 DEC 93

SCALE: AS NOTED

CHK'D:

DATE:

APP'D:

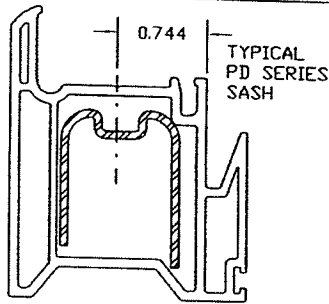
TITLE THRESHOLD PD3

DWG. # PD33

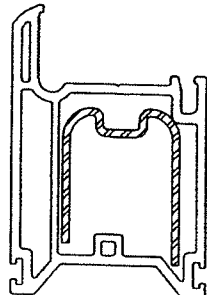


Test sample complies with these details.
Deviations are noted.

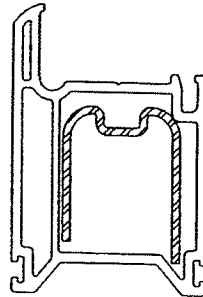
Report# 98930
Date 4/14/02



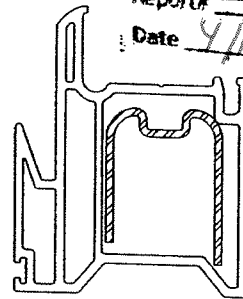
PD24



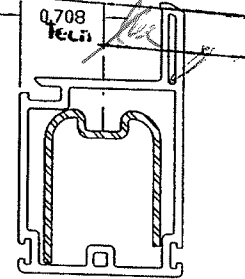
PD25



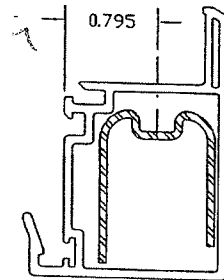
PD25-2



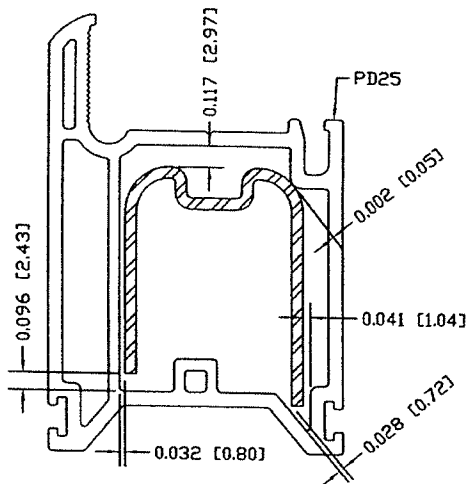
PD26



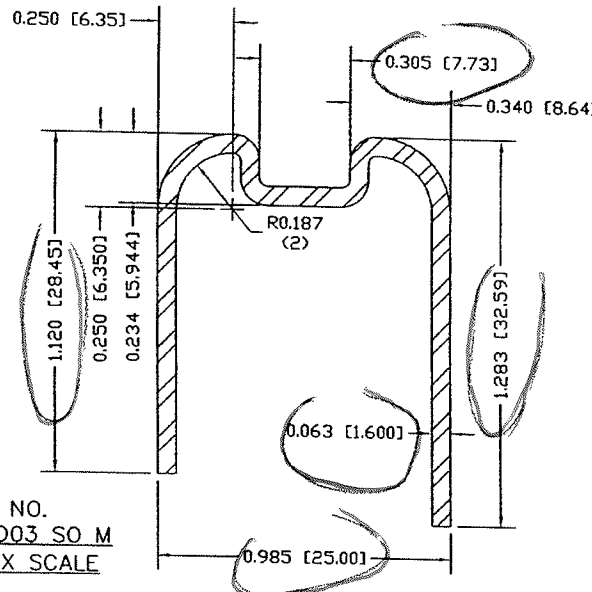
SR1175



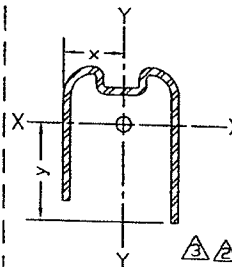
SR1176



CLEARANCES
1.5X SCALE



PART NO.
RF PD03 SO M
2.5X SCALE



ATTACH REINFORCING 2" FROM
EACH END THEN 12" O.C.
USE #8 X 3/4" FHP SELF-
TAPPING, PLATED OR SS SCREWS.
QUANTITY AS REQUIRED

FULL SCALE

PROFILE PROPERTIES

MATERIAL: 0.063 GALVANIZED
ROLLED G90 STL., HOT DIPPED
AREA: 0.2089 IN² [1.348 CM²]
WEIGHT: 0.710 LB./FT.

MOMENTS OF INERTIA:

I_{xx}: 0.0282 IN⁴ [1.17 CM⁴]
I_{yy}: 0.0347 IN⁴ [1.44 CM⁴]

EXTREME FIBER DISTANCE:

x: 0.514 IN. [1.306 CM.]
y: 0.809 IN. [2.056 CM.]

SECTION MODULI:

S_{xx}: 0.0349 IN.³ [0.571 CM.³]
S_{yy}: 0.0674 IN.³ [1.11 CM.³]



VEKA INC.

100 VEKA DRIVE
FOMBELL, PA 16123

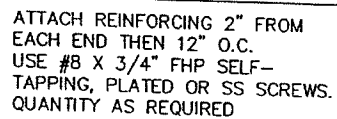
NOTE: DIMENSIONS ARE IN INCHES

NOTE: UNSPECIFIED INSIDE BENDS = R0.026

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REVISIONS	DATE
3	UPDATE PROPERTIES AS PER RECALC 3/12/04
2	REVERSE PROFILE PROPERTIES
1	ADDED SCREW SPECIFICATION AND NOTE
7 APR 06 (JJS)	
3 SEPT 03 (JLB)	
7 AUGUST 03 (TJF)	

DRAWN: JLB	DATE: 4 FEB 02	SCALE: AS NOTED
CHK'D:	DATE:	APPV'D:
TITLE	STEEL REINFORCING RF PD03 SO M	DWG. # RFPDQ3SOM

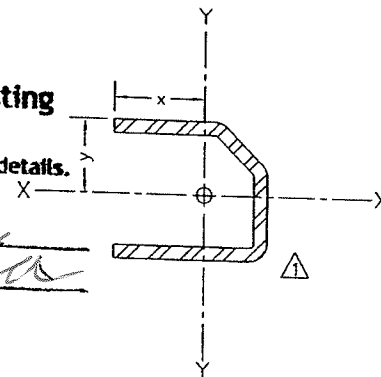


Architectural Testing


Test sample complies with these details.
Deviations are noted. X—

Report#

Date _____



FULL SCALE

PROFILE PROPERTIES 

IN ENGLISH [SI] UNITS

MATERIAL: 12 GA. GALVANIZED

MATERIALS: 12 GA. GALVANIZED
ROLLED G90 STL., HOT-DIPPED

AREA: 0.3421 IN.² [2.207 CM.²]

WEIGHT: 1.162 LB/FT. [1732 G/M]

MOMENTS OF INERTIA:

MOMENTS OF INERTIA:

$$I_{xx}: 0.0657 \text{ IN.}^4 [2.$$
$$I_{yy}: 0.0521 \text{ IN.}^4 [2.17 \text{ CM.}^4]$$

EXTREME FIBER DISTANCE

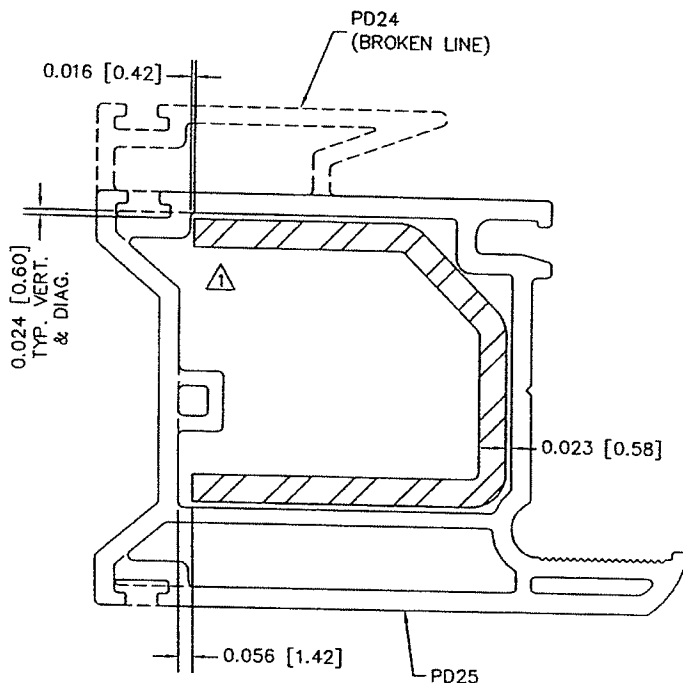
EXTREME FIBER DISTANCE:
x: 0.737 IN [1.87 CM]

x: 0.737 IN. [1.87 CM.]
y: 0.590 IN. [1.50 CM.]

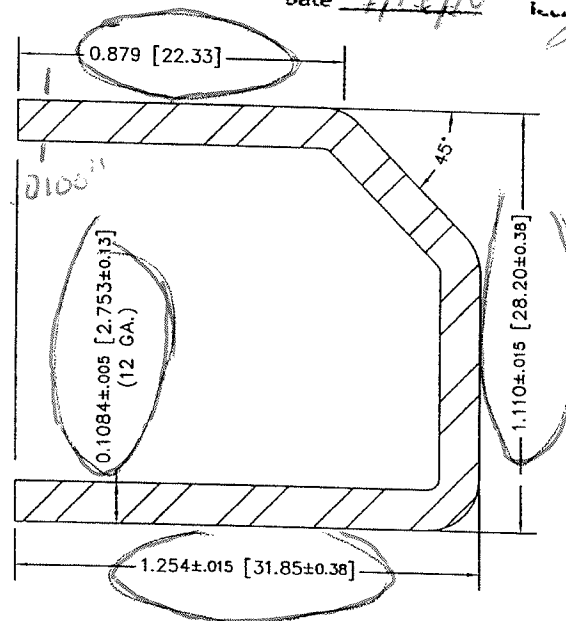
SECTION MODULI:

SECTION MODULII:
Sxx: 0.111 IN.³ [1.83 CM.³]

Sxx: 0.111 IN.² [1.83 CM.²]
Syy: 0.0707 IN.² [1.16 CM.²]



CLEARANCES
2X SCALE



3X SCALE 

NOTE: INSIDE RADII = 0.031 [0.79]

VEKA PART # RF PD24 SO M

NOTE: DIMENSIONS ARE IN INCHES [MM.]



VEKA INC.

100 VEKA DRIVE

FOMBELL, PA 16123

DRAWN: JLB

DATE: 14 MAR 02

SCALE: AS NOTED

CHK'D:

DATE:

APPROVED:

TITLE

REINFORCING FOR PD24 & PD25

DWG. # RFPD24SOM

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2	ADDED SCREW SPECIFICATION AND NOTE	7 AUGUST 03 (TJF)
1	REVISE PROFILE SHAPE & PROPERTIES	19 MAR 02
	REVISIONS	DATE



Architectural Testing

Test sample complies with these det. specs.
Deviations are noted.

Report#

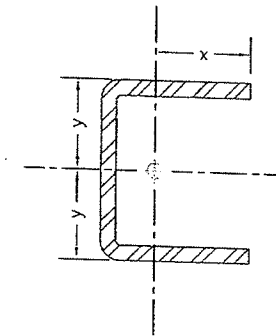
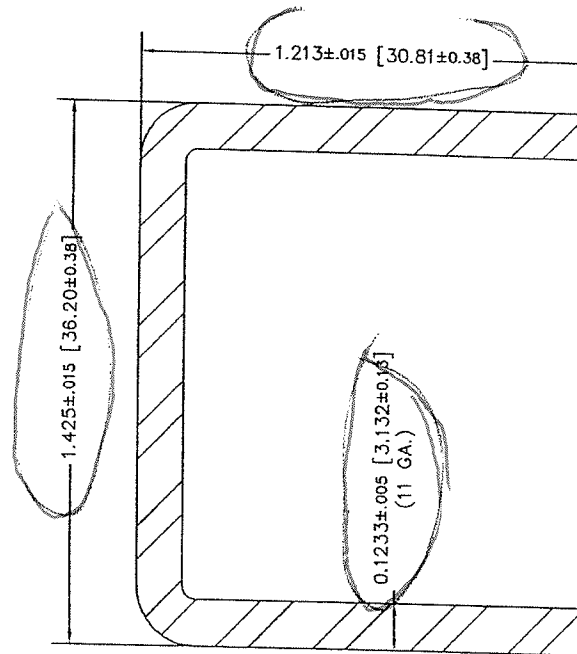
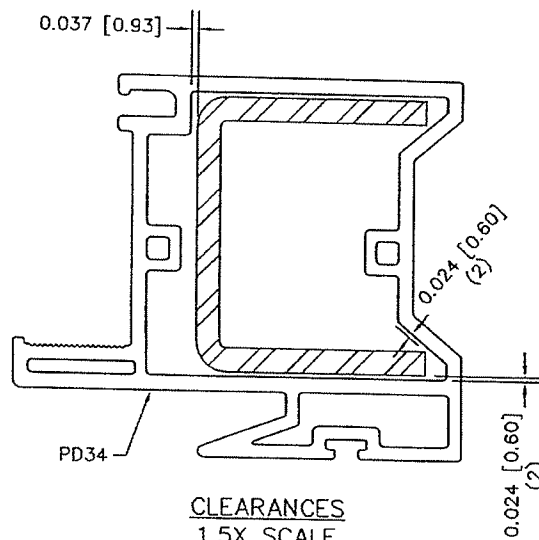
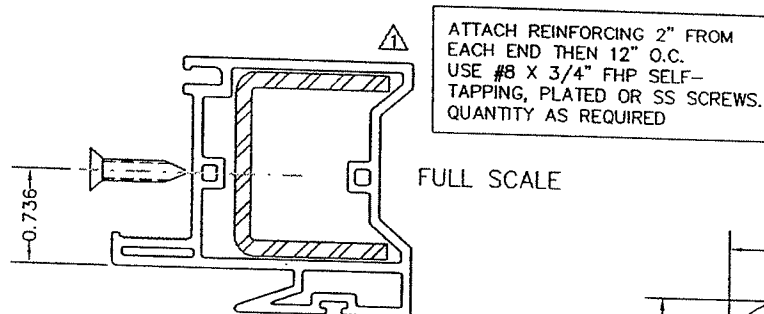
Date

98930

4/15/10

Tech

flm



FULL SCALE

PROFILE PROPERTIES

IN ENGLISH [SI] UNITS
MATERIAL: 11 GA. GALVANIZED
ROLLED G90 STL., HOT-DIPPED
AREA: 0.4346 IN.² [2.804 CM.²]
WEIGHT: 1.477 LB/FT. [2199 G/M]

MOMENTS OF INERTIA:

I_{xx}: 0.139 IN.⁴ [5.80 CM.⁴]
I_{yy}: 0.0643 IN.⁴ [2.68 CM.⁴]

EXTREME FIBER DISTANCE:

x: 0.776 IN. [1.97 CM.]
y: 0.7125 IN. [1.81 CM.]

SECTION MODULI:

S_{xx}: 0.196 IN.³ [3.20 CM.³]
S_{yy}: 0.0829 IN.³ [1.36 CM.³]

VEKA PART # RF PD34 SO M

NOTE: DIMENSIONS ARE IN INCHES [MM.]



VEKA INC.

100 VEKA DRIVE

FOMBELL, PA 16123

DRAWN: JLB

DATE: 14 MAR 02

SCALE: AS NOTED

CHK'D:

DATE:

APPV'D:

TITLE

REINFORCING FOR PD34

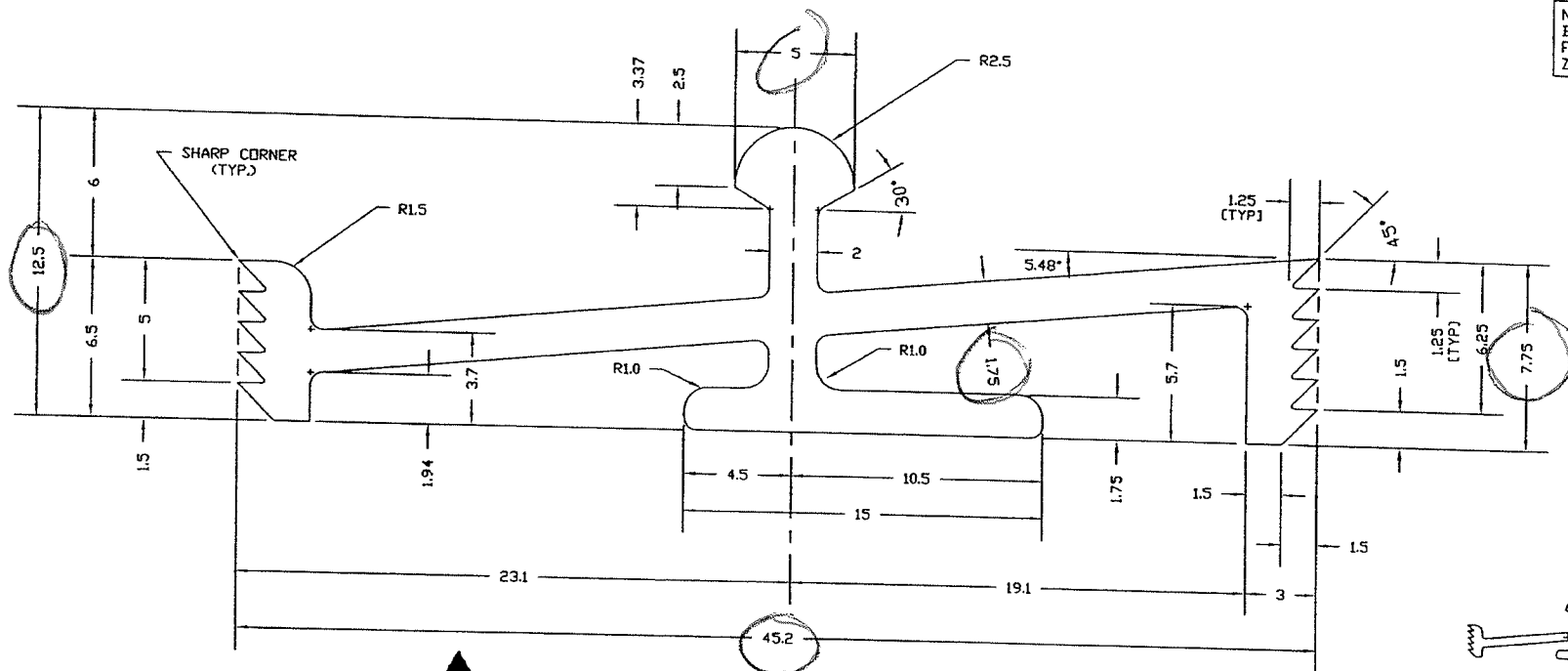
DWG. # RFPD34SOM

REVISIONS		DATE
1	ADDED SCREW SPECIFICATION AND NOTE	7 AUGUST 03 (TJF)

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STANDARD COMMERCIAL TOLERANCES FOR EXTRUDED BAR & SHAPES APPLY UNLESS SPECIFICALLY SHOWN OTHERWISE

NOTE: ALL DIMENSIONS CAN BE ASSUMED AS ORIGINATING FROM FILLETED CORNERS OF ZERO, UNLESS NOTED OTHERWISE.



Architectural Testing
5X SCALE

Test sample complies with these details.
Deviations are noted.

Report# 98930
Date 4/14/92 Tech JWA

NEW DRAWING
DATE: 8 JAN 92
PLEASE DESTROY OLD COPIES

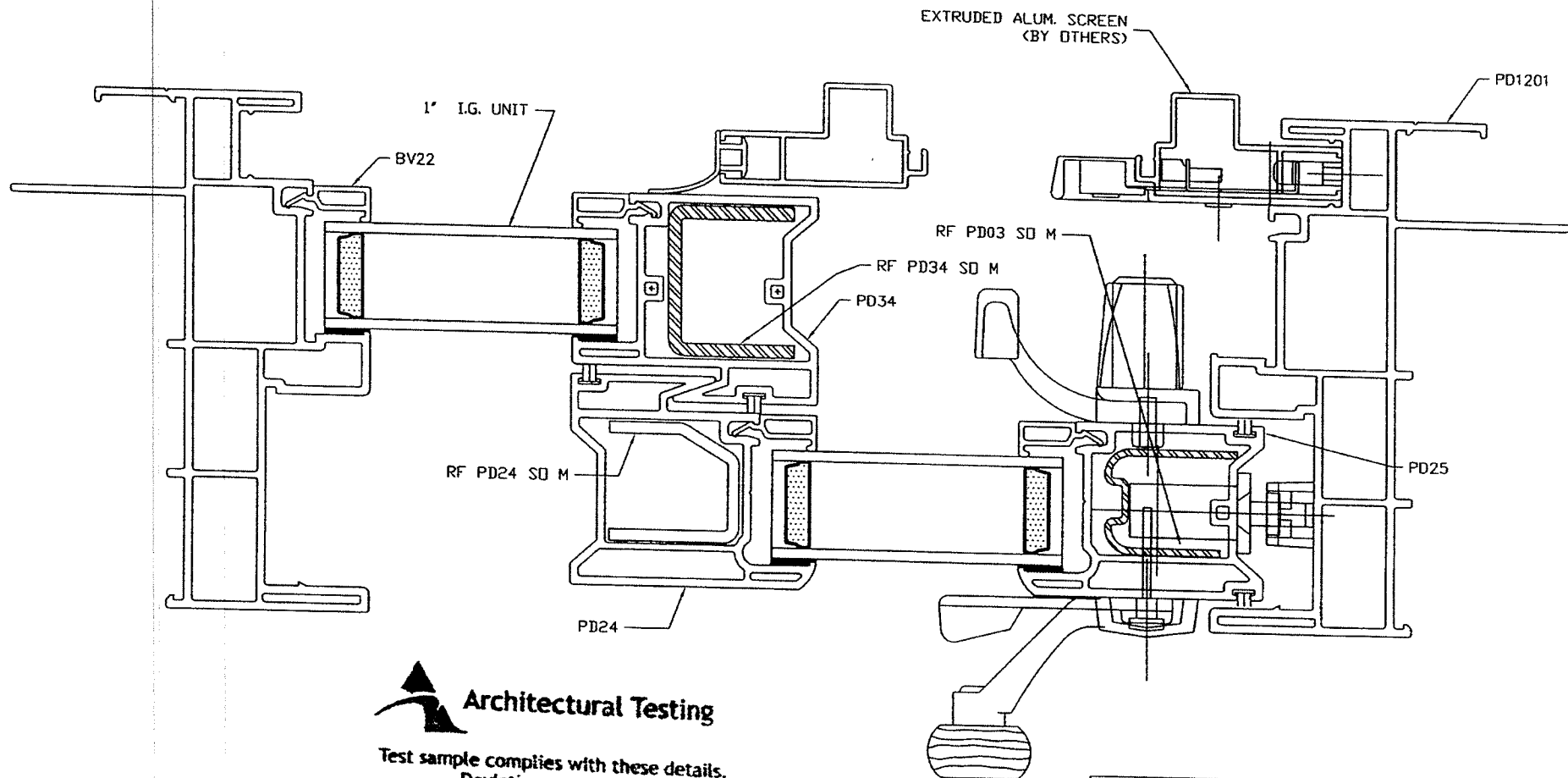
MATERIAL: ALUMINUM
ALLOY & TEMPER: 6005-T5 or 6105-T5
FINISH: MILL

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NOTE: DIMENSIONS & WEIGHTS ARE METRIC [STANDARD]

VEKA PART # PD22	
WEIGHT: 411 g/m [0.276 lb/ft]	AREA: 152.25 mm ²
UNSPECIFIED WALL THICKNESS	
UNSPECIFIED RADIUS 0.5 mm	UNSPECIFIED TOLERANCE

REVISIONS		DATE
VEKA INC.		
100 VEKA DRIVE		
P.O. BOX 250		
FOMBELL, PA 16123-0250		
DRAWN: WGR/TJF	DATE: 8 JAN 92	SCALE: AS NOTED
CHK'D:	DATE:	APPV'D:
TITLE PATIO DOOR (PD2WW) SILL TRACK		DWG. # PD22



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 98930

Date 9/14/10

Tech [Signature]

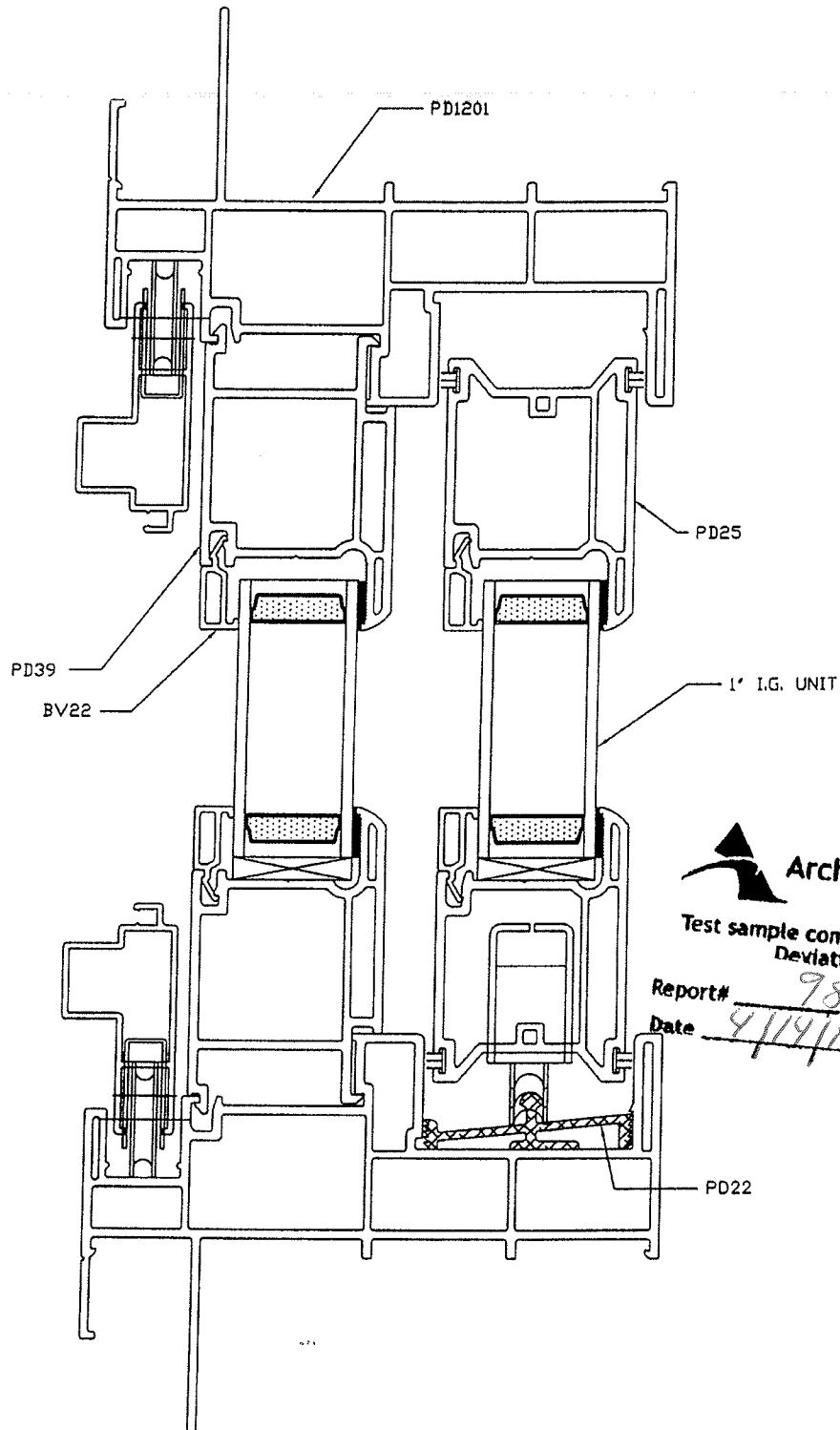
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REVISIONS	DATE



VEKA INC.
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: JLB	DATE: 30 JULY 02	SCALE: FULL
CHK'D:	DATE:	APPV'D:
TITLE: PATIO DOOR PD12WW HORIZONTAL LAYOUT, OX DOOR		DWG. #PD12WW



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 98930
Date 9/19/10 Tech

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VEKA INC.
100 VEKA DRIVE
FOMBELL, PA 16123

REVISIONS		DATE

DRAWN: JLB	DATE: 30 JULY 02	SCALE: FULL
CHK'D:	DATE:	APP'D:
TITLE: PATIO DOOR PD12WW VERTICAL LAYOUT, EQUAL GLASS		DWG. # PD12WW