Architectural Testing

ASTM E 1886 and ASTM E 1996
TEST REPORT

Rendered to:

VEKA INC.

SERIES/MODEL: Softline 70 mm AD & MD
PRODUCT TYPE: PVC Tilt Turn Window

Report No.:	**66065.02-109-44**
Revision 2:	**03/02/07**
Test Dates:	**06/26/06**
Through:	**12/05/06**
Report Date:	**01/24/07**
Expiration Date:	**12/05/10**

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

Architectural Testing

ASTM E 1886 and ASTM E 1996 TEST REPORT

Rendered to:

VEKA INC.
100 Veka Drive
P.O. Box 250
Fombell, Pennsylvania 16123-0250

Report No.:	66065.02-109-44
Revision 2:	03/02/07
Test Dates:	06/26/06
Through:	12/05/06
Report Date:	01/25/07
Expiration Date:	12/05/10

Project Summary: Architectural Testing, Inc. (ATI) was contracted by Veka Inc. to perform testing on a Series/Model Softline 70 mm AD & MD, PVC tilt-turn window. The samples tested met the performance requirements set forth in the referenced test procedures for a ±50.0 psf Design Pressure with missile impacts corresponding to Missile Level D and Wind Zone 3. Test specimen description and results are reported herein.

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

ASTM E 1886-02, *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 1996-02, *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: Softline 70 mm AD & MD

Product Type: PVC Tilt-Turn Window

Overall Size: 1194 mm (47") wide by 1816 mm (71-1/2") high

Vent Size: 1041 mm (41") wide by 1626 mm (64") high

Overall Area: 2.17 m^2 (23.3 ft^2)

Finish: All PVC as white.

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Test Specimen Description: (Continued)

Glazing Details: The unit was glazed with 28.5 mm (1-1/8") thick insulating glass fabricated from a sheet of 4 mm (5/32") thick clear annealed glass outboard, a sheet of 14.5 mm (9/16") thick laminated glass inboard and an aluminum spacer system. The laminated glass was comprised of two sheets 6 mm (1/4") thick annealed glass and a 2.5 mm (0.100") thick PVB interlayer. The glass was set from the interior onto a vinyl bulb and secured with PVC glazing beads with a vinyl dual fin vinyl weatherstrip was against the glass.

Weatherstripping:

Description	Quantity	Location
Kerf mounted 6 mm (0.230") high vinyl hollow bulb seal	1 Row	Vent stiles and rails, head, sill jamb and intermediate jamb frames
Kerf mounted 5 mm (0200") high vinyl hollow bulb seal	1 Row	Vent stiles and rails, head, sill jamb and intermediate jamb glazing leg
Kerf mounted dual fin vinyl bulb seal	1 Row	Glazing bead

Frame Construction: Frame members were constructed of extruded PVC with mitered and welded corners.

Vent Construction: Vent members were constructed of extruded PVC members with mitered and welded corners.

Hardware:

Description	Quantity	Location
Multi-point lock with handle	1	24" from the lock stile bottom rail corner
Locks with adjacent keepers	4	Lock stile, 229 mm (9"), 762 mm (30"), 1295 mm (51") from the bottom
	4	Hinge stile, 229 mm (9"), 559 mm (22"), 940 mm (37"), 1346 mm (53") from the bottom
	2	Top rail, 152 mm (6") and 381 mm (15") from the lock stile corner
	3	Bottom rail, 25 mm (1"), 660 mm (26") and 864 mm (34") from the lock stile corner
		Keepers were secured using three (3) 4 mm (#M4) x 22 mm (7/8") screws

Test Specimen Description: (Continued)

Drainage:

Description	Quantity	Location
32 mm (1-1/4") long by 5 mm (3/16") high weepslot	2	64 mm (2-1/2") from each end of the bottom rail in the glazing channel, draining to the exterior hollow below
32 mm (1-1/4") long by 5 mm (3/16") high weepslot	2	127 mm (5") from each end of the bottom rail, draining the exterior hollow
32 mm (1-1/4") long by 5 mm (3/16") high weepslot	2	Sill, 76 mm (3") from each end, draining the top surface to the exterior center hollow
32 mm (1-1/4") long by 5 mm (3/16") high weepslot	2	Sill, 127 mm (5") from each end on the exterior wall, draining the center hollow

Reinforcement: Custom shaped steel reinforcement (Drawing #113.271.1W/2) and a 32 mm by 10 mm (1-1/4" by 3/8") vinyl reinforcement was utilized in the head, sill, and jambs. All vent stiles and rails utilized a custom shaped steel reinforcement (Drawing #113.292.1W/3). All reinforcing was secured with 4 mm (#M4) x 13 mm (1/2") screw at each end and spaced 305 mm (12") on center.

Installation: Window was installed into a Spruce-Pine-Fir wood buck. The frame was set into the buck and secured using 5 mm (#M5) x 76 mm (3") screws, 152 mm (6") from each end and at midspan of both jambs. The exterior perimeter was sealed with silicone.

Test Results: The following results have been recorded:

ASTM E 1886, *Large Missile Impact*

Conditioning Temperature: 79°F
Missile Weight: 9.40 lbs
Missile Length: 8' 0"
Muzzle Distance from Test Specimen: 17 ft.

Test Unit #1

Impact #1: Missile Velocity: 50.4 fps; orientation within ±5° of vertical

Impact Area: Upper right corner of glass
Observations: Missile impacted target area, impacted all lites, no damage to unit
Results: Pass

Test Unit #2

Impact #1: Missile Velocity: 50.4 fps; orientation within ±5° of vertical

Impact Area: Lower left corner of glass
Observations: Missile impacted target area, impacted all lites, no damage to unit
Results: Pass

Test Unit #3

Impact #1: Missile Velocity: 50.1 fps; orientation within ±5° of vertical

Impact Area: Center of glass
Observations: Missile impacted target area, impacted all lites, no damage to unit
Results: Pass

***Note**: See ATI Sketch #1 for impact locations.*

Test Results: (Continued)

ASTM E 1886, *Air Pressure Cycling*

Test Unit #1

Design Pressure: ±50.0 psf

POSITIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
10.0 to 25.0	3500	2.11	0.12	0.16	0.14
0.0 to 30.0	300	2.33	0.15	0.19	0.17
25.0 to 40.0	600	2.17	0.20	0.25	0.25
15.0 to 50.0	100	2.27	0.27	0.32	0.32
			Permanent Set		
			0.05	0.06	0.06

NEGATIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
15.0 to 50.0	50	2.26	0.40	0.42	0.45
25.0 to 40.0	1050	2.20	0.35	0.35	0.37
0.0 to 30.0	50	2.37	0.30	0.27	0.31
10.0 to 25.0	3350	2.11	0.28	0.25	0.29
			Permanent Set		
			0.15	0.10	0.16

***Observations**: No additional damage to test unit.*

Result: Pass

***Note**: See ATI Sketch #2 for indicator locations. Test Specimens #1 and #2 were cycled in a common chamber.*

Test Results: (Continued)

ASTM E 1886, *Air Pressure Cycling*

Test Unit #2

Design Pressure: ±50.0 psf

POSITIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
10.0 to 25.0	3500	2.11	0.13	0.17	0.17
0.0 to 30.0	300	2.33	0.18	0.20	0.19
25.0 to 40.0	600	2.17	0.25	0.25	0.25
15.0 to 50.0	100	2.27	0.27	0.30	0.29
			Permanent Set		
			0.09	0.08	0.06

NEGATIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
15.0 to 50.0	50	2.26	0.26	0.33	0.33
25.0 to 40.0	1050	2.20	0.25	0.32	0.31
0.0 to 30.0	50	2.37	0.21	0.25	0.25
10.0 to 25.0	3350	2.11	0.20	0.24	0.24
			Permanent Set		
			0.10	0.14	0.11

***Observations**: No additional damage to test unit.*

Result: Pass

***Note**: See ATI Sketch #2 for indicator locations. Test Specimens #1 and #2 were cycled in a common chamber.*

Test Results: (Continued)

ASTM E 1886, *Air Pressure Cycling*

Test Unit #3

Design Pressure: ±50.0 psf

POSITIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
10.0 to 25.0	3500	1.48	0.06	0.15	0.03
0.0 to 30.0	300	1.82	0.06	0.15	0.04
25.0 to 40.0	600	1.50	0.09	0.19	0.08
15.0 to 50.0	100	2.28	0.11	0.25	0.10
			Permanent Set		
			0.00	0.01	0.01

NEGATIVE PRESSURE

Pressure Range (psf)	Number of Cycles	Average Cycle Time (seconds)	Maximum Deflection at Indicator (inch)		
			#1	#2	#3
15.0 to 50.0	50	1.96	0.10	0.29	0.15
25.0 to 40.0	1050	1.21	0.09	0.21	0.10
0.0 to 30.0	50	1.83	0.06	0.13	0.05
10.0 to 25.0	3350	1.39	0.03	0.09	0.04
			Permanent Set		
			0.2	0.04	0.01

***Observations**: No additional damage to test unit.*

Result: Pass

***Note**: See ATI Sketch #2 for indicator locations.*

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

Test Equipment:

Cannon: Constructed from steel piping utilizing compressed air to propel the missile(s)

Missile(s): 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 following drawings have been checked by Architectural Testing, Inc., and are representative of the samples tested.

Detailed drawings, representative samples of the test specimen and a copy of this report will be retained by Architectural Testing, Inc. for a period of four years from the original test date. This report is the exclusive property of the client so named herein and is applicable to the sample tested. Results obtained are tested values and do not constitute an opinion or endorsement by this laboratory. This report may not be reproduced, except in full, without the approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.

Digitally Signed for: Aaron Shultz by Vicki L. McElwain

Aaron M. Shultz
Technician

Digitally Signed by: Michael D. Stremmel

Michael D. Stremmel, P.E.
Senior Project Engineer

AMS:vlm/tla

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: ATI Sketches (2)
Appendix-B: Drawings (12)

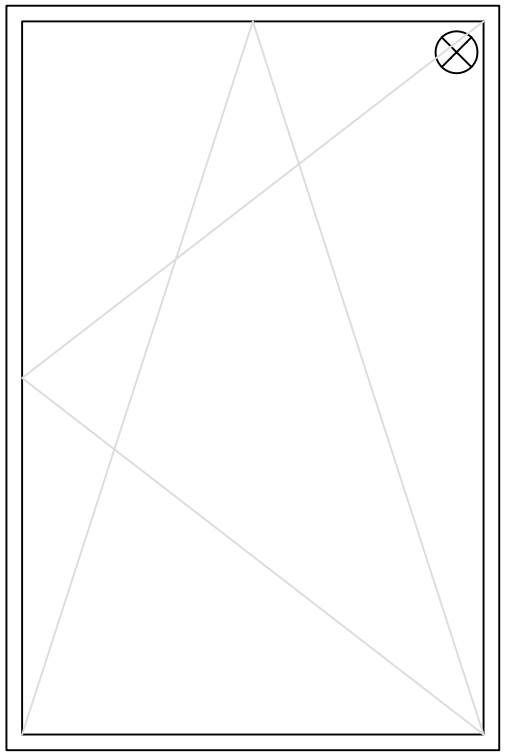
Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	01/25/07	N/A	Original report issue
1	01/31/07	Summary Page and Page 1	Changed Series/Model from Softline 70 mm to Softline 70 mm AD & MD
2	03/02/07	Page 8 and Appendix B	Added correct drawings to report.

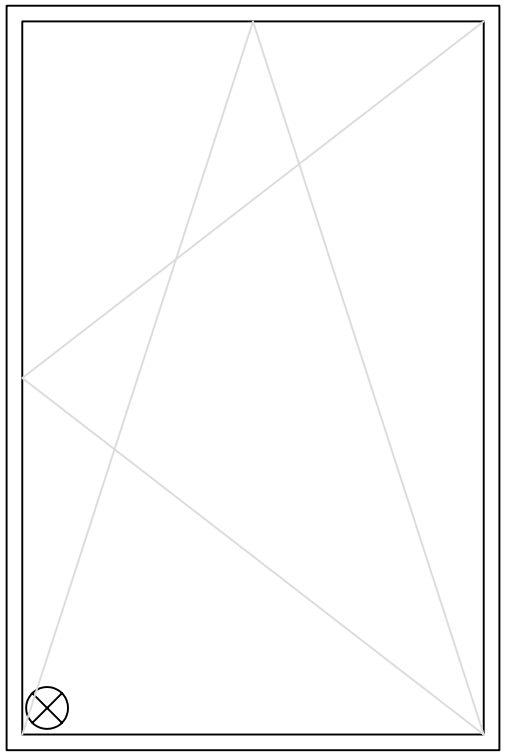
Appendix A

Sketches

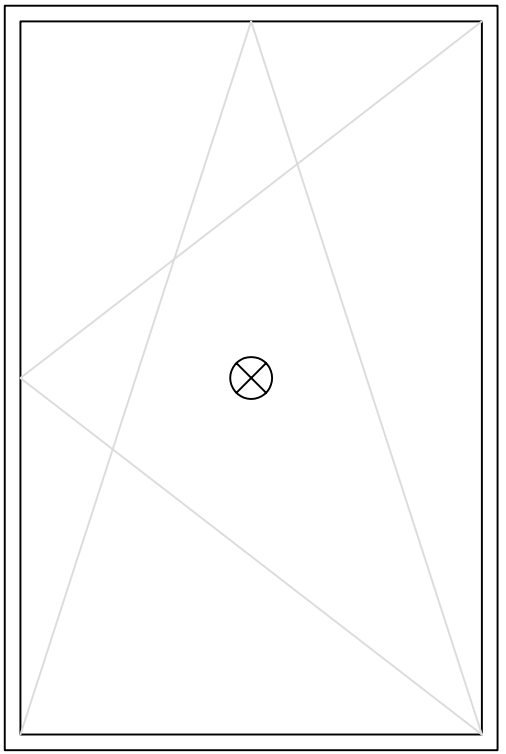
REV	DATE	DESCRIPTION	BY



Test Specimen #1



Test Specimen #2

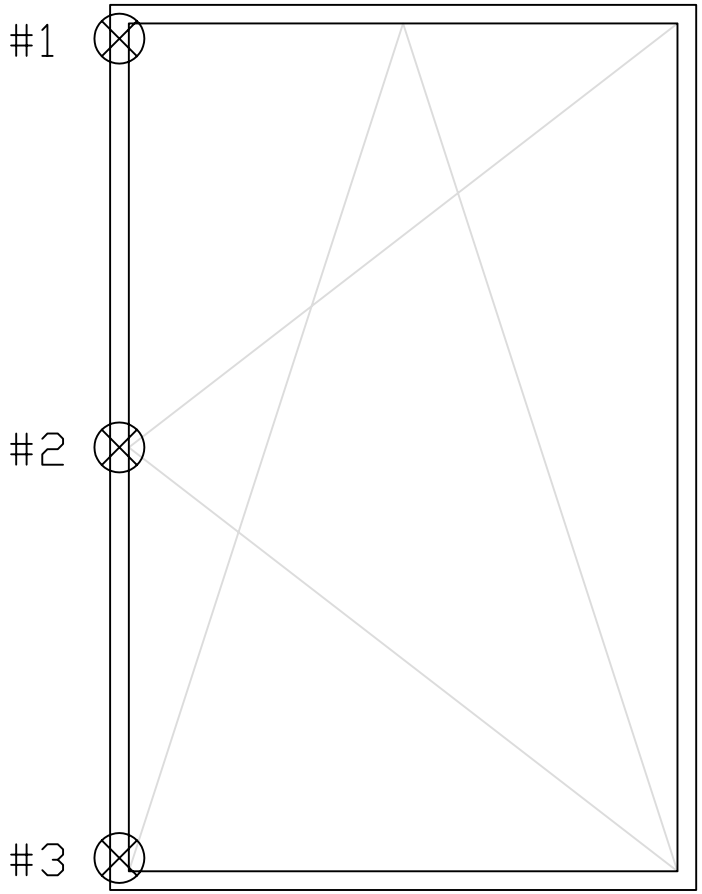


Test Specimen #3

⊗ - Denotes Impact Location

PROJECT NO.	PROJECT NAME:		DRAWING	DWG. BY:	SHEET
66065.01 109-44	70mm Tilt-Turn Window CLIENT: Veka, Inc.	Architectural Testing	Sketch #1 - Impact Locations	MDS DATE: 1/25/07	1 OF 1

REV	DATE	DESCRIPTION	BY



⊗ - Denotes Indicator Location

PROJECT NO. 66065.01 109-44	PROJECT NAME: 70mm Tilt-Turn Window CLIENT: Veka, Inc.	Architectural Testing	DRAWING Sketch #2 - Indicator Locations	DWG. BY: MDS DATE: 1/25/07	SHEET 1 OF 1

Appendix B

Drawings

R2

Roto NTS System Veka

12/20-13 AD/MD

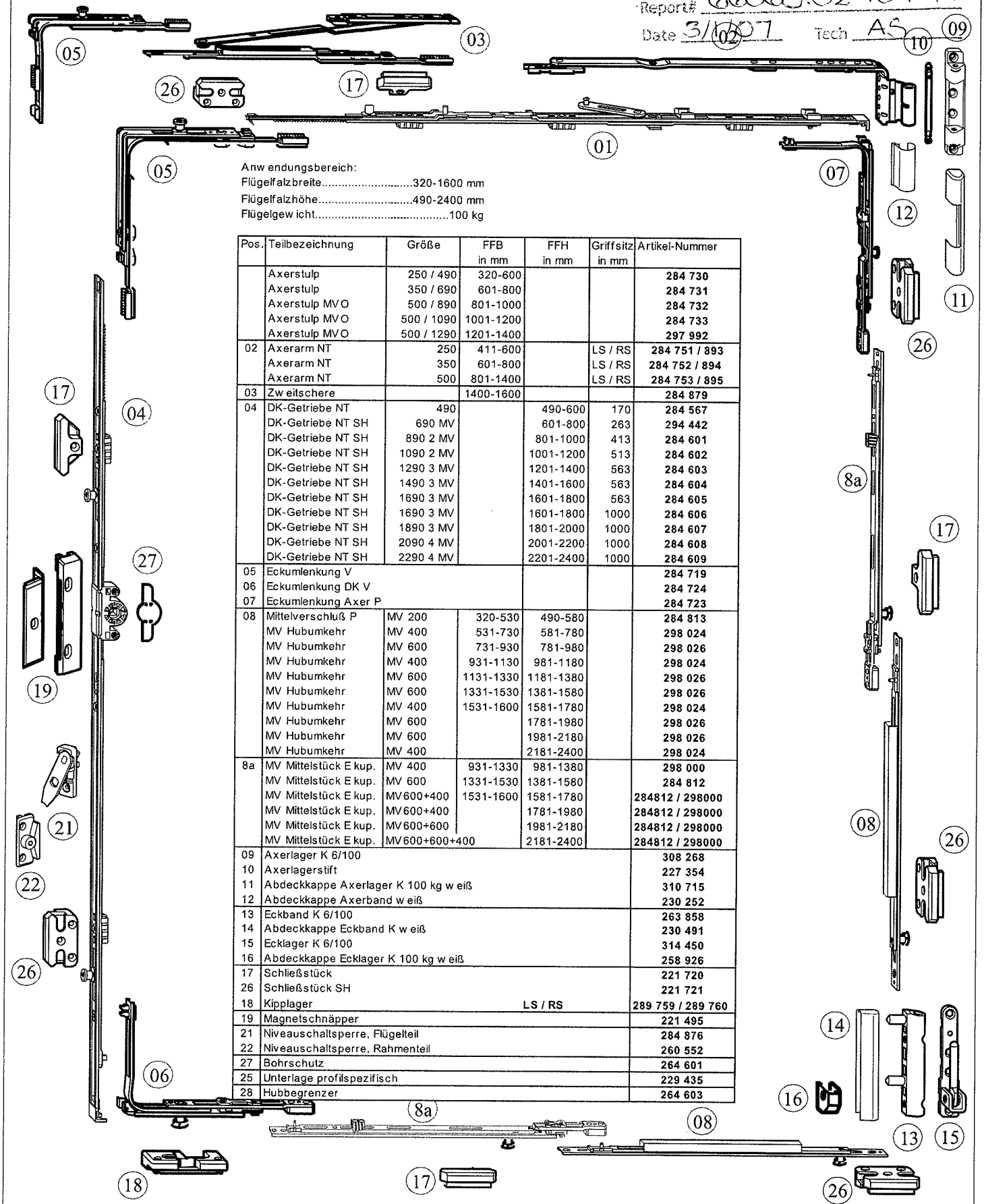
Ausführung A500P / SG 3000 / SG 4000

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 66665.02-109-114

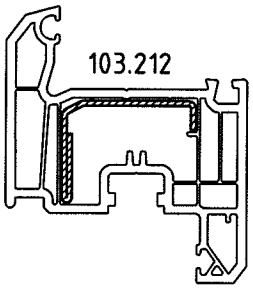
Date 3/1/07 Tech AS

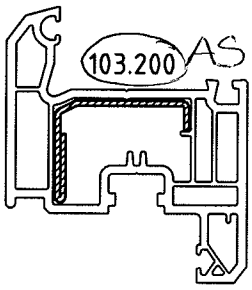


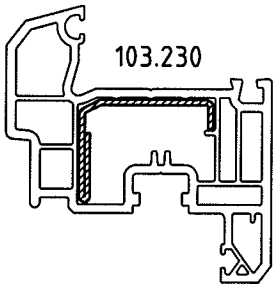
Anwendungsbereich:
Flügelfalzbreite.....320-1600 mm
Flügelfalzhöhe.....490-2400 mm
Flügelgewicht.....100 kg

Pos.	Teilbezeichnung	Größe	FFB in mm	FFH in mm	Griffsitz in mm	Artikel-Nummer
	Axerstulp	250 / 490	320-600			**284 730**
	Axerstulp	350 / 690	601-800			**284 731**
	Axerstulp MVO	500 / 890	801-1000			**284 732**
	Axerstulp MVO	500 / 1090	1001-1200			**284 733**
	Axerstulp MVO	500 / 1290	1201-1400			**297 992**
02	Axerarm NT	250	411-600		LS / RS	**284 751 / 893**
	Axerarm NT	350	601-800		LS / RS	**284 752 / 894**
	Axerarm NT	500	801-1400		LS / RS	**284 753 / 895**
03	Zweitschere		1400-1600			**284 879**
04	DK-Getriebe NT	490		490-600	170	**284 567**
	DK-Getriebe NT SH	690 MV		601-800	263	**294 442**
	DK-Getriebe NT SH	890 2 MV		801-1000	413	**284 601**
	DK-Getriebe NT SH	1090 2 MV		1001-1200	513	**284 602**
	DK-Getriebe NT SH	1290 3 MV		1201-1400	563	**284 603**
	DK-Getriebe NT SH	1490 3 MV		1401-1600	563	**284 604**
	DK-Getriebe NT SH	1690 3 MV		1601-1800	563	**284 605**
	DK-Getriebe NT SH	1690 3 MV		1601-1800	1000	**284 606**
	DK-Getriebe NT SH	1890 3 MV		1801-2000	1000	**284 607**
	DK-Getriebe NT SH	2090 4 MV		2001-2200	1000	**284 608**
	DK-Getriebe NT SH	2290 4 MV		2201-2400	1000	**284 609**
05	Eckumlenkung V					**284 719**
06	Eckumlenkung DK V					**284 724**
07	Eckumlenkung Axer P					**284 723**
08	Mittelverschluß P	MV 200	320-530	490-580		**284 813**
	MV Hubumkehr	MV 400	531-730	581-780		**298 024**
	MV Hubumkehr	MV 600	731-930	781-980		**298 026**
	MV Hubumkehr	MV 400	931-1130	981-1180		**298 024**
	MV Hubumkehr	MV 600	1131-1330	1181-1380		**298 026**
	MV Hubumkehr	MV 600	1331-1530	1381-1580		**298 026**
	MV Hubumkehr	MV 400	1531-1600	1581-1780		**298 024**
	MV Hubumkehr	MV 600		1781-1980		**298 026**
	MV Hubumkehr	MV 600		1981-2180		**298 026**
	MV Hubumkehr	MV 400		2181-2400		**298 024**
8a	MV Mittelstück E kup.	MV 400	931-1330	981-1380		**298 000**
	MV Mittelstück E kup.	MV 600	1331-1530	1381-1580		**284 812**
	MV Mittelstück E kup.	MV600+400	1531-1600	1581-1780		**284812 / 298000**
	MV Mittelstück E kup.	MV600+400		1781-1980		**284812 / 298000**
	MV Mittelstück E kup.	MV600+600		1981-2180		**284812 / 298000**
	MV Mittelstück E kup.	MV600+600+400		2181-2400		**284812 / 298000**
09	Axerlager K 6/100					**308 268**
10	Axerlagerstift					**227 354**
11	Abdeckkappe Axerlager K 100 kg w eiß					**310 715**
12	Abdeckkappe Axerband w eiß					**230 252**
13	Eckband K 6/100					**263 858**
14	Abdeckkappe Eckband K w eiß					**230 491**
15	Ecklager K 6/100					**314 450**
16	Abdeckkappe Ecklager K 100 kg w eiß					**258 926**
17	Schließstück					**221 720**
26	Schließstück SH					**221 721**
18	Kipplager			LS / RS		**289 759 / 289 760**
19	Magnetschnäpper					**221 495**
21	Niveauschaltsperre, Flügelteil					**284 876**
22	Niveauschaltsperre, Rahmenteil					**260 552**
27	Bohrschutz					**264 601**
25	Unterlage profilspezifisch					**229 435**
28	Hubbegrenzer					**264 603**

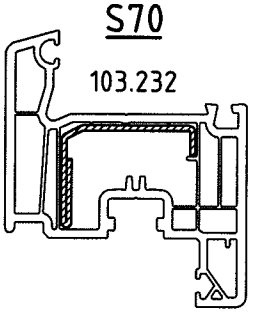
TOPLINE AD

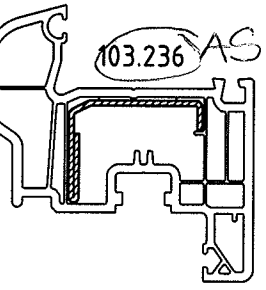






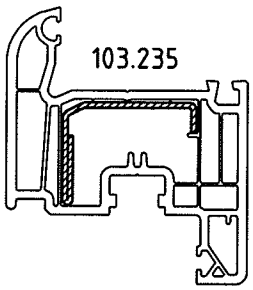
S70



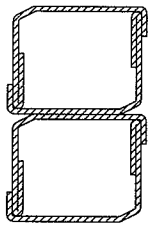


Fläche: 133 mm2
Gewicht (x7,85): 1043 g/m
Ix Wert: 1.24 cm4
Iy Wert: 2.44 cm4

AD 70



M.1:2

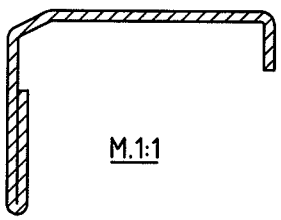


Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 606065.02-109-44
Date 3/1/07 Tech AS

Bündelung:
In Kleinbunden zu je 4 Stangen, die zu Kranbunden von max. 1 to. gebündelt werden.



M.1:1

Material: DX51D+275NA

Index	Aenderung	Datum	Name
3	Schenkel verkürzt von 20mm auf 18mm. Ix- und Iy-Wert neu gerechnet.	2004-11-23	Wagner
2	Fase 4mm x 45° abgeändert in 6mmx3mm	2002-09-20	Drees
1	Radius 6mm abgeändert in Fase 4mm x 45°	2002-08-19	Schmidt

Flaeche: 133mm2	Prueflehre	
Gewicht: (x7,85) 1043g/m	Die Prueflehre ist umlaufend mit +0,3mm zu fertigen!	
Aussenwandung: 1.5mm		
Freimass: ±0,2		
unbem.Radien:w=0,3mm; x=0,5mm; y=0,75mm ; z=1,0mm		

	Datum:	Name:
gez.	16.07.2002	Drees
ges.		

Bemerkung:

Massstab: M.1:2;1:1;2:1

VEKA **Profil Systeme**

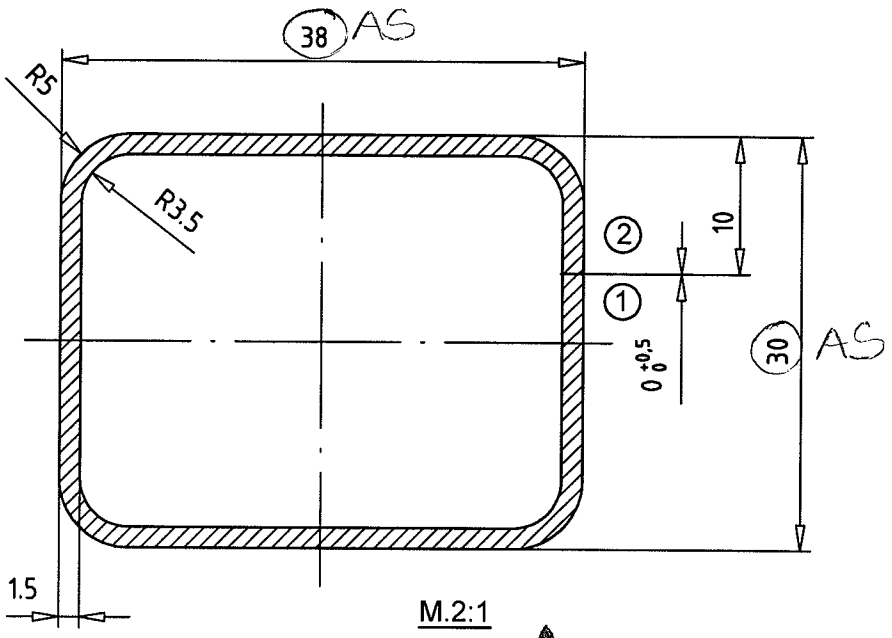
Benennung:

Stahlverstärkung für TOP AD / S70 / AD70
103.200 / .212 / .230 / .232 / .235 / .236
29.7/38.8/8.5/1.5mm

VEKA AG
-Ein Unternehmen der Laumann Gruppe-
Dieselstrasse 8, 48324 Sendenhorst

System: TOP AD / S70 / AD 70 Art.Nr.: 113.292

Zeichnungsnr.: **113.292.1W/3** DIN-A4



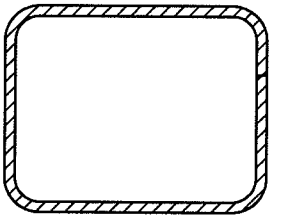
M.2:1

Ix = 2,55cm⁴
Iy = 3,68cm⁴

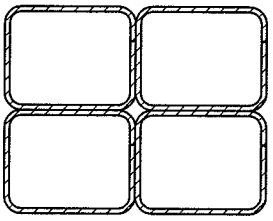
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 660625.02-109-44
Date 3/1/07 Tech AS



M.1:1



M.1:2

Bündelung:
In Kleinbunden zu je 4 Stangen,
die zu Kranbunden von max. 1 to.
gebündelt werden.

Material: St 02 Z -275 MA

Index	Aenderung	Datum	Name
2	Schlitz auf 10mm verlegt	2003-12-16	Drees
1	Trennschlitz von 38er Seite auf 30er Seite verlegt	2003.11.24	Drees

Flaeche: 183mm2	Prueflehre		Datum: Name:
Gewicht: (x7,85) 1437g/m	Die Prueflehre ist umlaufend mit +0,3mm zu fertigen!	gez.	07.10.97 Schmidt
Aussenwandung: 1.5mm		ges.	
Freimass: ±0,2			
unbem.Radien:w=0,3mm; x=0,5mm; y=0,75mm ; z=1,0mm		Bemerkung:	

Massstab: M.1:2;1:1;2:1

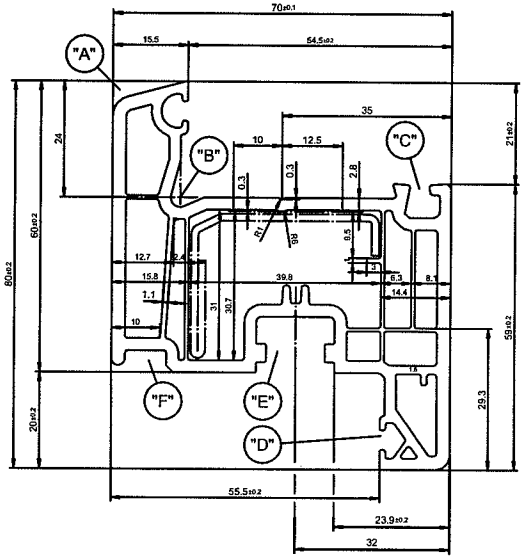
VEKA **Profil Systeme**

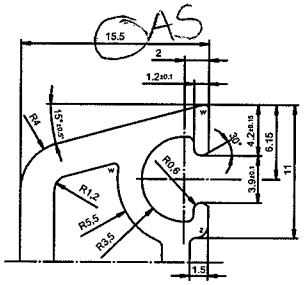
Benennung:
Stahlverstärkung für 70mm Systeme 30/38/1.5 mm

VEKA AG
-Ein Unternehmen der Laumann Gruppe-
Dieselstrasse 8, 48324 Sendenhorst

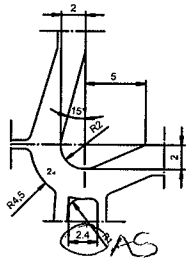
System: 70mm Systeme | Art.Nr.: 113.271

Zeichnungsnr.: **113.271.1W/2** | DIN-A4

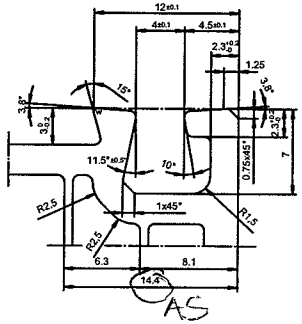




Detail "A"
M 5:1



Detail "B"
M 5:1



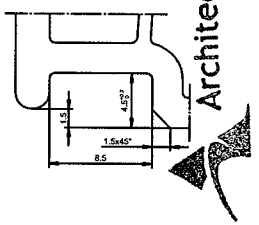
Detail "C"
M 5:1

M 2:1

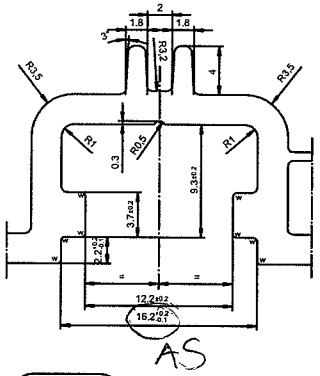
Verstärkung Art.-Nr. 113.292 (für weiß)
Verstärkung Art.-Nr. 113.294 (für farbig)
Verstärkung Art.-Nr. 113.295 (FST / PSK)

Architectural Testing

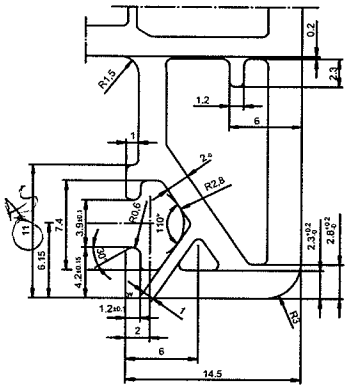
Test sample complies with these details.
Deviations are noted.
Report# 60606.02-109-44
Date 3/1/07 Tech AS



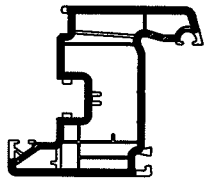
Detail "F"
M 5:1



Detail "E"
M 5:1



Detail "D"
M 5:1



M.1:1

Alle Wandstärken erhalten eine Toleranz von +0.2mm und entsprechen, wenn nicht anders angegeben, den Mindestanforderungen der RAL.

2.8 -0	2.5 -0	2.3 -0 ab 2010 2.5 -0	1.2 -0 ab 2010 2.0 -0	frei

Alle unbemaßten Innenstege 0.7mm.
Alle unbemaßten Radien R=0.5mm.

Index	Datum	Name	Änderung

VEKA AG
Diesterstraße 8
48324 Sendenhorst
http://www.veka.de

	Ersteller	Kontrolle
Datum	2006-11-13	
Name	A. Wagner	

Material:	PVC		
Fläche:	1002mm2	Gewicht (±1,41):	1413g/m
Aussenwandungen:	2,8 -0,3mm	Innenstege +0,2mm:	1,1mm
Freimaß:	± 0,2mm	Radien:	w=0,3; x=0,5; y=0,7; z=1mm

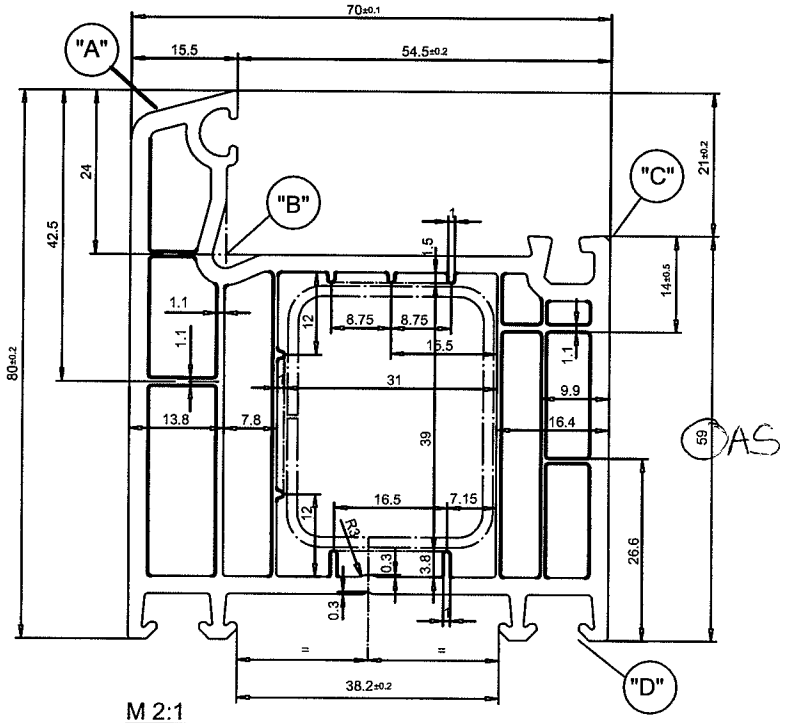
Bezeichnung:
Flügel, nflb. 80mm x 70mm
VEKA Inc

Maßstab: 1:1; 2:1 5:1
DINA-1

Zeichnungsnummer:
103.232.18W

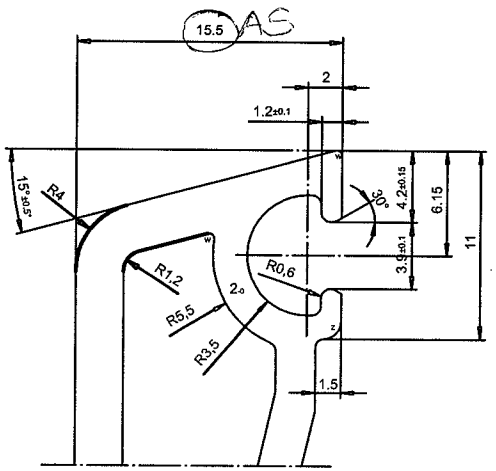
System:
SOFTLINE 70 AD

Art.Nr.:
103.232

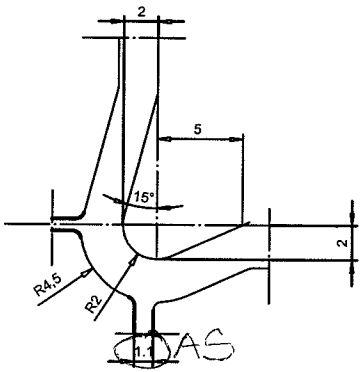


M 2:1

Verstärkung 38x30: Art.-Nr.113.271
Art.-Nr.113.302



Detail "A"
M 5:1



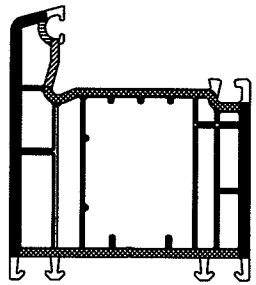
Detail "B"
M 5:1

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 660065.02-109-44

Date 3/1/07 Tech AS

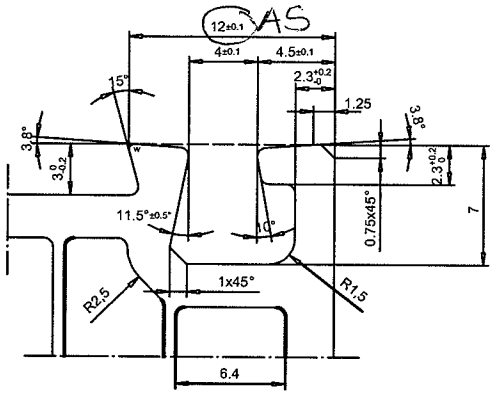


M.1:1

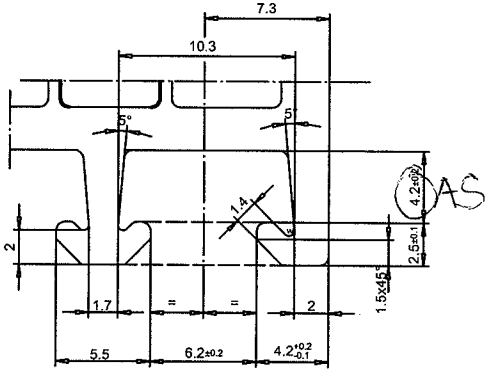
Alle Wandstärken erhalten eine Toleranz von +0.2mm und entsprechen, wenn nicht anders angegeben, den Mindestanforderungen der RAL.

2.8 -0	2.5 -0	2.3 -0 ab 2010: 2.5 -0	1.2 -0 ab 2010: 2.0 -0	frei

Alle unbemaßten Innenstege 0.7mm.
Alle unbemaßten Radien R=0.5mm.



Detail "C"
M 5:1



Detail "D"
M 5:1

Index	Datum	Name	Änderung

VEKA AG
Dieselstraße 8
48324 Sendenhorst
http://www.veka.de

Material:	PVC		
Fläche:	1015mm2	Gewicht (x1,41):	1431g/m
Aussenwandungen:	2,8 -0,2mm	Innenstege +0,2mm:	0,7 / 1,1mm
Freimaß:	± 0,2mm	Radien: w=0,3; x=0,5; y=0,7; z=1mm	

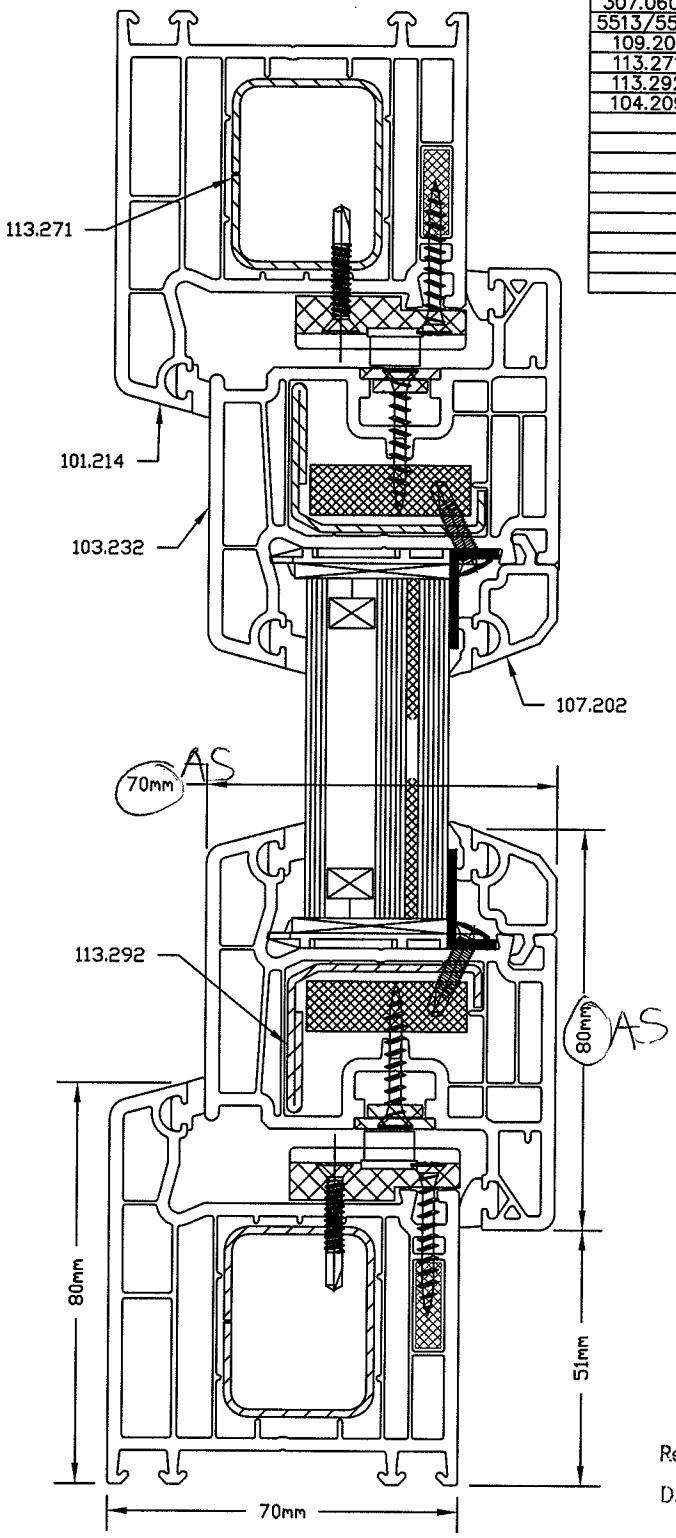
Bezeichnung: Blendrahmen 80mm x 70mm
VEKA Inc

Maßstab: 1:1; 5:1 2:1
DIN-A2

	Ersteller	Kontrolle
Datum:	2006-11-03	
Name:	A. Wagner	

Zeichnungsnummer: 101.214.6W
System: SOFTLINE 70 AD
Art.Nr.: 101.214

BILL OF MATERIALS		
PART #	DESCRIPTION	SUPPLIER
101.214	FRAME	
103.232	SASH	
107.202	GLAZING BEAD	
304.100.2	PVC INSERT 10x30	
307.060.2	PVC INSERT 6x17	
5513/5515	GLAZING BLOCK	
109.201	GLAZING SPACER	
113.271	FRAME REINFORCEMENT	
113.292	SASH REINFORCEMENT	
104.209	ALUMINUM CLIP	
	SELF TAPPING SCREW 3.9mm X 25mm	WURTH
	SCREW 4.1mm X 30mm	WURTH
	SELF TAPPING SCREW 3.9mm X 32mm	WURTH
	WINDOW HANDLE 099/US 952 (8106577)	HOPPE
	HARDWARE ROTO, CONFIGURATION 500 PLUS	ROTO
	INSULATED GLASS IG	
	GLASS BUILD UP	
	6mm FLOAT FOIL 6mm FLOAT/Lzr 10mm/4mm FLOAT	NOWAK
	FOIL SALFLEX PVB FOIL NACH DIN EN 10204-2.1	SOLUTIA



Architectural Testing

Test sample complies with these details.
Deviations are noted.

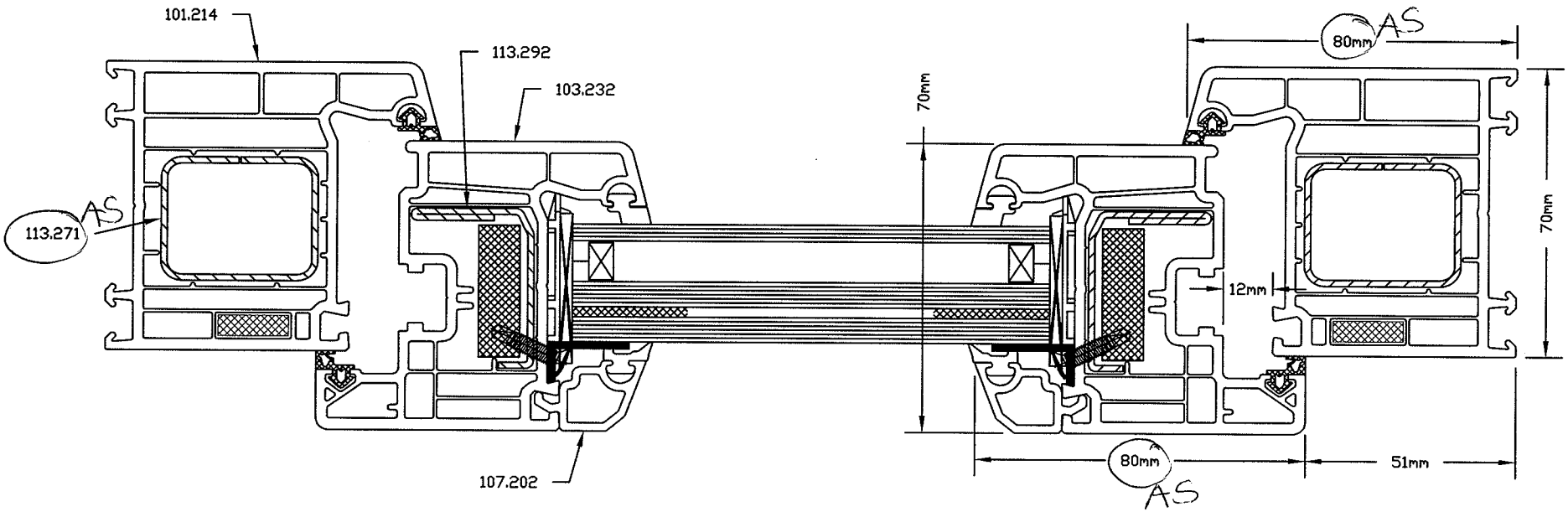
Report# 060065.02-109-44

Date 3/1/07 Tech AS

NOTE:
FOR OTHER PROFILE, GLAZING BEAD, & GLASS OPTIONS, PLEASE SEE THE LINEAL PROFILE CHARTS FOR THIS SYSTEM.

VEKA COMMERCIAL WINDOW DIVISION
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: JLB	DATE: 10/26/06		SCALE: FULL
CHK'D:	DATE:	APPV'D:	PAPER SIZE: B
TITLE: SOFTLINE 70 TILT TURN VERTICAL ASSEMBLY DETAIL			DWG. # SECTION D-D V



Architectural Testing

Test sample complies with these details.
Deviations are noted.

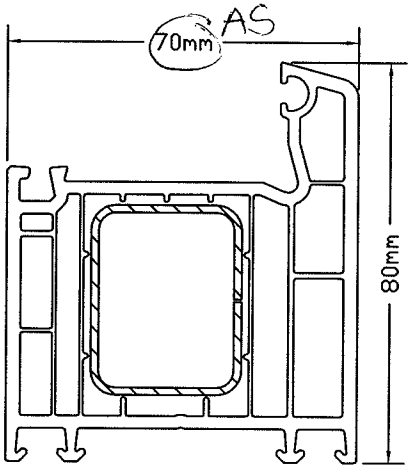
Report# 660665.02-109-44

Date 3/1/07 Tech AS

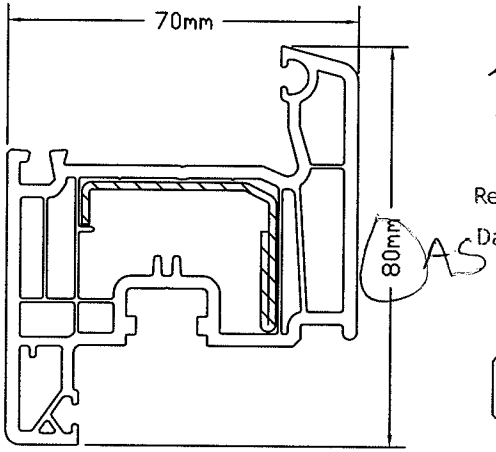
NOTE:
FOR OTHER PROFILE, GLAZING BEAD, & GLASS OPTIONS, PLEASE SEE THE LINEAL PROFILE CHARTS FOR THIS SYSTEM.

VEKA COMMERCIAL WINDOW DIVISION
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: JLB	DATE: 10/26/06		SCALE: FULL
CHK'D:	DATE:	APPV'D:	PAPER SIZE: B
TITLE: SOFTLINE 70 TILT TURN HORIZONTAL ASSEMBLY			DWG. # SECTION C-C V



101.214 – FRAME
REINFORCEMENT – 113.271



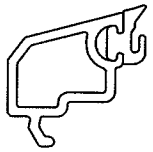
103.232 – SASH
REINFORCEMENT – 113.292

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 660065.02-109-44

Date 3/1/07 Tech AS

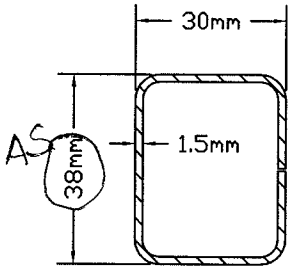


107.202
GLAZING BEAD

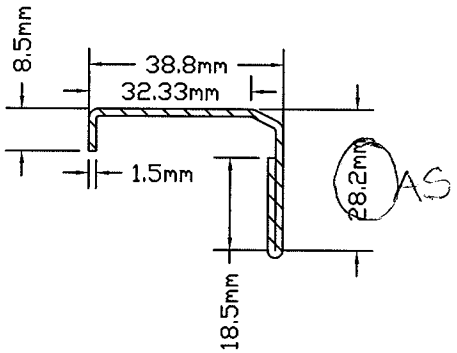
NOTE:
FOR OTHER PROFILE, GLAZING BEAD, & GLASS OPTIONS, PLEASE SEE THE LINEAL PROFILE CHARTS FOR THIS SYSTEM.

VEKA COMMERCIAL
WINDOW DIVISION
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: JLB	DATE: 20 NOV 06		SCALE: FULL
CHK'D:	DATE:	APPV'D:	PAPER SIZE: B
TITLE: SOFTLINE 70 TILT TURN PROFILE CHART			DWG. # PCHARTV



101.214 – FRAME
REINFORCEMENT – 113.271



103.232 – SASH
REINFORCEMENT – 113.292

Architectural Testing

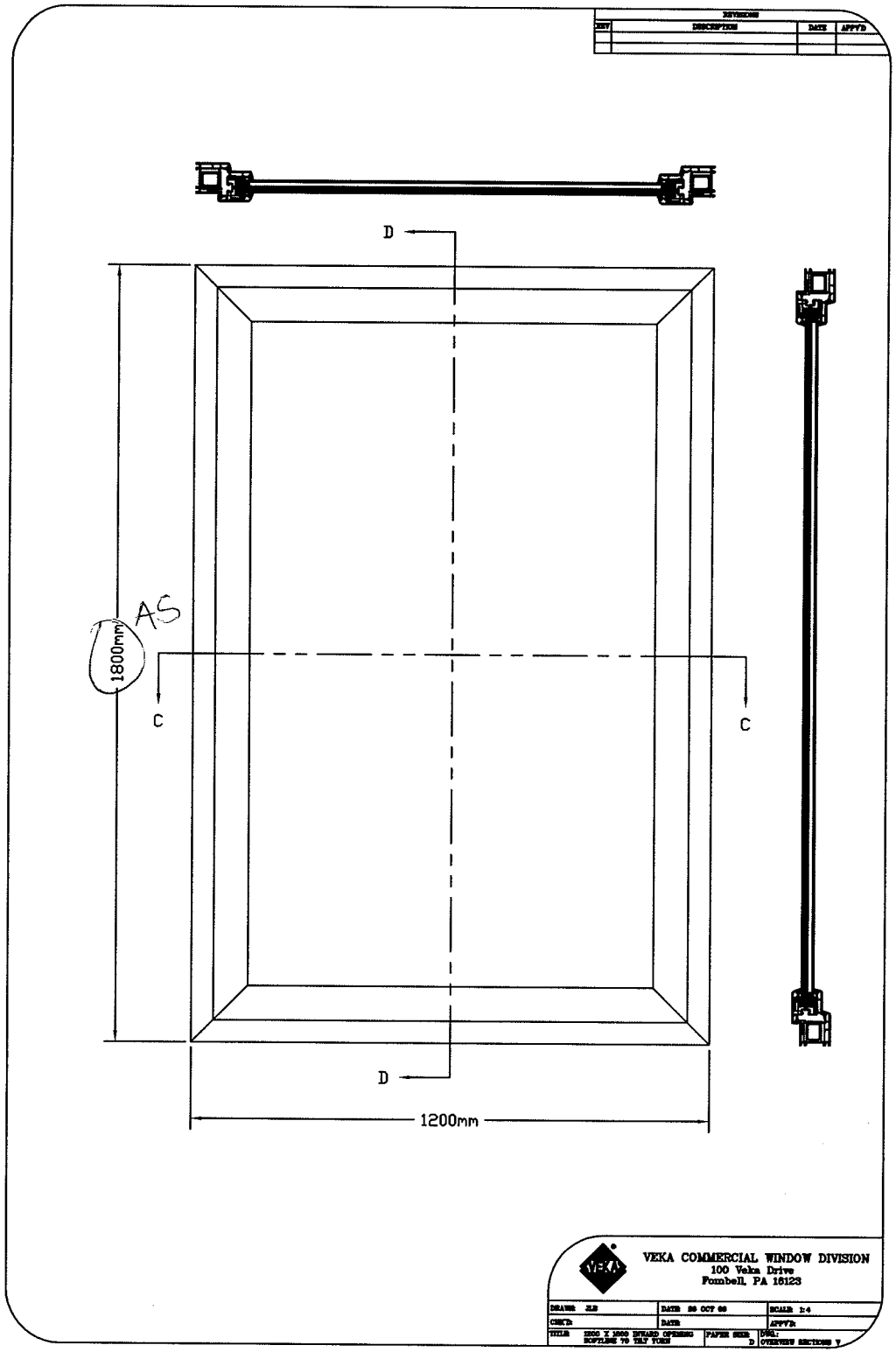
Test sample complies with these details.
Deviations are noted.

Report# 660605.02-109-44
Date 3/1/07 Tech AS

NOTE:
FOR OTHER PROFILE, GLAZING BEAD, & GLASS OPTIONS, PLEASE SEE THE LINEAL PROFILE CHARTS FOR THIS SYSTEM.

VEKA COMMERCIAL WINDOW DIVISION
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: JLB	DATE: 14 NOV 06		SCALE: FULL
CHK'D:	DATE:	APPV'D:	PAPER SIZE: B
TITLE: SOFTLINE 70 TILT TURN PROFILE CHART REINFORCMENT			DWG. # PCHARTSTEELV



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 660065.01-109-44

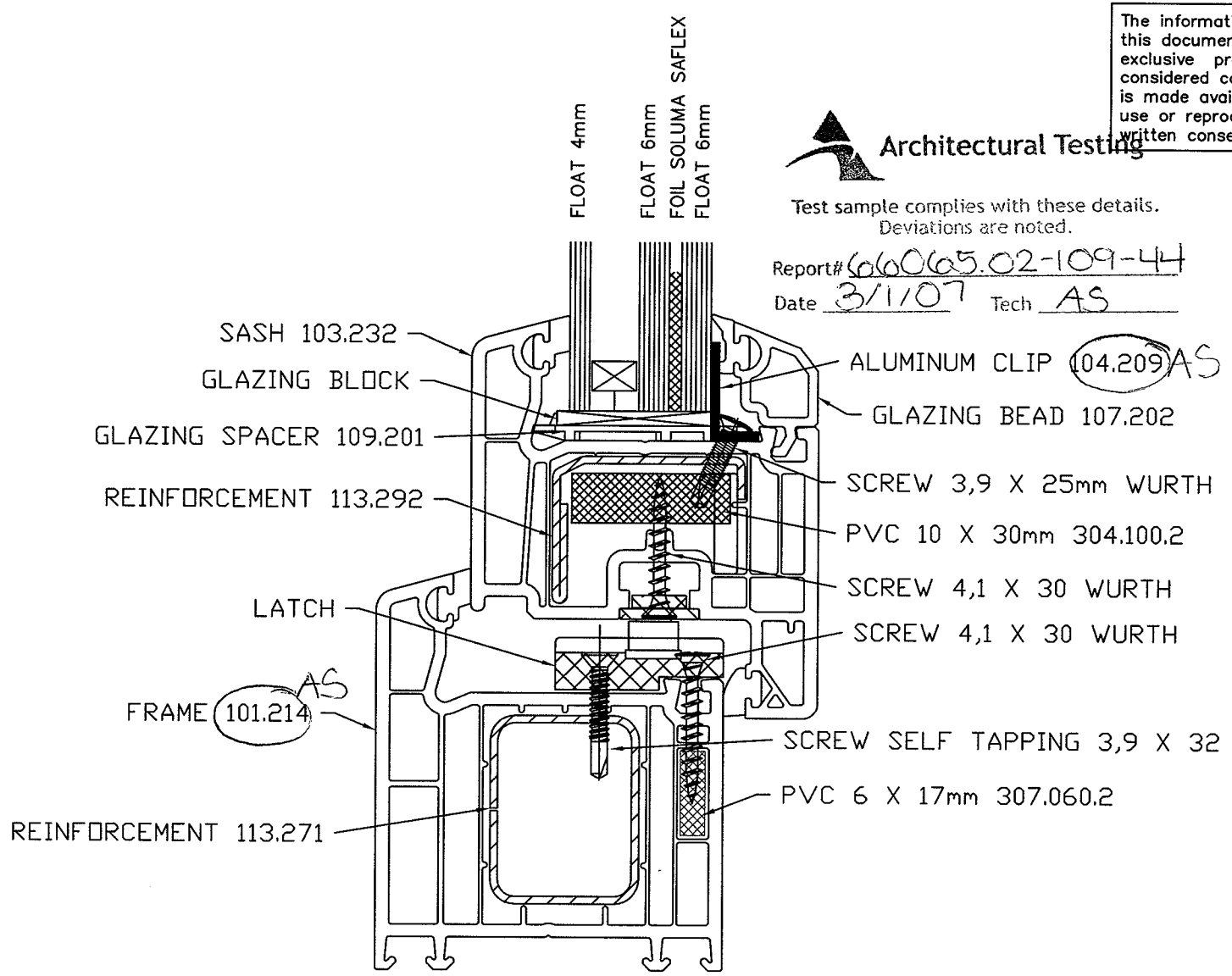
Date 3/1/07 Tech AS

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 060065.02-109-44

Date 3/1/07 Tech AS

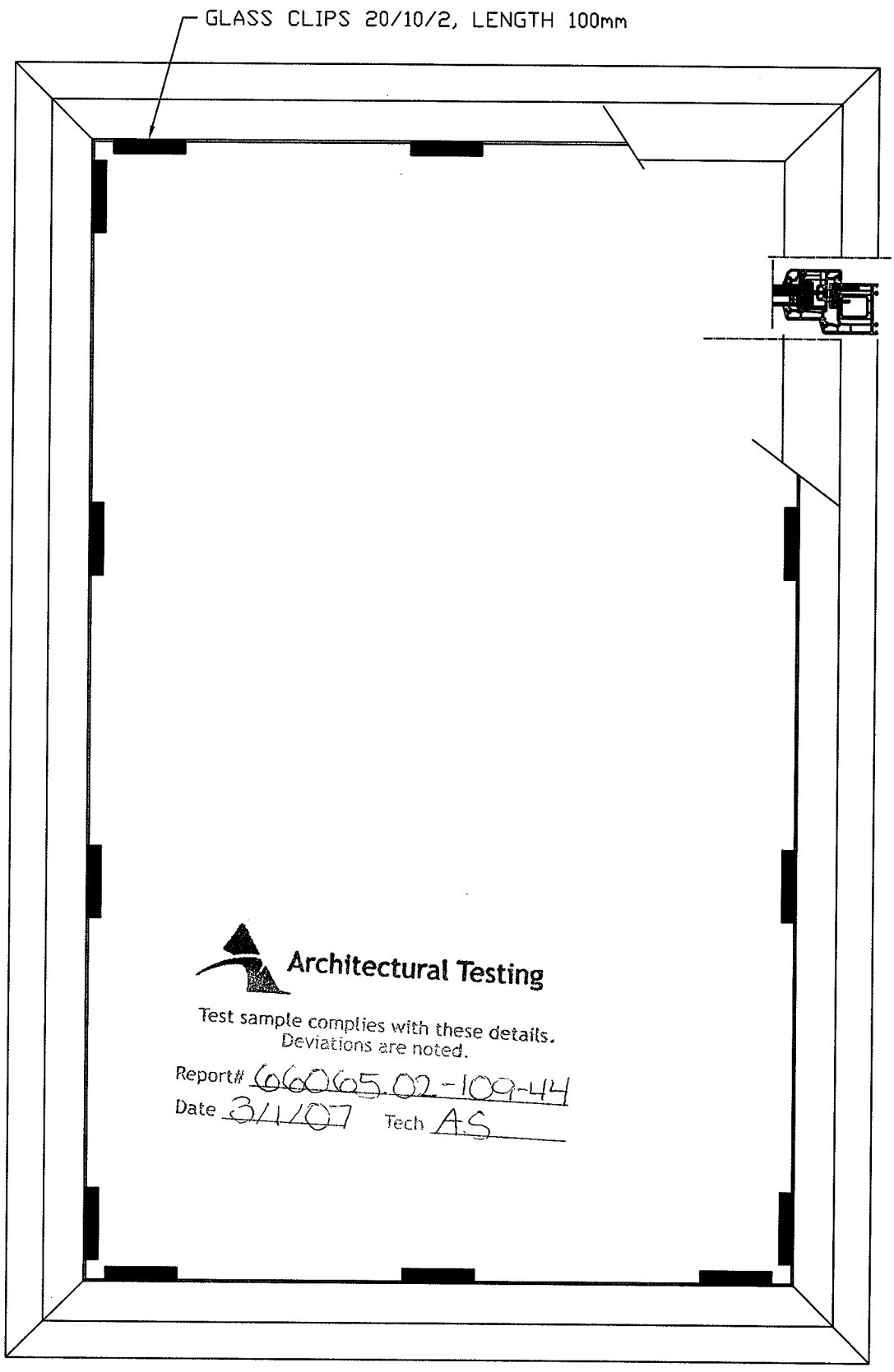


NOTE:
FOR OTHER PROFILE, GLAZING BEAD, & GLASS OPTIONS, PLEASE SEE THE LINEAL PROFILE CHARTS FOR THIS SYSTEM.

VEKA COMMERCIAL WINDOW DIVISION
100 VEKA DRIVE
FOMBELL, PA 16123

DRAWN: JLB	DATE: 10/31/06	SCALE: 3/4	
CHK'D:	DATE:	APPV'D:	PAPER SIZE: A
TITLE: SOFTLINE 70 TILT TURN UNIT & FIXED POST		DWG. # LOCATION V	

REVISIONS			
REV	DESCRIPTION	DATE	APPV'D



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 060605.02-109-44

Date 3/1/07 Tech AS

VEKA COMMERCIAL WINDOW DIVISION
100 Veka Drive
Fombell, PA 16123

DRAWN: JLB	DATE: 25 OCT 06	SCALE: 1:3
CHK'D:	DATE:	APPV'D:
TITLE: SOFTLINE 70 TILT TURN GLASS CLIPS	PAPER SIZE: D	DWG.: GLASS CLIPS V