

TEST REPORT # T906-1

DATE: June 10, 2014

CLIENT: **Fleetwood Windows and Doors**
1 Fleetwood Way
Corona, California
92879
P.O. Box 1086 Corona, California 92878-1086
Contact: Joseph Zammit

SAMPLE ID: Atlantic 3900 Single Outswing Aluminum Door

SAMPLE DESCRIPTION: Width: 1320 mm Height: 2440 mm See page 3 for full description.

SAMPLING PROCEDURES: See page 2 for the sampling procedure.

DATE OF RECEIPT: December 6, 2013

DATE(S) OF TESTING: May 7, 2014

TESTING REQUESTED: **Testing to the mandatory requirements of AAMA/WDMA/CSA 101/I.S.2/A440-08 NAFS - North American Fenestration Standard / Specification for windows, doors and skylights**

TEST RESULTS: See Page 3 for the test results.

CONTENTS: Test Report Pages 1 through 7, Appendix A1 through A22

TESTING PERFORMED AT: Quality Auditing Institute, Coquitlam

Reported By

Reviewed By

Neil Dumont
Project Manager

Jason Komorski
Fenestration Reviewer

Sampling Plan/Procedures:

One unused, Atlantic 3900 Single Outswing Aluminum Door was provided by the client as a typical production sample and examined at the QAI laboratory to determine compliance with the submitted documentation, then tested on May 7, 2014 as being representative of the model covered in this report.

Test Conditions:

Quality Auditing Institute Ltd. (QAI) was retained by Fleetwood Windows and Doors to perform testing in accordance with the mandatory test requirements of AAMA/WDMA/CSA 101/I.S.2/A440-08 NAFS - North American Fenestration Standard / Specification for windows, doors and skylights on a representative sample of a 1320 mm x 2440 mm Atlantic 3900 Single Outswing Aluminum Door.

This report includes tests performed on a specimen of specific dimensions. Actual product performance may be affected by variations in the products dimensions, assembly details and installation method. The drawings supplied by Fleetwood Windows and Doors were verified by QAI for the unit tested and are shown in Appendix A.

The test specimen was installed by the manufacturer into a wood test buck as described below. The door frame was fastened to the wooden test buck using #10 x 2-1/2" screws spaced approximately 16" apart through the head and jambs. No fasteners are used through the sill.

The wooden test buck consisted of a nominal 2" x 6" stud framing. The center of the wooden test buck was built with a rough opening measuring the exact size of the test specimen in length and width.

Product Ratings:

Table 1: Summary of test results

Test Name	AAMA/WDMA/CSA 101/I.S.2/A440-08 NAFS - North American Fenestration Standard / Specification for windows, doors and skylights Result:
Force To Latch Test (5.3.1.2.1)	Pass – 8.7 lbf
Air Leakage Resistance (ASTM E283)	Pressure differential = 75 Pa A3 Level Infiltration result = 0.340 L/s/m ² (0.067 cfm/ft ²) - A3 Level Exfiltration result = 0.399 L/s/m ² (0.079 cfm/ft ²) - A3 Level
Water Penetration Resistance Test (ASTM E331)	Maximum pressure differential = 290 Pa (PG 40 - 6.00 psf)
Uniform Load Deflection Test at Design Pressure (ASTM E330 – Procedure A)	Maximum pressure differential = 2400 Pa (PG 50 - 50 psf)
Uniform Load Structural Test (ASTM E330 – Procedure A)	Maximum pressure differential = 3600 Pa (PG 50 - 75 psf)

Performance Classification: LC^b
Performance Grade: PG 40^b
Maximum Size Tested: 1320 mm wide x 2440 mm tall (52" x 96")

Primary Designator:

Class LC – PG40: Size tested 1320 x 2440 mm (52 x 96 in) – Side Hinged Door (Type SHD)
Class LC – PG1920 (metric): Size tested 1320 x 2440 mm – Side Hinged Door (Type SHD)

Secondary Designator:

Positive Design Pressure (DP) = 2400 Pa (50 psf)
Negative Design Pressure (DP) = -2400 Pa (-50 psf)
Water Penetration Resistance Test Pressure = 290 Pa (6.00 psf)
Canadian Air Infiltration / Exfiltration = A3 Level

Note: AAMA/WDMA/CSA 101/I.S.2/A440-08, Clause 5.2.5: The air, water and structural tests were performed on test specimens installed per the method outlined in the test conditions section of this report. The test procedures are designed to test the performance of the test specimen only and are not used to test the performance of the installation, in particular the perimeter sealant joint and the anchoring of the assembly. However, products not installed according to the installation method described in this report may not perform to an equivalent performance level.

^b The following tests were not completed: -Deadbolt Force Test (5.3.1.2.2) -Forced Entry (AAMA 1304) - Operation/cycling performance (5.3.6.10) -Vertical Loading Resistance (Clause 5.3.6.11)

Description:

Atlantic 3900 Single Outswing Aluminum Door		
Frame:	Description:	Jambs and Head – The door frame is two pieces of extruded aluminum joined by a thermal break, all by Fleetwood, part # 3911. The interior of the frame is capped with a snap in aluminum extrusion part # 3910. The sill is a three piece assembly from Fleetwood, consisting of two aluminum profiles joined by a thermal break, part #3904. The sill has active drainage ports to the exterior without covers or drain flaps. An interior cap, part # 3912 snaps into the frame to hide hardware and fasteners. Frame dimensions: Width: 1320 mm Height: 2440 mm
	Joints:	The sill is fastened to the jambs with three #10 machine screw that is 2.5" long. The screws run through the jamb and thread into pilot channels of the sill extrusion. At the head the jambs are notched so that only 1/4" extends past the head. Six #10 machine screws 1" long hold the head.
Slab:	Description:	The door slab is made of extruded aluminum stiles and rails by Fleetwood. Stiles and rails - part # 3902 Sash dimensions: Width: 1200 mm Height: 2350 mm
	Joints:	The stile and rails of the door slab are joined with corner blocks part # 25167 (cut from Profile 3906). The corner blocks support a 3/8" x 2-1/4" bolt through a bolt plate that is welded to the rails. Tightening the bolt with a nut and split washer snugs the stile and rail together.
Weather-stripping:	Slab:	Two types of weather stripping are used around the edge of the door slab both inserted in an Atlantic Seal Clip, part # 3916, near the exterior face. The hinge side stile has no slab weatherstripping. Sill – part # 25196 Foam Seal 32390 Latch Side Stile and Head - # 25189 Q-Lon Foam Seal Q225T190 See photos in Appendix A.
	Frame:	The jambs and head have two bulb seals that sit side by side in T-slots and contact the interior face of the door near the edge. The bulb seals are vinyl part # 20587. An additional bulb seal on the head frame contacts the top edge of the door slab near the exterior face. The bulb seal is by Q-Lon, part # 25058. Corners are cut with a slight overlap to match the adjoining weatherseal's profile. The sill has one length of Q-Lon foam seal, part # 25059 that contacts the interior face on the bottom of the door that butts into the jamb with the edges siliconed.
Glazing Method:	Exterior Seal (Dry Seal):	The exterior seal is made by compression against a vinyl bulb gasket part # 25199 that fits into a T-slot in the frame. Corners are cut with a slight overlap to match the adjoining weatherseal's profile. See photos in Appendix A.
	Interior Seal (Glazing bead):	A snap in aluminum glazing bead, part # 3907 snaps in flush with the frame. A vinyl bulb part # 25031 in the glazing bead forms a seal. Corners?
	Setting Blocks:	A 1/4"x 1"x 4" setting block is used 2" from the corners on both jambs and the sill.
Glazing:	Description:	Two 6mm tempered glass panes, 25mm overall thickness
Drainage:	Sash:	A 3/8" hole is drilled though the thermal breaks from below the glazing unit approximately 2" from the jamb. The hole allows pressure equalization around the glazing unit and drainage of water. See photos in Appendix A.
	Frame:	The sill has a trough below the edge of the slab that drains to 1/4"x 1" exterior weepholes. No weephole covers are used.

Single Outswing Aluminum Door Continued		
Hardware:	Latch and lock:	<p>The latch and locking hardware is a multipoint locking system with shoot bolts manufactured by Sentry. The latch engages at the handle, two pivoting locks located 22" above and below the latch as well as two shoot bolts into brass keepers in the head and sill. The multipoint assembly fastens to the door slab with #8 - 1" screws. See drawing A11 in appendix A for screw locations.</p> <p>Multi-point actuator – part # 25039 Handle – part # varies by color Shootbolts – part # 25054 Brass Shoot bolt cup – part # 20542 Lock cylinder – part # 25053 Additional items listed in Appendix A</p>
	Strike Plates:	<p>A single strike plate, part # 24993 catches both the latch and lock and is installed with three #10 1/2" screws. Two tongue strike plates, part # 25055 are located to catch the pivot out tongue bolts above and below the latch. They are secured with two #8 1/2" screws.</p>
	Hinges:	<p>Four adjustable butt hinges from Savio are located 8-1/2" and 31" from the top and bottom of the door. The hinges are fastened to the door with two hinge bolts part # 25026.</p>

CONCLUSION:

Quality Auditing Institute Ltd., with lab facilities located in Coquitlam, British Columbia, performed testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-08 NAFS - North American Fenestration Standard / Specification for windows, doors and skylights, on a representative sample of a Fleetwood Windows and Doors Atlantic 3900 Single Outswing Aluminum Door.

Test results in this report may not be reproducible in the field. Test results relate only to those products tested.

See Table 1 for a summary of test results and product ratings. The sample tested was found to comply with the applicable requirements and obtained test results as reported in Table 1 of this report.

APPENDIX A

Page	Title
A1-A2	Cross-sectional assembly drawing
A3-A9	Component profile drawings
A10-14	Hardware drawings
A15-A22	Sample Pictures



FLEETWOOD
 WINDOWS & DOORS
 FleetwoodUSA.com

CERT. - ATLANTIC 3900

DWG NO.: CERT - 3900

DATE: 5/9/14



(USE RULER TO SCALE DIMENSIONS IN INCHES)

SCALE: 1/4"

OUT-SWING DOOR
1" INSULATED GLAZING SHOWN

TEST SPECIMEN DESCRIPTIONS

1. SERIES / MODEL: ATLANTIC 3900
2. PRODUCT TYPE: HINGE SWING

GENERAL NOTES

1. BUCKING OPENINGS & BUCKING FASTENERS MUST BE PROPERLY DESIGNED & INSTALLED TO TRANSFER LOADS TO THE STRUCTURE AND TO BE REVIEWED BY BUILDING OFFICIAL.
2. ALL HARDWARE & FASTENERS SHALL BE IN ACCORDANCE WITH THESE DRAWINGS & MAY NOT VARY UNLESS SPECIFICALLY MENTIONED ON THE DRAWINGS.
3. MATERIALS, INCLUDING BUT NOT LIMITED TO STEEL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF AAMA AND BUILDING CODE.

SPECIFICATIONS

1. AAMA/WDMA/CSA 101/15.2/A440-08
2. A440 S1-09 (CANADIAN SUPPLEMENT)

CORNERS CONSTRUCTION

1. FRAME CORNER: THE JAMBS ARE BUTTED TOGETHER, AND ATTACHED WITH SCREWS.
2. PANEL CORNER: THE STILES AND RAILS ARE BUTTED TOGETHER BY WELDING AND BOLTS.

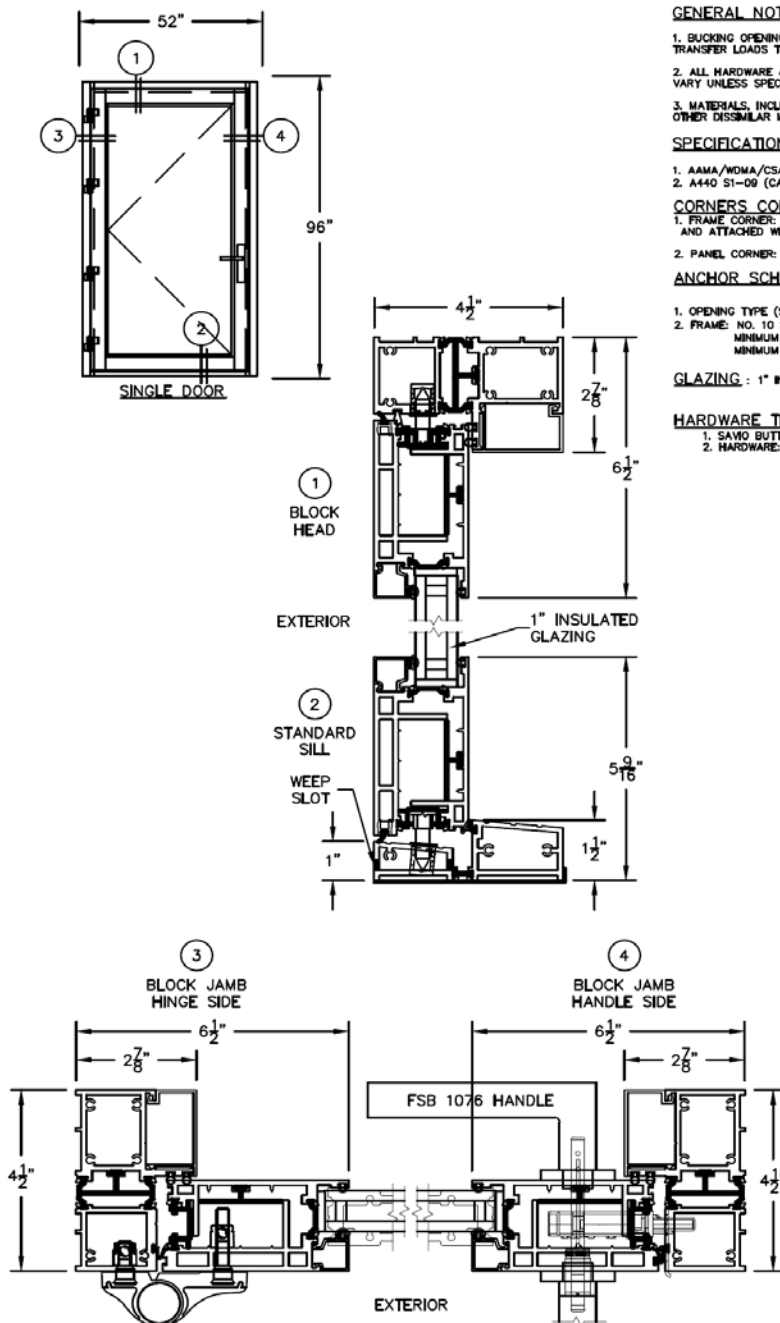
ANCHOR SCHEDULE

1. OPENING TYPE (SUBSTRATE): 2X-- WOOD FRAME, STEEL STUD, CONCRETE
2. FRAME: NO. 10 SCREW, 8" FROM END, 16" O.C. MAX.
 MINIMUM EMBEDMENT: 1 1/2"
 MINIMUM EDGE DISTANCE: 3/4"

GLAZING : 1" INSULATED GLASS

HARDWARE TEST OPTIONS

1. SAWO BUTT HINGES, 12" FROM CORNER, 24" APART, 4 HINGES.
2. HARDWARE: 5 LOCKING POINTS



ATLANTIC 3900

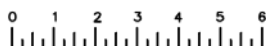


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CERT. - ATLANTIC 3900

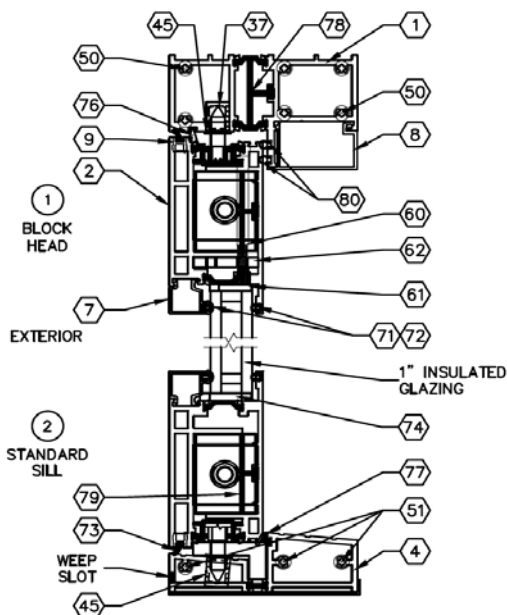
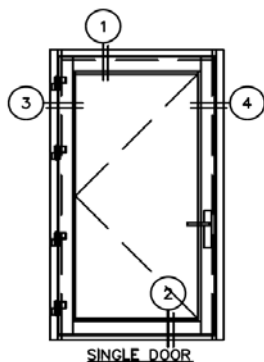
DWG NO.: CERT - 3900 - BOM

DATE: 5/9/14



(USE RULER TO SCALE DIMENSIONS IN INCHES)
 SCALE: 1/4

OUT-SWING DOOR
 1" INSULATED
 GLAZING SHOWN



BILL OF MATERIALS				
ITEM #	PARTS	DESCRIPTION	IMAGE	QTY
ALUMINUM EXTRUSIONS				
1	3911	FRAME		VARY
2	3902	RAIN		3 / PANEL
3				
4	3904	STANDARD SILL		1 / DOOR
5				
6	2047	CORNER BLOCK (OUT FROM 3904)		4 / PANEL
7	3807	1" GLASS STOP		VARY
8	2012	FRAME SWAP-IN		VARY
9	2010	ATLANTIC SEAL CLIP		VARY
HARDWARE				
21	VARY BY COLOR	FIN-1076 LENER (DEFAULT)		1 SET / PANEL
32				
33	VARY BY COLOR	FIN-100/CHERRY PLATE WITH TRANSLUCENT		1 / PANEL
34	VARY BY COLOR	FIN-100/CHERRY PLATE WITH CYCLONE COLLAR		1 / PANEL
35	23003	FIN-SPINDLE		1 / PANEL
36				
37	20004	SHOOTBOLT (ACTIVE & IN-ACTIVE)		1 / PANEL
38	VARY BY SIZE	ACTIVE UPPER BAR ASSEMBLY		1 / PANEL
39	20009	ACTIVE LOWER BAR ASSEMBLY		1 / PANEL
40	20044	EXTENSION BAR (FOR PANEL HT. > 113")		1 / PANEL
41				
42				
43	54483	LATCH-READYBOLT SPRING PLATE		1 / DOOR
44	20006	ROUND STROKE		2 / DOOR
45	20043	BRASS SHOOTBOLT CLIP		2 / PANEL
46				
47	20038	DAVID BUTT HINGE		4 / PANEL
48	20038	DAVID BACK UP SET		4 / PANEL
49	20038	DAVID BRIDGE BOLT, 1/8" X 48mm (FOR PANEL)		4 / PANEL
50	20043	RM CLEARER WITH TAILPIECE		1 / ACTIVE
51	20030	SCREEN NO 10, PVP, 1.0"		12 / DOOR
52	20047	SCREEN NO 8, PVP, 1.0"		12-18 / 7
53	20075	SCREEN NO 10, UPP, .5"		4 / PANEL
54				
55	20074	WASHER SCREEN NO 10-20, PVP 1.125"		4 / PANEL
56	20075	WASHER SCREEN NO 10-20, PVP .75"		4 / PANEL
57	20176	1/8" HEX CAP SCREW .375-16, 3.25"		4 / PANEL
58	20023	1/8" HEX NUT		4 / PANEL
59	20024	1/8" BRUT LOCK WASHER		4 / PANEL
60	20418	SOCKET HEAD CAP SCREW .375-16, 3.25"		1 / PANEL
61	20047	LARGE GLASS JACK, 1" GLAZING		1 / PANEL
62	20415	ADJUSTMENT PLATE JACKSCREW		1 / PANEL
63	20035	BACK UP PLATE FOR CORNER BLOCK		4 / PANEL
64	20176	1/8" HEX NUT		4 / PANEL
65				
66				
BILL OF MATERIALS				
SEAL & SEALANT				
71	20189	BLUB NYLON - SMALL		VARY
72	20021	BLUB NYLON - LARGE		VARY
73	20189	FOAM SEAL, 32380		VARY
74	18830	NETING BLOCK 1/4" X 4" X 1"		6 / PANEL
75	20189	O-LON FOAM SEAL, 0225T180		VARY
76	20099	O-LON FOAM SEAL, 0375T180		VARY
77	20099	O-LON FOAM SEAL, 052 376		VARY
78	24896	FRAME THERMAL BARRIER		VARY
79	24897	FRAME THERMAL BARRIER		VARY
80	20007	BLUB NYLON - SMALL (0.375)		VARY

ATLANTIC 3900

BILL OF MATERIALS				
ITEM NO.	FW. ID. NO.	VENDOR/VENDOR NO.	DESCRIPTION	QTY.
1	3911-1		FRAME COMPONENT 1	1
2	3911-2		FRAME COMPONENT 2	1
3	24889	TECHNOFORM / 279500	20 MM X 6MM I-STRUT	2

UNLESS OTHERWISE SHOWN

DIMENSION	TOLERANCE +/-
UP THRU .124	.006
.125-.249	.007
.250-.499	.008
.500-.749	.009
.750-.999	.010
1.000-1.499	.012
1.500-1.999	.014
2.000-2.999	.024
3.000-3.999	.034
4.000-4.999	.044
5.000-5.999	.054
6.000-6.999	.064
7.000-7.999	.074
8.000-8.999	.084

ANGLE ARE +/- 2 DEG.
RADIUS UP TO .187 +/- .016
.188 AND UP +/- .016

DIMENSIONS MARKED "REF" ARE NOT
SUBJECT TO INSPECTION DURING THE
EXTRUSION PROCESS

NOTES:

1. MATERIAL: ALUMINUM 6063-T6

I-STRUT: AS LISTED IN B.O.M. OR EQUIVALENT

FLEETWOOD
Windows & Doors

1 Fleetwood Way
Oceanside, CA 92053
(619) 435-3333
www.fleetwoodusa.com

FRAME ASSEMBLY
ATLANTIC 3900 SERIES

SIZE	DWG NO.	REV
B	3911	A

DRAWN BY	DATE	SCALE	SHEET
KN	3/21/12	FULL	1 of 1

BILL OF MATERIALS				
ITEM NO.	FW. ID. NO.	VENDOR/VENDOR NO.	DESCRIPTION	QTY.
1	3902-1		SASH - COMPONENT	1
2	3902-2		SASH - COMPONENT	1
3	24894		TECHNOFORM / 413400	1
4	24895		TECHNOFORM / 279700	1

REV. DESCRIPTION DATE APPROVED

C	UPDATED 3902-1 (REV B)	7/21/11	KN
D	UPDATED 3902-1 (REV C)	1/11/12	KN
E	UPDATED 3902-1 (REV D)	1/16/12	KN

UNLESS OTHERWISE SHOWN

DIMENSION	TOLERANCE +/-
Up thru .124	.006
.125-.249	.007
.250-.499	.008
.500-.749	.009
.750-.999	.010
1.000-1.499	.012
1.500-1.999	.014
2.000-2.999	.024
3.000-3.999	.034
4.000-5.999	.044
6.000-7.999	.054
8.000-9.999	.064

ANGLE ARE +/- 2 DEG.
RADII UP TO .187 +/- .016
.188 AND UP = 10%

DIMENSIONS VARIOUS REF ARE NOT
SUBJECT TO INSPECTION DURING THE
EXTRUSION PROCESS

WTF (LBS). = 2.864
PERI. (IN.) = 37.862

FLEETWOOD
Windows & Doors

SASH - ASSEMBLY
ATLANTIC 3900 SERIES

1 Fleetwood Way
Gardena, CA 90249
(310) 325-7555
www.fleetwoodusa.com

SIZE DWG NO. 3902
B
DRAWN BY KN DATE 5/10/11 SCALE FULL SHEET 1 of 1

NOTES:
1. MATERIAL: ALUMINUM 6063-T6
I-STRUT: AS LISTED IN B.O.M. OR EQUIVALENT

BILL OF MATERIALS				
ITEM NO.	FW. ID. NO.	VENDOR/VENDOR NO.	DESCRIPTION	QTY.
1	3904-1		STD SILL COMPONENT	1
3	3904-2		STD SILL COMPONENT	1
	24897	TECHNOFORM / 259700	12 MM X 6MM STD. I-STRUT	1

NOTES:

1. MATERIAL: ALUMINUM 6063-T6

I-STRUT: AS LISTED IN B.O.M. OR EQUIVALENT

UNLESS OTHERWISE SHOWN

DIMENSION	TOLERANCE +/-
Up thru .124	.006
.125-.249	.007
.250-.499	.008
.500-.749	.009
.750-.999	.010
1.000-1.499	.012
1.500-1.999	.014
2.000-2.999	.024
3.000-4.999	.034
5.000-7.999	.044
8.000-9.999	.054

ANGLE ARE +/- 2 DEG.
RADIUS UP TO .187 +/- .016
.188 AND UP = 10%

DIMENSIONS MARKED "REF" ARE NOT
SUBJECT TO INSPECTION DURING THE
EXTRUSION PROCESS

WT/FT (LBS). = 1.908
PERL (IN.) = 14.779

STANDARD SILL ASSEMBLY

ATLANTIC 3900 SERIES

REVISIONS

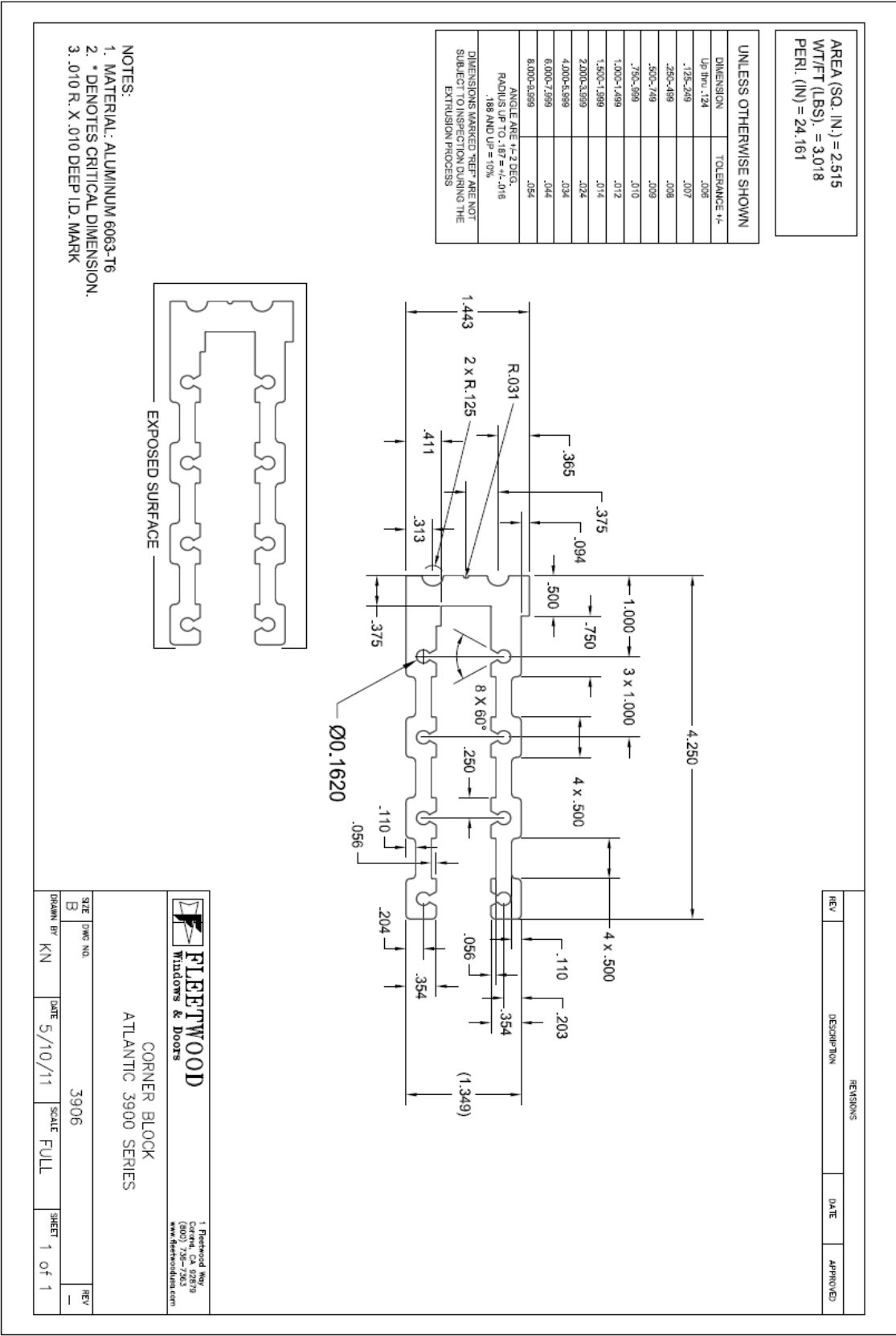
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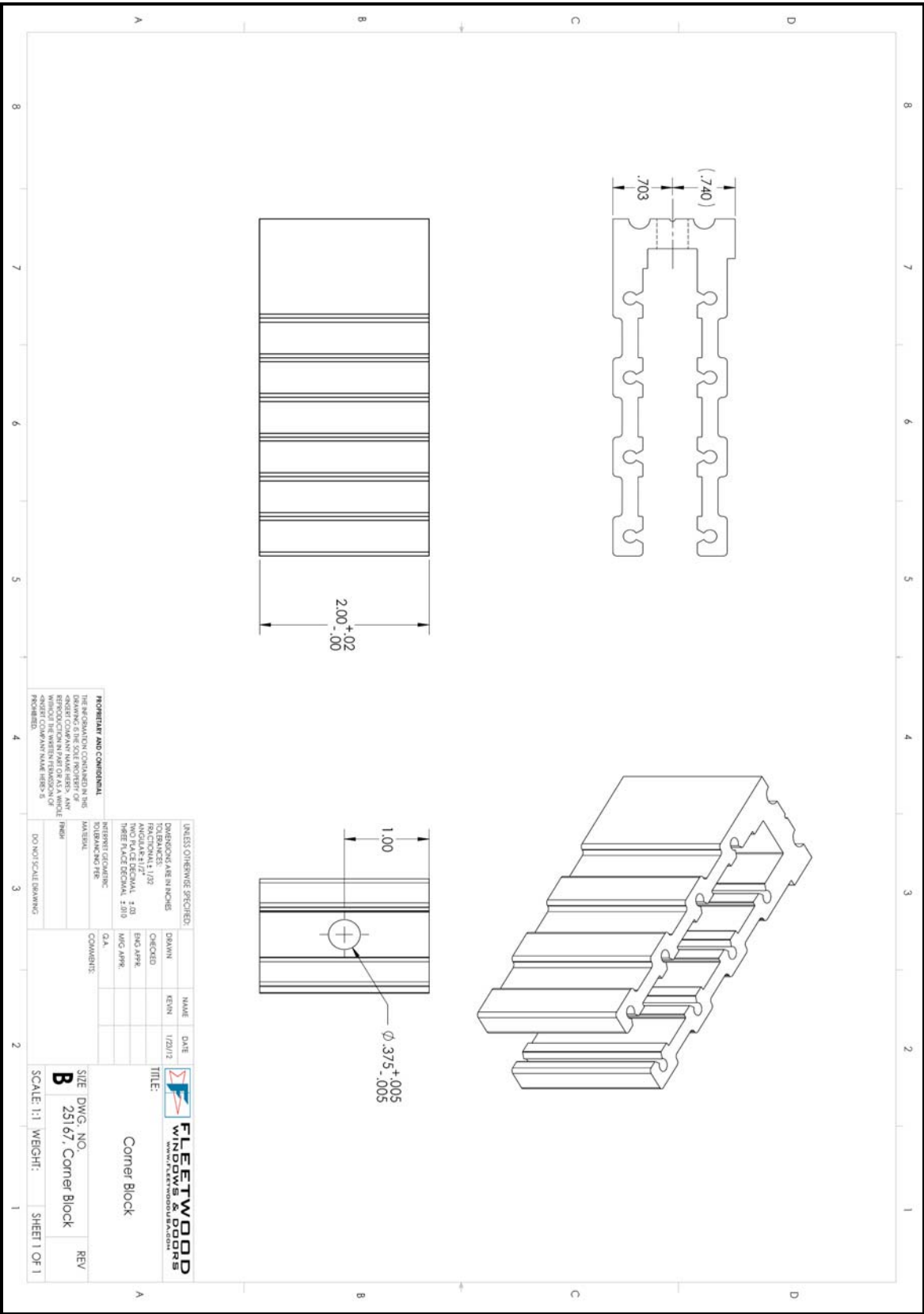
FLEETWOOD
Windows & Doors

1 Fleetwood Way
Corona, CA 92709
(951) 255-7600
www.fleetwoodusa.com

SIZE: DWG NO. 3904

DRAWN BY: KN DATE: 5/10/11 SCALE: FULL SHEET: 1 of 1





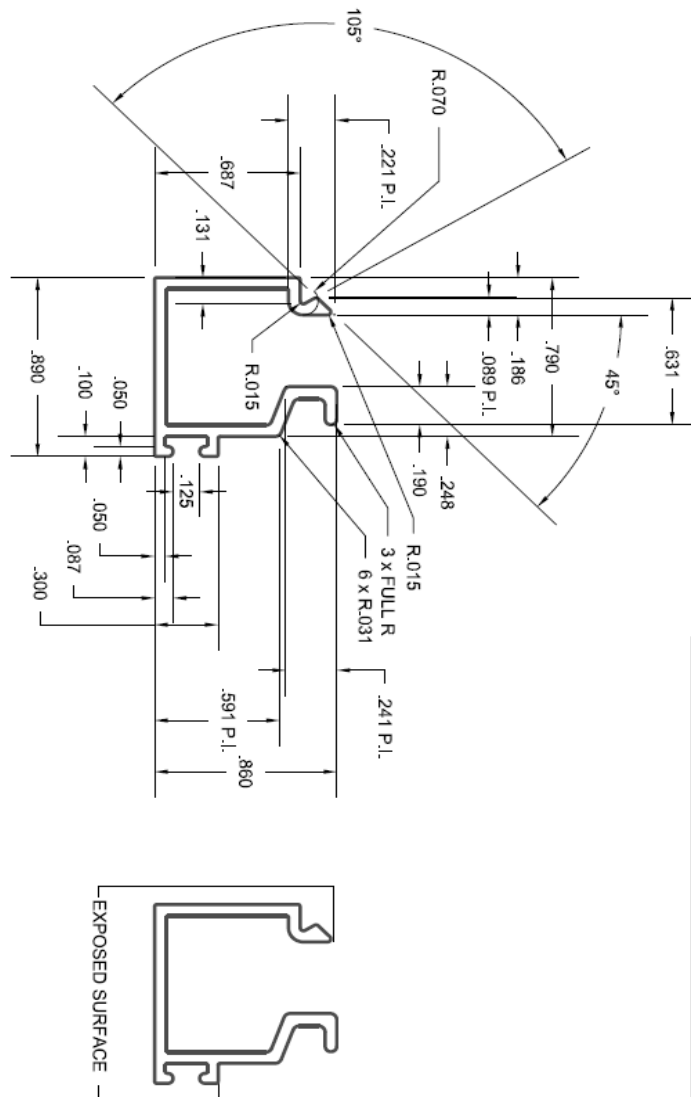
AREA (SQ. IN.) = .168
WT/FT (LBS) = .201
PERI. (IN.) = 5.981

UNLESS OTHERWISE SHOWN	
DIMENSION	TOLERANCE \pm
Up to .124	.006
.125-.249	.007
.250-.499	.008
.500-.749	.009
.750-.999	.010
1.000+.499	.012
1.500+.599	.014
2.000+.599	.016
4.000+.999	.024
6.000+.999	.034
8.000+.999	.054


DIMENSIONS MARKED WITH * ARE NOT SUBJECT TO INSPECTION DURING THE EXTRUSION PROCESS

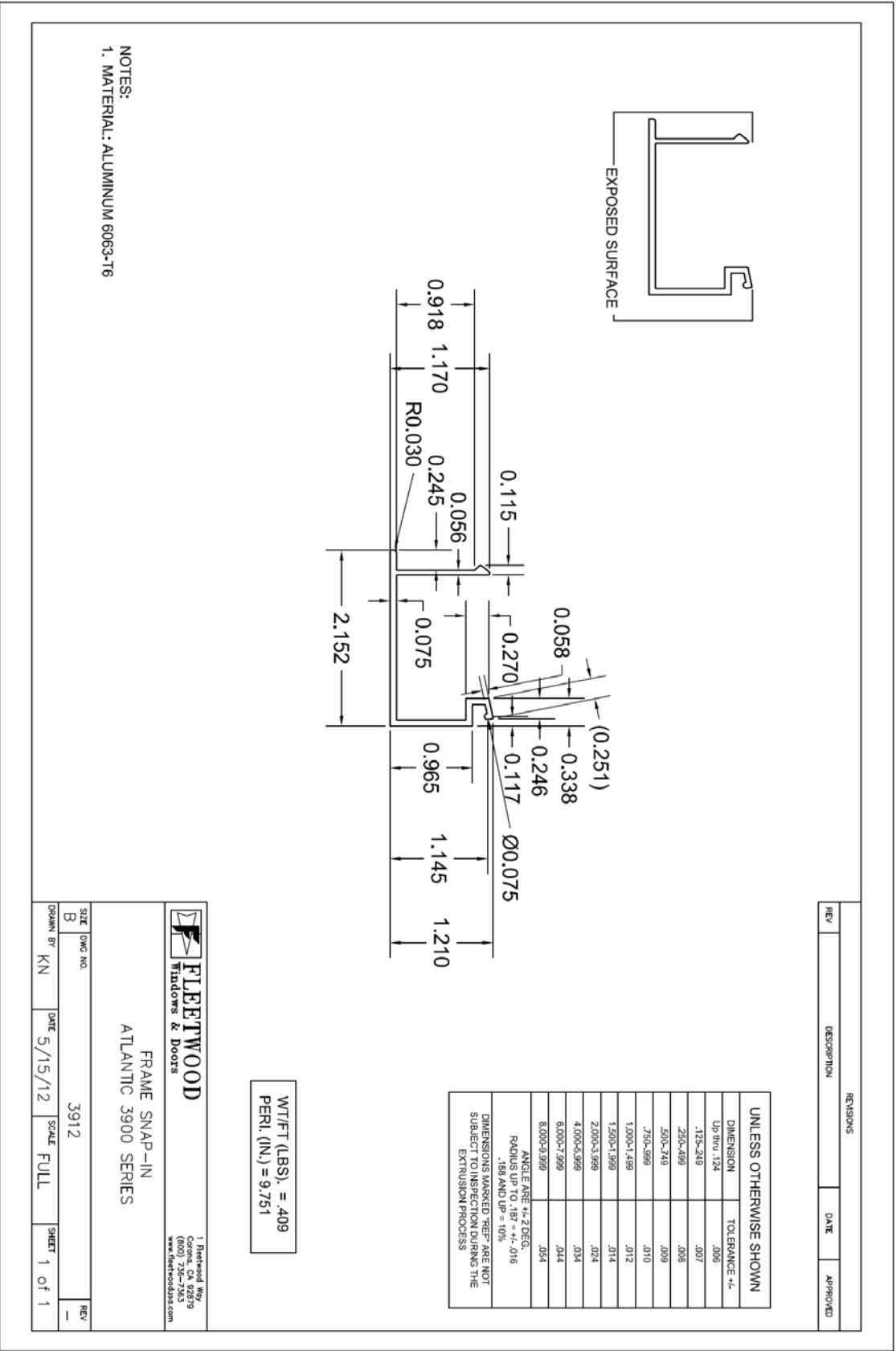
NOTES:

1. MATERIAL: ALUMINUM 6063-T6
2. * DENOTES CRITICAL DIMENSION.
3. .005" WALL THICKNESS UNLESS OTHERWISE NOTED.
4. .010 R. X .010 DEEP I.D. MARK

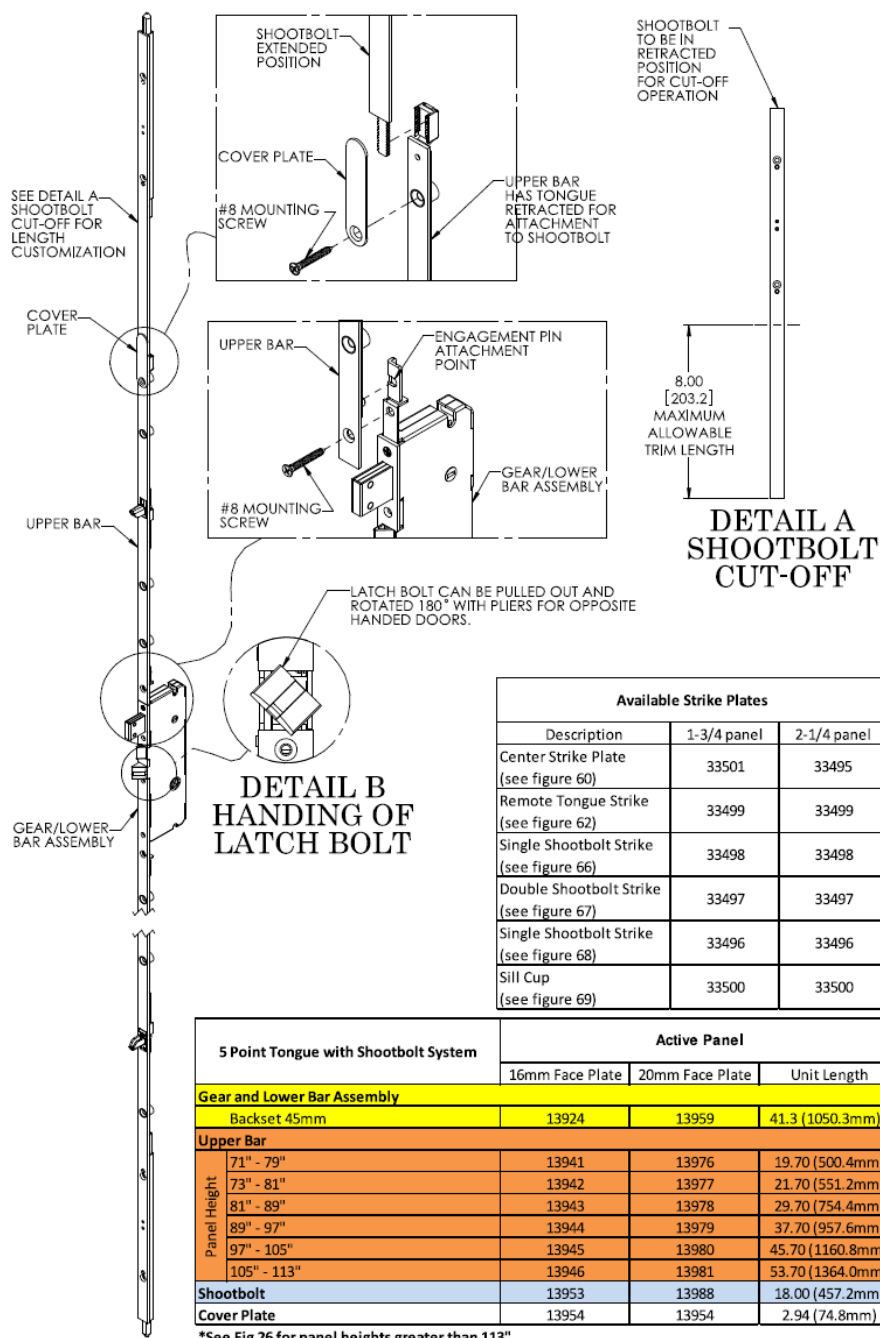


REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

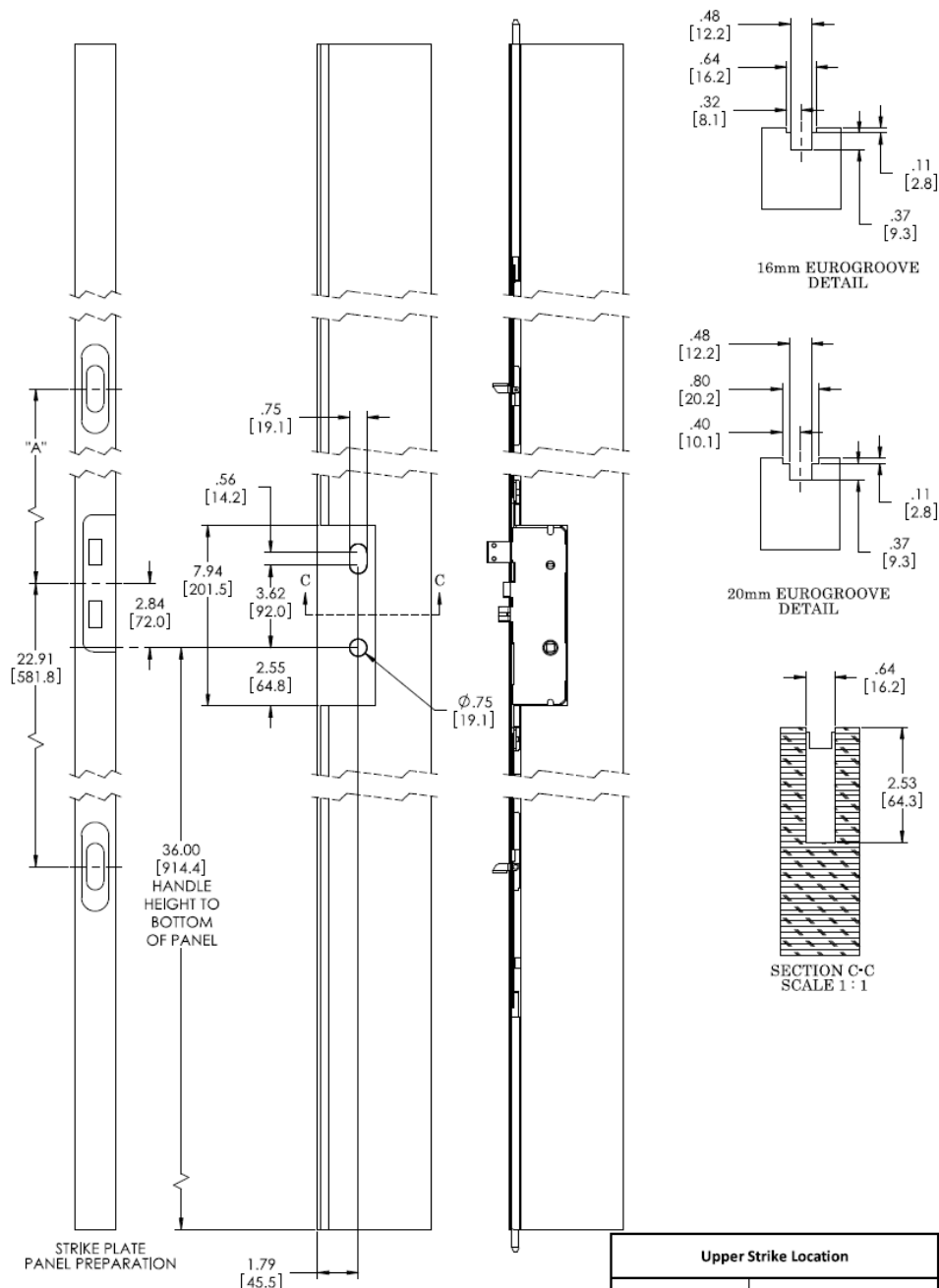
 FLEETWOOD Windows & Doors		1 Fleetwood Way Suite 100 (800) 738-7363 www.fleetwoodusa.com	
1" GLASS STOP ATLANTIC 3900 SERIES			
SIZE B	QWC NO. 3907	REVISION -	
DRAWING BY KN	DATE 5/10/11	SCALE FULL	SHEET 1 of 1



**FIG. 25 SENTRY HINGED PATIO DOOR LOCKS
5 POINT TONGUE AND SHOOTBOLT ASSEMBLY FOR PANELS 71" TO 113"**

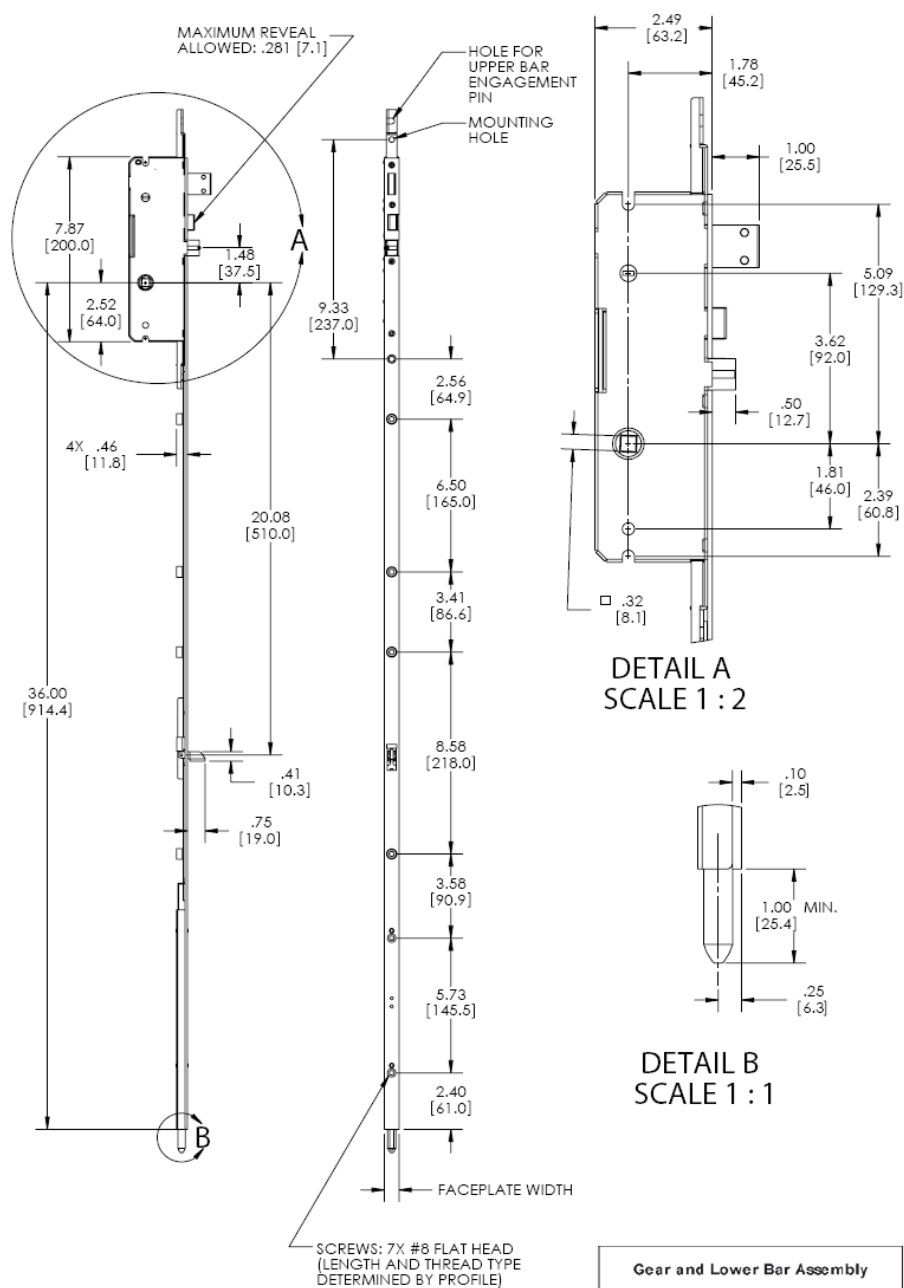


**FIG. 27 SENTRY HINGED PATIO DOOR LOCKS
5 POINT TONGUE AND SHOOTBOLT PANEL PREPARATION**

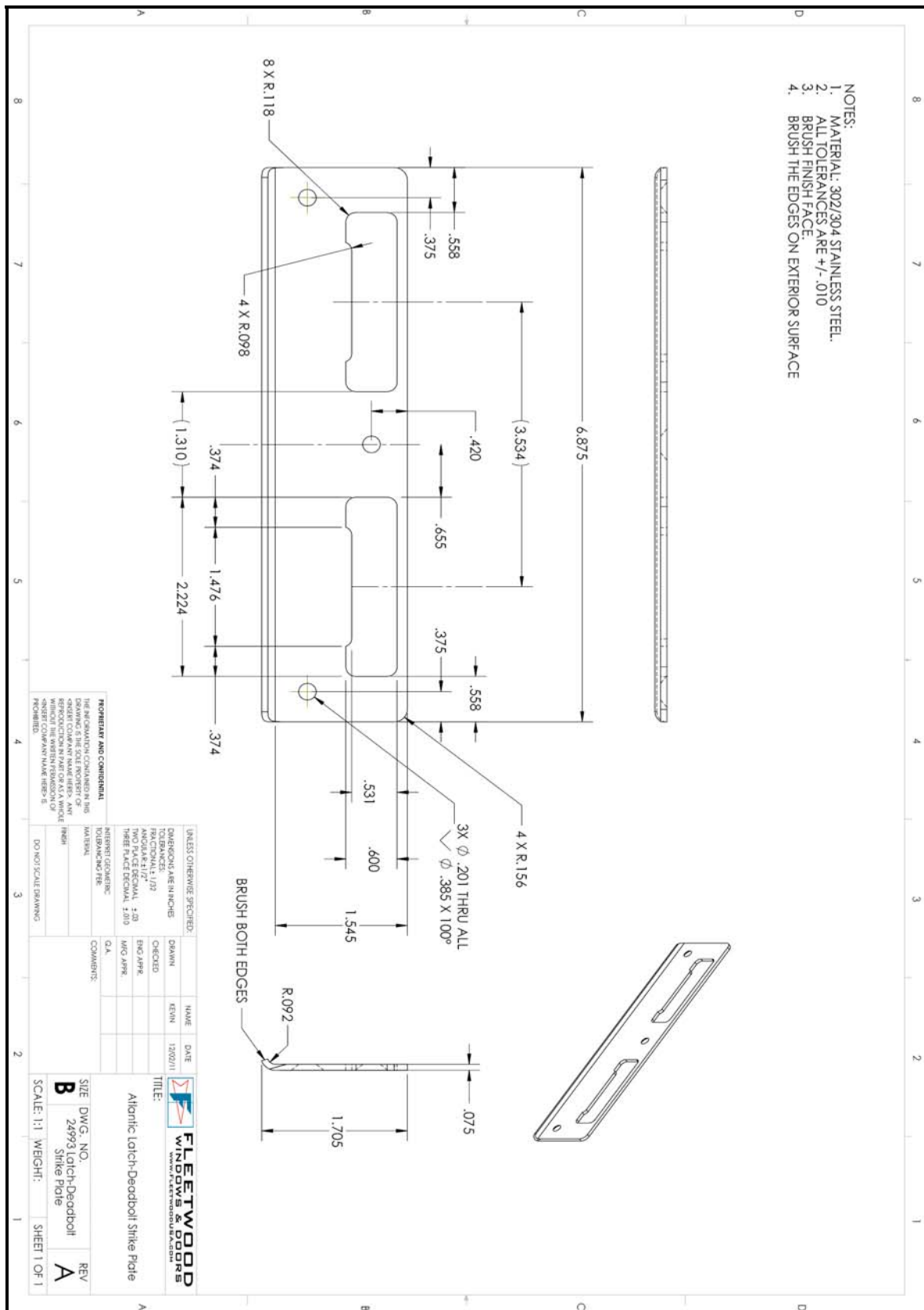


Upper Strike Location	
Panel Height	A
71" - 81"	13.39 (340.1mm)
81" - 97"	21.39 (543.3mm)
97" - 113"	37.39 (949.7mm)
113" - 121"	45.39 (1152.9mm)

**FIG. 28 SENTRY HINGED PATIO DOOR LOCKS
5 POINT TONGUE AND SHOOTBOLT GEAR AND LOWER BAR ASSEMBLY**



Gear and Lower Bar Assembly	
16mm Face Plate	20mm Face Plate
13924	13959



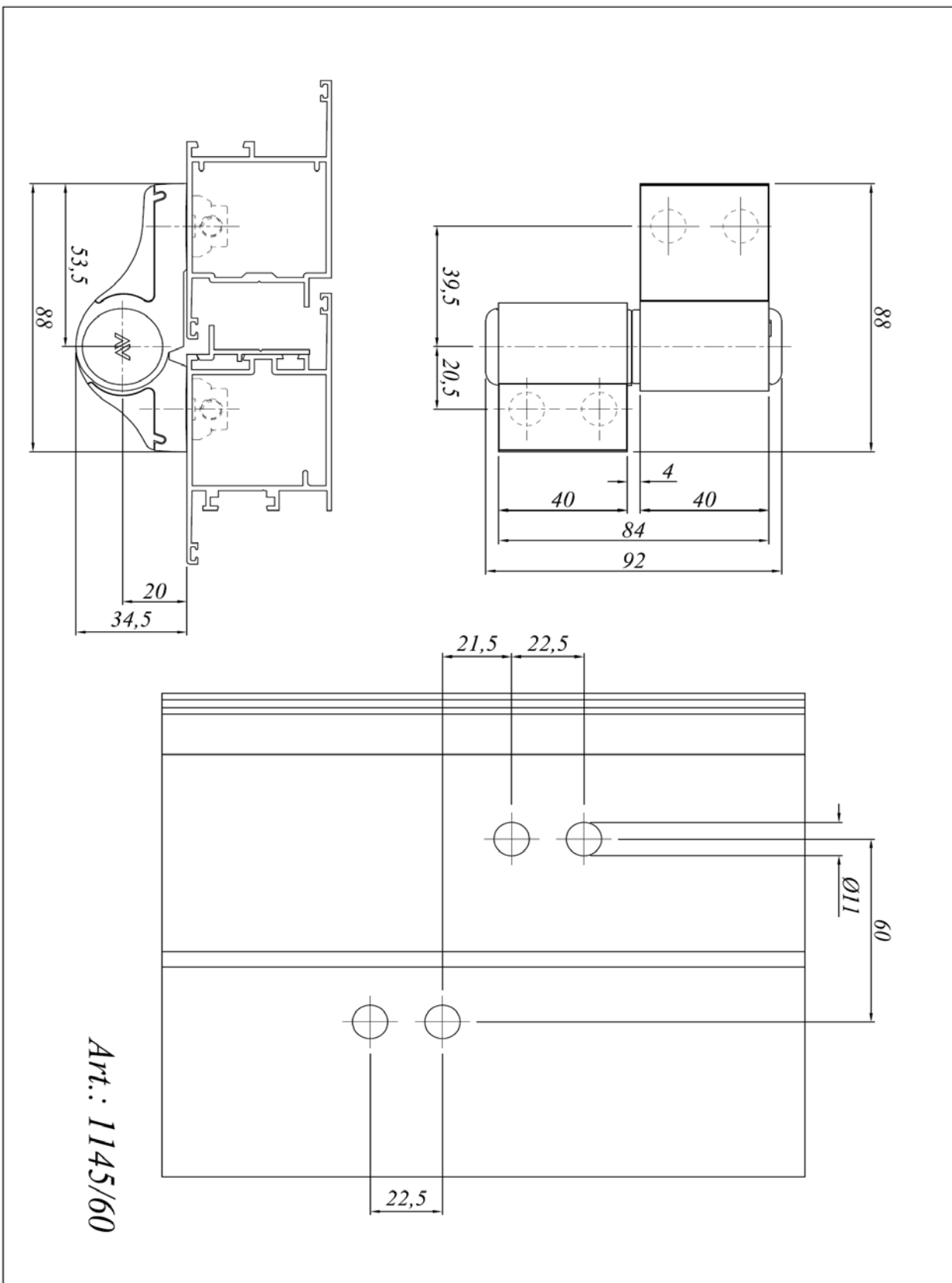




Fig. 1 – Installation screws through frame



Fig. 2 – Slab glazing bead



Fig. 3 – Setting block location in slab



Fig. 4 – Slab frame glazing seal



Fig. 5 – Slab drainage hole through thermal break



Fig. 6 – Stile and rail connection and frame profile



Fig. 7 – Slab weather seals (head to stile)



Fig. 8 – Stile and rail connection with multipoint shootbolt engaged.



Fig. 9 – Upper shootbolt.



Fig. 10 – Lower shootbolt



Fig. 11 – Multipoint latch with lock engaged



Fig. 12 – Tongue latch engaged position



Fig. 13 – Multipoint lock and handle



Fig. 14 – Frame weatherseals and brass shootbolt cup



Fig. 15 – Sill weatherstripping and brass shootbolt cup



Fig. 16 – Sill drainage



Fig. 17 – Silicone at weatherseals on sill



Fig. 18 – Latch and lock catch



Fig. 19 – Tongue keeper



Fig. 20 – Slab hinge half



Fig. 21 – Frame hinge half

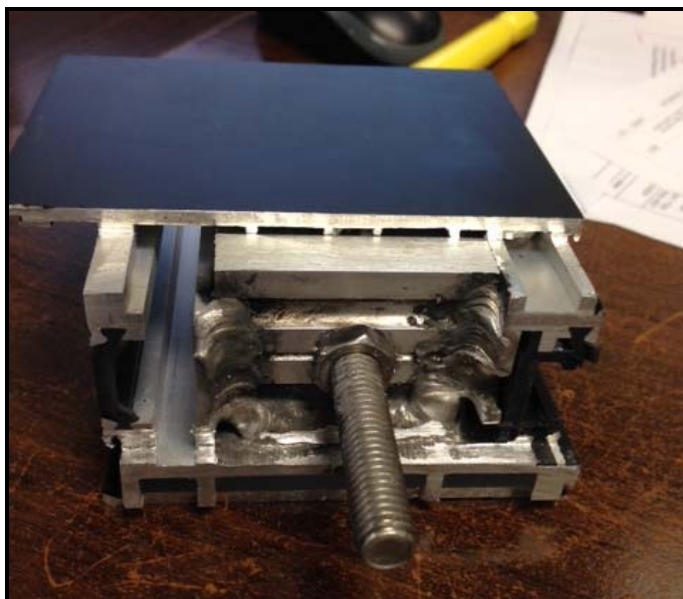


Fig. 22 – Welding on corner bolt plate