



**BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION**

**MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908**

NOTICE OF ACCEPTANCE (NOA)

**Arso Enterprises d/b/a Sol-A-Trol Aluminum Products
4101 N.W. 132nd Street
Miami, FL 33054**

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed by Miami-Dade County Product Control Division and accepted by the Board of Rules and Appeals (BORA) to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Division (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Division that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Series 540 Aluminum Single/Double Hung Window with Louvers - Impact

APPROVAL DOCUMENT: Drawing No. 1, titled "Series 540 Single/Double Hung Window with Louvers", sheets 1 through 10 of 10, prepared by manufacturer, signed and sealed by Ballard Argus, P.E., dated 2/21/03, bearing the Miami-Dade County Product Control Revision stamp with the Notice of Acceptance number and expiration date by the Miami-Dade County Product Control Division.

MISSILE IMPACT RATING: Large and Small Missile Impact

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA consists of this page 1 as well as approval document mentioned above.

The submitted documentation was reviewed by **Jaime Eisen, P.E.**



**NOA No 01-1016.04
Expiration Date: March 20, 2008
Approval Date: March 20, 2003
Page 1**

Arso Enterprises d/b/a Sol-A-Trol Aluminum Products

NOTICE OF ACCEPTANCE: EVIDENCE SUBMITTED

(For File ONLY. Not part of NOA)

A. DRAWINGS

1. Manufacturer's die drawings and sections.
2. Drawing No. 1, titled "Series 540 Single/Double Hung Window with Louvers", sheets 1 through 10 of 10, prepared by manufacturer, signed and sealed by Ballard Argus, P.E., dated 2/21/03.

B. TESTS

1. Test reports on 1) Air Infiltration Test, per FBC, TAS 202-94
2) Uniform Static Air Pressure Test, Loading per FBC, TAS 20294
3) Water Resistance Test, per FBC, TAS 202-94
4) Large Missile Impact Test per FBC, TAS 201-94
5) Cyclic Wind Pressure Loading per FBC, TAS 203-94
6) Forced Entry Test, per FBC 2411 3.2.1 and TAS 202-94
along with marked-up drawings and installation diagram of a aluminum single/double hung window, prepared by Fenestration Testing Laboratory, Inc., Test Report No. **FTL 01065**, dated 8/7/01, signed and sealed by Luis Antonio Figueredo, P.E.

B. CALCULATIONS

1. Anchor Calculations, dated 11/8/02, prepared, signed and sealed by Ballard Argus, P.E.

MATERIAL CERTIFICATIONS

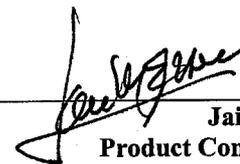
1. None.

D. STATEMENTS

1. Statement letter of no financial interest, dated 11/8/02, signed by Ballard Argus, P.E.

F. OTHER

1. Letter from consultant stating that the product is in compliance with the Florida Building Code (FBC).



Jaime Eisen, P.E.

Product Control Examiner

NOA No 01-1016.04

Expiration Date: March 20, 2008

Approval Date: March 20, 2003

Series 540 Aluminum Single Hung/Double Hung Window with Louvers
Product Approval Submittal Drawings

General Notes:

1. Product Approval drawings are based on the following Test Report:

- A. Test Report No. FTL-3059, No Reinforcement, 1/4" Tempered Glass with .320" minimum bite, 2 3/4" Sill -- with screen and aluminum louvers.
- B. Test Report No. FTL-3059, No Reinforcement, 1/4" Tempered Glass with .320" minimum bite, 4" Sill -- with screen and aluminum louvers.

2. Drawings provide anchor information for 4000 psi Structural Concrete/CBS construction only.

3. Window Minimum Hardware Requirements:

- A. Four (4) spring and pulley balances, with I.D. BSI -- locate two (2) at each frame jamb.
- B. Two (2) surface mounted metallic com locks, with I.D. BC 49 -- locate at bottom vent top rail, 9 1/2" from each end.
- C. Two (2) surface mounted keepers, with I.D. BC 39 locate at top vent bottom rail, 9 1/2" from each end.
- D. Four (4) plastic vent guides, with no I.D. marks -- locate one (1) at each end of each vent top rail.
- E. Four (4) steel balance clips, with I.D. marks -- locate two (2) at each frame jamb, 90 1/2" and 92" from bottom.
- F. Two (2) surface mounted lever type com locks, operating louvers, with I.D. Solatrol -- locate at left frame jamb, 16" and 58" from bottom.
- G. Fifty-four (54) aluminum pivot hinges, with no I.D. marks -- locate one (1) at each end of each louver.
- H. Four (4) aluminum slide bar assemblies, 3/4" x 47" long, with no I.D. marks -- locate one (1) at each frame jamb.

4. Weatherstripping Requirements:

- A. Single row vinyl bulb -- locate at the frame sill on the exterior.
- B. Single row, wool pile with integral plastic fin -- locate at the top vent bottom rail and on the interior and exterior of the frame head, and at each vent jamb rail.
- C. One (1) strip of pile weatherstrip, 1 3/8" long, -- locate at each end of the top vent bottom rail and at the bottom vent top rail.
- D. One (1) vinyl flap -- locate at the bottom vent bottom rail, at the interior sill flange, and at the top of each louver.
- E. One (1) adhesive backed closed cell foam pad, 1" x 1 1/2" x 1/2" high -- locate at each lower frame corner.
- F. One (1) adhesive backed closed cell foam pad, 5/8" x 44 7/8" x 1/4" high -- locate at the interior of the bottom vent bottom rail.
- G. One (1) adhesive backed closed cell foam pad, 5/8" x 1" x 1/4" high -- locate at the left end of the bottom vent bottom rail.

5. No weepholes provided.

6. All structural framing members are to be Aluminum Alloy 6063-T5 x .078" typical wall thickness.

Notes for Anchors into Structural Concrete/CBS Construction:

- 1. Typical Concrete Anchor Type is 1/4" Dia. Tapcon with the following embedment depths:
 - A. For 4000 psi structural concrete -- use 1 3/4" embedment depth.
 - B. For Hollow Concrete Block -- use 1 1/4" embedment depth.
- 2. Minimum Concrete Anchor quantities are depicted as solid lines located around the perimeter of each test unit elevation, drawn perpendicular to the frame.
- 3. Maximum shim space between the window frame and the concrete/wood buck substrate = 1/4".
- 4. Minimum 1/4" Dia. Tapcon Edge Distance from edge of Concrete/Block = 2 1/2" (10 Dia.).
- 5. Minimum Spacing between adjacent 1/4" Dia. Tapcon Anchors = 3" (12 Dia.).

Maximum Anchor Spacing Requirements:

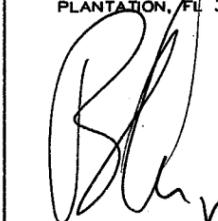
- 1. Head and Sill Frame Anchors:
 - Test Report No. FTL-3059:
 - Locate anchors 6" maximum from frame ends and 12" o.c. maximum, per test mock-up.
- 2. Jamb Frame Anchors:
 - Test Report No. FTL-3059:
 - Locate anchors 6" maximum from frame ends and 13 3/4" o.c. maximum, per test mock-up.
- 3. Meeting Rail Anchors:
 - Test Report No. FTL-3059:
 - Locate one (1) jamb anchor/anchor group 3" above the meeting rail C.L. and one (1) jamb anchor/anchor group 3" below the meeting rail C.L.
- 4. Above anchor spacing are maximums -- spacing between adjacent anchors must be not less than 3" o.c.
- 5. Elevations are scaled views of the "Test Size" Units the Test Report listed above.
- 6. Locate Head, Sill, Jamb, and Meeting Rail Anchors for other size units per notes 1, 2, 3, and 4 -- also, refer to "Comparative Analysis" tables for minimum anchor quantities required for window frame sizes listed.

UNIT TEST SIZE:
48" x 96 1/2"

DESIGN PRESSURE RATINGS:
POSITIVE WINDLOAD = +Dp= +75.0 PSF
NEGATIVE WINDLOAD = -Dp= -75.0 PSF

THE ABOVE DESIGN PRESSURE RATINGS
SHALL APPLY TO WINDOWS AND DOORS
EQUAL TO OR SMALLER THAN THE UNITS
TESTED.

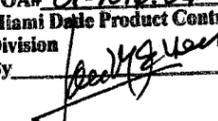
BALLARD L. ARGUS, P.E.
844 N.W. 91 TERRACE
PLANTATION, FL 33324



2/2/03

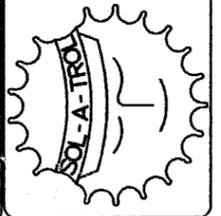
FLORIDA No. 35686, CIVIL

DADE COUNTY SEAL:

Approved as complying with the
Florida Building Code
Date 03/20/03
NOA# 01-1016.04
Miami Dade Product Control
Division
By 

SOL-A-TROL
aluminum products

4101 N.W. 132nd Street
Miami, Florida 33054
Phone: (305) 681-2020
Fax: (305) 681-2035



SERIES 540
SINGLE/DOUBLE HUNG
WINDOW WITH LOUVERS
DADE COUNTY PRODUCT
APPROVAL DRAWINGS

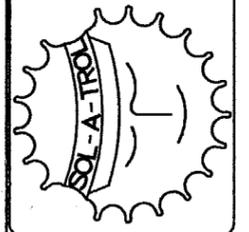
DWG SET # 1-IMPACT

Sheet #

1 OF 10

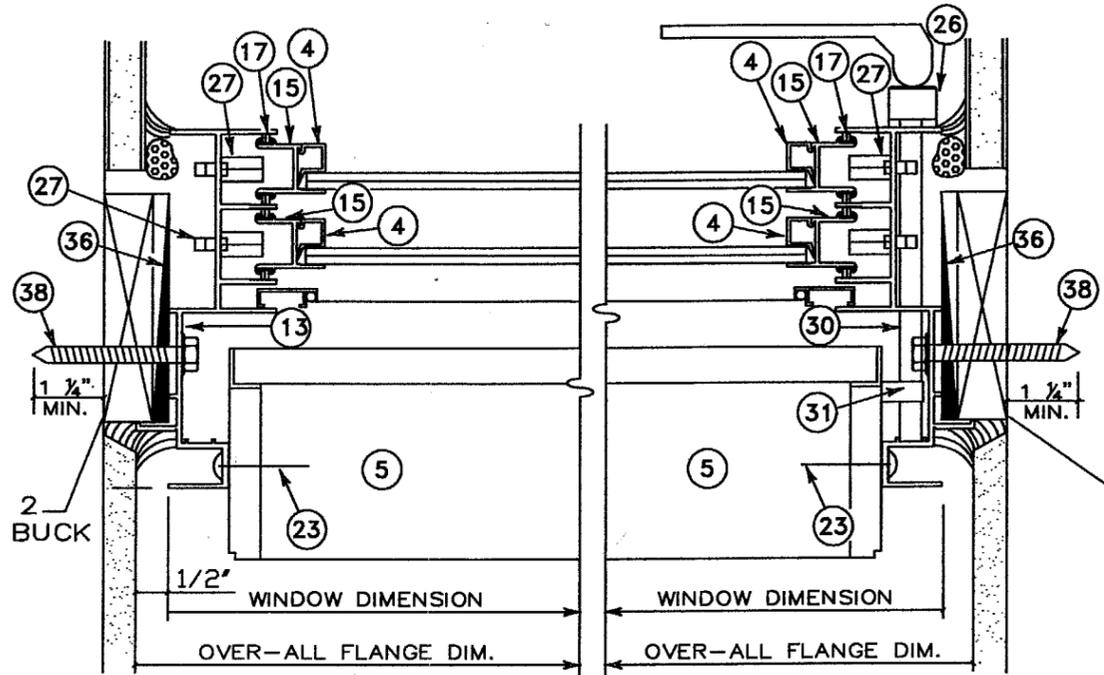
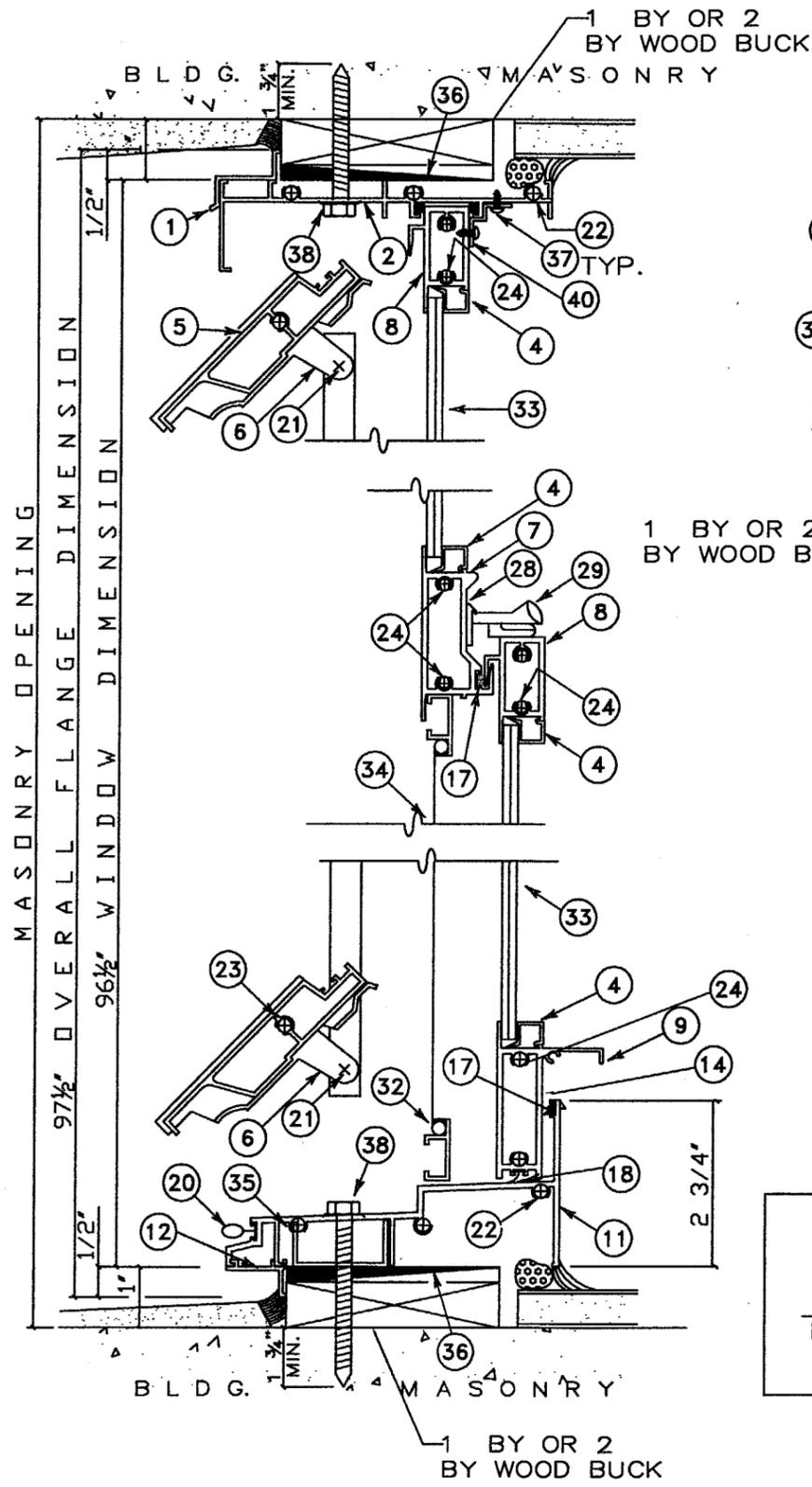
WOOD BUCKS MUST BE ENGINEERED TO CARRY ALL LOADS IMPOSED BY THE WINDOW, AND AS REVIEWED AND APPROVED BY THE BUILDING OFFICIAL.

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SERIES 540
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APPROVAL DRAWINGS

Sheet #
2 OF 10

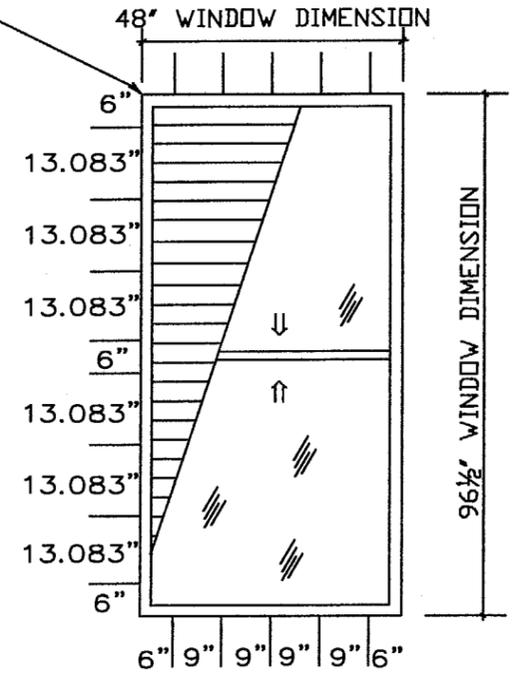
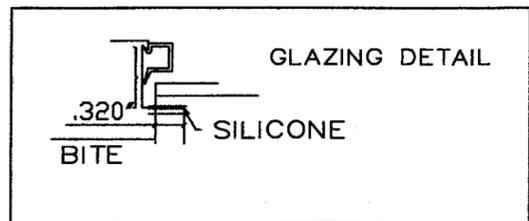


CORNER SEALANT (TYP)

FASTENER SPACING

AS SHOWN ON ELEVATION FOR MAXIMUM SIZE, SEE CHART ON PAGE 9 FOR SMALLER WINDOW SIZES

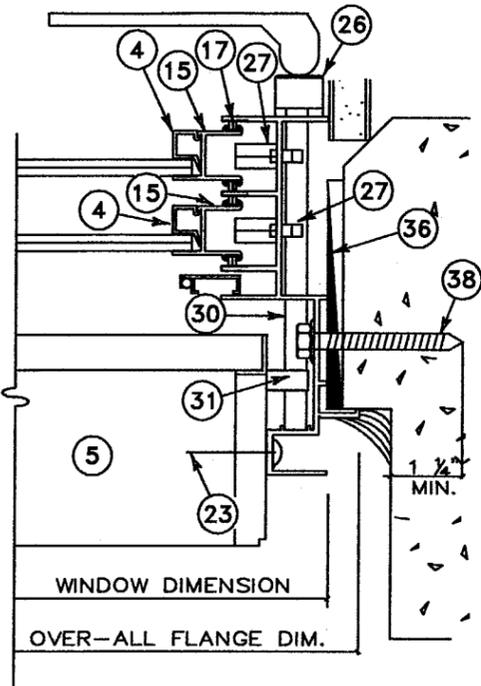
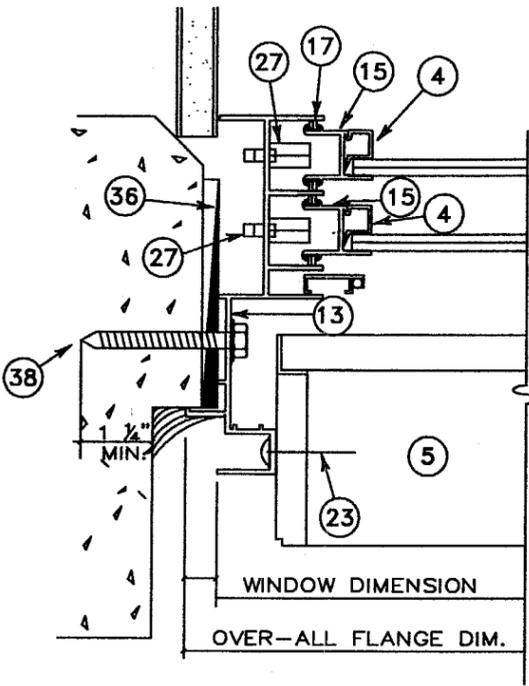
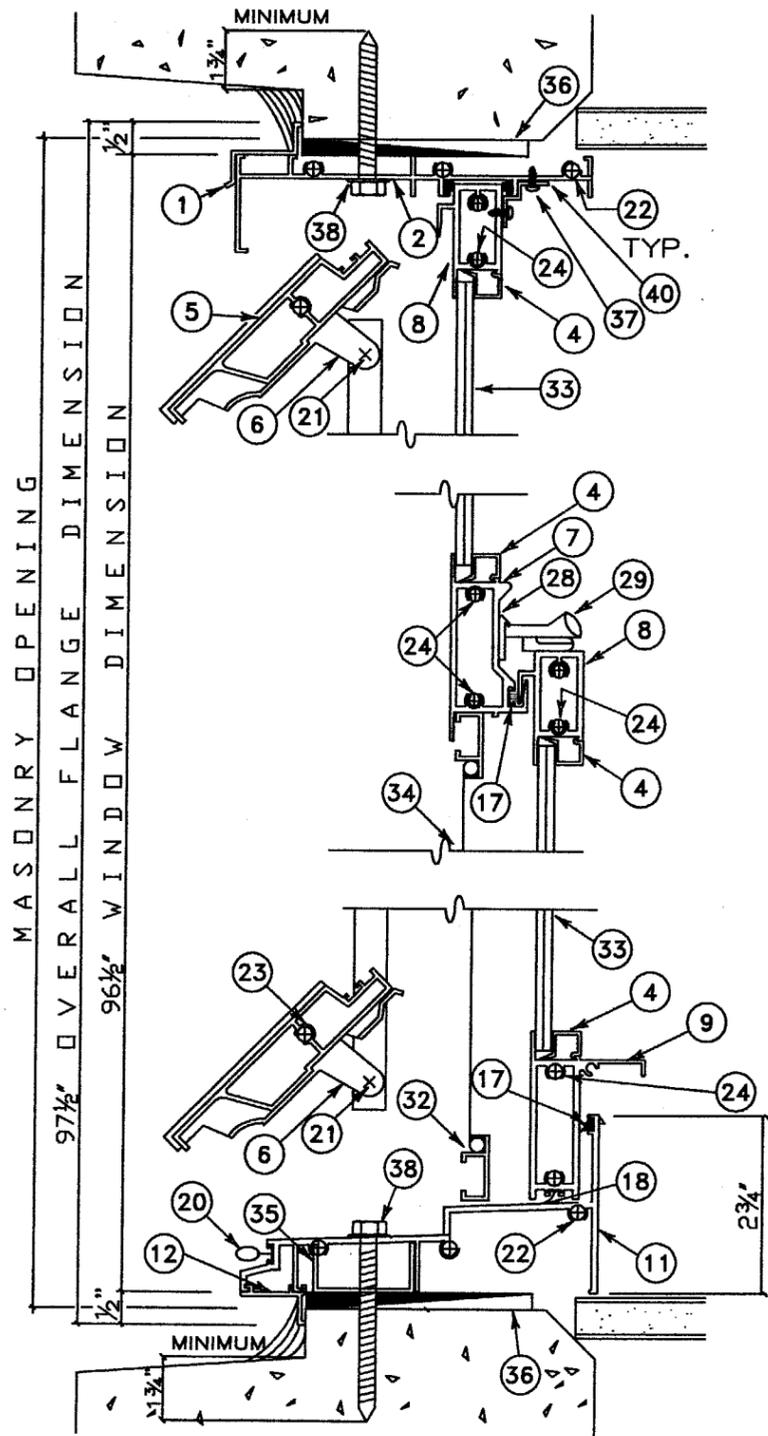
NOTE:
ELEVATIONS SHOW "WINDOW DIMENSION" AS DEFINED ON DETAIL. TEST REPORTS SHOW OVERALL FLANGE DIMENSION.



BALLARD L. ARGUS, P.E.
844 N.W. 81 TERRACE
PLANTATION, FL 33324
[Signature]
2/21/03
FLORIDA No. 35686, CIVIL

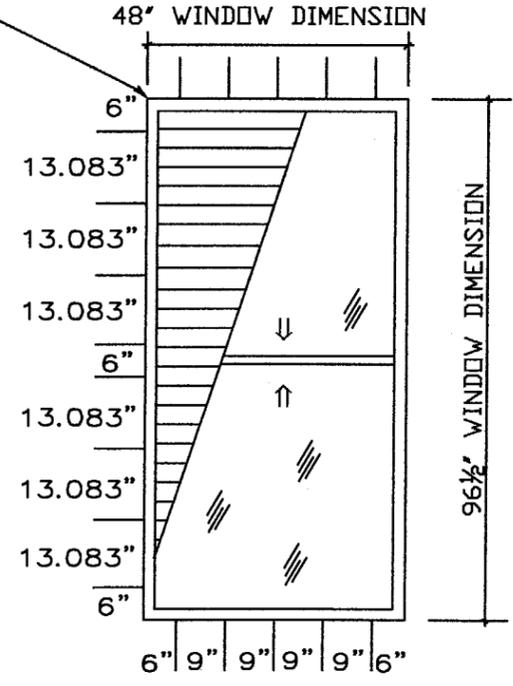
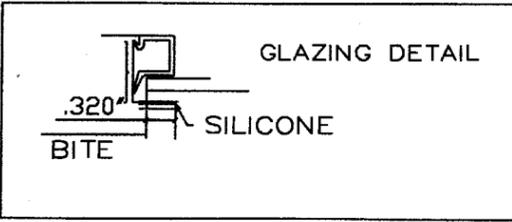
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Miami Dade Product Control
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By *[Signature]*

DWG SET # 1 - IMPACT



CORNER SEALANT (TYP)
 FASTENER SPACING
 AS SHOWN ON ELEVATION
 FOR MAXIMUM SIZE, SEE
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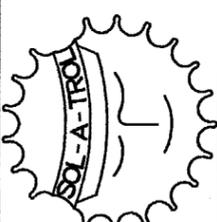
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ENGINEER SEAL:
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[Signature]
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 aluminum products
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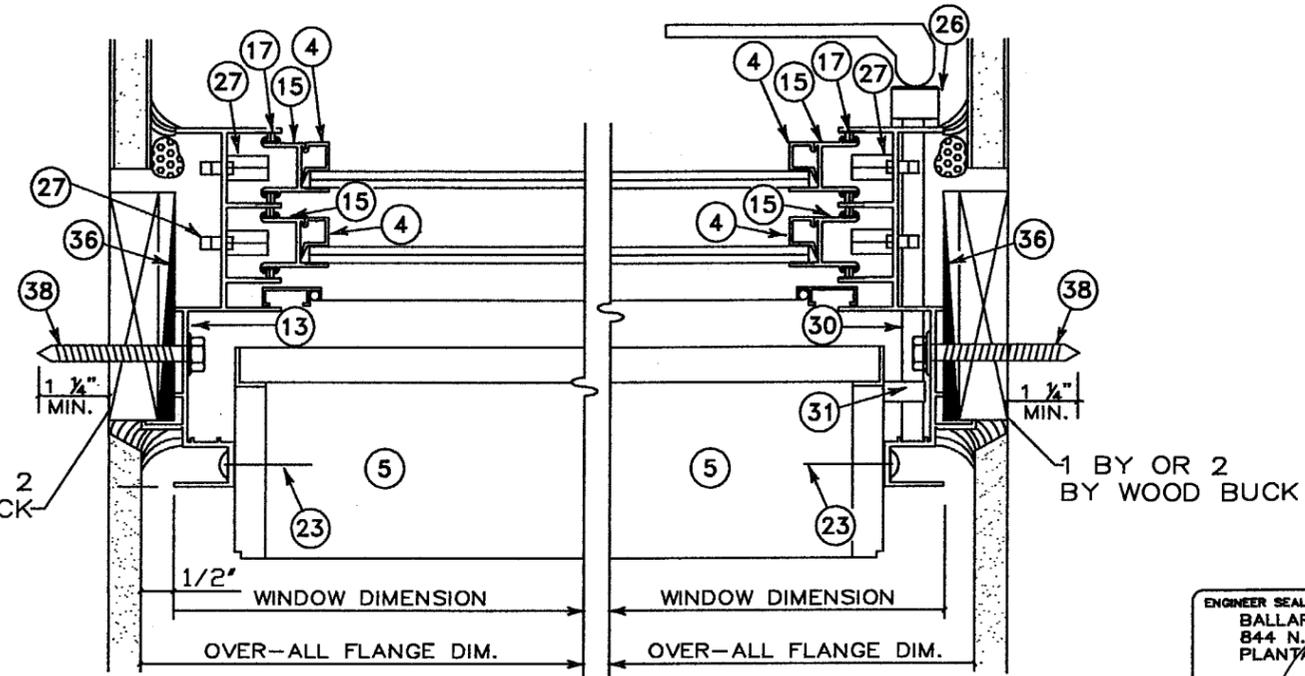
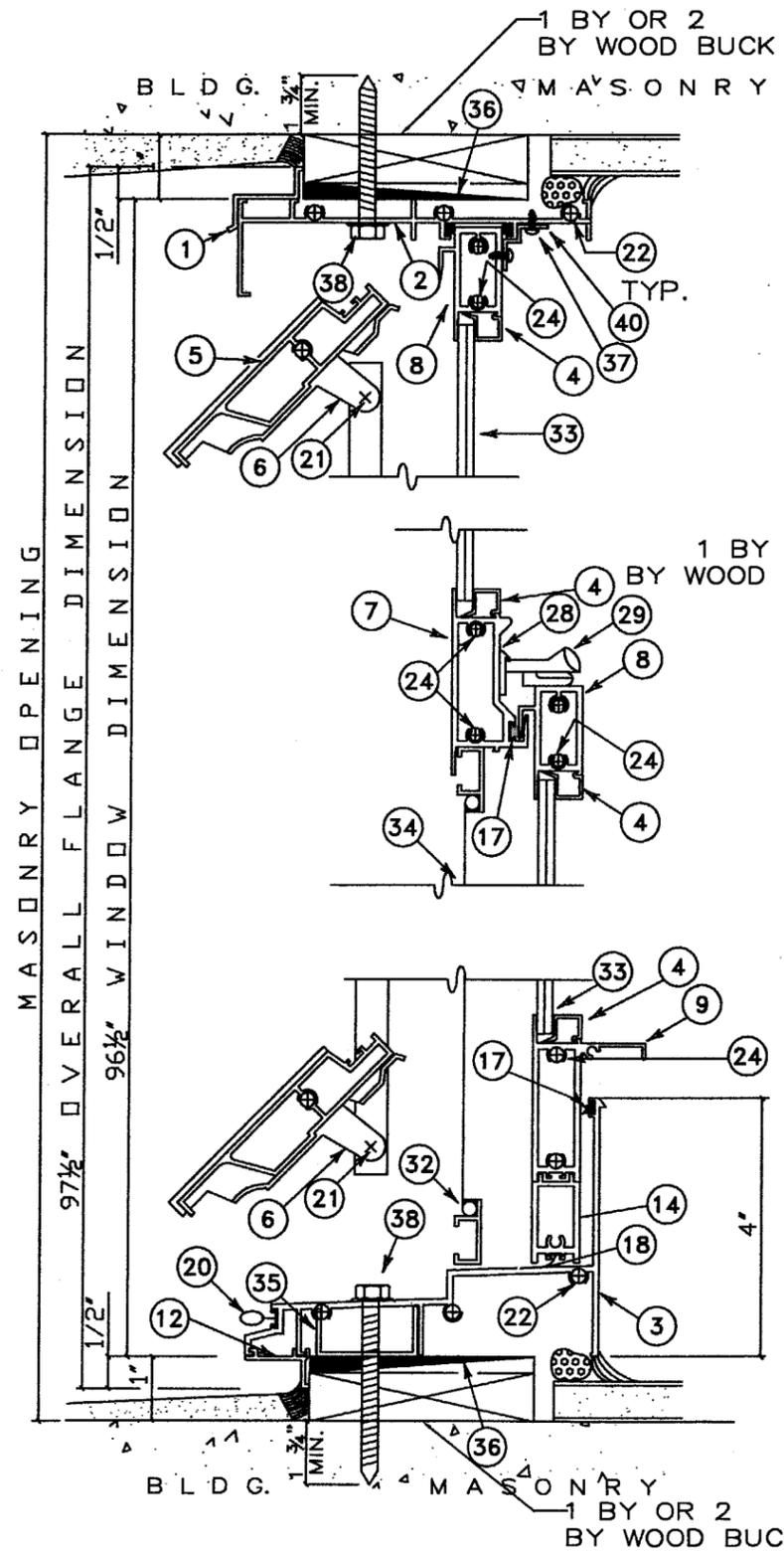


SERIES 540
 SINGLE/DOUBLE HUNG
 WINDOW WITH LOUVERS
 DADE COUNTY PRODUCT
 APPROVAL DRAWINGS

DWG SET # 1 - IMPACT

Sheet #
 3 OF 10

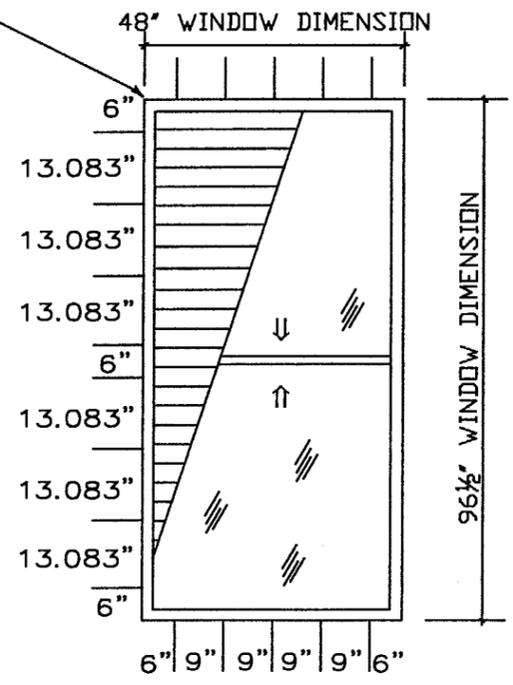
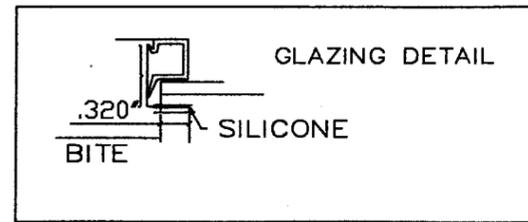
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CORNER SEALANT (TYP)

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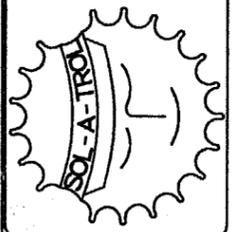
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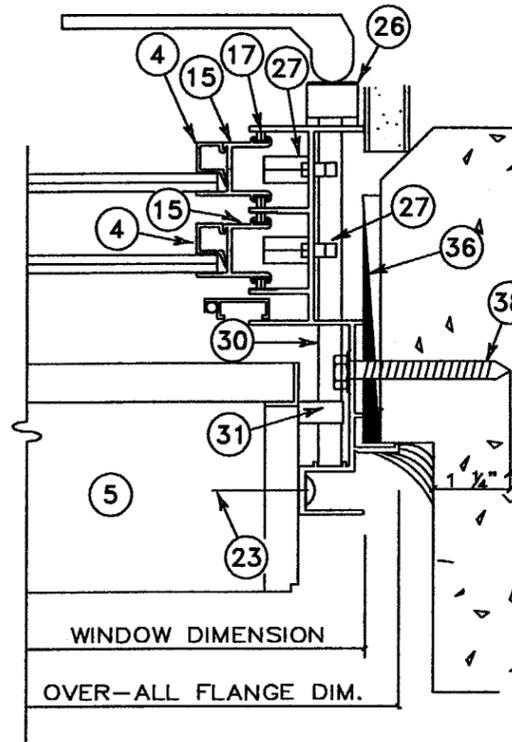
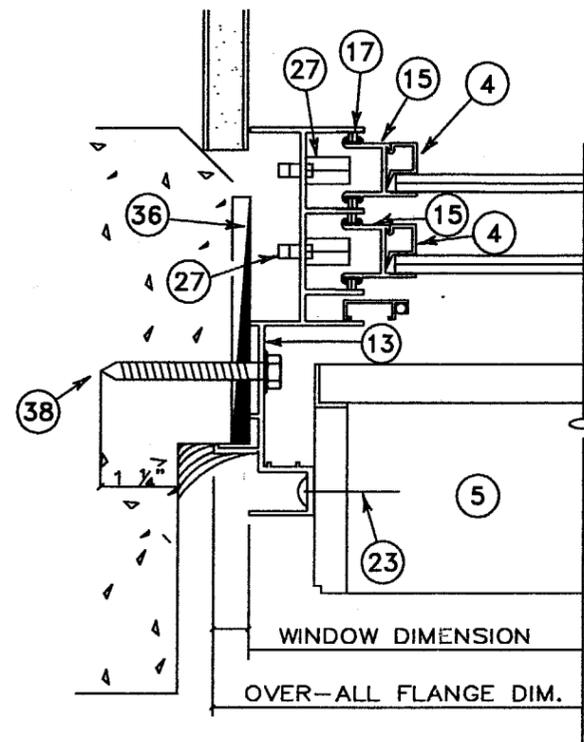
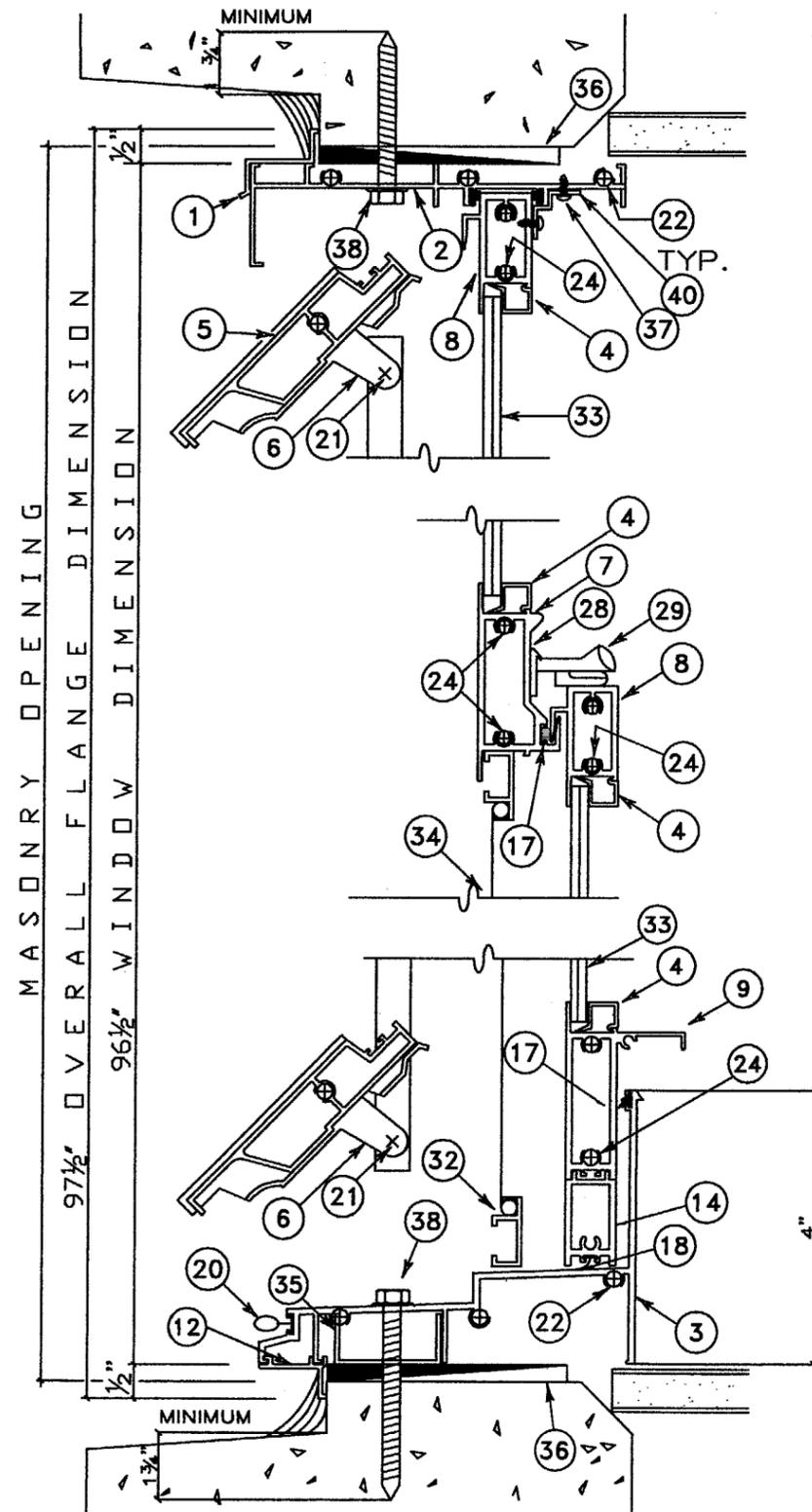
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SERIES 540
SINGLE/DOUBLE HUNG WINDOW WITH LOUVERS
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DWG SET # 1 - IMPACT

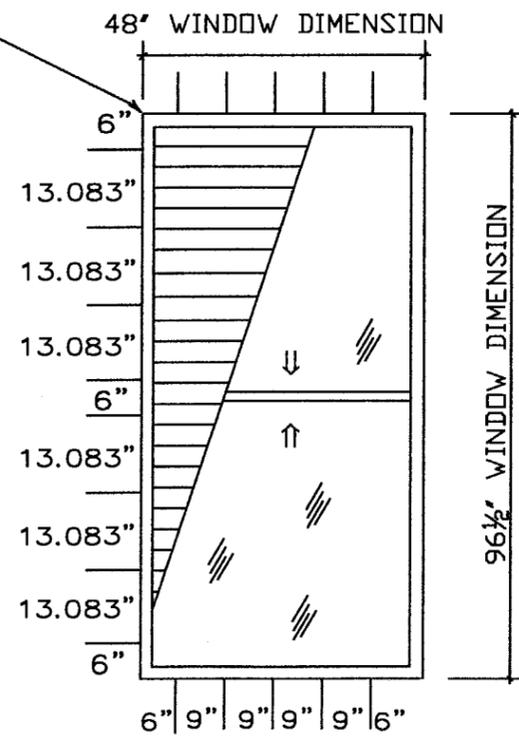
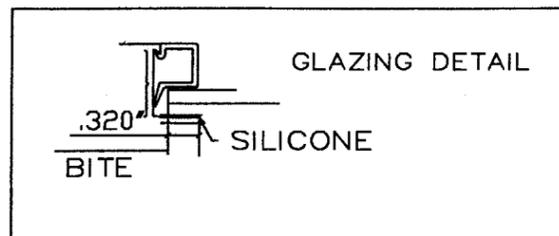
Sheet #
4 OF 10



CORNER SEALANT (TYP)

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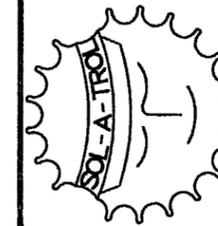
ENGINEER SEAL:
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 aluminum products



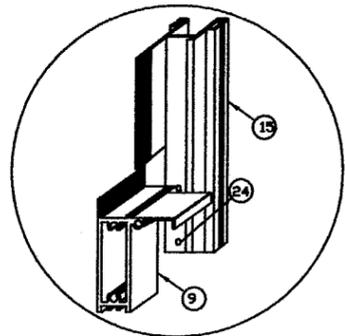
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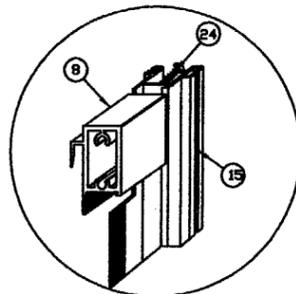
DWG SET # 1 - IMPACT

Sheet #
 5 OF 10

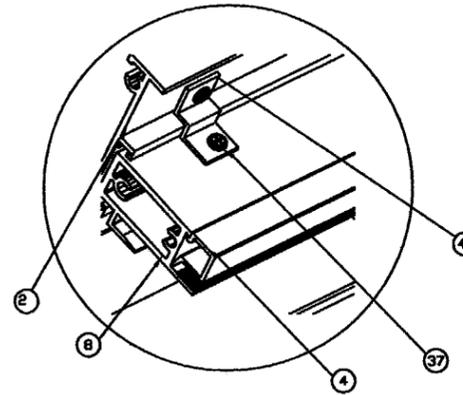
3D DETAIL



VENT BOTTOM RAIL TO STILE CONNECTION



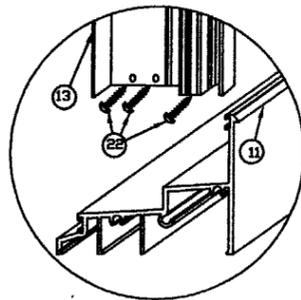
VENT MEETING RAIL TO STILE CONNECTION DETAIL



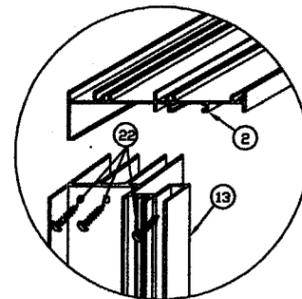
TOP VENT FIX CLIP

NOTE: MEETING RAIL IS NOT FIXED TO FRAME IN EITHER SINGLE OR DOUBLE HUNG CONFIGURATIONS

3D DETAIL

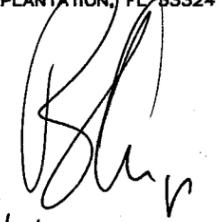


FRAME SILL TO JAMB CONNECT. DET.



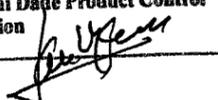
FRAME HEAD TO JAMB CONNECT. DET.

BALLARD L. ARGUS, P.E.
844 N.W. 97 TERRACE
PLANTATION, FL 33324

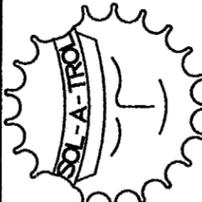


2/21/03
FLORIDA No. 35686, CIVIL

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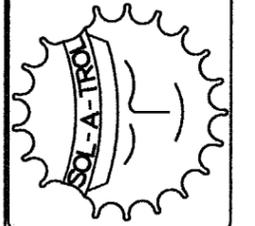
**SERIES 540
SINGLE/DOUBLE HUNG
WINDOW WITH LOUVERS
DADE COUNTY PRODUCT
APPROVAL DRAWINGS**

DWG SET # 1 - IMPACT

Sheet #
6 OF 10

BILL OF MATERIALS FOR ALUMINUM HUNG WINDOW WITH LOUVERS						
ITEM NO.	PART NUMBER	DESCRIPTION	MATERIAL	MFGR	MFGR #	QTY/WNDO
①	ARSO 8	DRIP CAP	6063-T5 ALUM			1
②	ARSO 3	HEAD	6063-T5 ALUM			1
③	ARSO 210	HWR SILL	6063-T5 ALUM			1
④	ARSO 71	GLAZING BEAD	6063-T5 ALUM			8
⑤	ARSO 69	4" LOUVER BLADE	6063-T5 ALUM			VARIES
⑥	393-R	LOUVER CLIP	3003 ALUM			VARIES
⑦	ARSO 40	MEETING RAIL	6063-T5 ALUM			1
⑧	ARSO 47	TOP / LOWER MEETING RAIL	6063-T5 ALUM			1
⑨	ARSO 41	BOTTOM RAIL	6063-T5 ALUM			1
⑩		NOT USED				
⑪	ARSO 46	SILL	6063-T5 ALUM			1
⑫	ARSO 7	SNAP FLANGE	6063-T5 ALUM			1
⑬	ARSO 2	JAMB	6063-T5 ALUM			2
⑭	ARSO 209	RAIL EXTENDER	6063-T5 ALUM			1
⑮	ARSO 13	STILE	6063-T5 ALUM			4
⑯		NOT USED				
⑰	187	SINGLE FIN WEATHERSTRIPPING (3/16 base, 210 pile height)	POLYPROPYLENE	SCHLEGEL MFG.	# 210187 GYWF	
⑱	187-R	VINYL WEATHERSTRIPPING	P.V.C	BVC	# 150	
⑲		NOT USED				

SOL-A-TROL
 aluminum products
 4101 N.W. 132nd Street
 Miami, Florida 33054
 Phone: (305) 681-2020
 Fax: (305) 681-2035



BALLARD L. ARGUS, P.E.
 844 N.W. 91 TERRACE
 PLANTATION, FL 33324

 2/21/03
 FLORIDA No. 35686, CIVIL

DADE COUNTY SEAL:
 Approved as complying with the
 Florida Building Code
 Date 03/20/03
 NOA# 01-1016.04
 Miami Dade Product Control
 Division
 By 

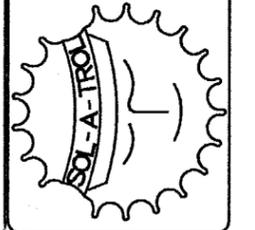
SERIES 540
SINGLE/DOUBLE HUNG
WINDOW WITH LOUVERS
DADE COUNTY PRODUCT
APPROVAL DRAWINGS

DWG SET # 1 - IMPACT

Sheet #
7 OF 10

BILL OF MATERIALS FOR ALUMINUM HUNG WINDOW WITH LOUVERS						
ITEM NO.	PART NUMBER	DESCRIPTION	MATERIAL	MFGR	MFGR #	QTY/WNDO
20	FP-86-S	VINYL BULB (3/16 base, 9/32 dia. bulb)	P.V.C	PROTOTYPE	# FP-86-S	
21	182	TUBULAR RIVET (.182 X .281 OHSI AP)	ALUM	UNIVERSIAL RIVET	# 119X0281AP	
22	10-A	#10 X 1" STAINLESS STEEL PAN HEAD SCREW	18-8 STAINLESS STEEL			12
23	10-B	#10 X 1 1/4 ST. STEEL PAN HEAD W/ PLASTIC WASHER	18-8 STAINLESS STEEL			
24	10-C	#10 X 1" CADMIUM PLATED STEEL PAN HEAD SCREW	18-8 CADMIUM PLATED STEEL			16
25		NOT USED				
26	149-003	LOUVER HANDLE		THE BRONZE CRAFT	# 149-003	VARIES
27	37-40	BLOCK & TACKLE SASH BALANCE		JW WINDOW COMP.	# 092602	2
28	204-002	KEEPER		THE BRONZE CRAFT	# 204-002-0122	1
29	290-001	SWEEP LOCK		THE BRONZE CRAFT	# 290-001-0122	1
30	313	5/16 HEX ROD	2024-T4 ALUM	BENJAMIN METALS	QQA-225/6E	
31	1580	SPOOL ARM		LIBERTY DIE		
32	ARSO 30	SCREEN FRAME				
33	-	1/4" TEMPERED GLAZING				
34	-	INSECT SCREEN		SCREEN TECH	# 36CH600	
35		CANTILEVER SPAN REDUCTION CHANNEL	6063-T5 ALUM	7/8" X 1-11/16" X .090 THK X 3" LONG		VARIES
36	-	1/4" SHIM (THK. X 1 7/8" X 3 5/8" WITH SLOT)	ABS	FALMOUTH PLASTIC & RUBBER	#	
37	10 - D	#10 X 1/2" STAINLESS STEEL PAN HEAD SCREW	18-8 STAINLESS STEEL			4
38	-	1/4 Dia. TAPCON (Length Varies) See cover notes for minimum Embedments				
39		SMALL JOINT SEALER		H.B. FULLER		
40		TOP VENT FIXED CLIP				2

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SERIES 540
SINGLE/DOUBLE HUNG
WINDOW WITH LOUVERS
DADE COUNTY PRODUCT
APPROVAL DRAWINGS

DWG SET # 1 - IMPACT

Sheet #
8 OF 10

2. Impact/Cyclic Load Test Results, and, PA-202 Comparative Analysis Values Less Than or Equal To PA-203 Cyclic Load Test:						
Table Values based on Test Report Number		FTL-3059	with		2.750 Inch Sill Height	
Miami-Dade County Test Protocols:			Dp allowable, for Substrate and Anchor Type Indicated			
PA-201 Missile Impact Test	Large	4000 psi Concrete at Head and Sill		Required Anchor Quantities		
PA-202 Static Load Test	PA-203 Dp Max	1/4" Dia Tapcon x 1 3/4" Pen		using Single Anchors at Each Location		
PA-203 Cyclic Load Test	Passed	Hollow Concrete Block at Jamb		using Single Anchors at Each Location		
Window Frame Size		Number of Louvers in Unit	1/4" Dia Tapcon x 1 1/4" Pen		Head/Sill Anchors	Jamb Anchors
Width (in)	Height (in)		+ Pos Dp (psf)	- Neg Dp (psf)		
24	23	6	75.0	-75.0	2	4
24	33 1/2	9	75.0	-75.0	2	4
24	44	12	75.0	-75.0	2	4
24	54 1/2	15	75.0	-75.0	2	6
24	65	18	75.0	-75.0	2	6
24	75 1/2	21	75.0	-75.0	2	8
24	86	24	75.0	-75.0	2	8
24	96 1/2	27	75.0	-75.0	2	8
29	23	6	75.0	-75.0	3	4
29	33 1/2	9	75.0	-75.0	3	4
29	44	12	75.0	-75.0	3	4
29	54 1/2	15	75.0	-75.0	3	6
29	65	18	75.0	-75.0	3	6
29	75 1/2	21	75.0	-75.0	3	8
29	86	24	75.0	-75.0	3	8
29	96 1/2	27	75.0	-75.0	3	8
34	23	6	75.0	-75.0	3	4
34	33 1/2	9	75.0	-75.0	3	4
34	44	12	75.0	-75.0	3	4
34	54 1/2	15	75.0	-75.0	3	6
34	65	18	75.0	-75.0	3	6
34	75 1/2	21	75.0	-75.0	3	8
34	86	24	75.0	-75.0	3	8
34	96 1/2	27	75.0	-75.0	3	8
39	23	6	75.0	-75.0	4	4
39	33 1/2	9	75.0	-75.0	4	4
39	44	12	75.0	-75.0	4	4
39	54 1/2	15	75.0	-75.0	4	6
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44	54 1/2	15	75.0	-75.0	4	6
44	65	18	75.0	-75.0	4	6
44	75 1/2	21	75.0	-75.0	4	8
44	86	24	75.0	-75.0	4	8
44	96 1/2	27	75.0	-75.0	4	8
49	23	6	75.0	-75.0	5	4
49	33 1/2	9	75.0	-75.0	5	4
49	44	12	75.0	-75.0	5	4
49	54 1/2	15	75.0	-75.0	5	6
49	65	18	75.0	-75.0	5	6
49	75 1/2	21	75.0	-75.0	5	8
49	86	24	75.0	-75.0	5	8
49	96 1/2	27	75.0	-75.0	5	8
49	97 1/2	Test Size for C.A.	75.0	-75.0	5	8

SERIES 540
WITH STANDARD SILL
AND IMPACT RESISTANT
LOUVERS

IMPACT/ CYCLIC LOAD TEST
PERFORMANCE IS INCLUDED IN
SUMMARY TABLE

Notes to Impact Test, Cyclic Load Test, and Comparative Analysis Summary Table:

1. Locate Head and Sill Single Anchors at 6 inches max from frame ends and 12 inches O.C. maximum, per test mock-up.
2. Locate Jamb Single Anchors at 6 inches max from frame ends and 13.75 inches O.C. maximum, per test mock-up.
3. Locate one (1) Jamb Anchor at 3 inches maximum above the meeting rail Center Line.
Locate one (1) Jamb Anchor at 3 inches maximum below the meeting rail Center Line.
4. Above anchor spacings are maximums -- Reduce anchor spacing from frame ends, if required to maintain 3" minimum spacing between adjacent anchors.

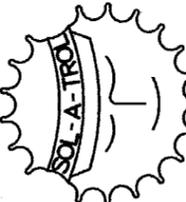
ENGINEER SEAL:
BALLARD L. ARGUS, P.E.
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DWG SET # 1 - IMPACT

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SERIES 540
SINGLE/DOUBLE HUNG
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APPROVAL DRAWINGS

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PA-202 Static Load Test		PA-203 Dp Max	1/4" Dia Tapcon x 1 3/4" Pen		Quantities	
PA-203 Cyclic Load Test		Passed	Hollow Concrete Block at Jamb		using Single Anchors	
Window Frame Size		Number of	1/4" Dia Tapcon x 1 1/4" Pen		at Each Location	
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SERIES 540
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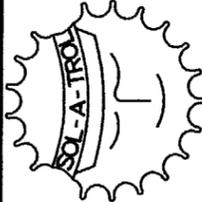
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