Certified Testing Laboratories

Architectural Division • 7252 Narcoossee Road • Orlando, FL 32822

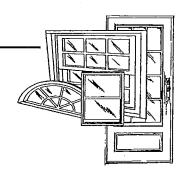
(407) 384-7744 Toll Free (800) 381-7744 Fax (407) 384-7751

Web Site:

www.ctlarch.com

E-mail:

ctlarch.com



Report Number:

CTLA 2039W

Report Date:

October 20, 2010

#### STRUCTURAL PERFORMANCE TEST REPORT

Test Requested By:

**Deceuninck North America, LLC** 

351 North Garver Road Monroe, Ohio 45050

**Product Type and Series:** 

Series 623.620PD-003 Vinyl Fin Frame Impact Sliding Glass Door

(96.00" x 98.00")

**Test Specifications:** 

**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,

Curtain Walls, Doors and Storm Shutters Impacted by Windborne Debris in

Hurricanes."

**Design Pressure:** 

+ 50.0 psf., - 50.0 psf.

Test Specimen

**Configuration:** 

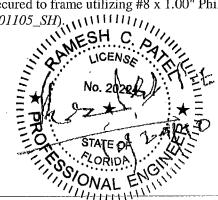
**XIO** One (1) operable panel / one (1) fixed panel.

Frame Construction:

All Specimens

The extruded vinyl main-fin frame measured 96.00" wide x 98.00" high, with a 1.250" integral fin. The frame corners utilized coped and butted corner construction, secured with three (3) # 8 x 2.00" Phillips PH fasteners. The frame head/jamb extrusion measured 4.563" wide x 2.007" high (refer to drawing # 10001100\_SH). The frame sill extrusion measured 5.088" wide x 2.007" high (refer to drawing # 10001101\_SH). An aluminum interlocking sill cover measuring 2.145" wide x 1.447" high overall was utilized along the exterior sill track (refer to drawing # 10300171). The frame sill had vinyl sill insert running full length of fixed panel track and secured to frame utilizing #8 x 1.00" Phillips

CS self-drilling SMS (refer to drawing # 10001105\_SH).



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#### **Panel Construction:**

All Specimens

The operable panel measured 48.50" wide x 92.750" high overall and the fixed panel measured 48.00" wide x 93.00" high overall. The panels were mitered and welded corner construction. The panel top/bottom rail and stiles each measured 4.000" wide x 1.755" high overall (refer to drawing # 10001102 SH). The operable and fixed panel interlock stiles had an interlocking vinyl sash adapter measuring 2.002" wide x 2.279" high (refer to drawing # 10001117 SH) secured through the stile with nine (9) #8 x 0.750" Phillips PH self-drilling SMS located 4" from top and bottom of panel and a maximum of 12" on center thereafter. The fixed panel interlock was secured to frame head/sill with an aluminum impact bracket measuring 1.575" wide x 3.346" high overall (refer to drawing # 011H027) and was secured to fixed panel interlock stile with two (2) #8 x 1.00" Phillips CS self-drilling SMS and to frame head/sill utilizing two (2) #8 x 0.750" Phillips CS selfdrilling SMS and two (2) #8 x 2.00" Phillips CS fasteners. The fixed panel had two (2) aluminum snubbers each measuring 1.780" wide x 1.242" high x 30" long each secured to fixed panel with six (6) #8 x 1.250" Phillips CS fasteners (refer to drawing # 10300148). The fixed panel held in frame with silicone caulking. The operable panel had a vinyl track guide measuring 1.750" wide x 10.00" high located at top and bottom of interlock stile secured to panel with three (3) #8 x 2.00" Phillips CS self-drilling SMS (refer to drawing # 011H055).

Daylight opening:

All Specimens

Daylight opening for operable panel measured 40.00" wide x 84.750" high. The daylight opening for fixed panel measured 40.50" wide x 84.500" high.

Glazing:

All Specimens

1.000" overall insulated laminated glass consisting of the following: One (1) exterior piece of .125" tempered glass / one (1) .375" thermal break butyl spacer system / one (1) piece of .125" annealed glass / 0.090" PVB interlayer / one (1) piece of .125" annealed glass. Exterior glazed with silicone back bedding compound. The glazing utilized an extruded vinyl snap-in glazing bead measuring .283" wide x .977" high overall with a .625" glass bite (refer to drawing # 10001111 SH).

Reinforcement:

All Specimens

One (1) aluminum reinforcement measuring 1.971" wide x 1.555" high x full length secured through panel stiles with nine (9) #8 x 1.00" Phillips PH self-drilling SMS (refer to drawing # 10300151). One (1) free floating aluminum reinforcement measuring 1.965" wide x 1.555" high was located in operable panel lock stile (refer to drawing # 10300150). The frame head/sill and jambs had a free floating aluminum reinforcement measuring 1.250" wide x 0.125" high.

Weep System:

All Specimens

Four (4) 0.250" OD round weep holes located at 5.50", 27.50", 64.00" and 91.50" c/l

from left frame jamb/sill corner.

# Weather-stripping:

### All Specimens

<b>Quantity</b>	<b>Description</b>	Location
Three (3) strips	Fin seal .270" wide x .250" high	two (2) operable panel track and one (1) fixed panel track of frame head
Three (3) strip	Fin seal .270" wide x .250" high	track of frame head two (2) operable panel track and one (1) the depanel track of frame sill
Two (2) strips	Fin seal .270" wide x .250" high	Frame jambs Substituting No. 20224 0
One (1) strip	Fin seal .270" wide x .250" high	Operable and fixed panel interlock

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# Hardware:

All Specimens

<b>Quantity</b>	<b><u>Description</u></b>	<u>Location</u>
Two (2)	Aluminum side adjustable roller, 1.66"	Each panel bottom rail
	OD wheel, each secured with two (2) # 8	
	x 1.00" Phillips PH SMS	
One (1)	Inside/Outside Pull Handle	Located at lock stile of the active panel
One (1)	2817 Lock with Trimplate, secured with	Lock stile of the active panel located 38.250" c/l
One (1)	2817 Lock with Trimplate, secured with two (2) # 9 x 1.250" Phillips flat head	Lock stile of the active panel located 38.25 measuring from bottom of panel

**Installation:** 

All Specimens

The specimen was fastened to the 2" x 12" wood test buck utilizing twenty-two (22) # 8 x 1.50" Phillips PH SMS. Seven (7) in each frame jamb located at 5.50", 19.50", 33.50", 47.50", 61.50", 75.50" and 89.50" measuring from sill to head. Eight (8) in the frame head located at 7.00", 19.00", 31.00", 43.00", 55.00" 67.00", 79.00" and 91.00" measuring from left jamb to right jamb. There were no fasteners located at the sill.

Secured with a silicone sealant.

Sealant:

Silicone caulking on hairline joinery and as needed to seal the test unit to the wood buck.

**Surface Finish:** 

White

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#### **Performance Test Results**

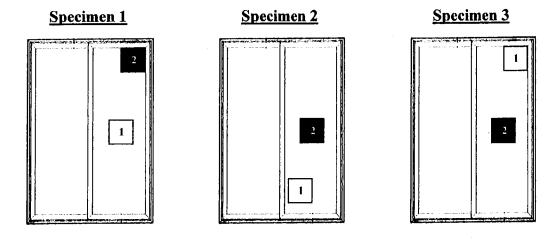
#### Large Missile Impact

#### Specimen 1, 2, & 3: ASTM E-1996-05

Specimens were tested to ASTM E 1996-05 with the required protocol of the test specifications. All specimens were tested to the Wind Zone 4 requirements stated in section 5 of ASTM E-1996-05 Missile level D. The missile orientation was perpendicular to the glazing surface at impact. Each specimen was impacted with an 8 ft., 9 lb. Southern yellow pine 2" x 4" at the following locations:

#### Note:

- X-Measurement from left edge of test specimen.
- Y- Measurement from top edge of test specimen.



Specimen 1:	Impact No.	Speed ft/sec.	X Meas.	Y Meas.
•	1.	50.3	67.000"	47.750"
	2.	50.1	84.000"	14.500"
Specimen 2:	Impact No.	Speed ft/sec.	X Meas.	Y Meas.
•	1.	49.9	54.000"	87.000"
	2.	50.0	67.000"	48.500"
Specimen 3:	Impact No.	Speed ft/sec.	X Meas.	Y Meas.
•	1.	50.0	83.500"	14.000"
	2	50.3	67 000"	48 000"

When evaluated, upon completion of missile impacts the test specimens resisted the large missile vin

formed longer than (5 in.) by (1/16 in.) wide through which air can pass.

# **Performance Test Results (Continued)**

#### Cyclic Static Air Pressure Loading Test

# Specimen 1, 2, & 3: ASTM E 1886-05

Specimens were tested to ASTM E 1886-05 test specifications. All specimens were tested to the requirements of section 5.4 table 1 in ASTM E 1996-05.

# Specimen 1, 2 & 3: (Design Pressure) +50.0 psf., - 50.0 psf.

ľ	osi	tiv	e	loads	

Range of Test	Actua	l Load (psf.)	# of Cycles	Cycles/min.
0.2 - 0.5	10.0	25.0	3500	55
0.0 - 0.6	0.0	30.0	300	55
0.5 - 0.8	25.0	40.0	600	55
0.3 - 1.0	15.0	50.0	100	55

#### 4500 cycles

Deflection taken center mid-span	<b>Deflection</b>	<u>Set</u>
Specimen 1	1.000"	0.250"
Specimen 2	0.750"	0.125"
Specimen 3	0.875"	0.125"

#### Negative loads

Range of Test	<u>Actua</u>	l Load (psf.)	# of Cycles	Cycles/min.
0.3 - 1.0	15.0	50.0	50	55
0.5 - 0.8	25.0	40.0	1050	55
0.0 - 0.6	0.0	30.0	50	55
0.2 - 0.5	10.0	25.0	3350	55
4=00				

#### 4500 cycles

Deflection taken center mid-span	Deflection	Sat
Denection taken center mid-span	<u>Deflection</u>	<u>Set</u>
Specimen 1	1.125"	0.250"
Specimen 2	1.000"	0.250"
Specimen 3	1.125"	0.250"

# 9000 cycles completed

Specimen showed no resultant failure after cycle test.

The results obtained and reported apply only to the specimens tested.

Results: All specimens tested resisted the large missile impact, without penetration of the inner plane of the glazing and resisted the cycle pressure loading specified in Table 1; with no tear forming longer than 31 x 1/16" wide through which air can pass (1996-05 7.2.1).

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#### **Comment:**

- 1. At the conclusion of testing it was determined that the tested specimens passed the criteria of Wind Zone 4 set forth in ASTM E 1886-05 and ASTM E 1996-05.
- 2. The tested specimens were separated and conditioned for 4 hrs. Between 59 and 95 degrees Fahrenheit.
- 3. Nominal 2-mil polyethylene film was used to seal against air leakage during cyclic loads. The film was used in a manner that did not influence the test results.

**Test Date:** 

October  $5^{th} - 6^{th}$ , 2010

**Test Completion Date:** 

October 6<sup>th</sup>, 2010

Remarks:

Detailed drawings were available for laboratory records and comparison to the test specimen at the time of this report. A copy of this report along with representative sections of the test specimen will be retained by CTL for a period of four (4) years. The results obtained apply only to the specimen tested.

This test report does not constitute certification of this product, but only that the above test results were obtained using the designated test methods and they indicate compliance with the performance requirements (paragraphs as listed) of the above referenced specifications.

Certified Testing Laboratories assumes that all information provided by the client is accurate and that the physical and chemical properties of the components are as stated by the manufacturer.

Certified Testing Laboratories, Inc.

# **Testing Performed By:**

Steve Gibbs

CTL

**Client Present:** 

Jonathan Morton

Deceuninck NA

Jonathan Pittenger

Lab Technician

**Certified Testing Laboratories** 

cc:

Deceuninck NA

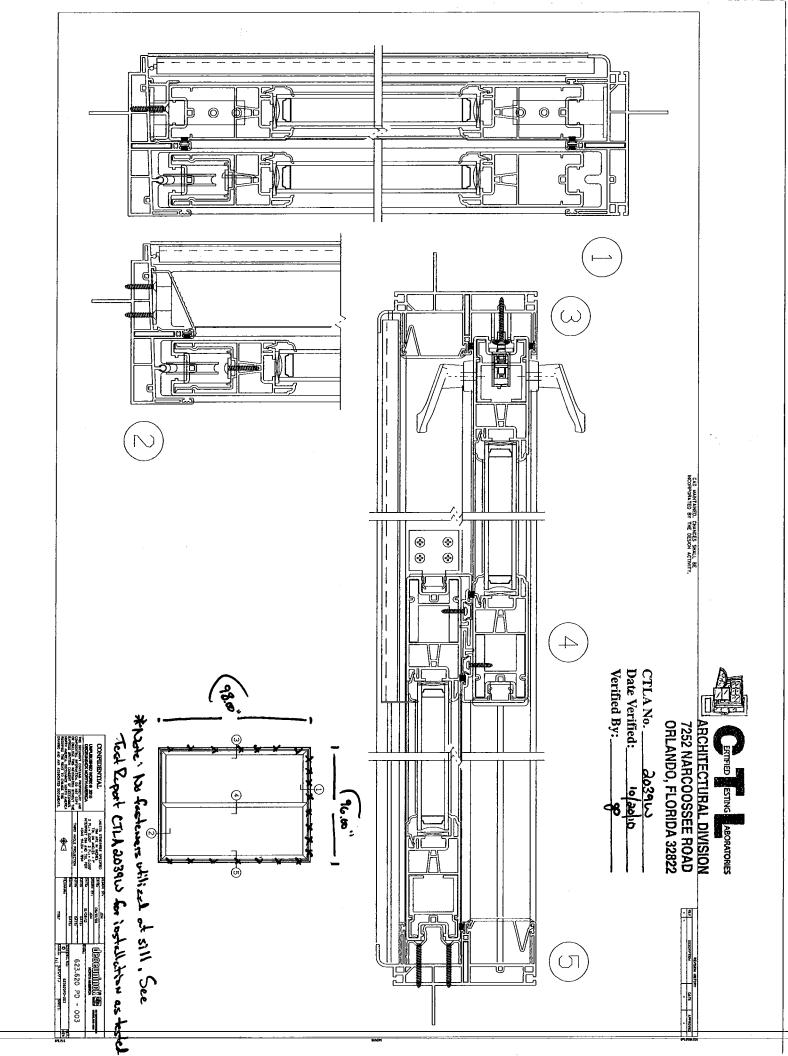
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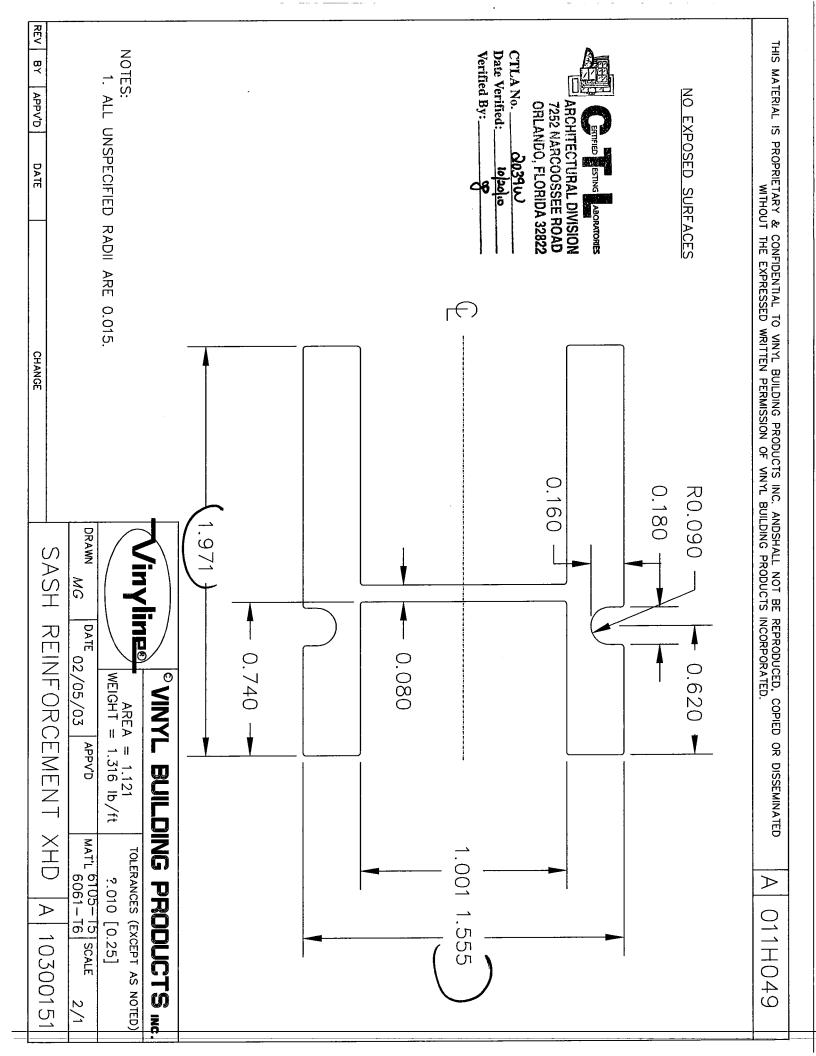
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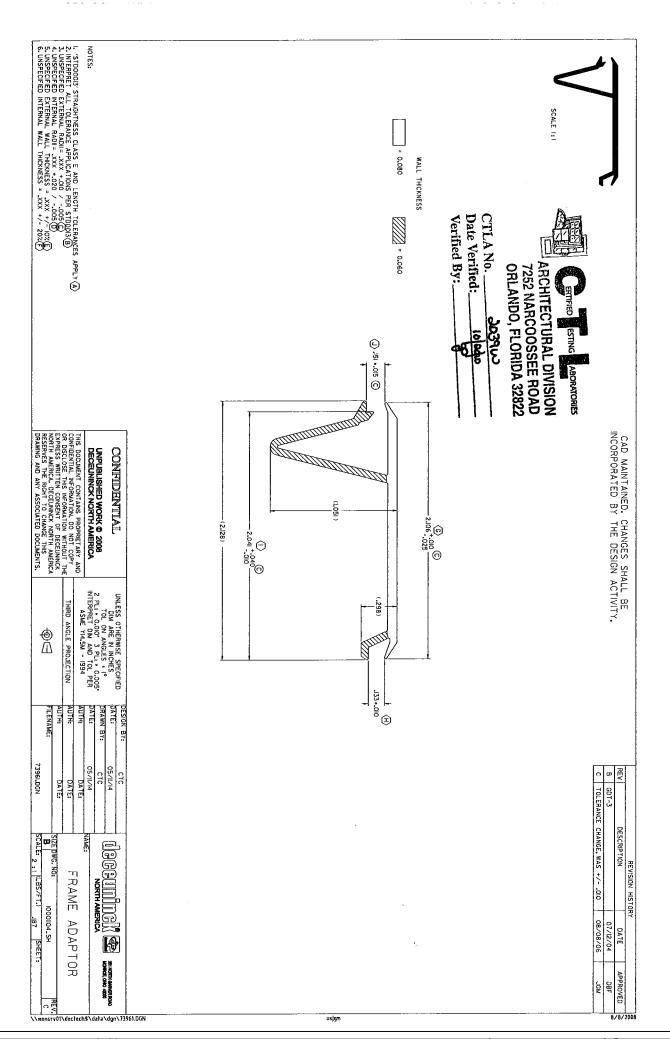
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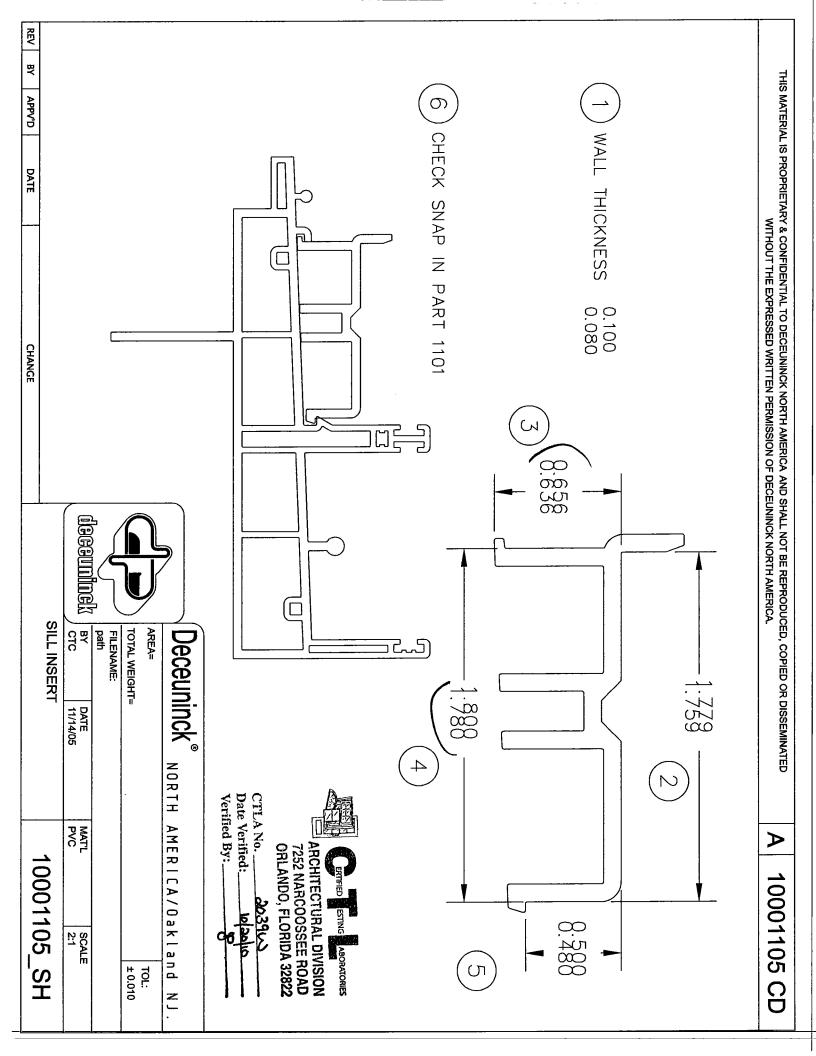
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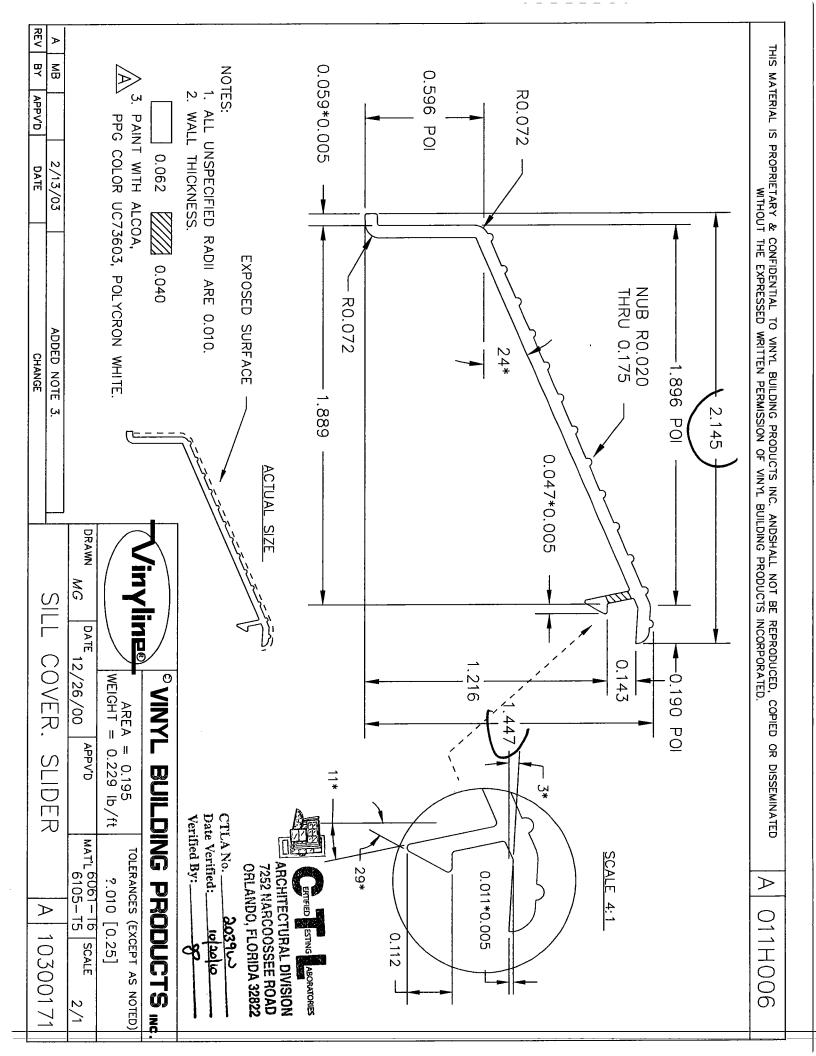
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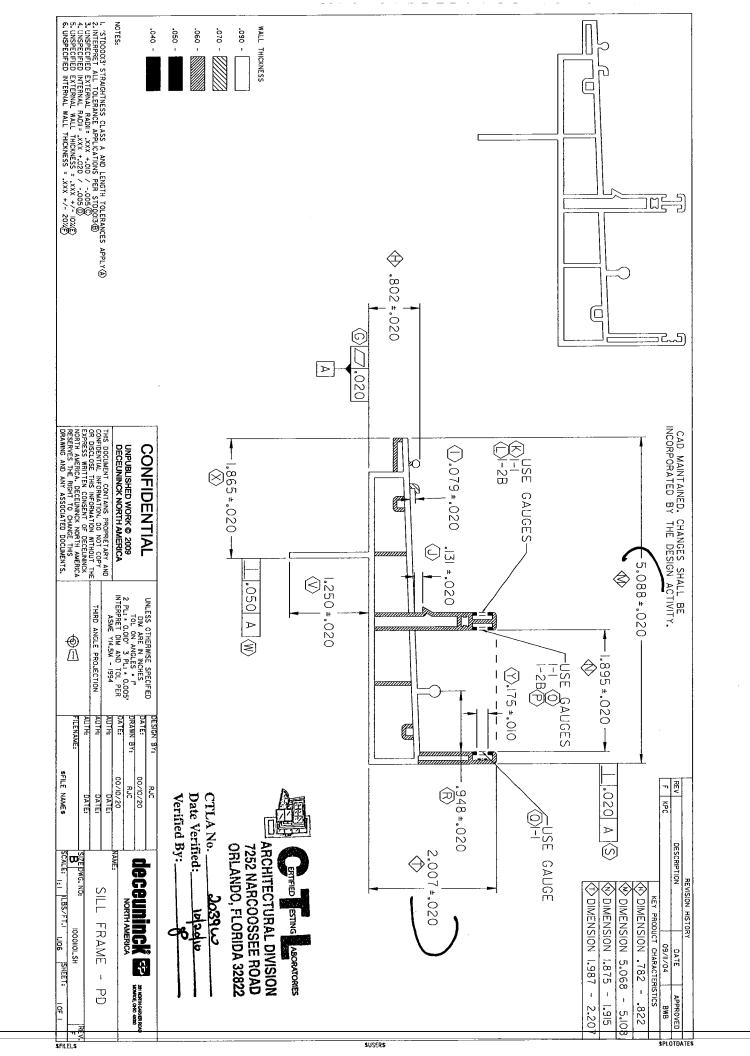


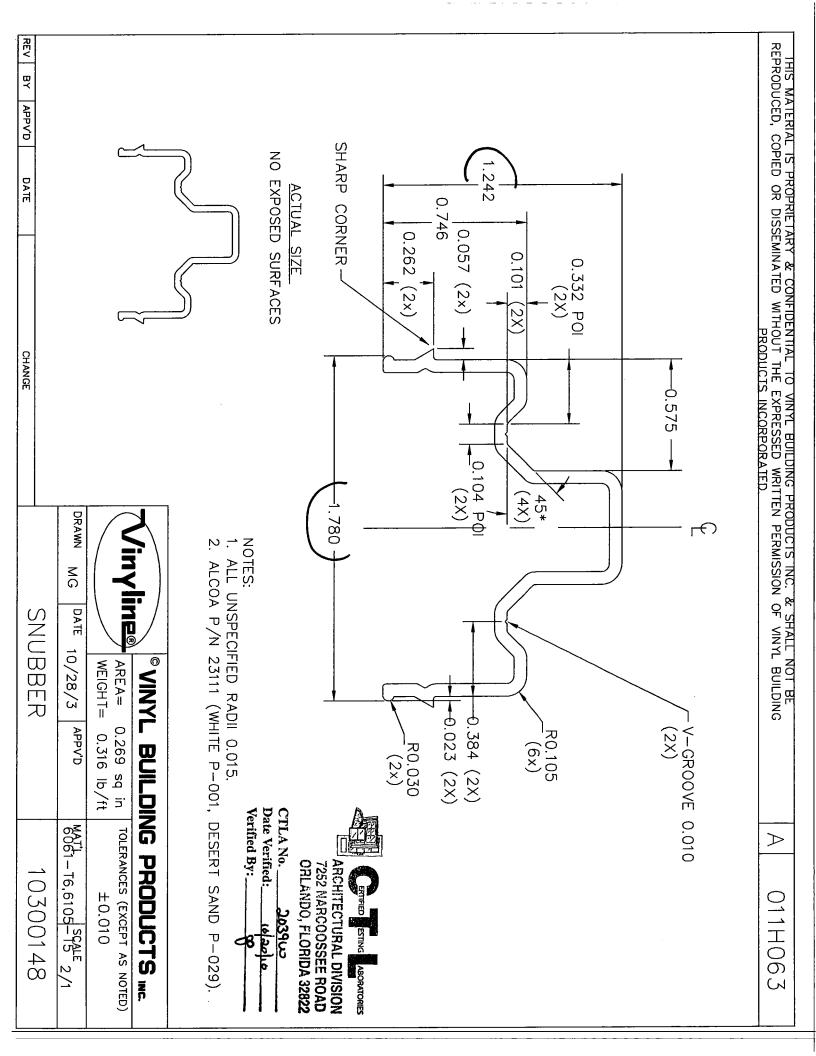


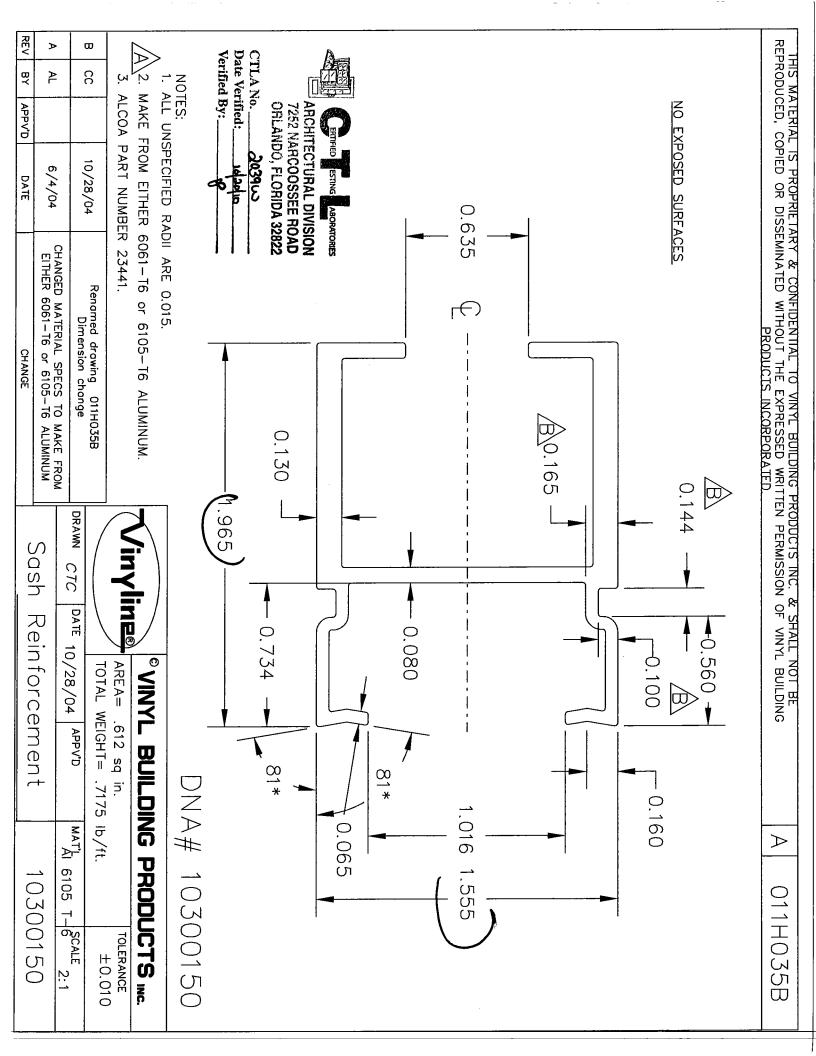


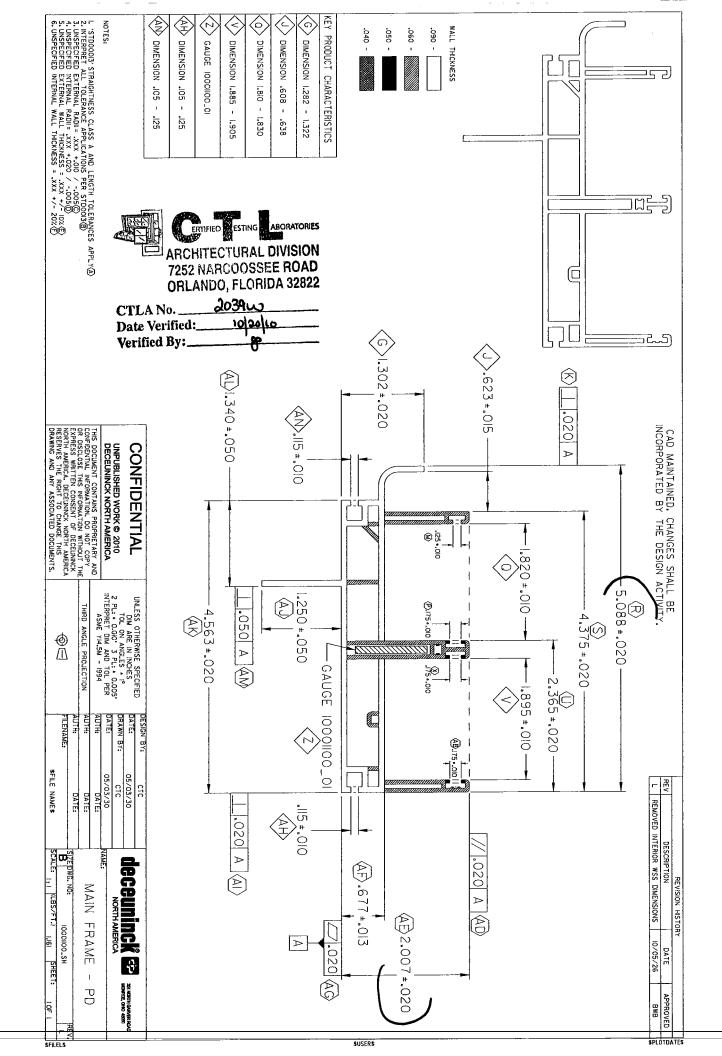


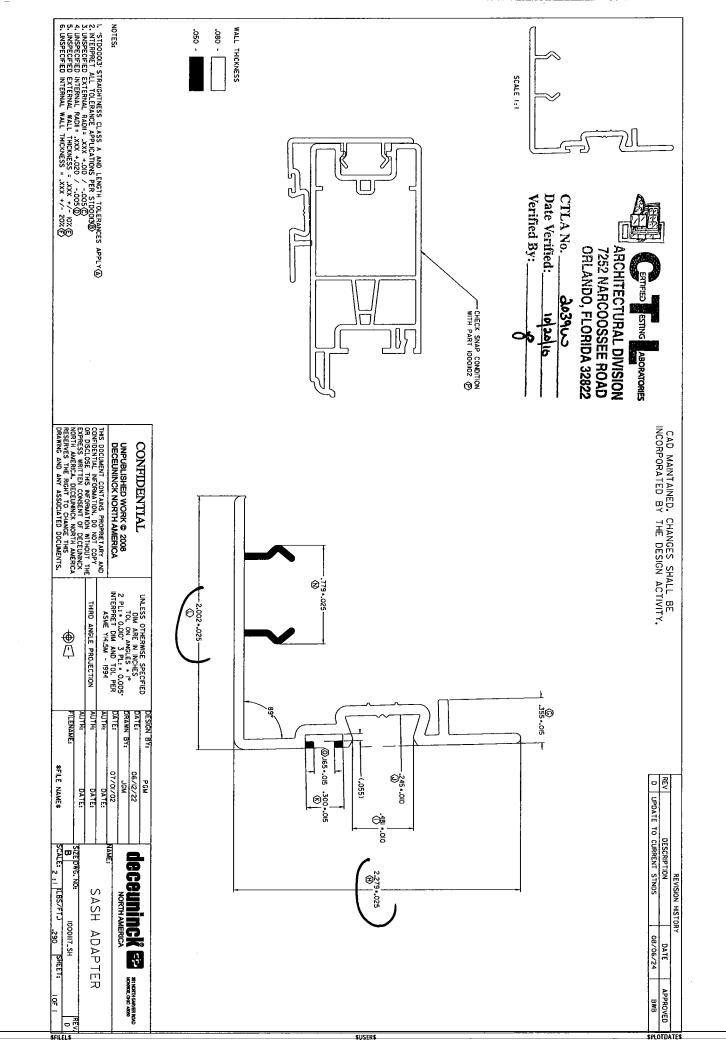


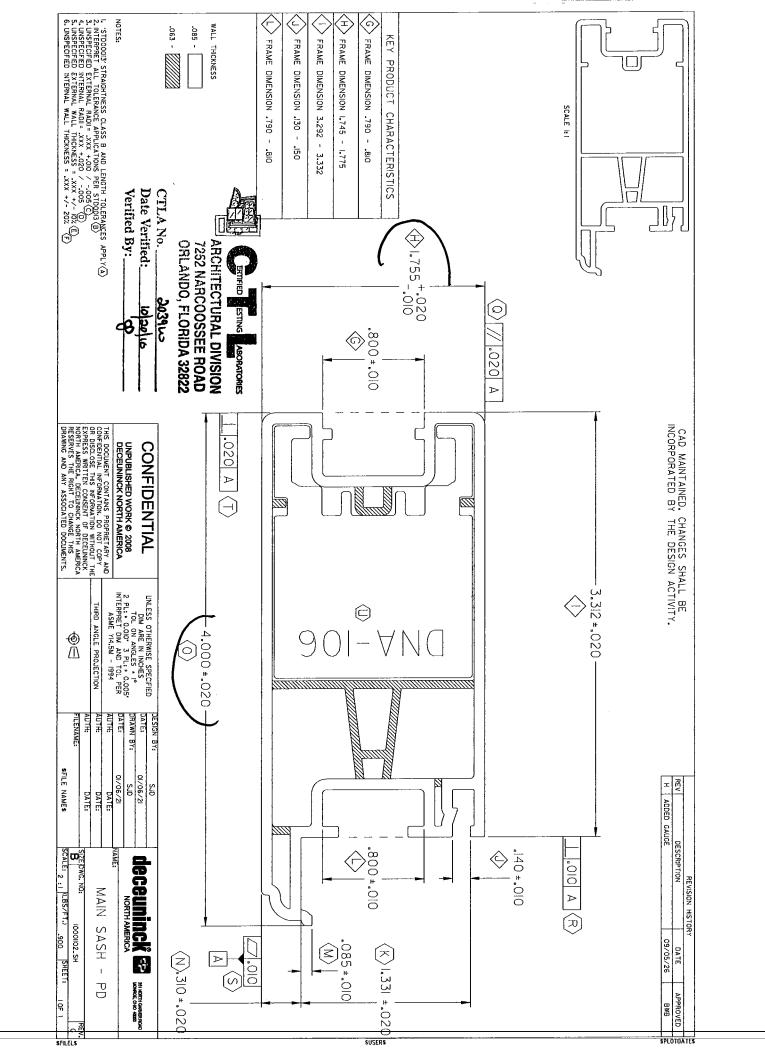












# SUGGESTED HARDWARE SUPPLIERS





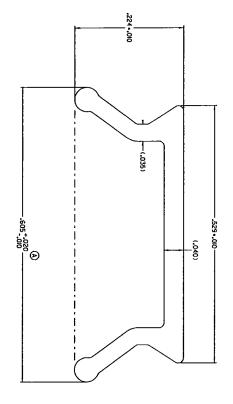
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ZZZ CAN ART ALUMINUM EXTRUSION INC. ZZZZ CTLA No. 2039	III JJJ KKK LLL MMM NNN OOO PPP QQQ RRR SSS TTT UUU VVV WWW XXX	HYGRADE CURBELL PLASTICS ACCUMETRIC INC. KTS GLASS TECHNOLOGIES, INC. DOW CORNING CORPORATION WALTER & SIMPSON SALES, INC. MITCHELL METAL PRODUCTS, INC. GOLDEN ALUMINUM EXTRUSIONS LMT PRODUCTS CORP. QUALITY FENCING & SUPPLY, LLC GAER MOLD BUILDERS HARDWARE DAKOTA BALANCE HUGHES SUPPLY CAST-ALL HILL DESIGN RADISSON INDUSTRIES	HHHH IIII JJJJ KKKK LLLL MMMM NNNN OOOO PPPP QQQQ RRRR SSSS TTTT UUUU VVVV WWWW XXXX	VISION INDUSTRIES GROUP  ULTRAFAB  LAWRENCE INDUSTRIES  ECKCO PLASTICS  FORBO ADHESIVES  BEAR'S METAL WORKS  M & M PLASTICS  USA PRODUCTION PARTS SOUTHEASTERN ALUMINUM  ALPHA RESOURCES  ADVANCE COMPONENTS SULLIVAN & ASSOCIATES  ARCHITECTURAL DIV

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SCALE I:

CTLA No. \_\_\_\_ Date Verified:\_ Verified By: ARCHITECTURAL DIVISION
7252 NARCOOSSEE ROAD
ORLANDO, FLORIDA 32822 ABORATORIES



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DRAWING AND ANY ASSOCIATED DOCUMENTS.	NORTH AMERICA, DECEDNINGS NORTH AMERICA	EXPRESS WRITTEN CONSENT OF DECEUNINCK	OR DISCLOSE THIS INFORMATION WITHOUT THE L	THIS DOCUMENT CONTAINS PROPRIETARY AND	DECEUNINCK NORTH AMERICA	UNPUBLISHED WORK © 2007	COLUMNICATION	
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IDDDIII8_SH_dgn		DATES	DATEs	DATEs	07/01/02	Year	06/12/22	PGM
SCALES 8 : (CBS/FT.) .023 SHEET: 10F	D IOOOIII8_SH	SIZE DWG. NO. IREV.	DOOK ACCESSONI - SCREW COVER	DOOD ACCIDENCE CONTROL	NAME:	NORTH AMERICA	35 HORTH OWNER, POW	

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SS = .XXX +/- 102
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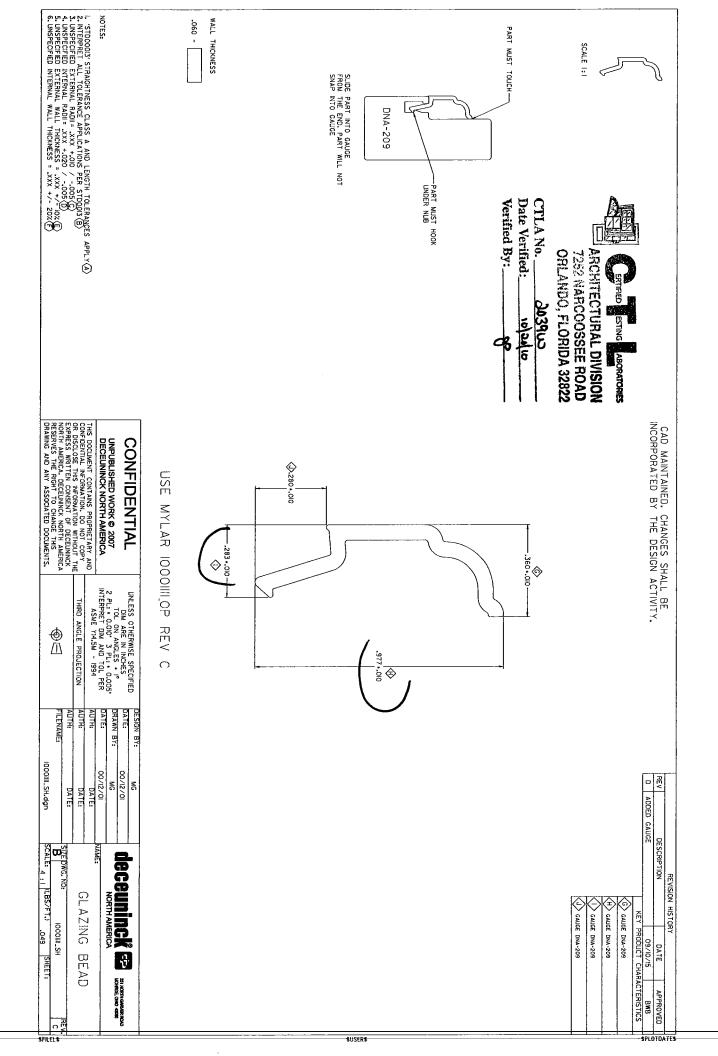
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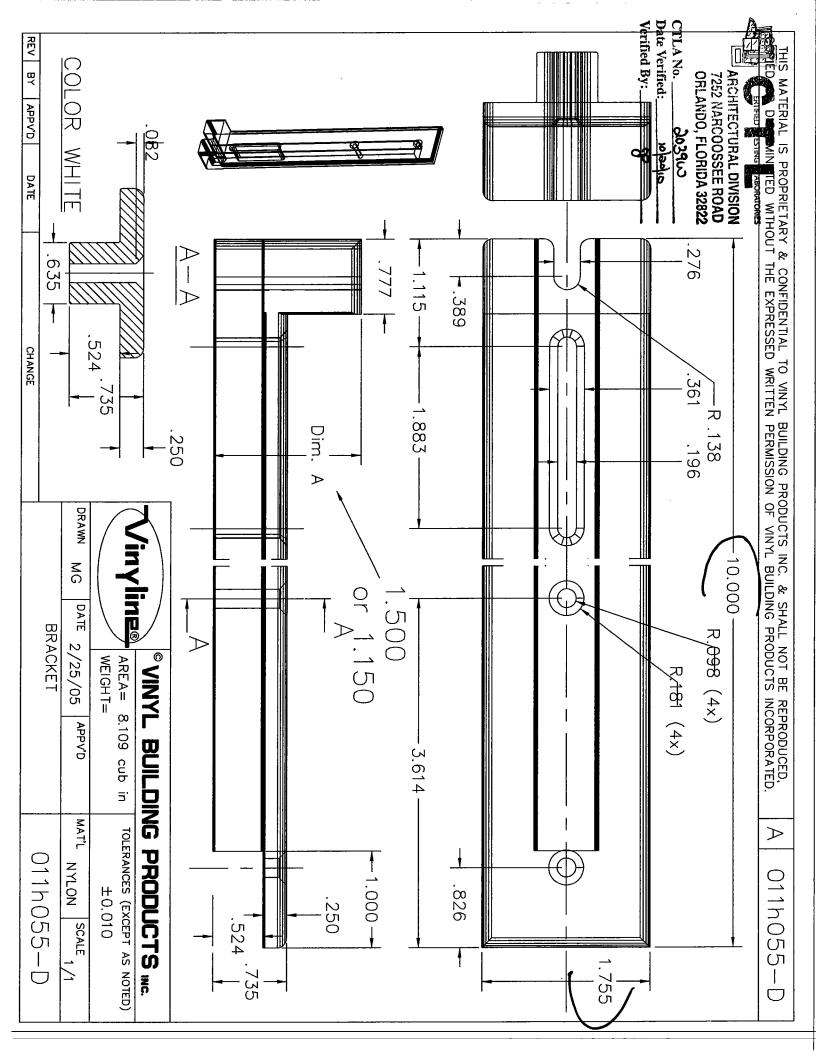
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1/4/2007

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.







CAD MAINTAINED. CHANGES SHALL BE INCORPORATED BY THE DESIGN ACTIVITY.

ARCHITECTURAL DIVISION
7252 NAHCOOSSEE ROAD
ORLANDO, FLORIDA 32822
CTLA No. 203900
Date Verified: 102016
Verified By: 7252

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SURFACE 2

SURFACE 3

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SURFACE 6

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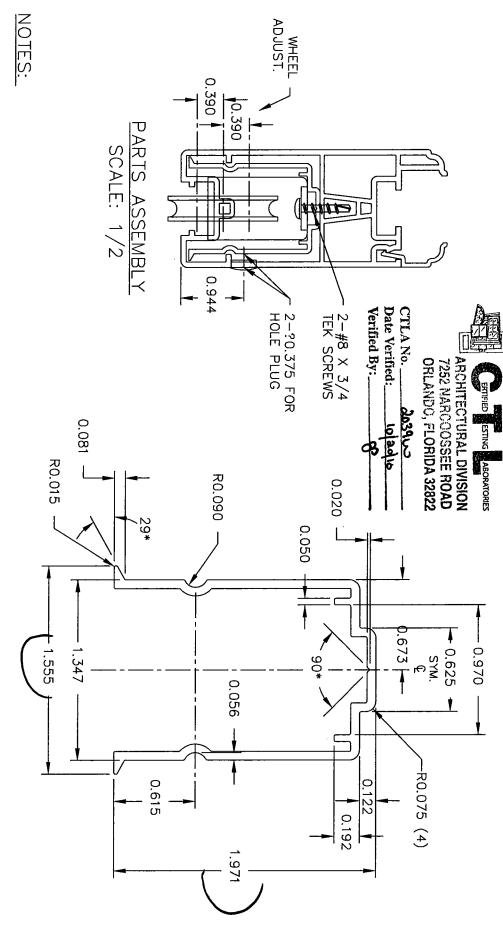
I" OVERALL LAMIANTE IG

1/8" ANNEALED PANELS WITH

.090" PVB INNERLAYER

1/8" TEMPERED SACRIFICIAL PANEL





- MATERIAL: ALUM. 6005-T5, 6061-T6 or 6105-T5
- UNSPECIFIED WALL THICKNESS 11 .065".
- йЬ BREAK ALL CORNERS RO.015
- 4. NO EXPOSED SURFACES
- Ò MOMENTS OF INERTIA: Ixx=.147; Iyy=.118



# VINYL BUILDING PRODUCTS LLC

DEPLIS# 10300152

DATE 11-30-05 FACTOR PERIM. = 11.200 in.WT/FT = AREA =APPV'D .359 sq. .431 lb. ⋽` MAT'L NOTE TOLERANCES (EXCEPT AS NOTED) AA STANDARDS SCALE FULL

RAIL INSERT-SIDE ADJUST ROLLER

**DESCRIPTION** 

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DATE

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10300152

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		AGCGUNINGK SE		ВҮ	ATE DESCRIPTION	REV DATE
d						
- ا	Verified By:	Verif				42
10 20 10	Date Verified:	Date	#8 x 3" PFH - PAINTED	6	IMPACT BRACKET	4 6
STANCES	A No.	CTL	#8 x .75" PPH - 410SS	AS REQ'D	INTERLOCK	40
,			#8 x 1" PFH - 410SS	AS REQ'D	REINFORCMENT TO PANEL	39
FLORIDA 32822	ORLANDO.		#8 x .75" PFH - PAINTED	6	FIXED PANEL TO JAMB	8 8
OOSSEE R	7252 NARGOOSSEE ROAD		#8 × 1" PPH - 410SS	4	ROLLER ASSEMBLY	
URAL DIVISION	MARCHITECT		#8 x 1.5" PFH - 410SS	2		36 SCREWS
			THE RESERVE OF THE PROPERTY OF			35
ESTING ABORATORIES	EKTIFIED		REFER TO APPLICABLE TEST REPORT	AS REO'D	GLAZING COMPOUND	2 2
		Mich	DEFER TO ARRIVABLE TEST DEPORT	AS REOD	SETTING BLOCKS (REFER TO IG SUPPLIER GUIDEUNES)	33
	MMMM		011H055-D	3 N	1" INSI II ATED GI ASS	3 2
_	ם		9946	2	3/8" HOLE PLUG	31 88
	포포포		D6096AMWKC 0.810	2	DRAFT PLUG810 DIA.	29
-	П		1988PRS166REVSS	2	ROLLER ASSEMBLY - PRECISION 1.66" WHEEL	28
			DECU-XXX3		HANDLE SET - BLANK	L'
_			DECU-XXX2		HANDLE SET - INTERIOR SWITCH / KEY	26
_	-		DECU-XXX1		HANDLE SET - INTERIOR SWITCH	
	n 'n		DECU-XXX4		HANDLE SET ASSEMBLY	24
_						23 22
_	壬壬		W21255MW	AS REQ'D	WEATHER-STRIPPING270 x .250	
_	PPPP	10300152-F-01	10300152		RAIL REINFORCEMENT - BOTTOM	
_	PPPP	10300150-F-01	10300150	1	STILE REINFORCEMENT - LOCK	19
_	pppp	STRAIGHT CUT	10300151	_	STILE REINFORCEMENT - INTERLOCK	18
_	<b>&gt;</b>	10001111-F-01	10001111	4	GLAZING BEAD	17
	<b>&gt;</b> :	STRAIGHT CUT	10001118		SCREW COVER	16
_	۵ :	10001117-E-02	10001117	_	INTERLOCK	5
_	Α .	10001102-F-05	10001102	<u> </u>	RAIL - BOTTOM	14
_	<b>&gt;</b>	10001102-7-04	10001102	1	STILE - LOCK	13
_	> >	100011024-01	10001102			_
_	Δ	10001102-5-01	10001102	•	PNL RAIL - TOP	11 OPR PNL
	王王		W21255MW	AS REQ'D	WEALHER-STRIPPING2/0 x .250	6 9
_	PPPP	STRAIGHT CUT	10300151	_	STILE REINFORCEMENT - INTERLOCK	
_	PPPP	STRAIGHT CUT	10300150	_	STILE REINFORCEMENT - JAMB	
_	>	10001111-F-01	10001111	4	GLAZING BEAD	
_	>	STRAIGHT CUT	10001118	<b>-</b>	SCREW COVER	
_	>	10001117-F-04	10001117	_	INTERLOCK	
_	Α .	10001102-F-02	10001102		BOTTOM RAIL	ω
_	<b>&gt;</b> 3	10001102-F-01	10001102	2		
_	>	10001102 = 01	10001102	1	PNI TOP RAII	FXD PNI
	SOURCE	FAB DWG. NO	PART NO.	QUANTITY	DESCRIPTION	NO.

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೨೧೩೩ ೧೨		#6 x .375" PPH	2	SCREEN KEEPER	27
ORLANDO, FLORIDA 32822	ORLANDO,	#8 x 2.5" PPH - 410SS	12	FRAME ASSEMBLY	26
7252 NARCOOSSEE ROAD	7252 NARO	#8 x 1.25" PFH - 410SS	4	SILL RISER	25
ARCHITECTURAL DIVISION	ARCHITECT	#8 x 2.5" PFH - 410SS	2	KEEPER (INSTALLATION)	24
		#8 x 2.5" PFH - 410SS	4	L - BRACKET - HEAD & SASH	23
ERTIFIED ST ESTING ABORATORIES	LECTION OF THE PROPERTY OF THE	#8A x 1" PFH - 410SS	æ	L - BRACKET - HEAD & SASH	22
		#8 x 1.25" PFH - 410SS	16	SCREWS SNUBBER	21
					20
П		2152.525	2	BUMPER STOP	19
MMMM		011H040	1	SCREEN KEEPER	18
		DECU-2808-84		2778 KEEPER - STAINLESS STEEL	17
		DECU-2808-00		2778 KEEPER - YZD MILD STEEL	16
TI			1	KEEPER	15
PPPP	STRAIGHT CUT	10300149	4	FRAME REINFORCEMENT	14
႙		G-A302-Z1-G600	2	SILL FRAME GASKET	13
		011H027	2	L-BRACKET	12
Z	STRAIGHT CUT	16719-01	1	ROLLER TRACK CAP	11
pppp	10300148-F-01	10300148	2	MISC SNUBBER	10
					9
王王		W21255MW	AS REQ'D	WEATHER-STRIPPING270 x .250	œ
Α	10001105-F-01	10001105	_	SILLRISER	7
PPPP	10300171-F-01	10300171		SILL THRESHOLD	တ
A	10001101-F-01	10001101		SILL	5
≯	STRAIGHT CUT	10001104	2	INTERIOR FRAME COVER	4
➤	10001104-F-01	10001104		EXTERIOR FRAME COVER	ω
A	10001100-F-05	10001100	2	JAMB	2
Α	10001100-F-01	10001100	1	HEAD	
SOURCE	FAB DWG. NO	PART NO.	QUANTITY	DESCRIPTION	ITEM NO.

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