Westlake
Royal Window Solutions™

Krestmark® Collection

400 Series – New Construction



The 400 Series Window is primarily a new construction window but should not be ruled out for remodeling or replacement applications. Available in Single Hung, Horizontal Slider, Picture Window, architectural shapes and mulled units.

- Multi-chambered extruded vinyl frame and sash provide stability with excellent strength, thermal-resistant properties and is extremely low maintenance.
- Integral pre-punched nail fin adds strength, is a weathertight barrier and provides ease of installation.
- Fusion-welded corners in frame and sash provide strength and virtually eliminates air and water infiltration.
- Dual pane 3/4" insulated glass with environmentally friendly Warm Edge Spacer reduces thermal loss (type may vary).
- All picture windows, shapes and one-frame glass larger than 30 square feet will come with Tempered Glass as standard for safety reasons. All additional charges for Tempered Glass will automatically be applied.



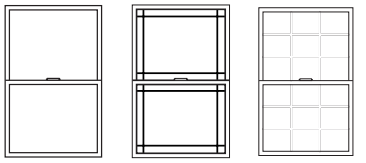
Argon-enhanced glass improves energy efficiency.

LoE-366 is a light green tint and provides efficient U-Factor & SHGC.

Annealed glass, Tempered obscure glass.

Factory mulled or stacked units and field mull accessories.

Impact available for coastal areas, added security or sound dampening (See Series 4000).



ONE LITE | 3/4" PRAIRIE | 5/8" COLONIAL



SIMULATED DIVIDED LITE



GRILLE BETWEEN GLASS



WHITE



SANDSTONE



CLAY

CARDINAL IG

For the complete list of Energy Star options please visit WestlakeRoyalWindows.com

NFRC PERFORMANCE RATINGS

(3/4" overall IG with Quanex Duralite spacer)

SINGLE HUNG	Glass Type Exterior + Interior	Gap Fill	Grid Option	NFRC Performance Ratings			EnergyStar® v7 Climate Zone Compliance		
				U-F	SHGC	VT	Southern	S.Central	N.Central
Standard	LoE-366 + Clear	Air	no Grid	0.32	0.23	0.54	Yes	No	No
		Air	with Grid	0.32	0.21	0.48	Yes	No	No
		Argon	no Grid	0.28	0.23	0.54	Yes	Yes	No
		Argon	with Grid	0.28	0.21	0.48	Yes	Yes	No
STC rated (STC = 32) requires DSB + 3/16 glass thickness & 11/16" IG	LoE-366 + Clear	Air	no Grid	0.34	0.24	0.53	No	No	No
		Air	with Grid	0.35	0.21	0.48	No	No	No
		Argon	no Grid	0.29	0.23	0.53	Yes	No	No
		Argon	with Grid	0.30	0.21	0.48	Yes	No	No

HORIZONTAL SLIDER	Glass Type Exterior + Interior	Gap Fill	Grid Option	NFRC Performance Ratings			EnergyStar® v7 Climate Zone Compliance		
				U-F	SHGC	VT	Southern	S.Central	N.Central
Standard	LoE-366 + Clear	Air	no Grid	0.32	0.23	0.54	Yes	No	No
		Air	with Grid	0.32	0.21	0.48	Yes	No	No
		Argon	no Grid	0.29	0.23	0.54	Yes	No	No
		Argon	with Grid	0.29	0.21	0.48	Yes	No	No

PICTURE WINDOW	Glass Type Exterior + Interior	Gap Fill	Grid Option	NFRC Performance Ratings			EnergyStar® v7 Climate Zone Compliance		
				U-F	SHGC	VT	Southern	S.Central	N.Central
Standard	LoE-366 + Clear	Air	no Grid	0.30	0.25	0.59	No	No	No
		Air	with Grid	0.30	0.23	0.53	Yes	No	No
		Argon	no Grid	0.26	0.25	0.59	No	No	No
		Argon	with Grid	0.26	0.23	0.53	Yes	Yes	No
STC rated (STC = 30) requires DSB + 3/16" glass thickness	LoE-366 + Clear	Air	no Grid	0.30	0.25	0.58	No	No	No
		Air	with Grid	0.30	0.23	0.52	Yes	No	No
		Argon	no Grid	0.26	0.25	0.58	No	No	No
		Argon	with Grid	0.26	0.23	0.52	Yes	Yes	No

Unless specified, the NFRC values & Energy Star compliance are for double glazed, SSB (3/32") glass thickness. For glass thicknesses above this, contact your sales representative for ratings information.

It is recommended not to mix LoE-360 with LoE-366 products within the same building structure since the inward and outward color/shade appearances are noticeably different.

You may qualify for a tax credit when you replace your existing windows. For more information, go to energystar.gov

ENERGY STAR PARTNER

NFRC National Fenestration Rating Council® CERTIFIED

WestlakeRoyalWindows.com
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Royal Window Solutions™

Westlake Royal Windows LLC

Multi- Family Construction Projects

LIFETIME LIMITED WARRANTY ("WARRANTY")

Vinyl (frame) Windows manufactured by Westlake Royal Windows LLC ("Westlake Royal") are free of defects in design, materials, and workmanship and fit for reasonable purposes for which intended at the time of shipment from our plants in Dallas, Carrollton, Houston, Texas and Baldwin, GA, as set out below.

WHAT WILL WE DO

Any Warranty claim should be presented to Westlake Royal in a timely manner. Thereafter, Westlake Royal will inspect the alleged defect. If the claim is within the Warranty, Westlake Royal will at its option, repair, or replace any defective component without charge. The cost of removing the defective products or installing a repaired or replaced product is not covered unless claim is made within one year of original purchase. Any Warranty claim approved cannot exceed in value more than the original purchase.

WHAT WE COVER AND FOR HOW LONG

Vinyl and or aluminum used in the frames of the Westlake Royal units are warranted to the original purchaser/ developer exclusively for the original ten (10) years of use. This Warranty covers material from blistering, corroding, flaking, or rot under conditions of normal wear and use. Hardware is covered by this Warranty from all defects in design, materials and workmanship for a period of one (1) year from purchase date. Insulated Glass (10 year) from the date of purchase is warranted against defects in materials and workmanship resulting in material obstruction in vision from film formation, moisture, or dust collection between the interior glass surfaces. Specialty glass (tinted, obscure or decorative) is warranted against such defects for a period of ten years from the date of purchase. If a stress crack (glass fracture) is NOT present upon delivery to the construction site, the development of any stress crack is not a result of a manufacturing defect but results from either a handling or installation issue and is not warranted. The cost of removing the defective product or installing a repaired or replaced product is not covered unless the Warranty claim is made within one (1) year after the date of initial purchase.

WHAT WARRANTY DOES NOT COVER

1. Defects or damages attributable to external cases, such as defects caused by (a) installation, soil retention, or normal weathering; (b) accidents, fire, flood , or other acts of God, vandalism, riot or civil disorder, misuse, or abuse; (c) harmful fumes, vapors, or chemical pollutants in the atmosphere, or use of non-approved heat caused by cleaning agents; (d) mildew; (e) building settlement or structural failure of the walls or foundations; (f) stresses resulting from localized heat which cause excessive temperature differentials over glass surfaces or edges; (g) use above 6,000 feet above sea level without capillary breather tubes; (h) use in an environment subject to high vibration (e.g. swimming pool), excess salinity; or other unusual conditions; or (i) any other use or occurrence beyond Westlake Royal's control.
2. Condensation on products which occurs as the natural results of humidity within the house or building area or differences between interior orexterior temperatures does not indicate a defect in the product and is not covered by this Warranty.
3. Changes in the appearance of the hardware that are attributed to normal aging and wear do not indicate a manufacturing defect and are notcovered by this Warranty.
4. Any defects resulting from installation such as but not limited to security system installation, caulk over weep holes in the frame are not covered. It also does not cover any cost of removal or installation of a product or component part.
5. Surface imperfections are inherent in the product and if they are not noticeable within three feet of the surface and do not impact the function of the product, they are not manufacturing defects and are not covered by the Warranty
6. Westlake Royal reserves the right to discontinue or change any component. If the component of the window and patio door originally installed is not available and Westlake Royal determines to make replacement, Westlake Royal may substitute a component designated by Westlake Royal that is equal quality and value.
7. Westlake Royal has no liability beyond repair or replacement of applicable products, and repair or replacement is your sole remedy for Westlake Royal's breach of this Warranty. Westlake Royal will have no liability for any lost time, inconvenience, loss of use, personal injury, property damage, or any other incidental or consequential damage.
8. No sales representative or distributor is authorized to modify this Warranty or to extend any other Warranty on Westlake Royal products.
9. Color change due to normal weathering is excluded from this Warranty. Normal weathering is defined as any exposure to ultraviolet (sun) light, weather and atmospheric conditions which will cause any colored or painted surface to fade, darken, chalk or acquire a surface accumulation of dirt and stains. The severity of these conditions depends on air quality, location of your home and other local conditions.
10. This Warranty is the only one Westlake Royal makes and Westlake Royal expressly disclaims any other express or implied warranty, including any warranty of merchantability or fitness for a purpose.

STATE LAW RIGHTS

Some states do not allow the limitation on how long a warranty lasts or the exclusion or limitation of incidental or consequential damages, so the limitations or exclusions in paragraphs 7 and 10 may not apply to you. This Warranty gives you specific rights, and you may also have other rights which vary from state to state.

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FIELD TESTING- In the event *Westlake Royal Windows,* (Seller), windows and/or doors are subject to "Field-Testing" as a conditional requirement of the supply agreement, the following conditions are required from the Buyer:

A) Requirement of fenestration product "Field-Testing" from buyer must be provided inwriting prior to execution of any supply agreement from seller.
B) Project specification for fenestration design pressures must be provided from buyer and included in all executable documents prior to execution of any supply agreement from seller.
C) "Field-Testing" must be performed as per AAMA 502 protocol for the "Voluntary Specification for Field Testing of Newly Installed Fenestration Products"
D) Product design pressure will be determined based on the specifics of the project, not the product designation of the window.
E) All "Field-Testing" equipment must be properly calibrated and testing agency must provide proof of equipment compliance upon request
F) No more than (3) fenestration openings will be subject to "Field-Testing" unless otherwise noted and approved by Seller.
G) "Field-testing" pressures should never exceed 2/3 of the project specifications for fenestration products
H) Seller must be notified in writing two-weeks prior to any scheduled "Field-testing"
I) Buyer agrees to allow the Seller the opportunity to apply remediation on any failed fenestration products
J) Seller is not responsible for the cost or reimbursement of any related "Field-testing" fees
K) Seller is not responsible and cannot be held liable for failures on fenestration products due to installation practices that deviate from tested and accepted installation techniques

Buyer Signature _____ Date _____

Printed Name _____

Company Name _____

For additional information on AAMA (American Architectural Manufacturer's Association) see fgiaonline.org

3950 Bastille Rd Suite 100
Dallas, Texas 75212

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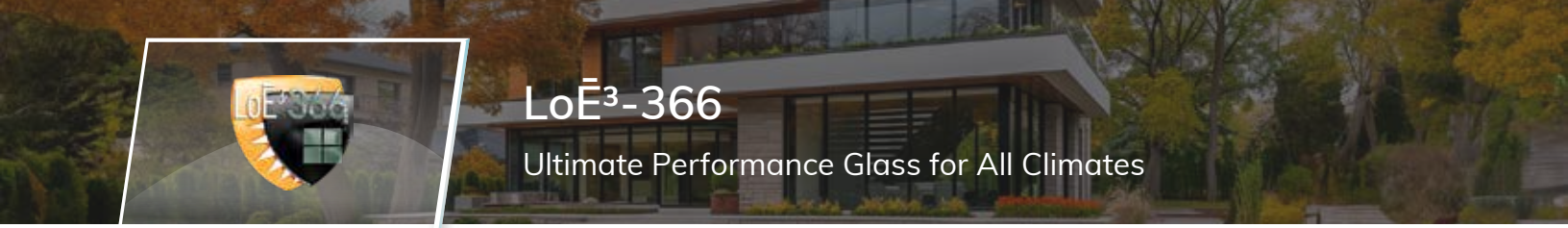
AAMA PERFORMANCE DATA

INDUSTRY STANDARD TABLE OF EQUIVALENT WIND VELOCITIES

PERFORMANCE CLASS Product performance class codes and minimum performance for window	Residential (R)											
	Light Commercial (LC)											
	Commercial (C)											
DESIGN PRESSURE RATINGS (DP RATING) The Design Pressure (DP) is the pressure measured in Pounds per Square Foot (PSF) that a building or building componet should be designed to accommodate without failure.	15	20	25	30	35	40	45	50	55	60	65	70
STRUCTURAL TEST PRESSURE IN PSF Structural Test Pressure = 1.5 x Design Pressure (DP Rating). The higher the number, the greater the amount of wind the window can sustain. This number varies with window size; be sure comparisons are with same size windows.	22.5	30	37.5	45	53.5	60	67.5	75	82.5	90	97.5	105
EQUIVALENT WIND VELOCITY IN MPH	77	88	99	108	117	125	133	140	147	153	159	165
WATER TEST PRESSURE IN PSF Water test pressure measures the windows ability to resist water penetration under specific pressure. Water test pressure = 15% of Design Pressure (DP Rating). The greater the rating, the greater the ability of the window to resist water penetration	2.86	3	3.75	4.5	5.25	6	6.75	7.5	8.25	9	9.75	10.5

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LoĒ³-366

Ultimate Performance Glass for All Climates

Cardinal LoĒ³-366® glass offers optimal solar control and high visibility, ensuring year-round comfort and energy savings. Its advanced triple-layer coating provides exceptional heat rejection and fading protection without compromising the view, making it the most popular LoĒ product.

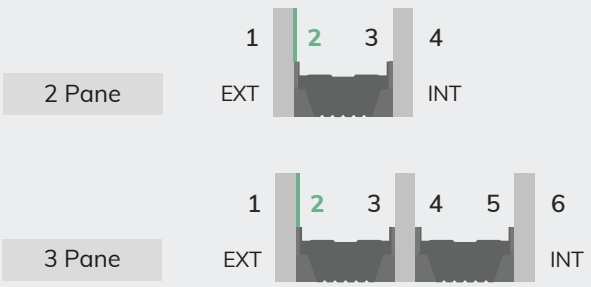
65%
Vis Trans

0.27
SHGC

0.24
U-Factor

5%
UV Transmission

Coating Position:



Data is produced using LBNL Window 7.8. 2-pane IG units have 13mm airspace and filled to 90% argon.

Benefits of LoĒ³-366

- **High Visible Light w/Solar Heat Gain**
- **Excellent UV blocking**
- **All Season Comfort**
- **Enhanced Visual Comfort**

The superior insulating capability of LoĒ³-366 is a key factor in the construction of comfortable windows for cold & warm climates. The dramatic comfort improvement from LoĒ³-366 glass also means the relative humidity of the indoor air can be controlled and maintained properly. It lets more unobstructed light in and protects from unwanted exterior air, keeping your home comfortable.

High energy efficiency	Custom shapes & sizes	Neutral color
Laminated options	Thicknesses: 2.2 to 6mm	Max dimensions: 96” x 144”

Note: LoĒ³-366 is available as annealed, heat-strengthened or tempered glass.

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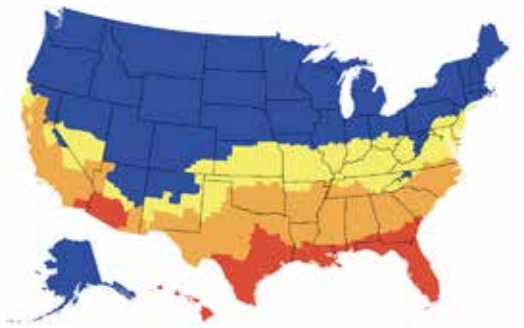
ENERGY STAR 7.0

ENERGY STAR® is a program run by the U.S. Environmental Protection Agency (EPA) that promotes energy efficiency in consumer products, including windows. ENERGY STAR 7.0 is the latest version of the ENERGY STAR program's requirements for windows.

LoĒ³-366 can be used to meet the criteria for **all four climate zones**. In the **Northern** climate zone, choose LoĒ³-366 with a triple pane IG unit.

Whole-Window Performance Criteria

	U-Factor	SHGC	
▸ Northern	≤0.22	≥0.17	Prescriptive
	=0.23	≥0.35	Equivalent Energy Performance
	=0.24		
	=0.25	≥0.40	
	=0.26		
▸ North-Central	≤0.25	≤0.40	
▸ South-Central	≤0.28	≤0.23	
▸ Southern	≤0.32	≤0.23	



3/4" Dual Pane with 3mm Glass ● 1" Triple Pane with 3mm Glass ● 90% Argon

Center-of-Glass Performance

		VISIBLE LIGHT		FADING			U-FACTOR	
		Transmission	Exterior	UV	ISO	SHGC	Air Fill IP / SI	Argon Fill IP / SI
Dual Pane	▸ LoĒ³-366 / Clear	65%	11%	5%	43%	0.27	0.29 / 1.65	0.24 / 1.37
	▸ LoĒ³-366 / LoĒ-i89	63%	11%	5%	42%	0.27	0.23 / 1.30	0.20 / 1.11
Triple Pane	▸ LoĒ³-366 / Clear / LoĒ-180	57%	15%	2%	36%	0.24	0.16 / 0.90	0.13 / 0.72
	▸ LoĒ³-366 / LoĒ-180 / LoĒ-i89	56%	15%	2%	35%	0.24	0.14 / 0.73	0.11 / 0.63

LBNL Window 7 per NFRC100 conditions. LoĒ³-366 is intended for the 2nd surface on an insulating glass unit.

ENGINEERING THE FUTURE OF GLASS

Contact Cardinal CG to learn more about LoĒ³-366 and other Cardinal glass products.

775 Prairie Center Drive, Eden Prairie, MN 55344

www.cardinalcorp.com

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AAMA PERFORMANCE DATA, 07-16-2026

Plant	Type	Series	CHS	Frame	Transom	Impact	Size	Rating	FBC 2023
KRESTMARK	SH	200/275		FIN			48x60	R-50	FL 12398-R14.04
KRESTMARK	SH	220		FINLESS			44x72	R-50	FL 12398-R14.16
KRESTMARK	SH	200/275		FIN			44x72	R-50	FL 12398-R14.06
KRESTMARK	SH	220		FINLESS			48x72	R-45	FL 12398-R14.15
KRESTMARK	SH	200/275		FIN			48x72	R-45	FL 12398-R14.01
KRESTMARK	SH	220		FINLESS			36x84	R-50	FL 12398-R14.14
KRESTMARK	SH	200/275		FIN			36x84	R-40	FL 12398-R14.07
KRESTMARK	SH	200/275		FIN			36x84	R-55	FL 12398-R14.05
KRESTMARK	SH	200/275		FIN			48x84	R-30	FL 12398-R14.02
KRESTMARK	SH	200/275		FIN			48x84	R-35	FL 12398-R14.03
KRESTMARK	SH	200/275		FIN			48x96	R-30	
KRESTMARK	SH-SH	200/275	TWIN	FIN			71x72	R-50	FL 12398-R14.12
KRESTMARK	SH-SH	220	TWIN	FINLESS			71x72	R-50	FL 12398-R14.17
KRESTMARK	SH-SH	200/275	TWIN	FIN			87x72	R-40	
KRESTMARK	SH-SH	200/275	TWIN	FIN			72x84	R-35	FL 12398-R14.11
KRESTMARK	SH-SH-SH	200/275	TRIPLE	FIN			108x72	R-50	FL 12398-R14.09
KRESTMARK	SH/PW	200/275		FIN	3860		44x96	R-35	
KRESTMARK	PW/SH	200/275		FIN	3820		44x96	R-50	FL 12398-R14.08
KRESTMARK	PW/SH-SH	200/275	TWIN	FIN	6020		72x96	R-50	FL 12398-R14.13
KRESTMARK	PW/SH-SH-SH	200/275	TRIPLE	FIN	8010		96x84	R-50	FL 12398-R14.10
KRESTMARK	HS	200/275		FIN			72x44	R-45	
KRESTMARK	HS	200/275		FIN			72x48	R-35	FL 13418-R7.1
KRESTMARK	PW	200/275		FIN			48x72	LC-70	FL 13195-R8.02
KRESTMARK	PW	200/275		FIN			72x72	LC-60	FL 13195-R8.03
KRESTMARK	PW	200/275		FIN			84x72	R-50	
KRESTMARK	PW	200/275		FIN			48x84	R-80	FL 13195-R8.05
KRESTMARK	PW	200/275		FIN			72x84	R-50	FL 13195-R8.04
KRESTMARK	PW-PW	200/275	TWIN	FIN			71x83	LC-50	
KRESTMARK	PW-PW-PW	200/275	TRIPLE	FIN			132x84	R-40	FL 13195-R8.06
KRESTMARK	PW/PW-PW	200/275	TWIN	FIN	6830		80x108	R-30	FL 13195-R8.07
KRESTMARK	PW/PW-PW	220	TWIN	FINLESS	6830		80x108	R-30	FL 13195-R8.08
KRESTMARK	SH	420		FINLESS			48x72	R-50	FL 12398-R14.25
KRESTMARK	SH	400		FIN			48x72	R-50	FL 12398-R14.19
KRESTMARK	SH	400		FIN			36x84	R-50	FL 12398-R14.18
KRESTMARK	SH	400		FIN			40x84	R-40	
KRESTMARK	SH	400		FIN			48x84	R-35	FL 12398-R14.20
KRESTMARK	SH-SH	400	TWIN	FIN			72x72	R-50	FL 12398-R14.24
KRESTMARK	SH-SH	400	TWIN	FIN			80x72	R-50	
KRESTMARK	SH-SH	400	TWIN	FIN			72x84	R-40	FL 12398-R14.23

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AAMA PERFORMANCE DATA, 07-16-2026

KRESTMARK	SH-SH-SH	400	TRIPLE	FIN			108x72	R-40	FL 12398-R14.21
KRESTMARK	SH-SH-SH	400	TRIPLE	FIN			108x72	R-35	FL 12398-R14.22
KRESTMARK	PW/SH	400		FIN	4020		48x96	R-50	WIN-1429.1
KRESTMARK	HS	400		FIN			72x44	R-50	FL 13418-R7.2
KRESTMARK	HS	400		FIN			72x48	R-45	FL 13418-R7.3
KRESTMARK	HS	400		FIN			72x60	R-30	
KRESTMARK	HS XOX	400		FIN			108x72	R-15	
KRESTMARK	PW	400		FIN			72x72	LC-60	FL 13195-R8.09
KRESTMARK	PW	400		FIN			48x84	R-65	FL 13195-R8.10
KRESTMARK	PW	400		FIN			72x84	R-50	FL 13195-R8.11
KRESTMARK	PW-PW	400	TWIN	FIN			88x84	R-50	
KRESTMARK	PW-PW	420	TWIN	FINLESS			88x84	R-50	
KRESTMARK	PW-PW-PW	400	TRIPLE	FIN			108x84	R-30	FL 13195-R8.12
KRESTMARK	PW/PW	400		FIN	4020		48x72	R-50	
KRESTMARK	PW/PW	400		FIN	6030		72x96	R-40	
KRESTMARK	PW/PW-PW	400	TWIN	FIN	6830		80x108	R-35	FL 13195-R8.13
KRESTMARK	PW/PW-PW	400	TWIN	FINLESS	6830		80x108	R-35	FL 13195-R8.13
KRESTMARK	SH	4000		FIN		IMPACT	36x72	R-60	FL 17660-R5.6
KRESTMARK	SH	4000		FIN		IMPACT	44x72	R-55	FL 17660-R5.3
KRESTMARK	SH	4000		FIN		IMPACT	48x72	R-50	FL 17660-R5.2
KRESTMARK	SH	4000		FINLESS		IMPACT	48x72	R-50	FL 17660-R5.1
KRESTMARK	SH	4000		FIN		IMPACT	36x84	R-50	FL 17660-R5.7
KRESTMARK	SH-SH	4000	MULL	FIN		IMPACT	80x72	R-50	FL 17660-R5.4
KRESTMARK	PW/SH-SH	4000	MULL	FIN	6030	IMPACT	72x108	R-50	FL 17660-R5.5
KRESTMARK	HS	4000		FIN		IMPACT	72x44	R-50	FL 43938-R1.1
KRESTMARK	PW	4000		FIN		IMPACT	72x48	R-60	
KRESTMARK	PW	4000		FIN		IMPACT	84x48	R-50	
KRESTMARK	PW	4000		FIN		IMPACT	48x72	R-60	FL 17148-R6.2
KRESTMARK	PW	4000		FIN		IMPACT	48x84	R-50	FL 17148-R6.1
KRESTMARK	CA	250		FIN			36x72	R-60	WIN-1376.1
KRESTMARK	CA	250		FIN			36x72	LC-50	
KRESTMARK	CA	250		FINLESS			36x72	LC-60	
KRESTMARK	AW	250		FIN			48x32	LC-50	
KRESTMARK	AW	250		FINLESS			48x32	LC-50	
KRESTMARK	PW	250		FIN			48x48	CW-80	
KRESTMARK	PW	250		FIN			60x60	CW-70	
KRESTMARK	PW	250		FIN			76x70	CW-50	
KRESTMARK	SGD XO	800		FIN			73x97	LC-40	FL 47517.01
KRESTMARK	SGD XO	800		FIN			97x97	LC-25	FL 47517.01
KRESTMARK	SGD XO	800		FIN			72x80	LC-50	FL 47517.02

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KRESTMARK	SGD XO	800		FIN			96x80	LC-40	FL 47517.03
KRESTMARK	SGD XO	800		FIN			96x96	LC-25	FL 47517.03
KRESTMARK	SGD OXO	800		FIN			108x80	R-50	FL 47517.04
KRESTMARK	SGD OXO	800		FIN			109x97	LC-40	FL 47517.05
KRESTMARK	SGD OXXO	800		FIN			143x80	R-30	FL 47517.06
LEGACY	SH	700		FIN			40x63	LC-50	
LEGACY	SH	700		FIN			36x72	R-50	
LEGACY	SH	700		FIN			44x72	R-45	
LEGACY	SH	700		FIN			44x72	LC-35	
LEGACY	SH	700		FIN			48x72	R-35	
LEGACY	SH	700		FIN			36x84	LC-50	
LEGACY	SH	700		FIN			36x84	LC-45	
LEGACY	SH	700		FIN			44x84	LC-25	
LEGACY	SH	700		FIN			48x84	R-35	
LEGACY	SH	700		FIN			44x96	R-35	
LEGACY	SH	700		FIN			48x96	R-30	
LEGACY	SH	700		FIN			48x96	R-15	
LEGACY	SH-SH	700	TWIN	FIN			72x72	R-40	
LEGACY	SH-SH	700	TWIN	FIN			72x72	R-50	
LEGACY	SH-SH	700	TWIN	FIN			72x84	R-30	
LEGACY	SH-SH-SH	700	TRIPLE	FIN			108x72	R-30	
LEGACY	SH-SH-SH	700	TRIPLE	FIN			108x72	R-30	
LEGACY	SH-SH-SH	700	TRIPLE	FIN			108x84	R-20	
LEGACY	PW/SH	700		FIN	4030		48x96	R-35	
LEGACY	PW-PW/SH-SH	700	TWIN	FIN	6030		72x96	R-40	
LEGACY	PW-PW-PW/SH-SH-SH	700	TRIPLE	FIN	9030		108x96	R-30	
LEGACY	HS	700		FIN			60x36	R-30	
LEGACY	HS	700		FIN			60x44	R-50	
LEGACY	HS	700		FIN			60x48	R-45	
LEGACY	HS	700		FIN			72x48	R-30	
LEGACY	HS XOX	700		FIN			96x48	R-25	
LEGACY	HS XOX	700		FIN			96x48	R-20	
LEGACY	PW	700		FIN			48x60	R-50	
LEGACY	PW	700		FIN			72x72	LC-50	
LEGACY	PW	700		FIN			72x84	CW-50	
LEGACY	PW	700		FIN			72x84	CW-60	
LEGACY	PW	700		FIN			48x96	R-45	
LEGACY	PW	700		FIN			60x96	LC-50	
LEGACY	PW-PW	700	TWIN	FIN			72x84	R-50	
LEGACY	PW-PW-PW	700	TRIPLE	FIN			108x60	R-50	

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LEGACY	**PW-PW-PW**	700	TRIPLE	FIN			108x72	R-50	
LEGACY	**PW**	7000		FIN			48x72	R-50	
LEGACY	**PW**	7000		FIN			39x84	R-50	
LEGACY	**PW**	7000		FIN		**IMPACT**	48x72	R-50	
LEGACY	**PW**	7000		FIN		**IMPACT**	39x84	R-50	
LEGACY	**SH**	250		FIN			44x72	R-35	
LEGACY	**SH**	250		FIN			36x84	R-35	
LEGACY	**SH**	250		FIN			48x96	LC-30	
LEGACY	**SH-SH**	250	TWIN	FIN			72x84	R-35	
LEGACY	**HS**	250		FIN			72x72	LC-25	
LEGACY	**HS XOX**	250		FIN			108x72	R-15	
LEGACY	**PW**	250		FIN			72x72	R-50	
LEGACY	**PW-PW**	255	TWIN	FIN			72x72	R-45	
LEGACY	**PW-PW**	255	TWIN	FIN			72x84	R-45	
LEGACY	**PW-PW-PW**	255	TRIPLE	FIN			108x60	R-45	
LEGACY	**PW-PW-PW**	255	TRIPLE	FIN			108x72	R-45	
MAGNOLIA	**SH**	400		FIN			40x63	R-35	FL 16475-R10.02
MAGNOLIA	**SH**	400		FIN			40x66	R-50	FL 16475-R10.06
MAGNOLIA	**SH**	400		FIN			36x72	R-35	FL 16475-R10.04
MAGNOLIA	**SH**	400		FIN			36x72	R-50	FL 16475-R10.05
MAGNOLIA	**SH**	400		FIN			48x72	R-20	FL 16475-R10.07
MAGNOLIA	**SH**	400		FIN			48x72	R-25	FL 16475-R10.03
MAGNOLIA	**SH**	400		FIN			48x72	R-35	FL 16475-R10.08
MAGNOLIA	**SH**	400		FIN			30x76	R-35	FL 16475-R10.03
MAGNOLIA	**SH**	400		FIN			48x84	R-20	FL 16475-R10.16
MAGNOLIA	**SH**	4000		FINLESS			48x84	R-20	FL 16475-R10.16
MAGNOLIA	**SH**	400		FIN			48x84	R-30	FL 16475-R10.06
MAGNOLIA	**SH**	4000		FINLESS			48x84	R-30	FL 16475-R10.06
MAGNOLIA	**SH-SH**	400	TWIN	FIN			80x63	R-35	FL 16475-R10.14
MAGNOLIA	**SH-SH**	400	TWIN	FIN			72x72	R-50	FL 16475-R10.15
MAGNOLIA	**SH-SH-SH**	400	TRIPLE	FIN			108x63	R-35	FL 16475-R10.11
MAGNOLIA	**SH-SH-SH**	400	TRIPLE	FIN			108x72	R-35	FL 16475-R10.10
MAGNOLIA	**SH-SH-SH**	400	TRIPLE	FIN			108x72	R-50	FL 16475-R10.12
MAGNOLIA	**SH-SH-SH**	4000	TRIPLE	FINLESS			108x84	R-20	FL 16475-R10.13
MAGNOLIA	**SH-SH-SH**	400	TRIPLE	FIN			108x84	R-20	FL 16475-R10.09
MAGNOLIA	**PW/SH**	400		FIN	2820		32x96	R-40	FL 16475-R10.01
MAGNOLIA	**PW/SH**	400		FIN	4020		48x96	R-30	FL 16475-R10.01
MAGNOLIA	**HS**	400		FIN			63x44	R-30	FL 16476-R6.1
MAGNOLIA	**HS**	400		FIN			72x60	R-15	
MAGNOLIA	**HS**	4000		FINLESS			72x60	R-15	

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MAGNOLIA	**PW**	400		FIN			72x48	R-45	FL 16474-R7.3
MAGNOLIA	**PW**	4000		FINLESS			72x60	R-35	FL 16474-R7.8
MAGNOLIA	**PW**	400		FIN			72x60	R-35	FL 16474-R7.8
MAGNOLIA	**PW**	400		FIN			72x60	R-50	FL 16474-R7.1
MAGNOLIA	**PW**	400		FIN			48x84	R-35	FL 16474-R7.2
MAGNOLIA	**PW-PW**	400	TWIN	FIN			96x84	R-25	FL 16474-R7.7
MAGNOLIA	**PW-PW-PW**	400	TRIPLE	FIN			108x72	R-35	FL 16474-R7.4
MAGNOLIA	**PW-PW-PW**	400	TRIPLE	FIN			108x72	R-50	FL 16474-R7.6
MAGNOLIA	**PW-PW-PW**	4000	TRIPLE	FINLESS			108x84	R-20	FL 16474-R7.9
MAGNOLIA	**PW-PW-PW**	400	TRIPLE	FIN			108x84	R-20	FL 16474-R7.5
MAGNOLIA	**SGD XO**	800		FIN			73x97	LC-40	FL 47518.01
MAGNOLIA	**SGD XO**	800		FIN			97x97	LC-25	FL 47518.01
MAGNOLIA	**SGD XO**	800		FIN			72x80	LC-50	FL 47518.02
MAGNOLIA	**SGD XO**	800		FIN			96x80	LC-40	FL 47518.03
MAGNOLIA	**SGD XO**	800		FIN			96x96	LC-25	FL 47518.03
MAGNOLIA	**SGD OXO**	800		FIN			108x80	R-50	FL 47518.04
MAGNOLIA	**SGD OXO**	800		FIN			109x97	LC-40	FL 47518.05
MAGNOLIA	**SGD OXXO**	800		FIN			143x80	R-30	FL 47518.06

Installation Instructions for New Construction: Single Hung and Picture Windows

Inspect all windows carefully. DO NOT INSTALL if damaged or defective.

FIG. 1

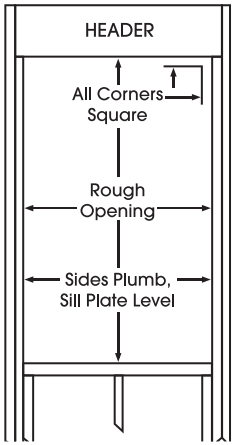
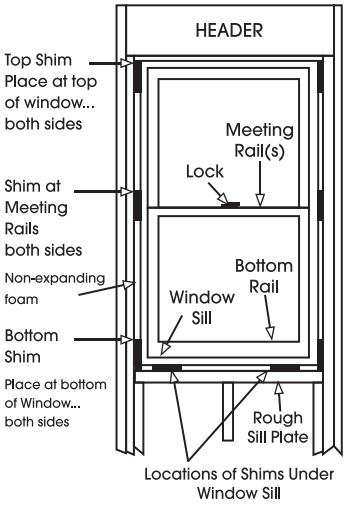


FIG. 2 INTERIOR VIEW



Window Opening
The rough opening must be plumb, level and square and slightly larger than window size in width and height, not including the nailing fins (see fig. 1). Close and lock the sash to aid in keeping the window square during installation. All packaging materials including wood support for bottom nailing fin, cardboard and aluminum shipping angles for mulled combinations need to be removed prior to installation of the window.

Apply a ⅜" continuous bead of Sealant caulking to the interior surface of the nailing fin covering the holes in the fin, to seal the window's fin to the sheathing or house wrap. If the rough opening is larger than the window unit by more than ½" also apply the caulk to the sheathing or house wrap, making sure the bead is no more than¼" from the edge of the rough opening, so that It Is covered by the nailing fin when the window is Installed.

Setting Shims (if necessary)
The sill of the window must be supported In a straight and level position at a minimum of three points, at either end and in the middle. Windows wider than 30" should be supported at a maximum of every 12" (see fig. 2). Shims should be used when applicable.

Placing Shims
Place¼" shims on the sill plate of the window opening spaced as described above. Multiple twin or triple windows should have a support under each mullion (see fig. 2).

Setting Window
Set window on the shims and adjust side clearance to be equal on both sides. Tack one upper comer of the fin to keep window in place. Check sill with a level and adjust thickness of shims as required to level sill. Readjust side clearance as necessary. Shims must be cut to exact thickness to fit snug and not fall out but do not force shims into place, pushing the sill upward out of level. Shim both sides of window (see fig. 2) and adjust thickness of shims to make diagonal measurements equal with the window plumb and square.

If the above has been done correctly the width across the top, middle and bottom will measure the same. Clearance between the sash stile and jamb main frame will be equal. The meeting rail and lock rail will align evenly at the top and clearance between the sash stile and Jamb mainframe will have parallel sight lines. The sweep latches should lock smoothly.

Fastening Windows with Nail Fins
Selection of fasteners are the responsibility of the installer. Structure and load requirement should be taken Into account with regard to selection. The windows shall be secured to the framing through the nail fin. Fasteners are corrosion resistant as specified in the International Building Code (IBC), International Residential Code (IRC) and the Texas Revisions. To achieve published test results #8-1 ½" truss head screw or equivalent should be used.

Fasteners shall be spaced approximately 2" from each corner and approximately 12" on center around the perimeter of the window. The fasteners shall be long enough to penetrate a minimum of 1-½" into the wall framing. Mulled or multiple window units must be fastened directly at the mull and approximately 6" on either side of the mullion. On mulled combination windows place a small piece of self-adhesive flexible flashing tape to seal the 1" void between nailing fins. Make sure head and sill are not bowed up or down. Check side jambs are not bowed in or out

Flashing Recommendations
Use self adhesive flexible flashing (minimum 4" wide and meets local requirements) which has a self-adhering surface on one side, approved for use on vinyl, aluminum and other substances such as house wrap. This flashing material must meet a minimum water resistance of 24 hours in accordance with ASTM-D779 and MMA Certified Installation Guidelines.

(see fig. 3) Sill flashing is applied first up against the bottom of the window sill extending beyond the sides of the window jamb fin and side flashing at least 2" Apply jamb flashing next over the jamb-nailing fin, continuing over and beyond the sill flashing, 2" below. Apply head flashing similarly, extending 2" past either side of the jamb flashing, to complete the window flashing detail.

(see fig.2) Install non-expanding foam or insulation between the window and rough opening. It is very important that these openings are not overstuffed and bow the frame. Do NOT use expanding foam.

FIG. 3 EXTERIOR VIEW

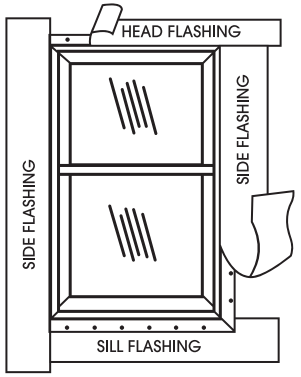
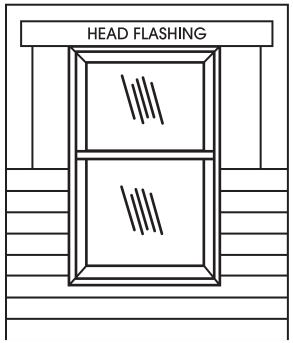


FIG. 4 EXTERIOR VIEW



CAUTIONS

Do not use large razor knives, metal scrapers or razor blades to clean glass. Never scrape dry glass!
Do not remove shipping clips from lock rail until window is installed.
Do not lay windows flat or store in sun. The heat will shrink the plastic wrapping and ward the frame.
Do not caulk or plug weep holes.
Do not drill into or through the sill of the window.
Protect the window during construction and plastering.
Do not lift window by top of frame, only by jambs.
Protect vinyl sill from traffic and damage.

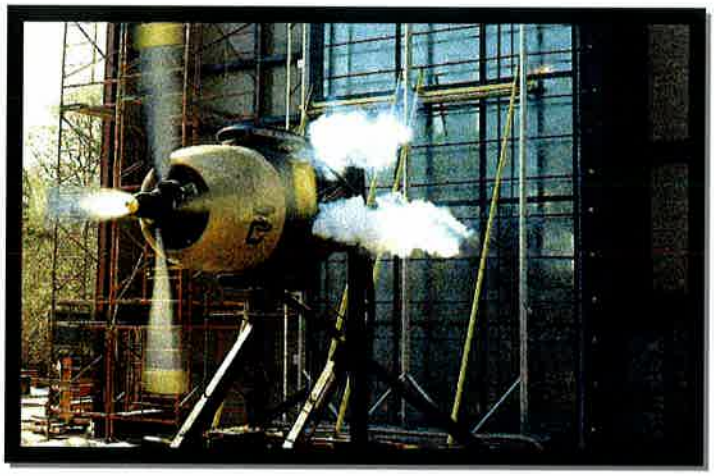
These recommended guidelines are based on Industry accepted practices, however there are other accepted methods. Knowing, understanding and satisfying local code requirements is the sole responsibility of the installer.

Check with local building codes for particular installation and performance requirements.

For updated information on approvals and/or Installation guidelines, go to

WestlakeRoyalWindows.com

CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*



Client

KRESTMARK INDUSTRIES, LP – PORTER LITE, LLC
3950 Bastille Road, Suite 100
Dallas, TX 75212

Product Type: Polyvinyl Chloride "PVC" Single Hung Window
Series / Model 4000 **Test Completion** 11-19-2015
Specification: AAMA 506-2008 / AAMA/WDMA/CSA 101/I.S.2/A440-08 / ASTM E1996-09 / ASTM E 1886-05
Report: CCLI 15-079PE

Specimen	Title	Summary of Results
1 Gateway	Product Designator	R-PG50-H 1219 x 1829 (48 x 72)
	Design Pressure	+/- 2400 Pa (50.0 psf)
	Air Infiltration	.30 L/s•m^2(.06 cfm/ft^2)
	Water Penetration Resistance	400 Pa (8.25 psf)
Impact (4) units	ASTM E1996 Missile D Impact ASTM E 1886 Uniform Load Cyclic	Passed: Wind Zone 4 Passed: DP50
2 Downsize	Product Designator	R-PG55-H 1118 x 1829 (44 x 72)
	Design Pressure	+/- 2640 Pa (55.0 psf)
Impact (3) units	ASTM E1996 Missile D Impact ASTM E 1886 Uniform Load Cyclic	Passed: Wind Zone 4 Passed: DP55

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

Appendix A: Complete drawings packet on file with the program administrator and Construction Consulting Laboratory.

Reviewed and approved by Florida Registered Professional Engineer
ABDOL REZADAD, P.E. (Florida PE #52849 Expiration: 2/28/2017)
4341 Lindbergh Street, Suite 200-E, Addison, TX 75001
Phone: 972-960-2223

AAMA PERFORMANCE TESTING

KRESTMARK INDUSTRIES, LP - PORTER LITE, LLC

SERIES 4000 PVC HUNG WINDOW

Report #CCLI-15-079PE

January 5, 2016

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APPENDIX

APPENDIX A: SERIES 4000 PVC SINGLE HUNG WINDOW DRAWINGS

Refer to drawings in **Appendix A**, this report is not complete unless these drawings are stamped and initialed by **CCLI** as illustrated below.

Drawing	Part / Die#	Date	Stamped as Illustrated
Layout Detail	400 Assembly / BOM	10/24/08	CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL 1601 Luna Road Carrollton, Texas 75006 Phone (972) 242-0556 Report#15-079, Date 11/30/15 Reviewed BY AW
Installation	Mounting Fin		
The Profile drawings listed below are on file with CCLI, Krestmark, and the program administrator. For a verified set contact Krestmark			
Frame Head / Jamb	BP4000	04/30/08	
Frame Sill	BP4002 / R-50 Sill	04/30/08	
Fixed Interlock	BP4004	04/30/08	
Fixed Interlock Reinforcement	203A	11/30/10	
Sash Top Rail	BP4007	04/30/08	
Sash Stile	BP4005	04/30/08	
Sash Bottom / Lift Rail	BP4006	04/30/08	
Sash Reinforcement	204B	11/30/10	
Sash Stop	400/475 PVC Stop	04/30/08	
Sash Glazing Bead	400/475 PVC Bead	04/30/08	
Glass setting Block	400/475 PVC Setting Block	06/06/05	

Florida Registered Professional Engineers Review:Reg. # 52849, February 28, 2017 – Abdol Rezadad, P.E.

Signature: A Rezadad 1/7/2016

1. PROJECT DATA

Project: AAMA 506-2008

Tests Completed: **November 19, 2015**

Tested For: Krestmark Industries, LP - Porter Lite, LLC

Witnessed By:	**All or Partial Viewing**	
Krestmark Industries	James Lockaby	Brandon Newman
Construction Consulting Laboratory, *International*	Ed Alarcon	Joe Anderson

2. SUMMARY

SERIES 4000 PVC SINGLE HUNG / -AAMA/WDMA/CSA 101/I.S.2/A440-08- Gateway Test Specimen				
	Installation	**Rated Size**	**Positive DP**	**Negative DP**
AAMA A440-08-AWS	Fin	1219 x 1829 (48" x 72")	2400Pa (50 psf)	2400Pa (50 psf)
-ASTM E 330 Uniform Load Structural Test Specimen-				
ASTM E330	Finless	1219 x 1829 (48" x 72")	2400Pa (50 psf)	2400Pa (50 psf)
ASTM E330	Fin	1118 x 1829 (44" x 72")	2640Pa (55 psf)	2640Pa (55 psf)
-WIND ZONE 4 LARGE MISSILE IMPACT SPECIMENS PER ASTM E 1996 MISSILE LEVEL D-				
ASTM E 1886/1996	Fin / Finless	1219 x 1829 (48" x 72")	2400Pa (50 psf)	2400Pa (50 psf)
ASTM E 1886/1996	Fin	1118 x 1829 (44" x 72")	2640Pa (55 psf)	2640Pa (55 psf)

3. TEST SPECIMEN

Product Type:	PVC Single Hung Window, **Product Drawings, Appendix A**	
Series Model:	Series 4000	
Specification:	AAMA 506-2008 and AAMA/WDMA/CSA 101/I.S.2/A440-08	
Test Methods	ASTM E 1996-05b Impact Resistance / ASTM E1886-05Uniform Load Cyclic	
Specimen / Rating	**Spc-1** / H-R50 1219 x1829 (48 x 72)	**Spc 2** / H-R55 1118 x1829 (44 x 72)
Frame Size:	1207 *x* 1816 (3'-11½" x 5'-11½")	1105 x 1816 (3'-7½" x 5'-11½")
Sash Size	1159 x 899 (45.625" x 35.375")	1054 x 899 (41.5" x 35.375")
Sash DLO	1080 x 819 (42.5" x 32.25")	978 x 819 (38.5" x 32.25")
Fixed DLO	1140 x 841 (44.875" x 33.125")	1041 x 841 (41.0" x 33.125")
Configuration:	O/X	O/X

Weather Stripping: One (1) row pile weather-strip with integral plastic fin 6.35mm (0.250" thickness) at the exterior face of sash members and lateral face of sash stiles.

Weep Arrangement: 12.7 x 3.17mm (½" x 1/8") weep at the exterior face of frame sill punched through accessory groove into sash pocket spaced 28.57mm (1 1/8") from each end of sill. One (1) 6.35 x 3.17mm (¼" x 1/8") glazing pocket weep at sash bottom rail and one (1) 6.35 x 3.17mm (¼" x 1/8") glazing pocket weep at fixed interlock, approximately 38.1mm (1½") from each end of each member.

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Signature: 1/7/2016

Impact Glass: Sealed insulating glass: one (1) piece, 3.17mm ($^1/_8$") annealed glass at the exterior with 6.35mm (¼") airspace, two (2) pieces 2.38mm ($^3/_{32}$") annealed glass with 2.286mm (.090") PVB laminate at interior, 15.875mm ($^5/_8$") overall thickness. Glass insulated with aluminum swiggle strip. **Option 4** specimen unit insulated with an Intercept air spacer

Hardware: Metallic sweep lock with keeper located 139.7mm (5½") from each end of sash top rail attached with two (2), #8 x 25.4mm (1") screws. Metallic keeper attached with (2) #6 x 19.05mm ($^3/_4$") screws at fixed interlock rail. Metallic tilt latch attached with (2) #8 x 25.4mm (1") screws at each end of sash top rail. Metallic tilt latch retainer at each jamb attached with (2) two 19.05 mm (¾") screws per. One block and tackle type balance per jamb for sash operation

Reinforcement: Hollow 6063 T5 extruded aluminum part #203A inside fixed interlock, full span attached at each end with assembly screws. Hollow 6063 T5 extruded aluminum part #204B inside sash top rail between tilt latches and inside sash stiles full span.

Glazing: Exterior glazed silicone back bedding at interior, full perimeter. Rigid vinyl snap-in glazing bead at exterior of glass.

Sealant: Fixed interlock to frame jambs, each end of sill.

Installation Features: Frame mounting fin was sealed with silicone and mechanically fastened to a nominal 50.8mm x 101.6mm (2" x 4") SPF test buck with #8 x 41.27mm (1¼") screws through fin spaced 50.8mm (2") from each end and approximately on 304.8mm (12") centers, full perimeter. Nominal 50.8mm x 101.6mm (2" x 4") SPF test buck was inserted into a nominal 50.8mm x 152.4mm (2" x 6") SPF test fixture, which was installed on chamber. Finless sealed to test buck with silicone sealant and attached with #8 x 41.28mm (1 $^5/_8$") long truss head screws spaced 50.8mm (2") from each end and on 304.8mm (12") centers.

Other Features: Frame and sash corners are mitered and welded. Fixed interlock attached to frame jambs with two (2) #8 x 41.27mm (1$^5/_8$") truss head screws at each end, one (1) screw into each end of interlock reinforcement.

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Signature: 1/7/2016

4. GATEWAY WINDOW PERFORMANCE RESULTS

No.	Title of Test	Test Method	Measured	Allowed
5.3.1.1	Operating Force			
	Open		113N (25.5 lbs)	135N (30 lbs)
	Close		129N (29.0 lbs)	135N (30 lbs)
5.3.1.1.3	Latching Devices		12.9N (2.9 lbs)	100N (22.5 lbs)
5.3.2	Air Infiltration	ASTM E 283-04		
	@ 75 Pa (1.57 psf)		0.30 L/s•m2 (.06 cfm/ft2)	1.5 L/s•m2 (0.30 cfm/ft2)
5.3.3	Water Resistance	ASTM E 547-00		
	@ 400 Pa (8.25 psf) with screen		No Leakage	No Leakage
	@ 400 Pa (8.25 psf) without screen		No Leakage	No Leakage
5.3.4.2	Deflections @ Interlock			
	Positive @ 2400 Pa (50 psf) Max Center		21.8mm (.86")	Reported
	Negative @ 2400 Pa (50 psf) Max Center		25.9mm (1.02")	Reported

No.	Title of Test	Test Method	Measured	Allowed
5.3.4.3	Uniform Load Structural	ASTM E 330-02		
	@ 3600 Pa (75.0 psf) Positive		No Damage	No Damage
	-Permanent Set		1.27 mm (0.05")	4.64 mm (0.183")
	@ 3600 Pa (75.0 psf) Negative		No Damage	No Damage
	-Permanent Set		2.28mm (0.09")	4.64mm (0.183")
5.3.5	Forced Entry Resistance Grade 10	ASTM F 588-07	No Entry	No Entry
5.3.6.3	Deglazing Test			
	Top Rail @ 311 N (70 lbs)		Pass	95%
	Bottom Rail @ 311 N (70 lbs)		Pass	95%
	Lock Stile @ 222 N (50 lbs)		Pass	95%
	Jamb Stile @ 222 N (50 lbs)		Pass	95%
5.3.6.2	Corner Weld Test		**Results:** No clean break at weld line.	

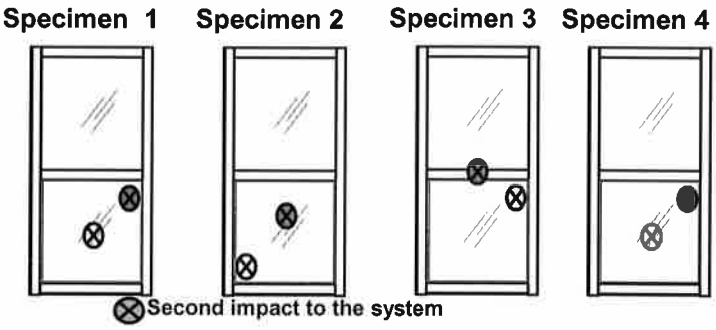
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Signature: 1/7/2016

Gateway Sized Impact Specimen 1 ASTM E 1996-05b / Missile Level D*.					
Par No	**Speed**	**Rotation**	**Title of Test**	**Measured**	**Allowable**
5.3.1.1	50.8 fps	0°	Center of Glass	No Penetration	No Penetration
5.3.2.1	51.0 fps	0^0	Upper Right Corner	No Penetration	No Penetration
Specimen 2					
Par No	**Speed**	**Rotation**	**Title of Test**	**Measured**	**Allowable**
5.3.1.2	49.8 fps	0°	Lower Left Corner	No Penetration	No Penetration
5.3.2.2	49.4 fps	0^0	Center of Glass	No Penetration	No Penetration
Specimen 3					
Par No	**Speed**	**Rotation**	**Title of Test**	**Measured**	**Allowable**
5.3.1.3	49.6 fps	0°	Upper Right Corner	No Penetration	No Penetration
5.3.3.6	50.6 fps	0^0	Center of Interlock	No Penetration	No Penetration
Specimen 4/ Finless/ with intercept spacer					
5.3.1.3	50.6 fps	0°	Center of Glass	No Penetration	No Penetration
5.3.3.6	50.0 fps	0^0	Upper right Corner	No Penetration	No Penetration
*	Missile length at test start was 8' 1" and missile weight was 9.13lbs				

The laboratory temperature was recorded at 72°F at start of test. Test specimens were conditioned prior to testing and the temperature of the window was 75°F.

Visual inspections performed on the test specimens revealed no penetrations through the laminate and no separation of vision-to-frame glazing after impacts.



Florida Registered Professional Engineers Review:Reg. # 52849, February 28, 2017 – Abdol Rezadad, P.E.

Signature: 1/7/2016

Specification: ASTM E 1886-05

Test Load	Sequence	Range	Cycle Time	Cycles	Deflection	Result
50 PSF Positive	Cycle 1	0.2 P to 0.5 P	< 3 seconds	3500	.736"	Pass
	Cycle 2	0 to 0.6 P	< 3 seconds	300	.819"	Pass
	Cycle 3	0.5 P to 0.8 P	< 3 seconds	600	1.163"	Pass
	Cycle 4	0.3 P to 1.0 P	< 3 seconds	100	1.577"	Pass
Test Load	**Sequence**	**Range**	**Cycle Time**	**Cycles**		**Result**
50 PSF Negative	Cycle 1	0.3 P to 1.0 P	< 3 seconds	50	1.508"	Pass
	Cycle 2	0.5 to 0.8 P	< 3 seconds	1050	1.190"	Pass
	Cycle 3	0 to 0.6 P	< 3 seconds	50	.776"	Pass
	Cycle 4	0.2 P to 0.5 P	< 3 seconds	3350	.773"	Pass
Test Notes	2-mil plastic sheeting was used to limit air loss through the specimen during testing. In the opinion of the lab, the addition of this material did not enhance the structural performance of the specimens					

5. DOWNSIZED WINDOW PERFORMANCE RESULTS

No.	Title of Test	Test Method	Measured	Allowed
5.3.4.2	Deflections @ Interlock			
	Positive @ 2640 Pa (55 psf)	Max Center	18.3mm (.72")	Reported
	Negative @ 2640 Pa (55 psf)	Max Center	24.4mm (.96")	Reported
5.3.4.3	Uniform Load Structural	ASTM E 330		
	@ 3960 Pa (82.5 psf) Positive		No Damage	No Damage
	-Permanent Set		.51mm (0.02")	4.21mm (0.166")
	@ 3960 Pa (82.5 psf) Negative		No Damage	No Damage
	-Permanent Set		1.52mm (0.06")	4.21mm (0.166")

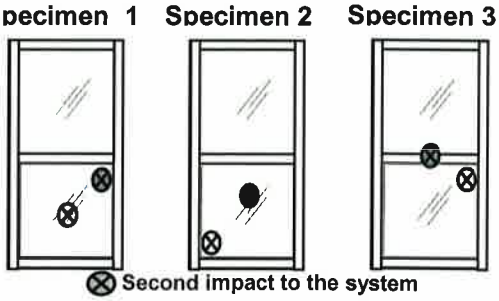
Downsized Impact Specimen 1 ASTM E 1996-05b / Missile Level D*.					
Par No	**Speed**	**Rotation**	**Title of Test**	**Measured**	**Allowable**
5.3.1.1	49.8 fps	0°	Center of Glass	No Penetration	No Penetration
5.3.2.1	50.7 fps	0°	Upper Right Corner	No Penetration	No Penetration
Specimen 2					
Par No	**Speed**	**Rotation**	**Title of Test**	**Measured**	**Allowable**
5.3.1.2	50.5 fps	0°	Lower Left Corner	No Penetration	No Penetration
5.3.2.2	50.4 fps	0°	Center of Glass	No Penetration	No Penetration
Specimen 3					
Par No	**Speed**	**Rotation**	**Title of Test**	**Measured**	**Allowable**
5.3.1.3	50.6 fps	0°	Upper Right Corner	No Penetration	No Penetration
5.3.3.6	50.0 fps	0°	Center of Interlock	No Penetration	No Penetration
*	Missile length at test start was 8' 1" and missile weight was 9.13lbs				

Florida Registered Professional Engineers Review:Reg. # 52849, February 28, 2017 – Abdol Rezadad, P.E.

Signature: 1/7/2016

The laboratory temperature was recorded at 72°F at start of test. Test specimens were conditioned prior to testing and the temperature of the window was 75°F

Visual inspections performed on the test specimens revealed no penetrations through the laminate and no separation of vision-to-frame glazing after impacts.



Specification: ASTM E 1886-05

Test Load	Sequence	Range	Cycle Time	Cycles	Deflection	Result
55 PSF Positive	Cycle 1	0.2 P to 0.5 P	< 3 seconds	3500	.508"	Pass
	Cycle 2	0 to 0.6 P	< 3 seconds	300	.570"	Pass
	Cycle 3	0.5 P to 0.8 P	< 3 seconds	600	.884"	Pass
	Cycle 4	0.3 P to 1.0 P	< 3 seconds	100	1.061"	Pass
Test Load	**Sequence**	**Range**	**Cycle Time**	**Cycles**		**Result**
55 PSF Negative	Cycle 1	0.3 P to 1.0 P	< 3 seconds	50	1.049"	Pass
	Cycle 2	0.5 to 0.8 P	< 3 seconds	1050	.808"	Pass
	Cycle 3	0 to 0.6 P	< 3 seconds	50	.556"	Pass
	Cycle 4	0.2 P to 0.5 P	< 3 seconds	3350	.551"	Pass
Test Notes	2-mil plastic sheeting was used to limit air loss through the specimen during testing. In the opinion of the lab, the addition of this material did not enhance the structural performance of the specimens					

Detailed extrusion and assembly drawings indicating measured wall thickness and corner construction are on file and have been compared to the test sample submitted. These records will be retained at **CCLI** for a period of four (4) years.

6. DISCLAIMER

The above results were achieved by using the designated test methods and indicate compliance with the above specification. This report does not constitute certification of this product.

Respectfully submitted,

CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*

JUVENAL AZUA
Senior Testing Technician
Signed Electronically

WESLEY WILSON
Laboratory Manager
Signed Electronically

Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2017 – Abdol Rezadad, P.E.

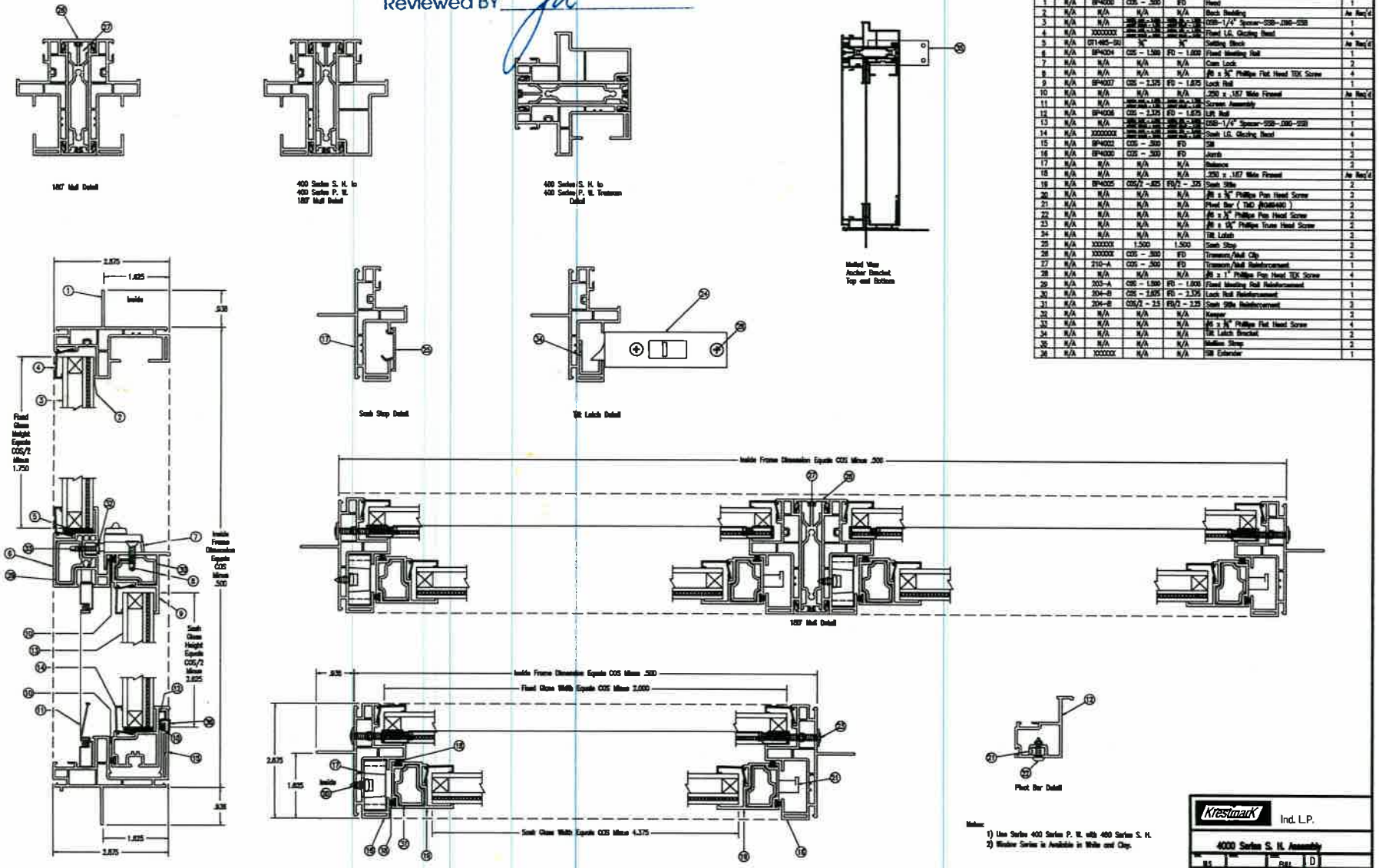
Signature: 1/7/2016

APPENDIX A

DRAWINGS

Drawing	Part / Die#	Date	Stamped as Illustrated
Layout Detail	400 Assembly / BOM	10/24/08	CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL 1601 Luna Road Carrollton, Texas 75006 Phone (972) 242-0556 Report# 15-079, Date 11/30/15 Reviewed BY AW
Installation	Mounting Fin		
The Profile drawings listed below are on file with CCLI, Krestmark, and the program administrator. For a verified set contact Krestmark			
Frame Head / Jamb	BP4000	04/30/08	
Frame Sill	BP4002 / R-50 Sill	04/30/08	
Fixed Interlock	BP4004	04/30/08	
Fixed Interlock Reinforcement	203A	11/30/10	
Sash Top Rail	BP4007	04/30/08	
Sash Stile	BP4005	04/30/08	
Sash Bottom / Lift Rail	BP4006	04/30/08	
Sash Reinforcement	204B	11/30/10	
Sash Stop	400/475 PVC Stop	04/30/08	
Sash Glazing Bead	400/475 PVC Bead	04/30/08	
Glass setting Block	400/475 PVC Setting Block	06/06/05	

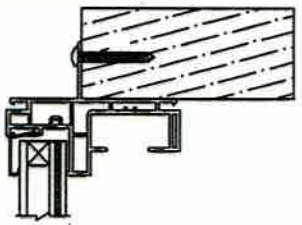
CONSTRUCTION
CONSULTING
LABORATORY
INTERNATIONAL
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 15-079 Date 1-6-15
Reviewed BY

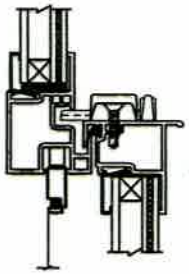


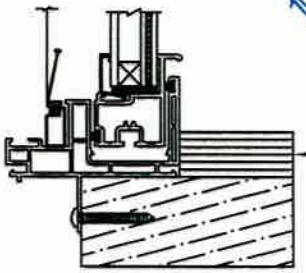
Item No.	Part No.	Extrusion No.	Cut Size Formula	Inside Frame Formula	Description	Qty.
1	N/A	BP4000	COS - .500	IFD	Head	1
2	N/A	N/A	N/A	N/A	Back Bedding	As Req'd
3	N/A	N/A			COS-1/4" Spacer-SSB-.090-SSB	1
4	N/A	XXXXXXX			Fixed Lt. Glazing Bead	4
5	N/A	DT1445-SU	3/4"	3/4"	Setting Block	As Req'd
6	N/A	BP4004	COS - 1.500	IFD - 1.000	Fixed Meeting Rail	1
7	N/A	N/A	N/A	N/A	Cam Lock	2
8	N/A	N/A	N/A	N/A	#8 x 3/4" Phillips Flat Head TEK Screw	4
9	N/A	BP4007	COS - 2.375	IFD - 1.875	Lock Rail	1
10	N/A	N/A	N/A	N/A	.250 x .187 Male Fin seal	As Req'd
11	N/A	N/A			Screen Assembly	1
12	N/A	BP4008	COS - 2.375	IFD - 1.875	Lift Rail	1
13	N/A	N/A			OSB-1/4" Spacer-SSB-.090-SSB	1
14	N/A	XXXXXXX			Sash Lt. Glazing Bead	4
15	N/A	BP4002	COS - .500	IFD	Sill	1
16	N/A	BP4000	COS - .500	IFD	Jamb	2
17	N/A	N/A	N/A	N/A	Balance	2
18	N/A	N/A	N/A	N/A	.250 x .187 Male Finseal	As Req'd
19	N/A	BP4005	COS/2 - .625	FS/2 - .375	Sash Stile	2
20	N/A	N/A	N/A	N/A	#8 x 3/4" Phillips Pan Head Screw	2
21	N/A	N/A	N/A	N/A	Fixed Bar (TMD #0488480)	2
22	N/A	N/A	N/A	N/A	#8 x 3/4" Phillips Pan Head Screw	2
23	N/A	N/A	N/A	N/A	#8 x 1/2" Phillips Truss Head Screw	2
24	N/A	N/A	N/A	N/A	Tilt Latch	2
25	N/A	XXXXXXX	1.500	1.500	Sash Stop	2
26	N/A	XXXXXXX	COS - .500	IFD	Transom/Mull Clip	2
27	N/A	210-A	COS - .500	IFD	Transom/Mull Reinforcement	1
28	N/A	N/A	N/A	N/A	#8 x 1" Phillips Pan Head TEK Screw	4
29	N/A	203-A	COS - 1.500	IFD - 1.000	Fixed Meeting Rail Reinforcement	1
30	N/A	204-B	COS - 2.625	IFD - 2.125	Lock Rail Reinforcement	1
31	N/A	204-B	COS/2 - 2.5	FS/2 - 2.25	Sash Stile Reinforcement	2
32	N/A	N/A	N/A	N/A	Keeper	2
33	N/A	N/A	N/A	N/A	#8 x 3/4" Phillips Flat Head Screw	4
34	N/A	N/A	N/A	N/A	Tilt Latch Bracket	2
35	N/A	N/A	N/A	N/A	Mullion Strap	2
36	N/A	XXXXXX	N/A	N/A	Sill Extender	1

Notes:
1) Use Series 400 Series P. W. with 400 Series S. H.
2) Window Series is Available in Wide and Clip.

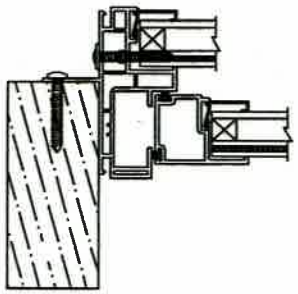
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CONSULTING
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INTERNATIONAL
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 15079, Date 6-15
Reviewed BY





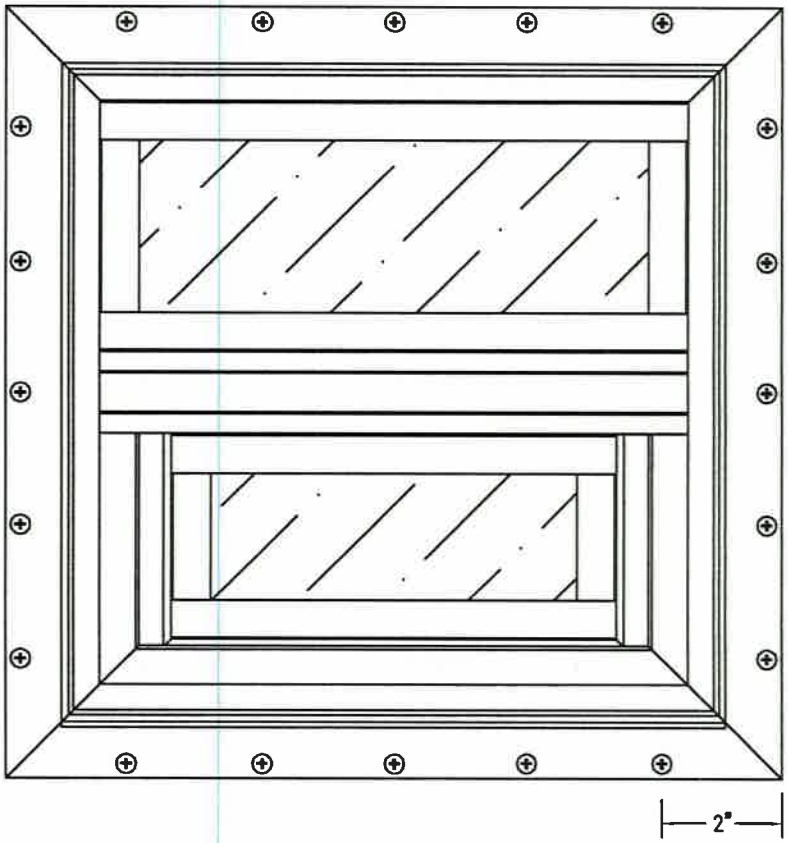


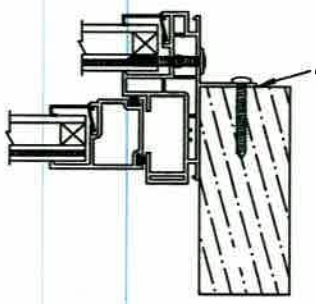
3/4" window stool installed with silicone and 1⅝" wood screws



Fasten in 2x Frame with #8 x 1¼" Screw or Larger, 2" from Each Tip of Fin and Spaced Every 12"(Max) Between Fasteners. Apply Silicone Between 2x and Nail Fin.

Make Sure that Window is in the Closed and Locked Position During Installation. Make Sure that the Sill is Level and that Jambs are Plumb.





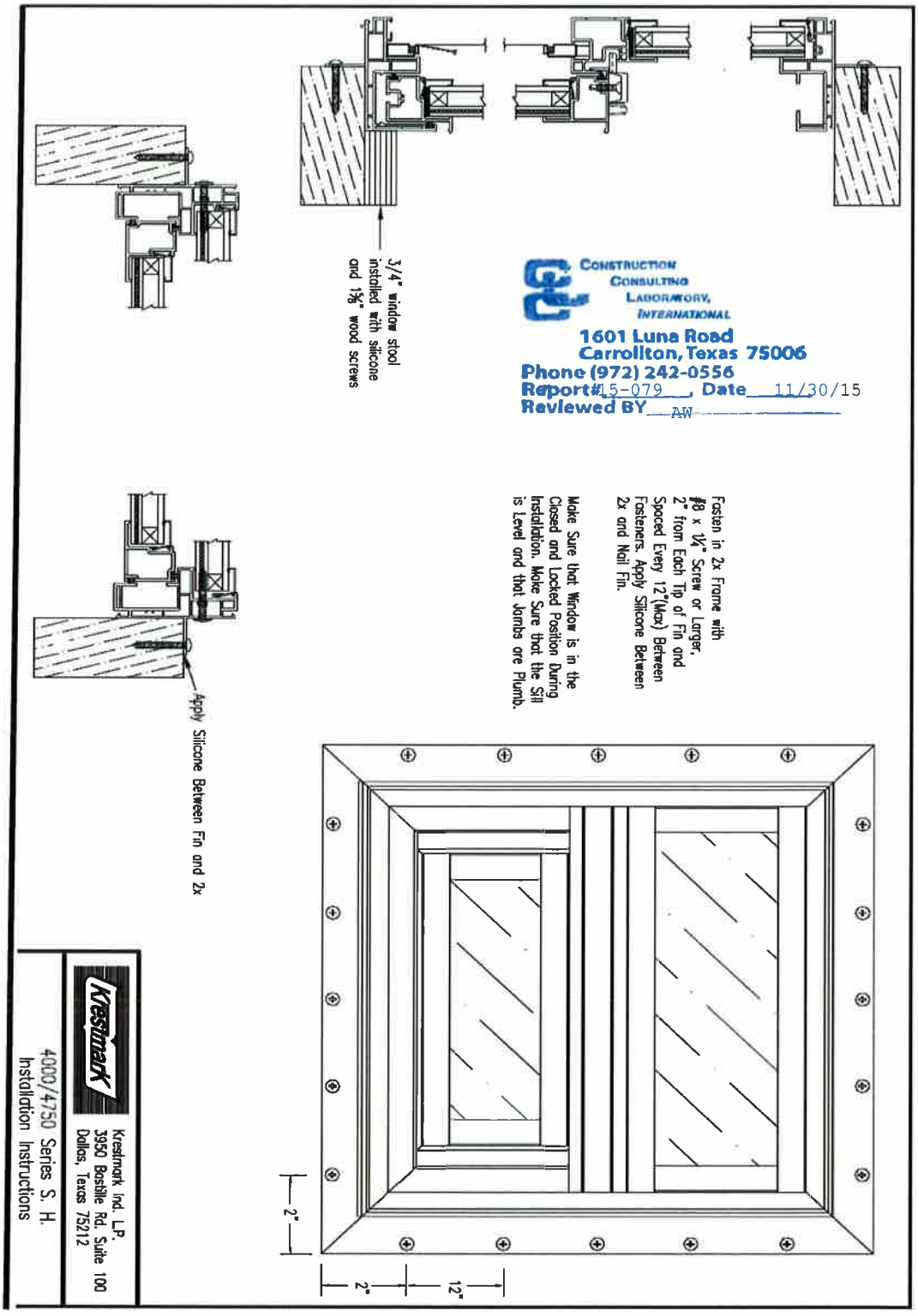
Apply Silicone Between Fin and 2x

Krestmark

Krestmark Ind. L.P.
3950 Bastille Rd. Suite 100
Dallas, Texas 75212

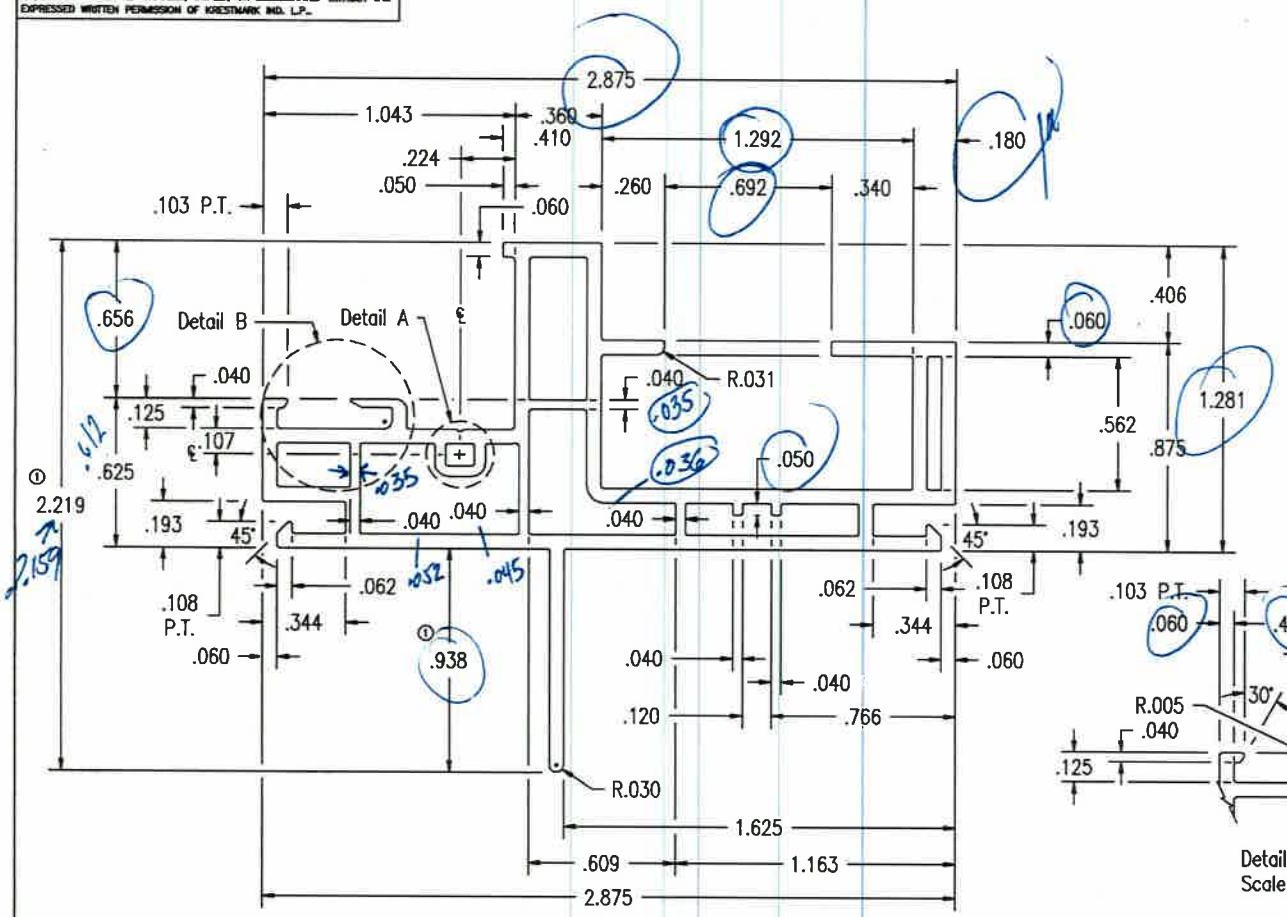
4000/4750 Series S. H. Installation Instructions

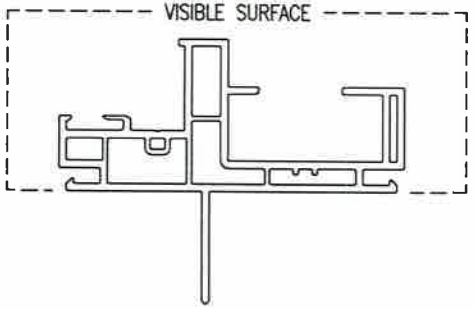
November 30, 2015



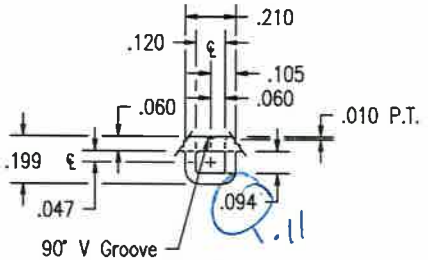
- END OF REPORT -

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Detail B
Scale 2 : 1



Detail A
Scale 2 : 1

.060 Typical Wall Thickness Except as Noted. .010 Unspecified Radius

Date	No.	Revisions	By
02/26/08	1	.938 Dim. was 1.000, 2.219 Dim. was 2.281, Rev. Date	RLS

Est. Area in.2	.754	Factor	
Est. Wt. Per Ft.	.477	Circle Size	
Est. Perim.	25.304	Class	

Krestmark Ind. L.P.

400 Series S. H. Jamb/Head

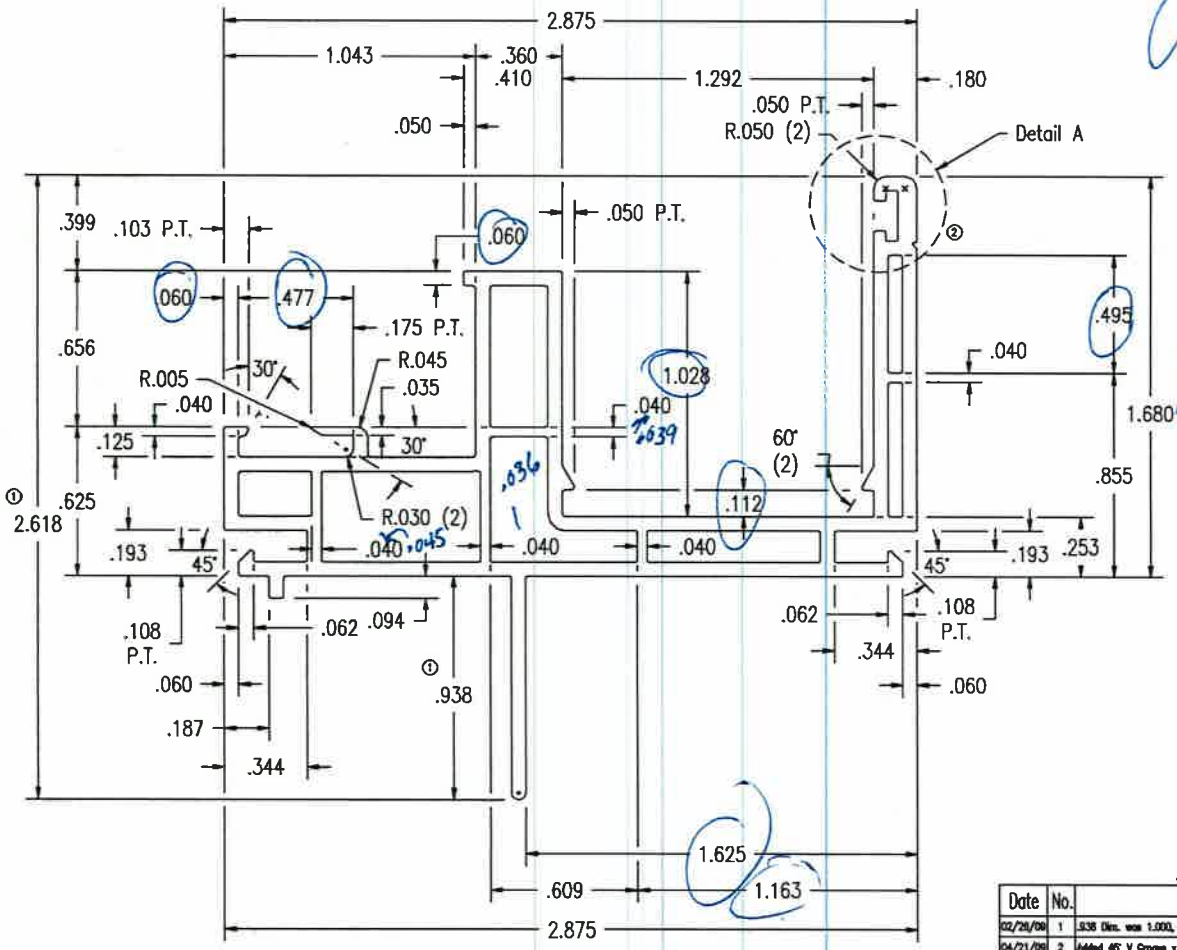
DRN	CHKD	Scale		
RLS		2 : 1	B	BP4000
Material	Hardness	Date		
PVC		04-30-08		

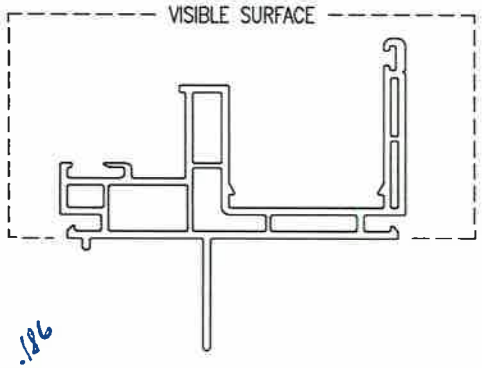
CONSTRUCTION CONSULTING LABORATORY INTERNATIONAL
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 15-019 Date 1-6-15
Reviewed BY

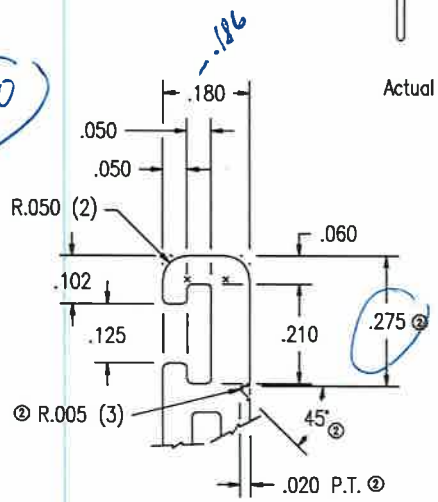
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Report# 15019 Date 1-6-15
Reviewed BY







Detail A
Scale 4 : 1

.060 Typical Wall Thickness Except as Noted. .010 Unspecified Radius

Date	No.	Revisions	By
02/26/08	1	.938 Dim. was 1.000, 2.818 Dim. was 2.880, Rev. Date	RLS
04/21/08	2	Added 45° V Groove x .020 Deep to P. T., Revised Date	RLS

Est. Area in.2	.806	Factor	
Est. Wt. Per Ft.	.510	Circle Size	
Est. Perim.	26.641	Class	

Krestmark Ind. L.P.

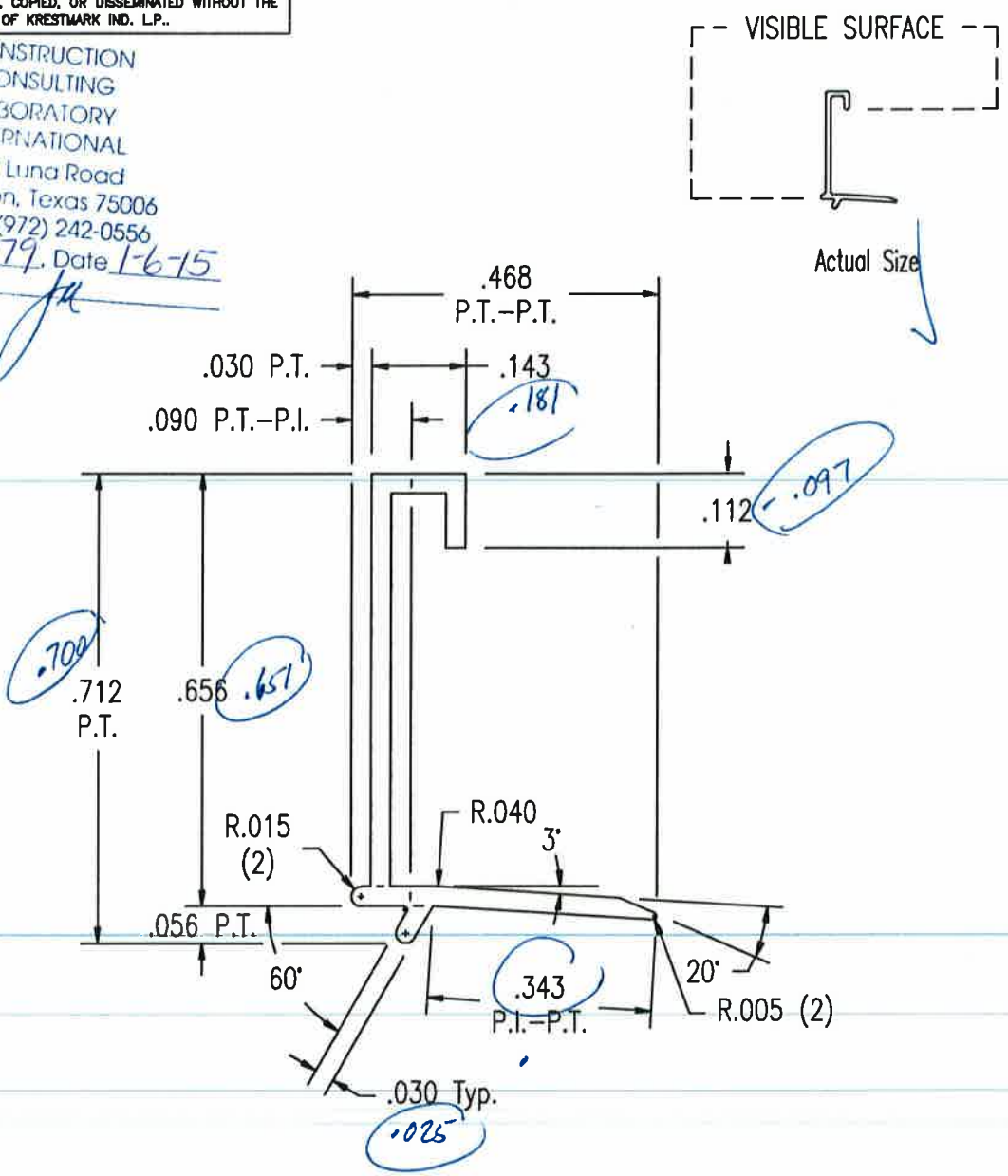
400 Series S. H. R-50 Sill

DRN	CHKD	Scale		
RLS		2 : 1	B	BP4002
Material	Hardness	Date		
PVC		04-30-08		

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Report# 15079 Date 1-6-15
Reviewed BY



.030 ±.003 Typical Wall Thickness Except as Noted. Break Sharp Corners .010 Radius Except as Noted.

Date	No.	Revisions	By

Est. Area in.2	.040	Factor	
Est. Wt. Per Ft.	.025	Circle Size	
Est. Perim.	2.672	Class	

Krestmark Ind. L.P.

400/475 Series ¾" I. G. Glazing Bead

DRN	CHKD	Scale	
RLS		4 : 1	A
Material	**Hardness**	**Date**	
PVC	D 90	04-30-08	

SOLID	SEMI-HOLLOW	HOLLOW
☐	☐	◪

TITLE
400–475 SERIES R–50 FIXED MEETING RAIL REINFORCEMENT

DIE NO.	203A
CUSTOMER PT. NO.	–
CUTTING LENGTH	–

ALLOY: 6063 TEMPER: T5 CIRCLE SIZE: 1.2 P/P POCKET SIZE: –

CONSTRUCTION -- TOLERANCES -- ALUMINUM ASSOCIATION STANDARD -- UNLESS SPECIFIED OTHERWISE

CONSULTING LABORATORY INTERNATIONAL
1601 Luna Road
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Report# 15079 Date 1-6-15
Reviewed BY



Actual Size
No Exposed Surfaces

Document Revision 1.3, PFR 18 Nov., 2010

.050 TYPICAL WALL THICKNESS EXCEPT AS NOTED

BREAK SHARP CORNERS .016 R. EXCEPT AS NOTED

EST.AREA in²	.178	EST.TOTAL PER.	6.959
EST.AREA cm²	–	EST.OUTSIDE PER.	4.010
EST.WT. PER ft	.213	CODE (–) FACTOR	–
EST.Kg. PER M	–	PRESS LOCATION:	–
DIE SIZE	–	BACKER SIZE	–

DATE	NO.	REVISIONS	BY
–	–	–	–

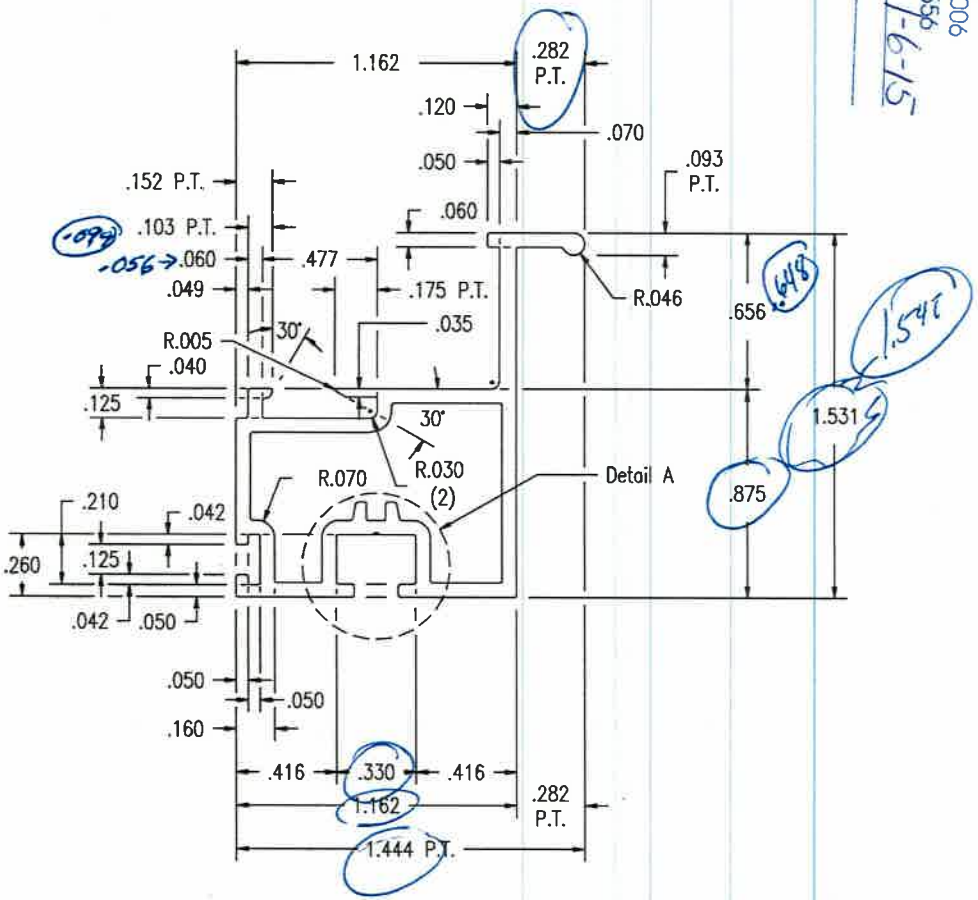


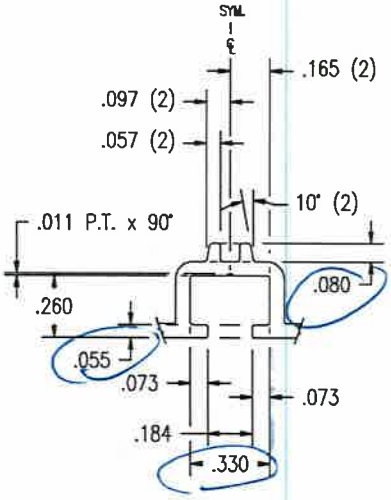
ASCEND CUSTOM EXTRUSIONS, LLC.
P.O. Box 1270
Wylie, Texas 75098–1270

CUSTOMER:	KRESTMARK IND. L.P.		
CITY:	–		
DRAWN BY: PFR	DATE: 30 November, 2010		
SCALE: 4 : 1		DWG. NO.	D–10203

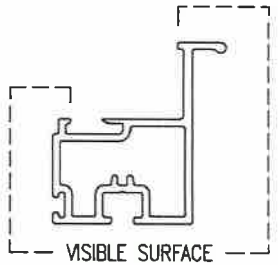
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Carrollton, Texas 75006
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Report # 15-079 Date 1-6-15
Reviewed by





Detail A
Scale 2 : 1



Actual Size

.060 Typical Wall Thickness Except as Noted. .010 Unspecified Radius

Date	No.	Revisions	By

Est. Area in.2	.364	Factor	
Est. Wt. Per Ft.	.230	Circle Size	
Est. Perim.	11.962	Class	

Krestmark Ind. L.P.

400/475 Series S. H. Lift Rail

DRN	CHKD	Scale		
RLS		2 : 1	B	BP4006
Material	Hardness	Date		
PVC		04-30-08		

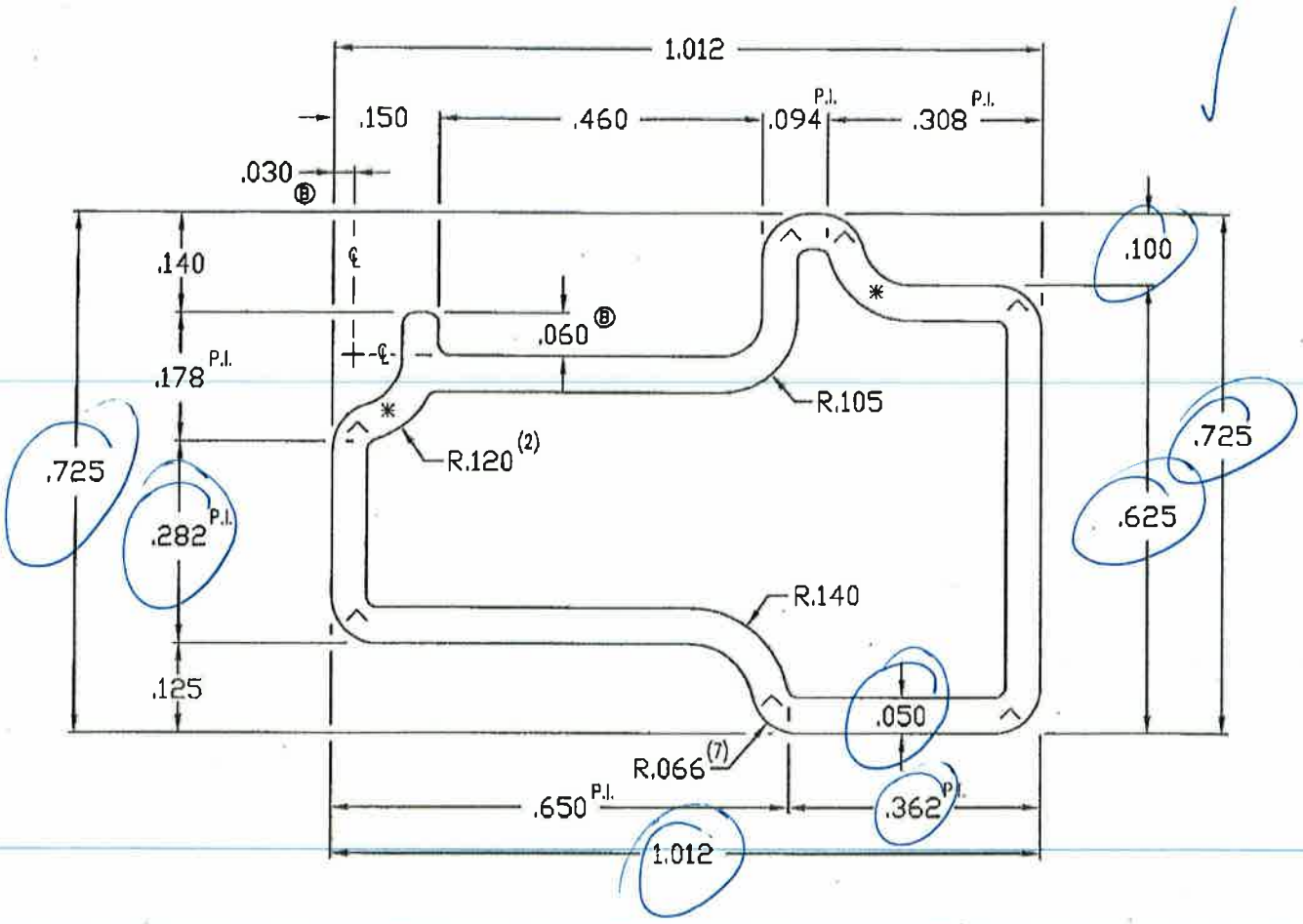
SOLID	SEMI-HOLLOW	HOLLOW
☐	☐ CLASS II	

TITLE
400-475 SERIES R-50 LOCK RAIL/SASH STILE REINFORCEMENT

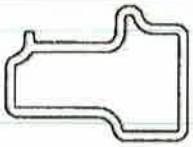
DIE NO.	204-B
CUSTOMER PT. NO.	① 11581
CUTTING LENGTH	-

ALLOY: 6063 TEMPER: T5 CIRCLE SIZE: 1.2 P/P POCKET SIZE: -

ALL TOLERANCES -- ALUMINUM ASSOCIATION STANDARD -- UNLESS SPECIFIED OTHERWISE



ACTUAL SIZE



NO EXPOSED SURFACE

CONSTRUCTION CONSULTING LABORATORY INTERNATIONAL
1001 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 15079 Date 6-6-15
Reviewed BY

Ronald Stephens
8-1-13

±.006
.050 TYPICAL WALL THICKNESS EXCEPT AS NOTED

BREAK SHARP CORNERS .016 R. EXCEPT AS NOTED

EST.AREA in²	.153 Ⓑ	EST.TOTAL PER.	6.112 Ⓑ
EST.AREA cm²	-	EST.OUTSIDE PER.	3.265 Ⓑ
EST.WT. PER ft	.184 Ⓑ	CODE ② (P) FACTOR	33
EST.Kg. PER M	-	PRESS LOCATION:	-
DIE SIZE	-	BACKER SIZE	- -

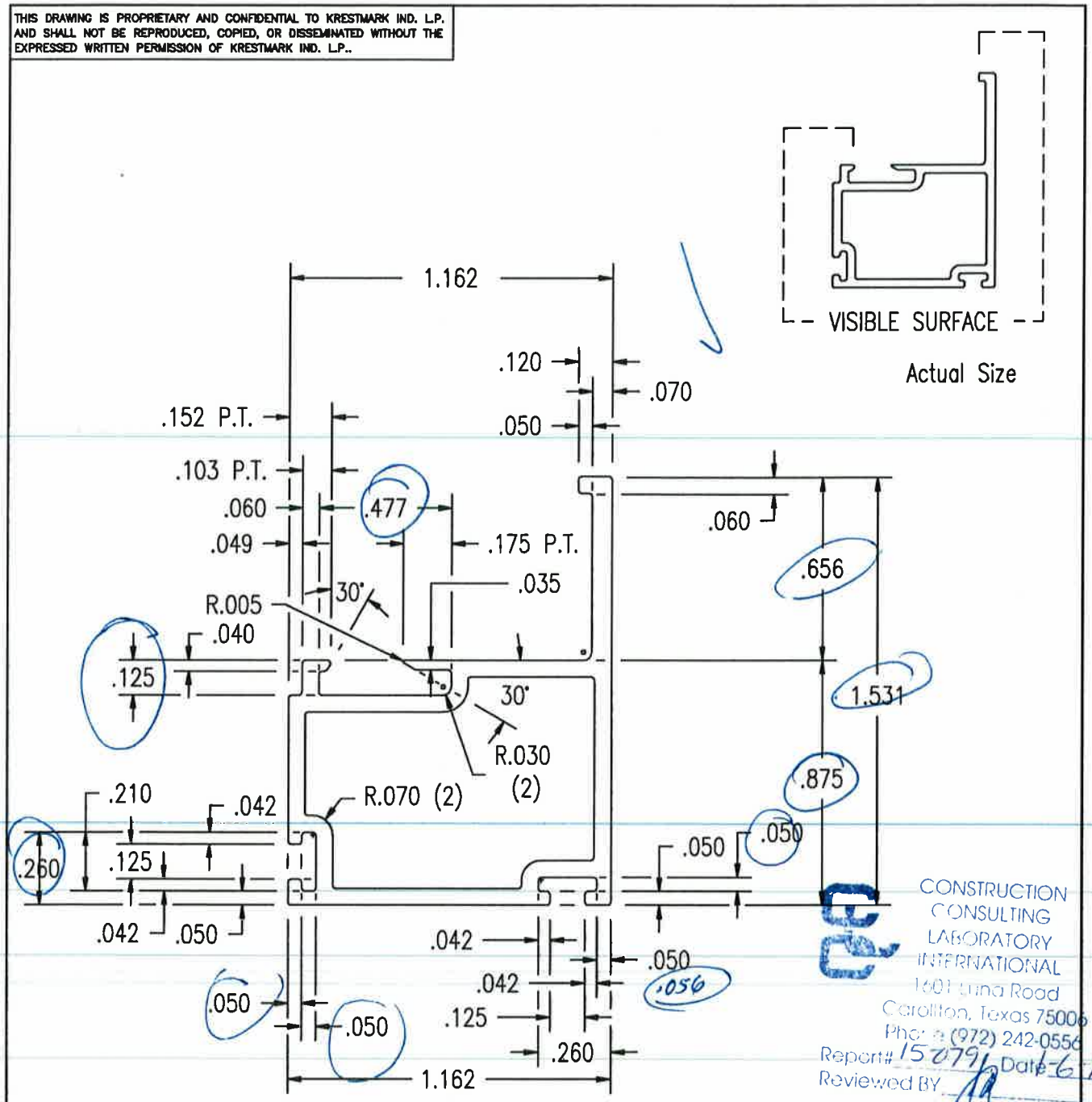
DATE	NO.	REVISIONS	BY
8/11/11	1	ADDED PART NUMBER	RM
8/31/11	2	CHANGE CODE TO P	RM
7/31/13	B	CHANGED SHAPE AND REVISED DATA	RM

P.O. Box 1270
Wylie, Texas 75098-1270

ASCEND CUSTOM EXTRUSIONS, LLC

CUSTOMER:	KRESTMARK IND. L.P.			
CITY:	-			
DRAWN BY: PFR	DATE: 30 November, 2010		DWG. NO.	D-10204
SCALE: 4 : 1				

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.060 Typical Wall Thickness Except as Noted. .010 Unspecified Radius

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1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 15079 Date 1-6-15
Reviewed BY

Date	No.	Revisions	By

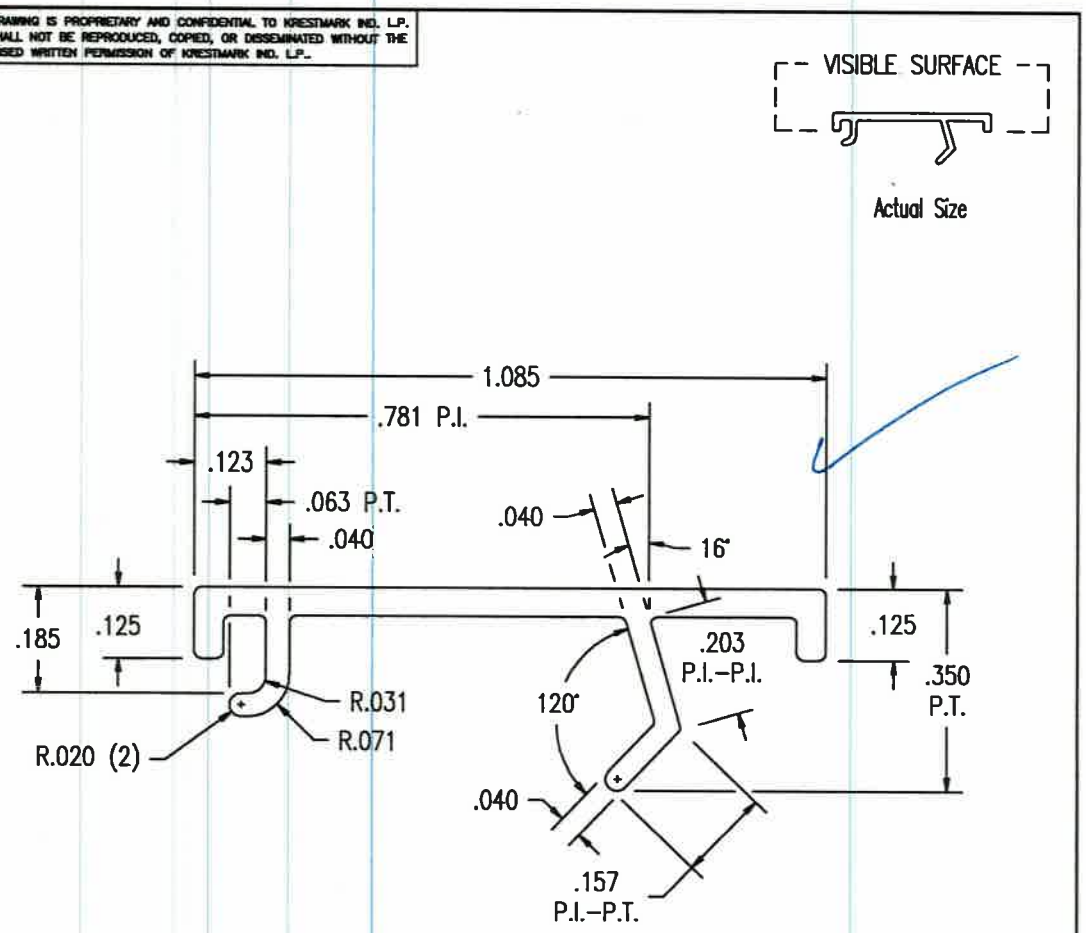
Krestmark Ind. L.P.

400/475 Series S. H. Sash Stile
400/475 Series H. S. Top & Bottom Rail/Jamb Stile

DRN RLS	CHKD	Scale 2 : 1	A	BP4005
Material PVC	Hardness	Date 04-30-08		

Est. Area in.2	.309	Factor	
Est. Wt. Per Ft.	.195	Circle Size	
Est. Perim.	10.192	Class	

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050 Typical Wall Thickness Except as Noted. Break Sharp Corners .010 Radius Except as Noted.

Date	No.	Revisions	By

Est. Area in.2	.084	Factor	
Est. Wt. Per Ft.	.084	Circle Size	
Est. Perim.	3.607	Class	

Krestmark Ind. L.P.

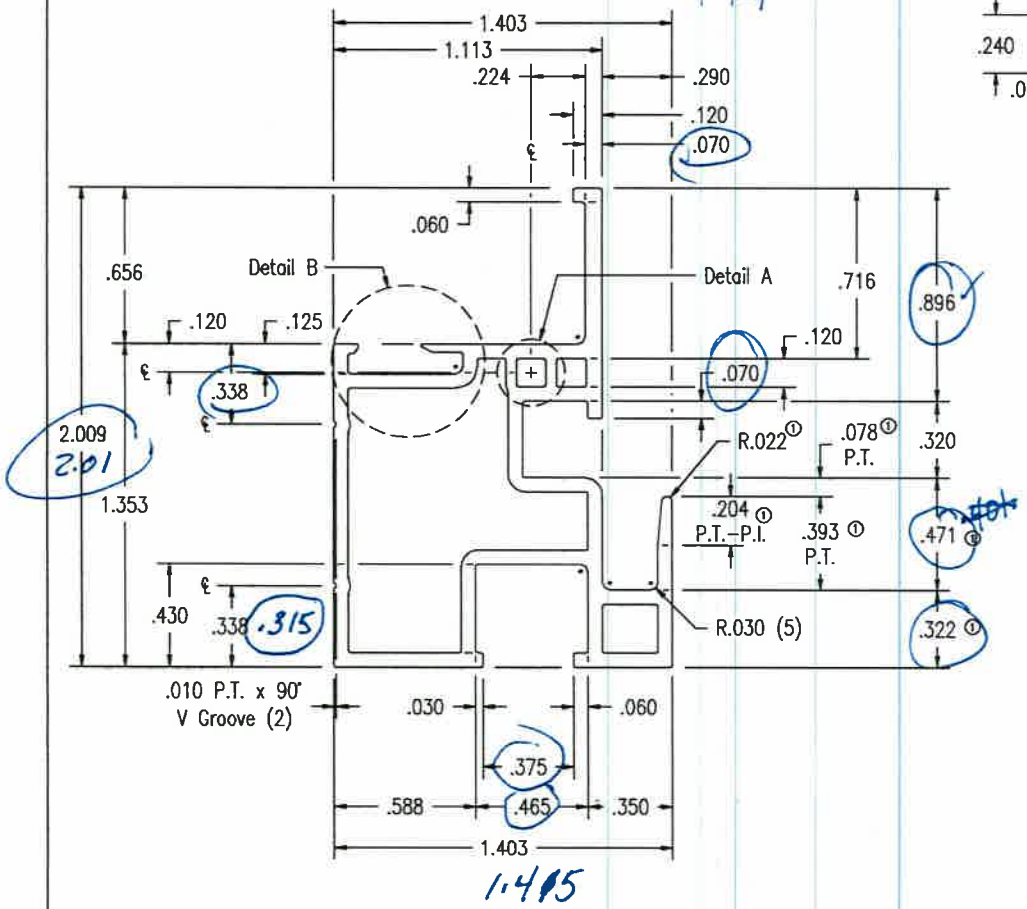
400/475 Series S. H. Sash Stop
400/475 Series P. W. Common Jamb Fill Cover

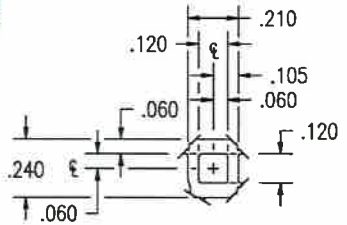
DRN	CHKD	Scale	
RLS		4 : 1	A
Material	Hardness	Date	
PVC		04-30-08	

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1601 Luna Road
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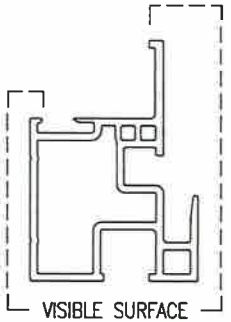
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INTERNATIONAL
1601 Luna Road
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Phone (972) 242-0556
Report# 15-079 Date 1-6-15
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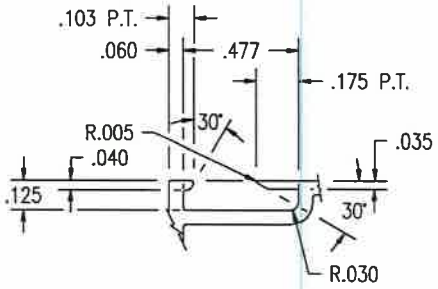




Detail A
Scale 2 : 1



Actual Size



Detail B
Scale 2 : 1

.060 Typical Wall Thickness Except as Noted. .010 Unspecified Radius

Date	No.	Revisions	By
06/12/08	1	Revised Interlock Area and Revised Date	RLS

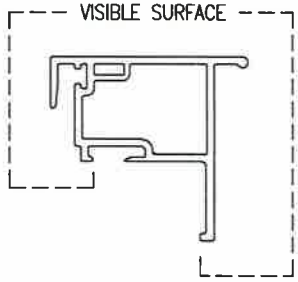
Est. Area in.2	.497	Factor	
Est. Wt. Per Ft.	.315	Circle Size	
Est. Perim.	16.090	Class	

Krestmark Ind. L.P.

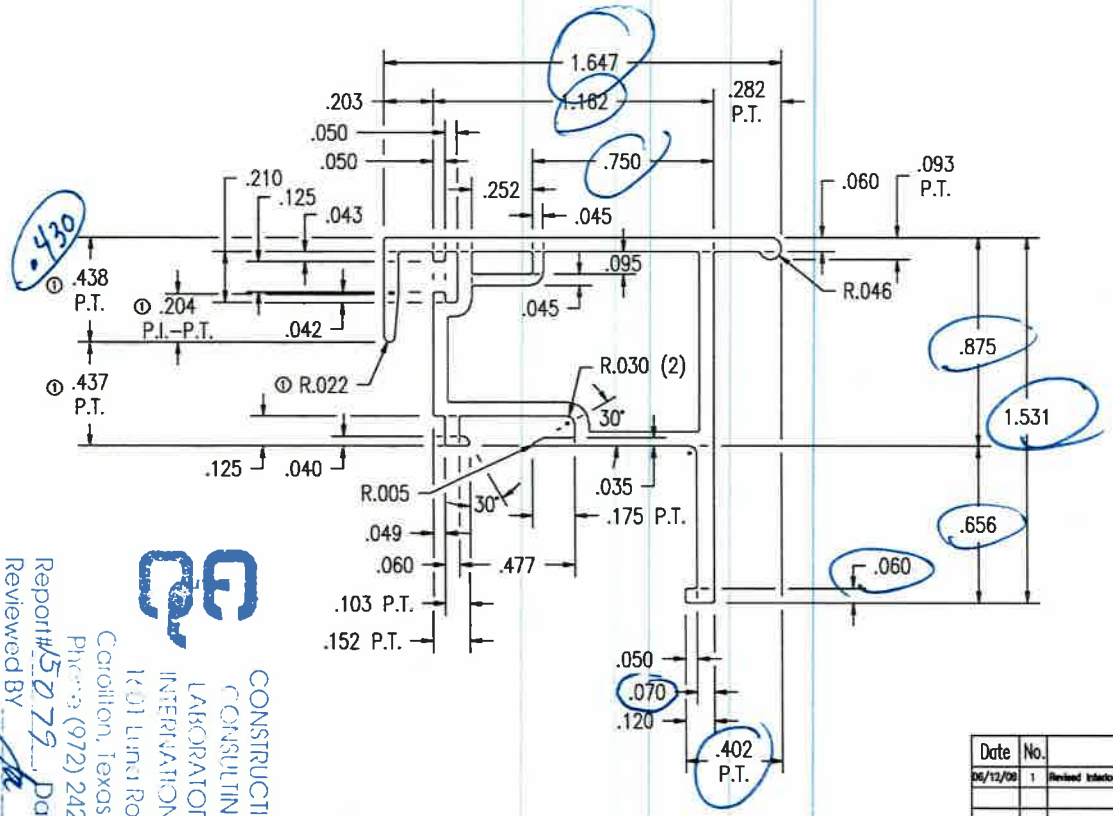
400/475 Series S. H.–H. S. Fixed Mtg. Rail/Stile

DRN	CHKD	Scale		
RLS		2 : 1	B	BP4004
Material	Hardness	Date		
PVC		04–30–08		

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Actual Size



.060 Typical Wall Thickness Except as Noted. .010 Unspecified Radius

Date	No.	Revisions	By
06/12/08	1	Revised Interlock Area and Revised Data	RLS

Est. Area in.2	.370	Factor	
Est. Wt. Per Ft.	.234	Circle Size	
Est. Perim.	12.228	Class	

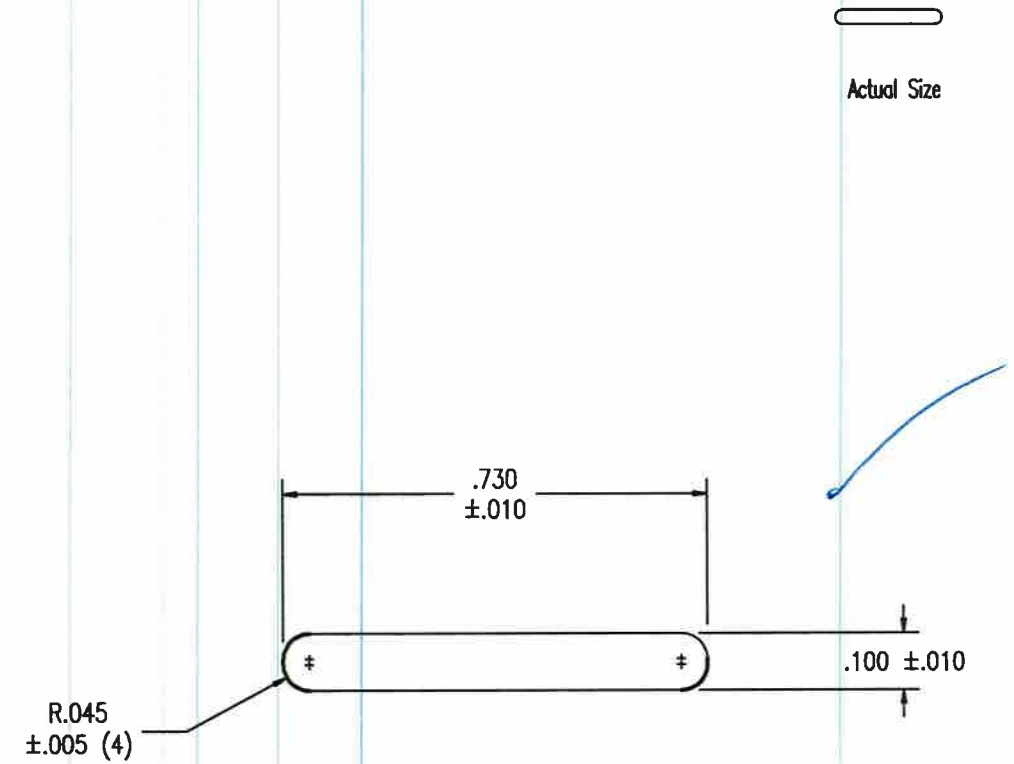
Krestmark Ind. L.P.

400/475 Series S. H./H. S. Lock Rail/Stile

DRN	CHKD	Scale		
RLS		2 : 1	B	BP4007
Material	Hardness	Date		
PVC		04-30-08		

CONSTRUCTION CONSULTING LABORATORY INTERNATIONAL
101 Luna Road
Carrollton, Texas 75006
Phone: (972) 242-0556
Report#52079 Date 1-6-15
Reviewed BY

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N/A Typical Wall Thickness Except as Noted. Break Sharp Corners N/A Radius Except as Noted.

Date	No.	Revisions	By

Est. Area in.2	.071	Factor	
Est. Wt. Per Ft.	.043	Circle Size	
Est. Perim.	1.583	Class	

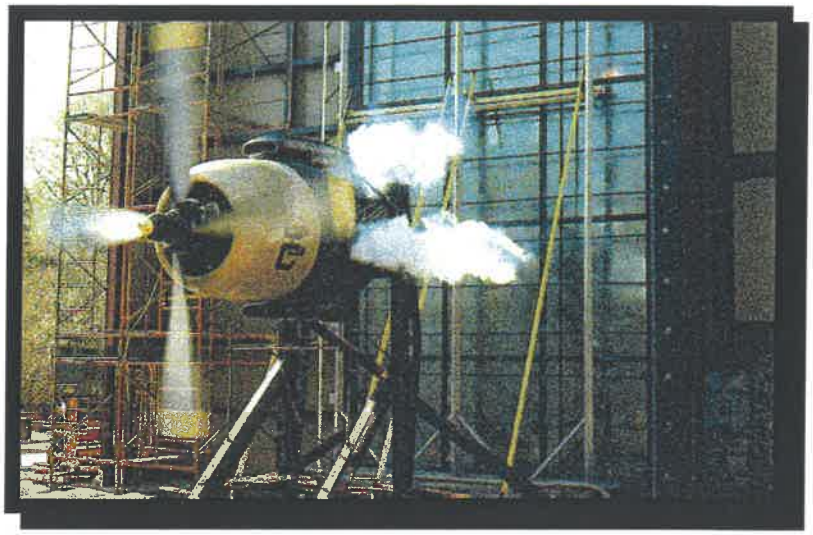
Krestmark Ind. L.P.

400 Series Setting Block

DRN	CHKD	Scale	
RLS		4 : 1	A
Material	Hardness	Date	
PVC	A 90	06-06-05	

CONSTRUCTION CONSULTING LABORATORY INTERNATIONAL
1601 Long Road
Carrollton, Texas 75006
Phone (972) 242-0559
Report# 15079 Date 6-15
Reviewed BY

CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*



TEST REPORT:

AAMA 506-2008 LARGE MISSLE IMPACT
KRESTMARK INDUSTRIES, LP - PORTER LITE, LLC
SERIES 4000/4750 VINYL FIXED WINDOW

REPORT #CCLI-13-153

September 27, 2013

Prepared for:

KRESTMARK INDUSTRIES, LP – PORTER LITE, LLC
3950 Bastille Road, Suite 100
Dallas, TX 75212

1601 Luna Road
Carrollton, Texas 75006

S-UNITED, INC.
A Quality Control Company

Office: (972) 242-0556
FAX: (972) 245-6047

TABLE OF CONTENTS

1. PROJECT DATA 1

2. SCOPE 1

3. SUMMARY 1

4. IMPACT ACCEPTANCE CRITERIA 2

5. TEST SPECIMEN 2

6. PERFORMANCE RESULTS 3

7. CONCLUSION 5

APPENDIX

APPENDIX A: SERIES 4000 FIXED WINDOW DRAWINGS

Refer to drawings in **Appendix A**, this report is not complete unless these drawings are stamped and initialed by **CCLI** as illustrated below.

DRAWING	PART / DIE #	DATE	STAMPED AS ILLUSTRATED
BOM / Layout Details		10/27/08	
INSTALLATION			
FRAME	4003	6/18/08	
GLAZING BEAD		4/30/08	
SETTING BLOCK		6/6/05	

CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 13153 Date 9-26-13
Reviewed BY

Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2015 – Abdol Rezadad, P.E

Signature: 9/30/13

1. PROJECT DATA

Project:	AAMA 506-2008 Krestmark Industries, LP - Porter Lite, LLC Series 4000 Vinyl Fixed Window
Date of Testing:	August 28, 2013
Tested For:	Krestmark Industries, LP - Porter Lite, LLC 3950 Bastille Rd Suite 100 Dallas, TX 75212
Witnessed By:	(All or Partial Viewing)
Brandon Newman	Construction Consulting Laboratory, *International*
Abdol Rezadad, P.E.	Construction Consulting Laboratory, *International*
James Lockaby	Krestmark Industries, LP

2. SCOPE

Construction Consulting Laboratory, *International* (**CCLI**) was requested to report the testing results of Krestmark Industries, LP - Porter Lite, LLC Series 4000 Vinyl Fixed Window. Tests were performed in accordance with AAMA 506-2008 "Voluntary Specification for Hurricane Impact and Cycle Testing of Fenestration Products". Impact test were performed in accordance with ASTM E 1996-05b "Standard Specification for Performance of Exterior Windows, Glazed Curtain Walls, Doors, and Storm Shutters Impacted by Windborne Debris in Hurricanes" and ASTM E1886-05 "Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials". Tests were performed at Construction Consulting Laboratory, *International* (**CCLI**) in Carrollton, TX.

3. SUMMARY

Series	Product Type	Test Size	Test Method	Missile Type	Positive DP	Negative DP
4000	Fixed	47.5" x 83.5"	AAMA 506	Large-Type D	50 psf	50 psf
4750 is the Brickmold frame						

Florida Registered Professional Engineers Review:Reg. # 52849, February 28, 2015 – Abdol Rezadad,P.E.

Signature: A Rezadad 9/30/13

4. IMPACT ACCEPTANCE CRITERIA

The test specimen shall resist the large missile impact with no tear formed longer than 127 mm (5") and wider than 1.58 mm ($^1/_{16}$") through which air can pass when evaluated upon completion of missile impacts and test loading program.

5. TEST SPECIMEN

Product Type:	PVC Fixed Window, **Product Drawings, Appendix A**
Series Model:	Krestmark Industries, LP - Porter Lite, LLC Series 4000 Fixed
Specification:	AAMA 506-2008/ASTM E 1996-05b Large Type D Missile
Design:	ASTM E 1886-05 CYCLIC DESIGN +50 / -50
Frame Size:	1207mm x 2121mm (47.5" x 83.5")
DLO Fixed:	1143mm x 2057mm (45" x 81")
Configuration:	O

Weather Stripping: None.

Weep Arrangement: 12. mm x 3.17mm ($^1/_2$" x $^1/_8$") weep located 88.9mm ($3^1/_2$") from each end of sill exterior face.

Hardware: None.

Reinforcement: None.

Impact Glass: Sealed insulating glass: One piece, 4.76mm ($^3/_{16}$") annealed glass at the exterior with 6.35mm ($^1/_4$") airspace, two pieces 3.17mm ($^1/_8$") annealed glass with 2.29mm (.090") laminate at interior, 19.05mm ($^3/_4$") overall thickness. Glass insulated with aluminum swiggle strip.

Glazing: Exterior glazed with Dow Corning 995 silicone back bedding compound at interior face and heel of glass, full perimeter. Vinyl snap-on bead located at exterior.

Narrow Joint Sealant: None.

Installation Features: Frame mounting fin was attached to a #2, nominal 50.8mm x 101.6mm (2" x 4") SPF test buck with #8 x 31.75mm ($1^1/_4$") screws through fin spaced 50.8mm (2") from each end and approximately on 304.8mm (12") centers, full perimeter. Nominal 50.8mm x 101.6mm (2" x 4") SPF test buck was inserted into a nominal 50.8mm x 304.8mm (2" x 12") SPF test fixture, which was installed on chamber.

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Signature: A Rezadad 9/30/13

Other Features: Frame corners are mitered and welded.

6. PERFORMANCE RESULTS

No.	Title of Test	Test Method	Measured	Allowed
5.3.2	Air Infiltration @ 75 Pa (1.57 psf)	ASTM E 283-04	.05 L/s•m^2 (.01 cfm/ft^2)	1.5 L/s•m^2 (0.30cfm/ft^2)
5.3.3	Water Resistance @ 360 Pa (7.5 psf)	ASTM E 547-00	No Leakage	No Leakage
5.3.4.2	Deflections between Fasteners 2400 Pa (50 psf)			
	Positive		.762 mm (.03")	Reported
	Negative		.508 mm (.02")	Reported
5.3.4.3	Uniform Load Structural	ASTM E 330-02		
	@ 3600 Pa (75.0 psf) Positive		No Damage	No Damage
	@ 3600 Pa (75.0 psf) Negative		No Damage	No Damage
	-Permanent Set		Negligible	1.21 mm (.048)
5.3.5	Forced Entry Resistance Grade 10	ASTM F 588-07	No Entry	No Entry
5.3.6.2	Corner Weld Test	**Results:** No clean break at weld line.		

Florida Registered Professional Engineers Review:Reg. # 52849, February 28, 2015 – Abdol Rezadad,P.E.

Signature: A. Rezadad 9/30/13

Test Specimen 1 ASTM E 1996-05b

Par No	Speed	Rotation	Title of Test	Measured	Allowable
5.3.1.1	49.6 fps	0°	Center of Glass	No Penetration	See Section 4
5.3.2.1	49.8 fps	0°	Upper Right Corner	No Penetration	See Section 4

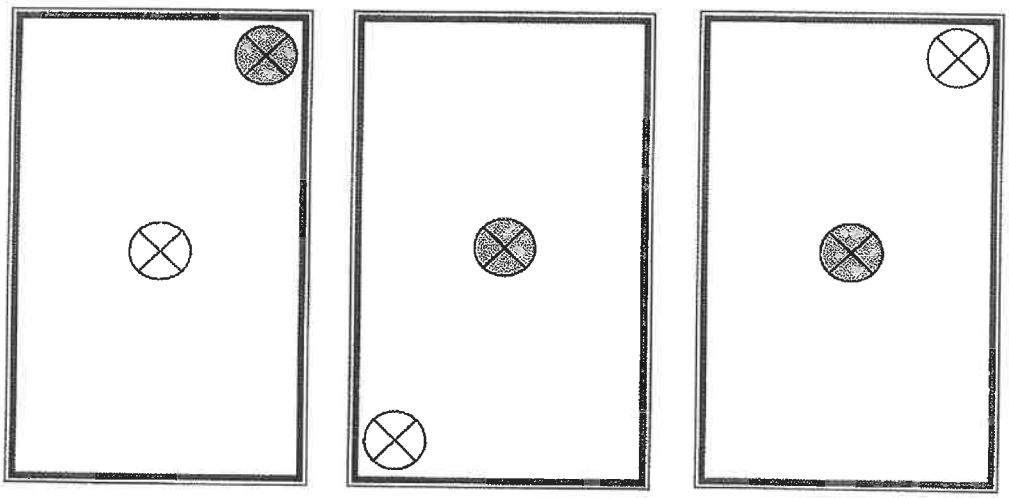
Test Specimen 2

Par No	Speed	Rotation	Title of Test	Measured	Allowable
5.3.1.2	50.1 fps	0°	Lower Left Corner	No Penetration	See Section 4
5.3.2.2	49.8 fps	0°	Center of Glass	No Penetration	See Section 4

Test Specimen 3

Par No	Speed	Rotation	Title of Test	Measured	Allowable
5.3.1.3	50.9 fps	0°	Upper Right Corner	No Penetration	See Section 4
5.3.3.6	50.4 fps	0°	Center of Glass	No Penetration	See Section 4

TEST SPECIMEN 1 **TEST SPECIMEN 2** **TEST SPECIMEN 3**



⊗ - Indicates 2nd impact to specimen.

The laboratory temperature was recorded at 85°F for the duration of testing. Test specimens were stored in the lab prior to testing and the skin temperature of the vinyl was recorded at 83°F.

Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2015 – Abdol Rezadad, P.E.

Signature: Rezadad 9/30/13

Visual inspections performed on the test specimens revealed there were no penetrations through the laminate and no separation of vision-to-frame glazing at the conclusion of the large missile impact tests.

Specification: ASTM E 1886-05

Load Direction	Sequence	Range	Cycle Time	Cycles	Damage
50 PSF Positive	Cycle 1	0.2 P to 0.5 P	< 3 seconds	3500	None
	Cycle 2	0 to 0.6 P	< 3 seconds	300	None
	Cycle 3	0.5 P to 0.8 P	< 3 seconds	600	None
	Cycle 4	0.3 P to 1.0 P	< 3 seconds	100	None

Load Direction	Sequence	Range	Cycle Time	Cycles	Damage
50 PSF Negative	Cycle 1	0.3 P to 1.0 P	< 3 seconds	50	None
	Cycle 2	0.5 to 0.8 P	< 3 seconds	1050	None
	Cycle 3	0 to 0.6 P	< 3 seconds	50	None
	Cycle 4	0.2 P to 0.5 P	< 3 seconds	3350	None

Visual inspections performed on the test specimens revealed there were no penetrations through the laminate and no separation of vision-to-frame glazing at the conclusion of the cyclic pressure differentials.

Detailed extrusion and assembly drawings indicating measured wall thickness and corner construction are on file and have been compared to the test sample submitted. These records will be retained at **CCLI** for a period of four years.

7. CONCLUSION

The above results were obtained by using the designated test methods. This report does not constitute certification of this product, which may only be granted by the program administrator.

Respectfully submitted,

CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*

BRANDON NEWMAN
Assistant Testing Manager

WESLEY WILSON
Laboratory Manager

Florida Registered Professional Engineers Review:Reg. # 52849, February 28, 2015 - Abdol Rezadad,P.E.

Signature: 9/30/13

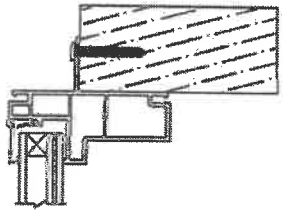
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APPENDIX A

PROJECT DRAWINGS

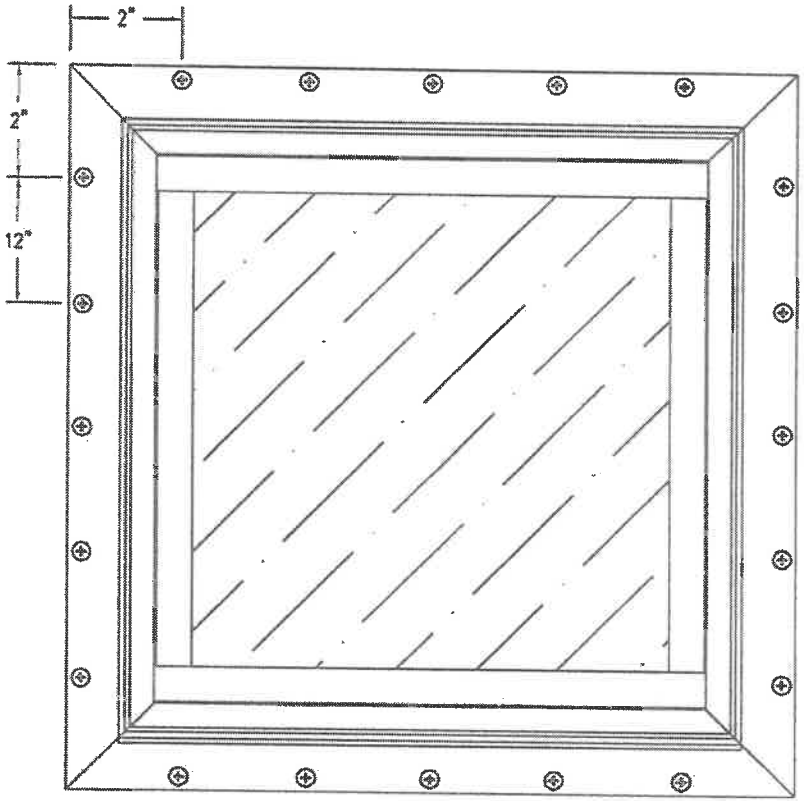
DRAWING	PART / DIE #	DATE
BOM / Layout Details		10/27/08
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FRAME	4003	6/18/08
GLAZING BEAD		4/30/08
SETTING BLOCK		6/6/05

- END OF REPORT -

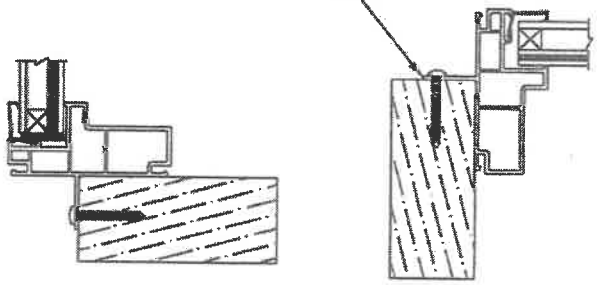


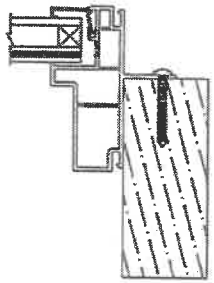
Fasten in 2 By Frame with #8 x 1¼" Screw or Larger, 2" from Each Tip of Fin and Spaced Every 12"(Max) Between Fasteners. Apply Silicone Between Frame Nail Fin and 2 By Around Full Perimeter Before Installation.

Make Sure that the Sill is Level and that Jambs are Plumb.



Apply Silicone Between Frame Nail Fin and 2 By Around Full Perimeter



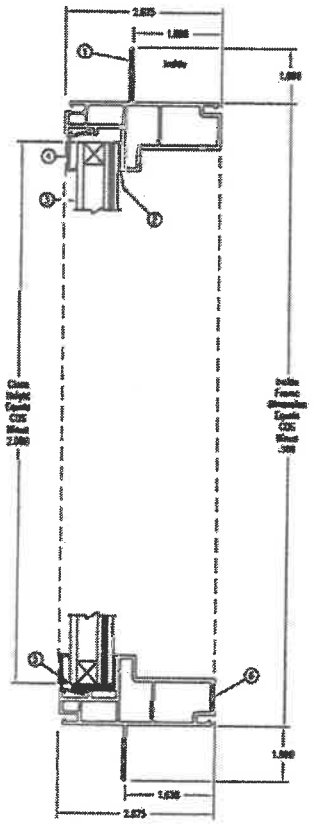


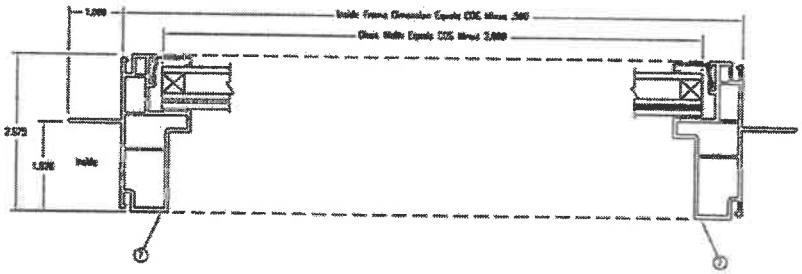
CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-7750
Report# 13152 Date 4-26-13
Reviewed BY BN

Krestmark Ind. L.P.
3950 Bastille Rd. Suite 100
Dallas, Texas 75212

4000 Series P. W.
Installation Instructions

Item No.	Part No.	Extrusion No.	Cut Size Formula	Finish Frame Formula	Description	Qty.
1	N/A	BP4003	ODS - .500	FFD	HEAD	1
2	N/A	N/A	N/A	N/A	BRICK MOLDING	As Req'd
3	N/A	N/A	[illegible]	[illegible]	[illegible]	As Req'd
4	N/A	BP1703-A	[illegible]	[illegible]	[illegible]	3
5	N/A	BP1495-SLI	[illegible]	[illegible]	[illegible]	4
6	N/A	BP4003	ODS - .500	FFD	[illegible]	As Req'd
7	N/A	BP4003	ODS - .500	FFD	[illegible]	3
					[illegible]	2



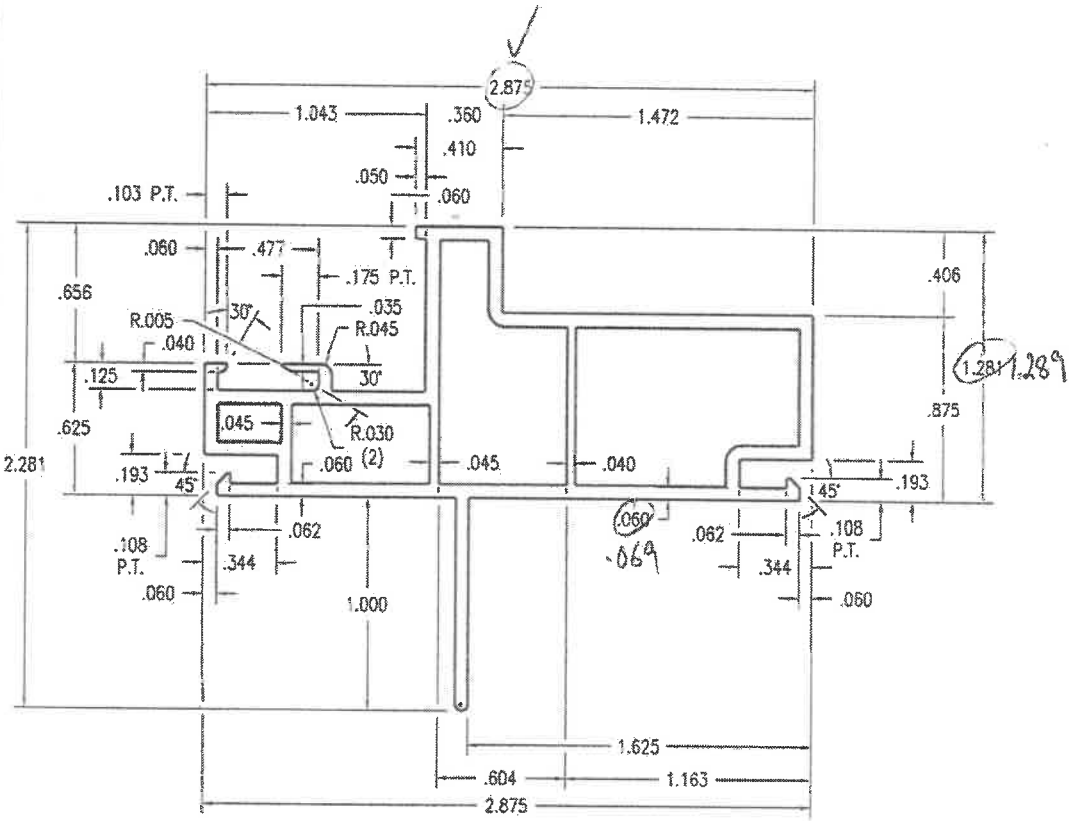


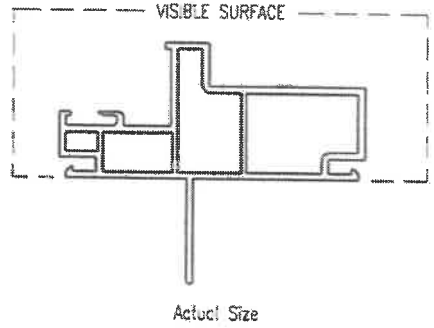
Notes:
1) [illegible]
2) [illegible]

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1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 3153 Date 9153
Reviewed BY RN 9-26-13

Kissmark Ind. L.P.
4600 Series P. W. Assembly

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Actual Size

CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-9556
Report# 13153 Date 9-26-13
Reviewed BY

.055 Typical Wall Thickness Except as Noted. .010 Unspecified Radius

Do Not Scale Drawing Dimensions. All Dimensions in "[ ]" Are In Millimeter Equivalents.

Rev	By	Appv'd	Date	Revisions
A				
B				
C				

Area
0.696 in.²

Weight
0.441 lbs./ft.

Part No: 4003 | Revision: N/A

Title: S. H. Head/P. W./Rolled Frame

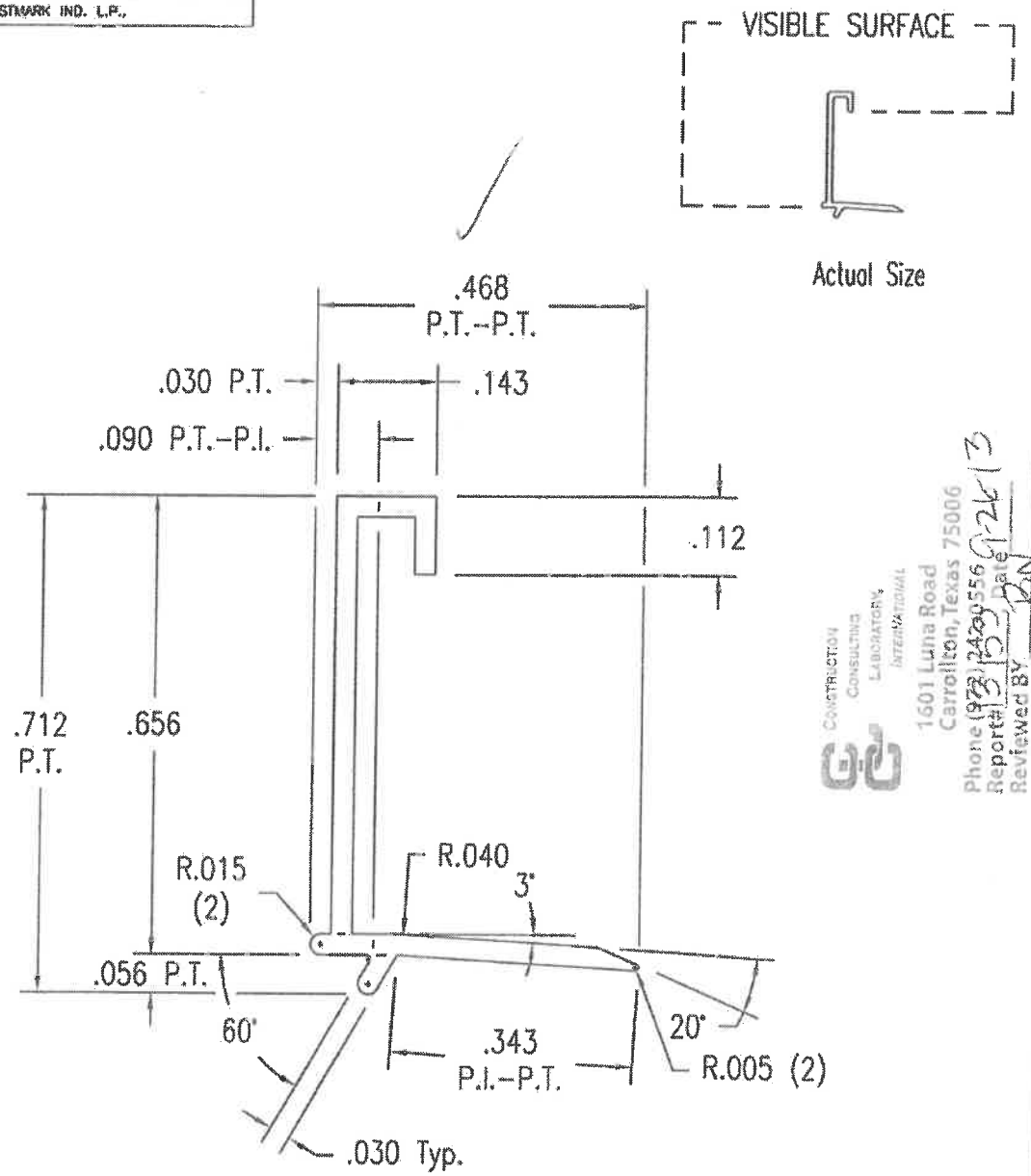
Drawing No: 4003-01 | Sheet No: 1 of 1

Scale: 1:1 | Drawn By: LWR | Approved By: GJM

Date: 18JUN2008 | Material: Poly-Vinyl Chloride (PVC)

Tolerences (Except As Noted)
Decimals: ± 0.010" [0.25mm]
Fractions: ± 1/100" [0.25mm]
Angles: ± 0° - 30'
Other: ± N/A

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CONSTRUCTION CONSULTING LABORATORIES INTERNATIONAL
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 13139 Date 1-24-13
Reviewed BY

.030 ±.003 Typical Wall Thickness Except as Noted. Break Sharp Corners .010 Radius Except as Noted.

Date	No.	Revisions	By

Est. Area in.2	.040	Factor	
Est. Wt. Per Ft.	.025	Circle Size	
Est. Perim.	2.672	Class	

Krestmark Ind. L.P.

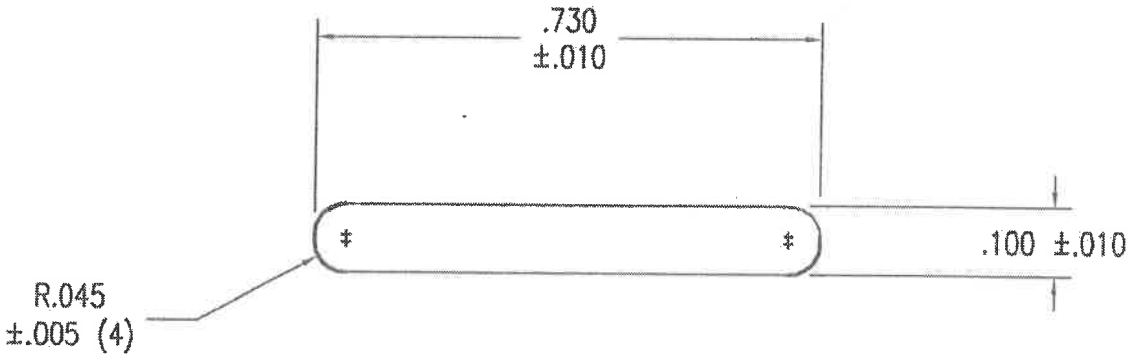
400/475 Series ¾" I. G. Glazing Bead

DRN	CHKD	Scale	A	
RLS		4 : 1		
Material	Hardness	Date		
PVC	D 90	04-30-08		

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Actual Size

1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report # 15[illegible] Date 9-26-13
Reviewed BY



N/A Typical Wall Thickness Except as Noted. Break Sharp Corners N/A Radius Except as Noted.

Date	No.	Revisions	By

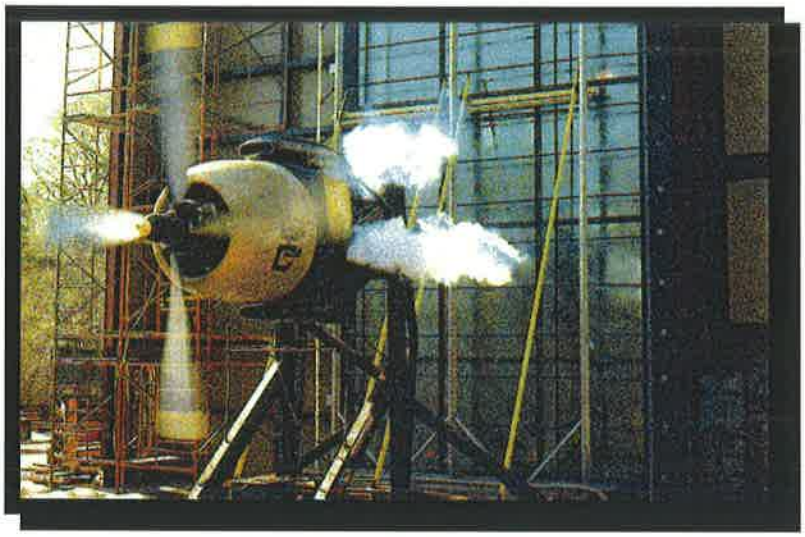
Est. Area in.2	.071	Factor	
Est. Wt. Per Ft.	.043	Circle Size	
Est. Perim.	1.583	Class	

Krestmark Ind. L.P.

400 Series Setting Block

DRN	CHKD	Scale		
RLS		4 : 1	A	
Material	Hardness	Date		
PVC	A 90	06-06-05		

CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*



TEST REPORT:

AAMA 506-08 HURRICANE IMPACT & CYCLIC PERFORMANCE
KRESTMARK INDUSTRIES, LP - PORTER LITE, LLC.
SERIES 4000/4750 PVC HORIZONTAL SLIDING WINDOW

REPORT #CCLI-14-156

Report Date: November 18, 2014
Revised on January 6, 2015

Prepared for:

KRESTMARK INDUSTRIES, LP – PORTER LITE, LLC
3950 Bastille Road, Suite 100
Dallas, TX 75212

Reviewed and approved by Florida Registered Professional Engineer
ABDOL REZADAD, P.E. (Florida PE #52849 Expiration: 2/28/2015
4341 Lindbergh Street, Suite 200-E, Addison, TX 75001
Phone: 972-960-2223

1601 Luna Road
Carrollton, Texas 75006

S-UNITED, INC.
A Quality Control Company

Office: (972) 242-0556
FAX: (972) 245-6047

TABLE OF CONTENTS

1. PROJECT DATA 1
2. SCOPE 1
3. SUMMARY 1
4. IMPACT ACCEPTANCE CRITERIA 1
5. TEST SPECIMEN 1
6. PERFORMANCE RESULTS 2
7. DISCLAIMER 4

APPENDIX

APPENDIX A: KRESTMARK INDUSTRIES, LP - PORTER LITE, LLC
SERIES 4000 PVC HORIZONTAL SLIDING WINDOW DRAWINGS

Refer to Mock-Up drawings in **Appendix A**, this report is not complete unless these drawings are stamped and initialed by **CCLI** as illustrated below.

Die #	Drawing	Date	Stamped as Illustrated
Assembly	Installation / Assembly	6/30/10	CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL 1601 Luna Road Carrollton, Texas 75006 Phone (972) 242-0556 Report# 14-156 Date Revised Reviewed BY GW 12-15
4001	Frame	6/18/08	
4004	Fixed Interlock	6/18/08	
4007	Sash Interlock	6/18/08	
4005	Sash Member	6/18/08	
11585	Fixed Reinforcement	2/20/09	
204-B	Sash Reinforcement	11/30/10	
	Glazing Bead	4/30/08	
	Roller Track	4/30/08	
	Sill Extender	4/30/08	
	Setting Block	6/6/05	

Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2013 – Abdol Rezadad, P.E.

Signature: 1/20/2015

1. PROJECT DATA

Project: AAMA 506-08 Hurricane Impact and Cyclic Performance

Date of Testing: September 24, 2014

Tested For: Krestmark Industries, LP - Porter Lite, LLC

Witnessed By:	(All or Partial Viewing)	
Krestmark Industries, LP- Porter Lite, LLC	James Lockaby	
Construction Consulting Laboratory, International	Brandon Newman	Abdol Rezadad

2. SCOPE

Construction Consulting Laboratory, *International* (**CCLI**) was requested to perform testing in accordance with AAMA 506-2006 "Voluntary Specification for Hurricane Impact and Cycle Testing of Fenestration Products". Impact test were performed in accordance with ASTM E 1996-05b "Standard Specification for Performance of Exterior Windows, Glazed Curtain Walls, Doors, and Storm Shutters Impacted by Windborne Debris in Hurricanes" and ASTM E1886-05 "Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials". Tests were performed at Construction Consulting Laboratory, *International* (**CCLI**) in Carrollton, TX.

3. SUMMARY

Series	Test Size	Test Method	Missile	Positive DP	Negative DP
4000	5'-11 5/8" x 3'-7 ½"	AAMA A440-08			
4000	5'-11 5/8" x 3'-7 ½"	1996 / 1886	Type D	50 Psf	50 Psf

4. IMPACT ACCEPTANCE CRITERIA

The test specimen shall resist the large missile impact with no tear formed longer than 127 mm (5") and wider than 1.58 mm (1/16") through which air can pass when evaluated upon completion of missile impacts and test loading program.

5. TEST SPECIMEN

Product Type:	PVC Horizontal Sliding Window, **Product Drawings, Appendix A.**
Series Model:	Series 4000 PVC Horizontal Sliding Window
Specification:	AAMA 506-08 ASTM E 1996-05b Large Type D Missile
Design:	ASTM E 1886-05 (+50 / -50)
Frame Size:	1816 mm x 1105 mm (5'-11 ½" x 3'-7 ½")
Sash Size:	899 mm x 1057 mm (2'-11 3/8" x 3'-5 5/8")
Fixed DLO	841 mm x 1038 mm (33 1/8" x 40 7/8")
Sash DLO	819 mm x 978 mm (32 ¼" x 38 ½")
Configuration:	X.O

Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2015 – Abdol Rezadad, P.E.

Signature: 1/20/2015

Weather-Stripping: Pile weather strip with plastic center fin 6.35mm (0.250" x .187" backed) at the exterior face/interior leg of frame members, at the exterior face of sash members and at the interior lateral face of sash jamb stile and top and bottom rail.

Weep Arrangement: 12.7 x 6.35mm (½" x ¼") weep at sill center leg spaced 19.05mm (¾") from each end weeps into frame sill hollow. Sill hollow weeps through 12.7 x 3.17mm (½" x 1/8") weep at sill exterior leg in accessory groove. Snap-in sill track cut short 6.35 (¼") at each end and notched 25.4mm (1") x exterior leg spaced 12.7mm (½") from each end.

Hardware: Metical cam action locks 101.6mm (4") from each end of sash lock stile, attached by two (2) #8 x 19.05mm (¾") PFH screws with keepers attached at fixed interlock with two (2) #6 x 19.05mm (¾") screws per keeper. Tandem metallic roller with plastic housing snapped into sash bottom rail 57.15mm (2 ¼") from each end.

Reinforcement: 6063-T5 Aluminum extrusion part # 11585 in fixed interlock full span. 6063-T5 Aluminum extrusion part # 204-B in all sash members.

Impact Glass: Sealed insulating glass: One piece, 3.17 mm (1/8") annealed glass at the exterior with 7.9 mm (5/16") airspace, two pieces 2.38 mm (3/32") annealed glass with 2.286 mm (.090") PVB laminate at interior, 15.875 mm (5/8") overall thickness. Glass insulated with aluminum swiggle strip.

Glazing: Exterior glazed with silicone back bedding compound at full interior and heel perimeter of glass and air spacer and rigid vinyl snap-in glazing bead at exterior of glass.

Sealant: Narrow joint sealant at fixed interlock-to-head and sill connections.

Installation Features: Frame mounting fin was attached to a #2, nominal 50.8mm x 152.4mm (2" x 6") SPF test buck with #8 x 41.27mm (1 5/8") truss head screws through fin spaced 50.8mm (2") from each end and approximately on 304.8mm (12") centers, full perimeter. 12.7mm (½") thick drywall installed at the interior face of frame head and jambs attached to test buck with #8 drywall screws set on 304.8mm (12") centers. 38.1mm (1 ½") wood stool at the interior face of frame sill attached with #8 drywall screws set on 304.8mm (12") centers.

Other Features: Frame and sash corners are mitered and welded. Fixed interlock stile attached to frame head and sill with two (2) #8 x 41.27mm (1 5/8") truss head screw at each end.

6. PERFORMANCE RESULTS

No.	Title of Test	Test Method	Measured	Allowed
5.3.1.1	Operating Force			
	-Initiate Movement		84 N (19 lbs)	Report Only
	-Force to Maintain		66 N (15 lbs)	90 N (20 lbs)
5.3.1.1.3	Latching Devices		6N (1.3 lbs)	100N (22.5 lbs)
5.3.2	Air Infiltration @ 75 Pa (1.57 psf)	ASTM E 283-04	.10L/s•m² (.02 cfm/ft²)	1.5 L/s•m² (0.30 cfm/ft²)

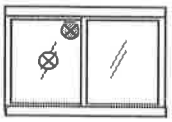
Air values were reported at the request of the manufacturer.

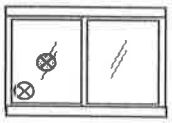
Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2015 – Abdol Rezadad,P.E.

Signature: 1/20/2015

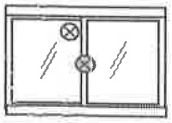
No.	Title of Test	Test Method		Measured	Allowed
5.3.3	Water Resistance	ASTM E 547-00			
	@ 360 Pa (7.5 psf) with screen			No Leakage	No Leakage
	@ 360 Pa (7.5 psf) without screen			No Leakage	No Leakage
5.3.4.2	Deflections @ Interlock				
	2400 Pa (50 psf)				
	Positive		Max Center	12.7mm (.50")	reported
	Negative		Max Center	18mm (.71")	reported
5.3.4.3	Uniform Load Structural	ASTM E 330-02			
	@ 3600 Pa (75.0 psf) Positive			No Damage	No Damage
	@ 3600 Pa (75.0 psf) Negative			No Damage	No Damage
	-Permanent Set			2.8mm (.11")	4.21mm (0.166")
5.3.5	Forced Entry Resistance	ASTM F 588-07			
	Grade 10			No Entry	No Entry
5.3.6.3	Deglazing Test				
	Top Rail @ 311 N (70 lbs)			.02%	90%
	Bottom Rail @ 311 N (70 lbs)			.01%	90%
	Lock Stile @ 222 N (50 lbs)			.01%	90%
	Jamb Stile @ 222 N (50 lbs)			.01%	90%

Specification: ASTM E 1996-05b Missile Level Type D (#2 yellow pine weighing 9 lbs 1ozs and measured 8'-2" overall).

Par No	Speed	Rotation	Title of Test	Measured	Specimen 1
5.3.1.1	50.3 fps	0°	Center of Glass	No Penetration	
5.3.2.1	49.6 fps	0°	Upper Right Corner	No Penetration	

Par No	Speed	Rotation	Title of Test	Measured	Specimen 2
5.3.1.2	49.5 fps	0°	Lower Left Corner	No Penetration	
5.3.2.2	49.1 fps	0°	Center of Glass	No Penetration	

Series 4000 Test Specimen 3

Par No	Speed	Rotation	Title of Test	Measured	Specimen 3
5.3.1.3	49.4 fps	0°	Upper Right Corner	No Penetration	
5.3.3.6	49.0 fps	0°	Center of Meeting Stile	No Penetration	

⊗ Indicates 2nd Impact to Specimen.

Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2015 – Abdol Rezadad, P.E.

Signature: 1/20/2015

The laboratory temperature was recorded at 84°F during testing. Test specimens were stored in the lab prior to testing and the skin temperature was recorded at 81°F.

Visual inspections performed on the test specimens revealed there were no penetrations through the laminate and no separation of vision-to-frame glazing at the conclusion of the large missile impact tests.

Specification: ASTM E 1886-05

Load Direction	Sequence	Range	Cycle Time	Cycles	Damage
50 PSF Positive	Cycle 1	0.2 P_{max} to 0.5 P_{max}	< 3 seconds	3500	None
	Cycle 2	0 to 0.6 P_{max}	< 3 seconds	300	None
	Cycle 3	0.5 P_{max} to 0.8 P_{max}	< 3 seconds	600	None
	Cycle 4	0.3 P_{max} to 1.0 P_{max}	< 3 seconds	100	None

Load Direction	Sequence	Range	Cycle Time	Cycles	Damage
50 PSF Negative	Cycle 1	0.3 P_{max} to 1.0 P_{max}	< 3 seconds	50	None
	Cycle 2	0.5 $_{max}$ to 0.8 P_{max}	< 3 seconds	1050	None
	Cycle 3	0 to 0.6 P_{max}	< 3 seconds	50	None
	Cycle 4	0.2 P_{max} to 0.5 P_{max}	< 3 seconds	3350	None

Visual inspections performed on the test specimens revealed there were no penetrations through the laminate and no separation of vision-to-frame glazing at the conclusion of the cyclic pressure differentials.

Detailed extrusion and assembly drawings indicating measured wall thickness and corner construction are on file and have been compared to the test sample submitted. These records will be retained at **CCLI** for a period of four years.

7. DISCLAIMER

The above results were achieved by using the designated test methods and indicate compliance with the above specification. This report does not constitute certification of this product.

Respectfully submitted,

CONSTRUCTION CONSULTING LABORATORY, *INTERNATIONAL*

WESLEY WILSON
LAB MANAGER

BRANDON NEWMAN
TESTING MANAGER

Florida Registered Professional Engineers Review: Reg. # 52849, February 28, 2015 – Abdol Rezadad,P.E.

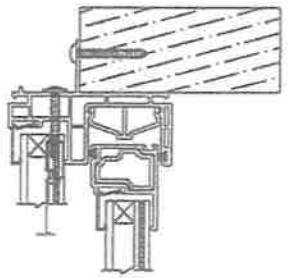
Signature: 1/20/2015

APPENDIXE A

PRODUCT DRAWINGS

Die #	Drawing	Date
Assembly	Installation / Assembly	6/30/10
4001	Frame	6/18/08
4004	Fixed Interlock	6/18/08
4007	Sash Interlock	6/18/08
4005	Sash Member	6/18/08
11585	Fixed Reinforcement	2/20/09
204-B	Sash Reinforcement	11/30/10
	Glazing Bead	4/30/08
	Roller Track	4/30/08
	Sill Extender	4/30/08
	Setting Block	6/6/05

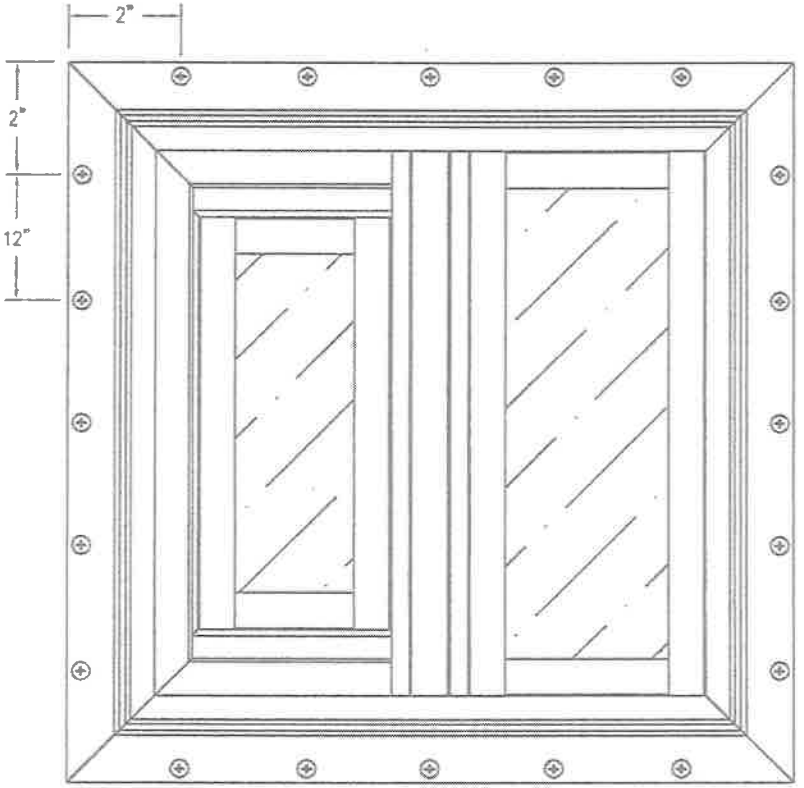
- END OF REPORT -



Fasten in 2 By Frame with #8 x 1¼" Screw or Larger, 2" from Each Tip of Fin and Spaced Every 12"(Max) Between Fasteners. Apply Silicone Between 2 By and Frame Nail Fin Around Full Perimeter Before Installation.

Make Sure that Window is in the Closed and Locked Position During Installation. Make Sure that the Sill is Level and that Jambs are Plumb.

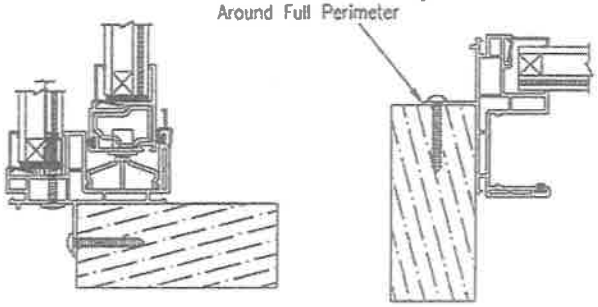
NOTE: Installation screws should be long enough for as 1" embedment into framing member.

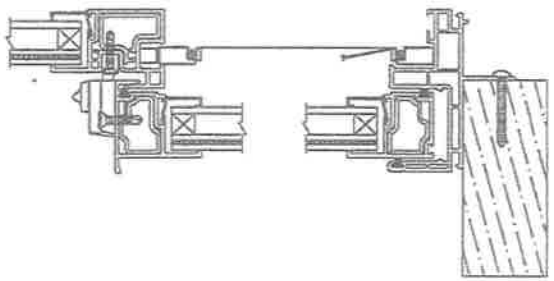


Construction Consulting Laboratory, International
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556

Report# 14-156 Date 9-24-14
Reviewed BY BN

Apply Silicone Between Frame Nail Fin and 2 By Around Full Perimeter

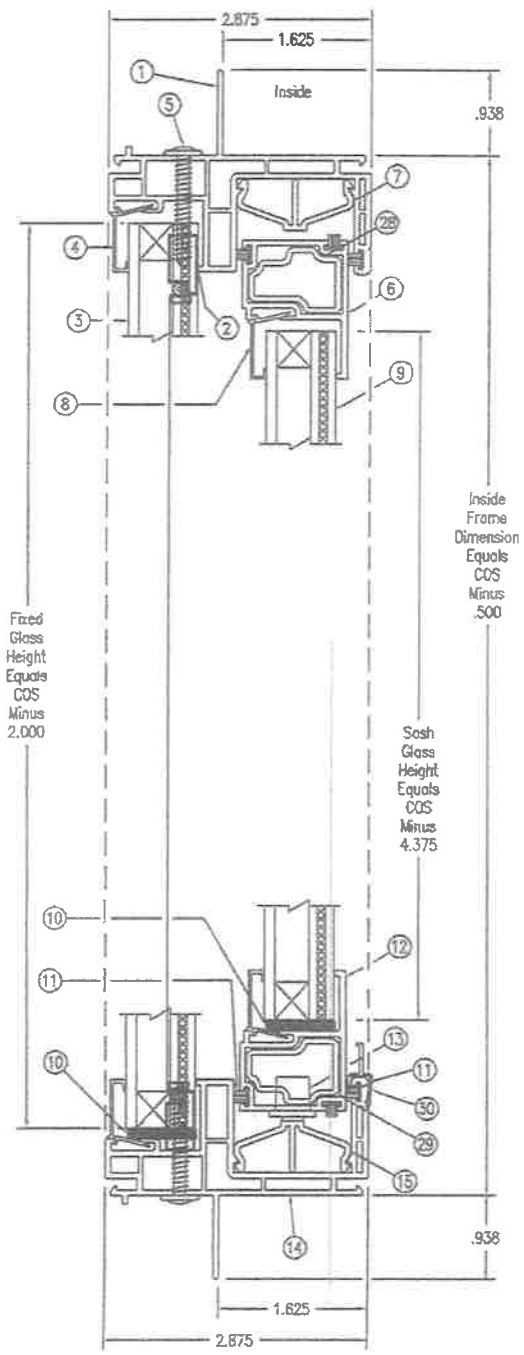




Krestmark Ind. L.P.
3950 Bastille Rd. Suite 100
Dallas, Texas 75212

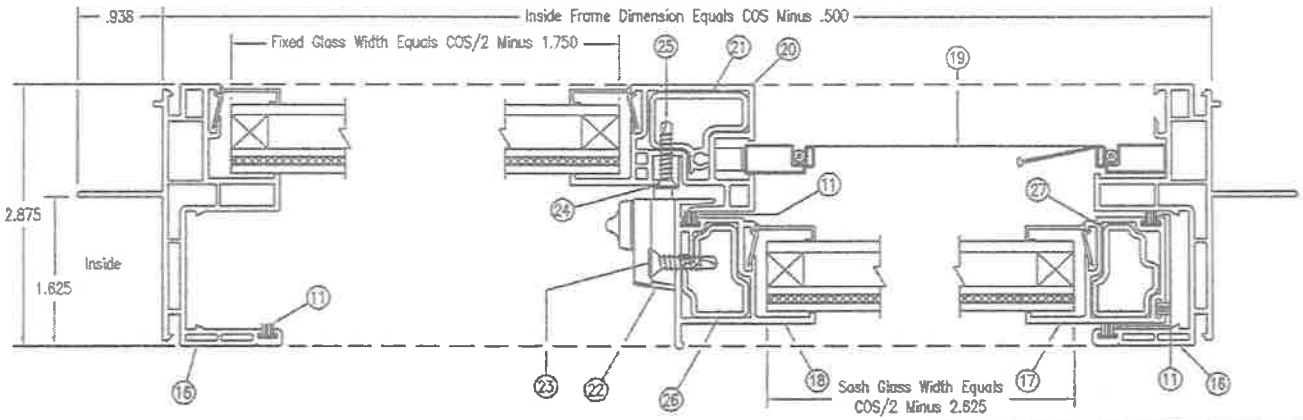
4000/4750 Series H. S.
Installation Instructions

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Item No.	Part No.	Extrusion No.	Cell Size Formula	Inside Frame Formula	Description	Qty.
1	N/A	BP4001	COS – .500	IFD	Head	1
2	N/A	N/A	N/A	N/A	Back Bedding	As Req'd
3	N/A	N/A			DSB-5/16" Spacer-SSB-.090-SSB Impact I.G.	1
4	N/A	DT1720-R			Fixed I.G. Glazing Bead	4
5	N/A	N/A	N/A	N/A	#8 x 1¼" Phillips Truss Head Screw	2
6	N/A	BP4005	COS/2 – .625	IFD/2 – .375	Sash Top Rail	1
7	N/A	XXXXXX	COS/2 – 3.250	IFD/2 – 3.000	Anti-Lift Out	1
8	N/A	DT1720-R			Sash I.G. Glazing Bead	4
9	N/A	N/A			DSB-5/16" Spacer-SSB-.090-SSB Impact I.G.	1
10	N/A	DT1495-SU	¾"	¾"	Setting Block	As Req'd
11	N/A	N/A	N/A	N/A	.250 x .187 Wide Finseal	As Req'd
12	N/A	BP4005	COS/2 – .625	IFD/2 – .375	Sash Bottom Rail	1
13	N/A	N/A	N/A	N/A	Roller Housing Assembly	2
14	N/A	BP4001	COS – .500	IFD	Sill	1
15	N/A	XXXXXX	COS – 1.500	IFD – 1.000	Roller Track	1
16	N/A	BP4001	COS – .500	IFD	Jamb	2
17	N/A	BP4005	COS – 2.375	IFD – 1.875	Jamb Stile	1
18	N/A	BP4007	COS – 2.375	IFD – 1.875	Lock Stile	1
19	N/A	N/A			Screen Assembly	1
20	N/A	BP4004	COS – 1.500	IFD – 1.000	Fixed Meeting Stile	1
21	N/A	EX11585	COS – 1.500	IFD – 1.000	Fixed Meeting Stile Reinforcement	1
22	N/A	N/A	N/A	N/A	Deco Lock (#667249K8)	2
23	N/A	N/A	N/A	N/A	#8 x ¾" Phillips Flat Head TEK Screw	4
24	N/A	N/A	N/A	N/A	Deco Keeper (#677166K8)	2
25	N/A	N/A	N/A	N/A	#6 x ¾" Phillips Flat Head Screw	4
26	N/A	204-B	COS – 2.875	IFD – 2.375	Lock Stile Reinforcement	1
27	N/A	204-B	COS – 2.875	IFD – 2.375	Jamb Stile Reinforcement	1
28	N/A	204-B	COS/2 – 1.625	IFD/2 – 1.375	Sash Top Rail Reinforcement	1
29	N/A	204-B	COS/2 – 6.375	IFD/2 – 6.125	Sash Bottom Rail Reinforcement	1
30	N/A	XXXXXX	COS – 2.25	IFD – 1.75	Sill Dam Extender	1

CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL
1807 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 14-156 Date 1-5-15
Reviewed BY BN



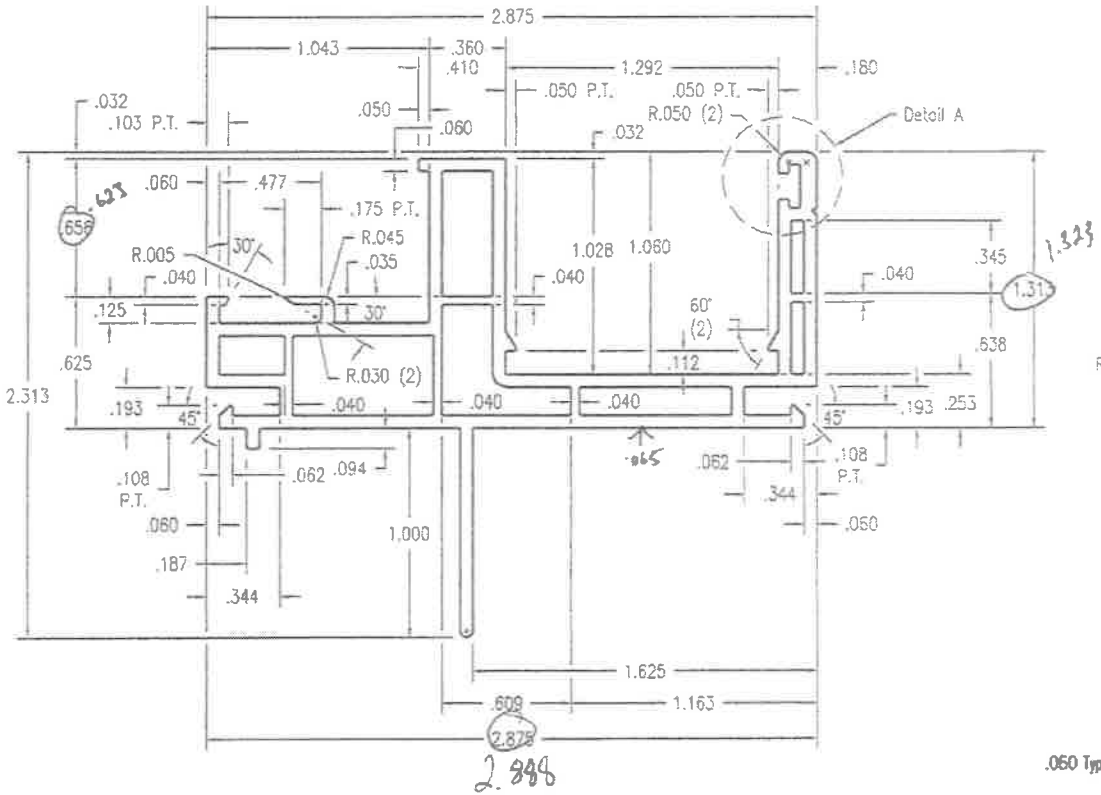
Notes:
1) Use Series 4000 Series P. W. with 4000 Series H. S.
2) Window Series is Available in White, Pebblestone and Clay.

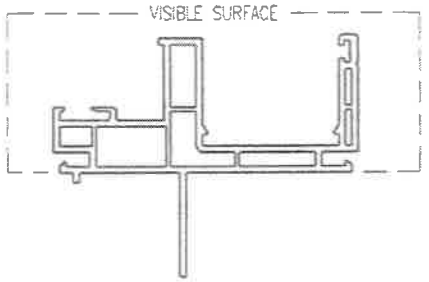
Krestmark Ind. L.P.

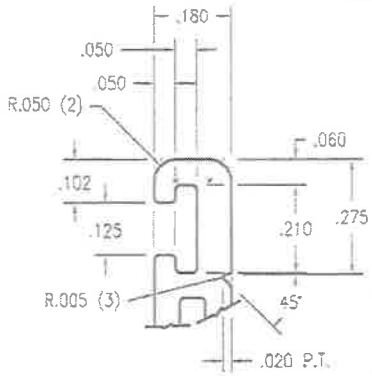
4000 Series H. S. Assembly

RLS		FULL	D
		06-30-10	4000SHSASSEMBLY

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Detail A
Scale 4 : 1

Construction Consulting Laboratory, International
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# A-156 Date 9-24-14
Reviewed BY BN

.060 Typical Wall Thickness Except as Noted. .010 Unspecified Radius

Do Not Scale Drawing Dimensions. All Dimensions in "[ ]" Are In Millimeter Equivalents.

Rev	By	Appv'd	Date	Revisions
A				
B				
C				

Area
0.766 in.²

Weight
0.485 lbs./ft.

Part No: 4001 | Revision: N/A

Title: S. H. Sill-H. S. Frame

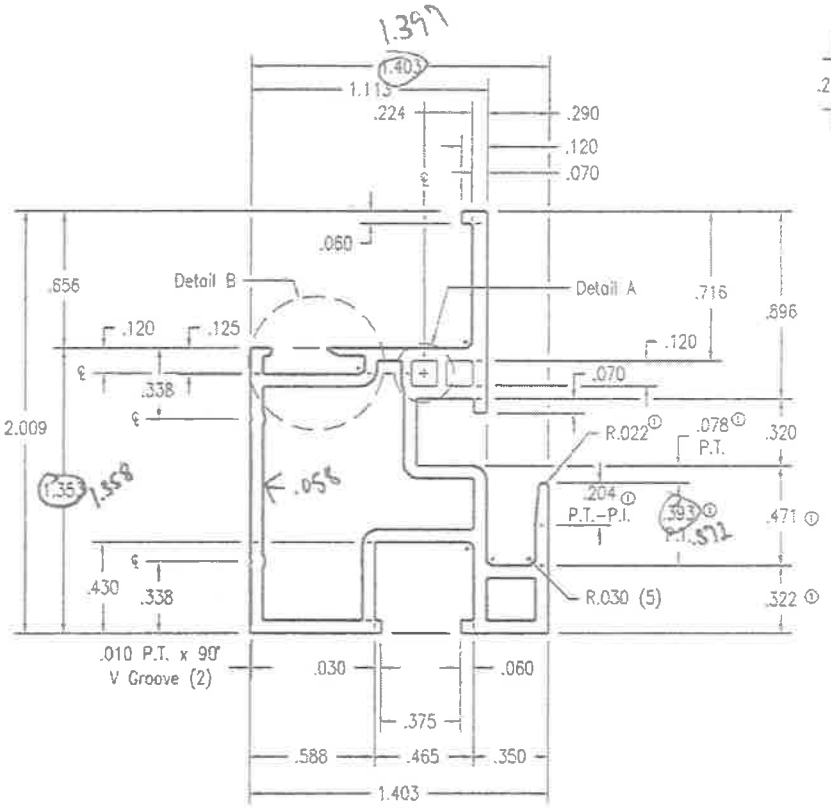
Drawing No: 4001-01 | Sheet No: 1 of 1

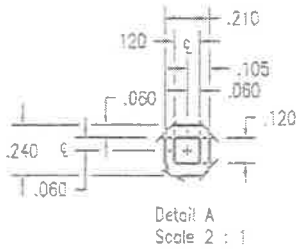
Scale: 1:1 | Drawn By: LWR | Approved By: GJM

Date: 18JUN2008 | Material: Poly-Vinyl Chloride (PVC)

Tolerences (Except As Noted)
Decimals: ± 0.010" [0.25mm]
Fractions: ± 1/100" [0.25mm]
Angles: ± 0° - 30'
Other: ± N/A

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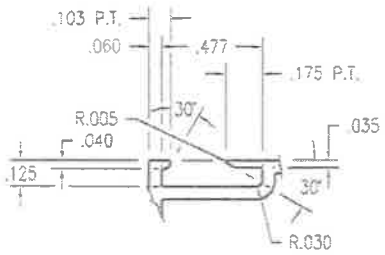




Detail A
Scale 2 : 1



Actual Size



Detail B
Scale 2 : 1

CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL
1801 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 14156 Date 9-24-14
Reviewed BY BN

.060 Typical Wall Thickness Except as Noted .010 Unspecified Radius

Do Not Scale Drawing Dimensions. All Dimensions in "[ ]" Are In Millimeter Equivalents.

Rev	By	Appv'd	Date	Revisions
A				
B				
C				

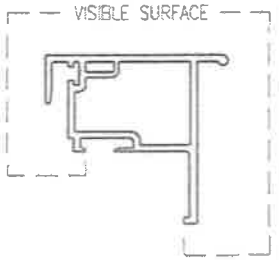
Area
0.497 in.²

Weight
0.315 lbs./ft.

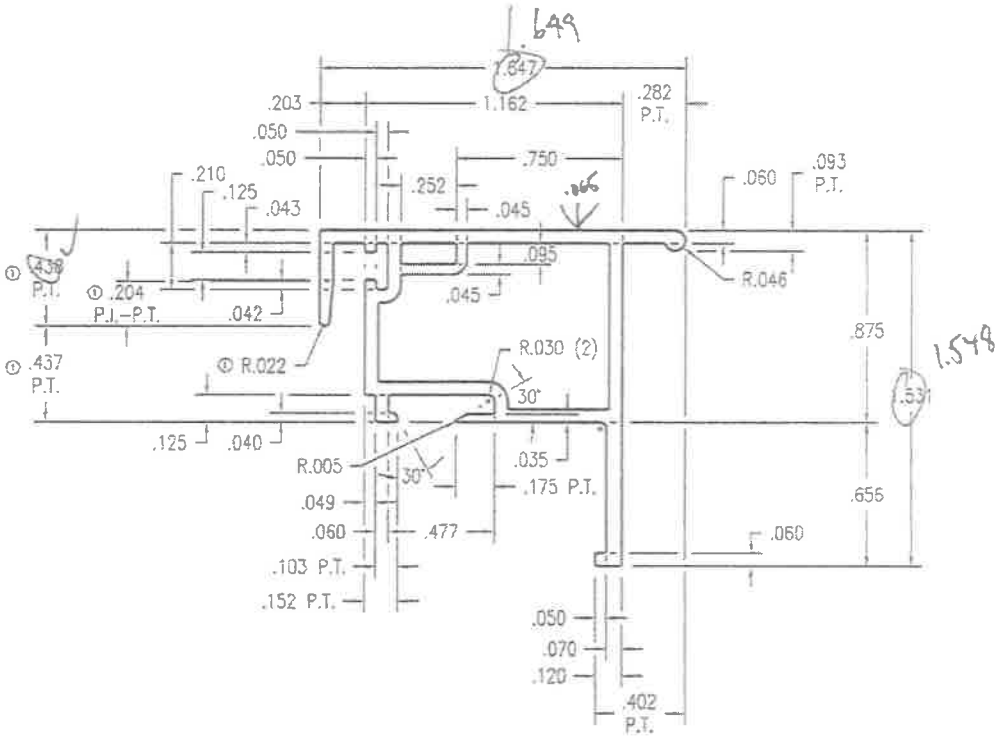
Part No: 4004		Revision: N/A
Title: S. H.-H. S. Fixed Mtg. Rail/Stile		
Drawing No: 4004-01		Sheet No: 1 of 1
Scale: 2:1	Drawn By: LWR	Approved By: GJM
Date: 18JUN2008	Material: Poly-Vinyl Chloride (PVC)	

Tolerences (Except As Noted)
Decimals: ± 0.010" [0.25mm]
Fractions: ± 1/100" [0.25mm]
Angles: ± 0° - 30'
Other: ± N/A

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Actual Size



.060 Typical Wall Thickness Except as Noted. .010 Unspecified Radius

Construction Consulting Laboratory, International
1501 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 14156 Date 9.24.14
Reviewed BY BN

Do Not Scale Drawing Dimensions. All Dimensions in "[]" Are In Millimeter Equivalents.

Rev	By	Appv'd	Date	Revisions
A				
B				
C				

Area: 0.370 in.²

Weight: 0.234 lbs./ft.

Part No: 4007 | Revision: N/A

Title: S. H./H. S. Lock Rail/Stile

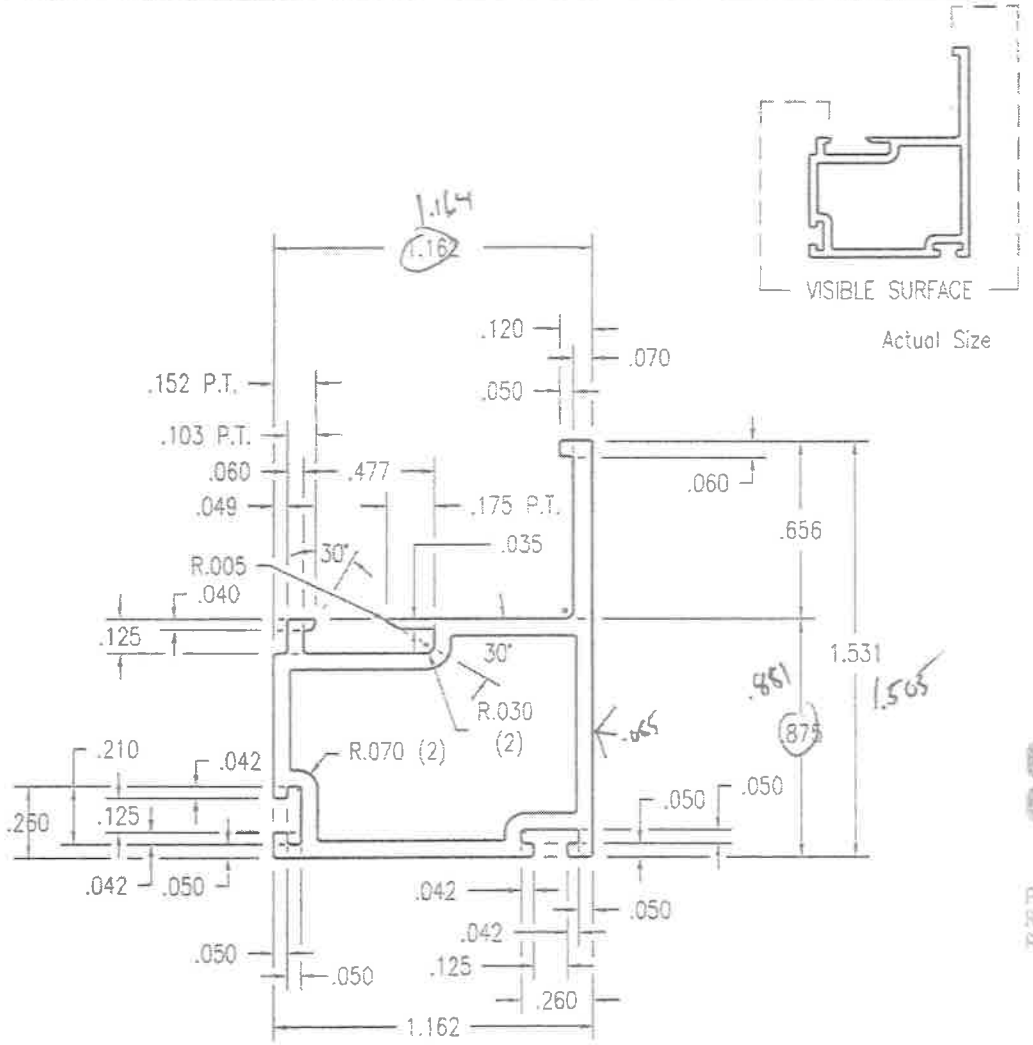
Drawing No: 4007-01 | Sheet No: 1 of 1

Scale: 2:1 | Drawn By: LWR | Approved By: GJM

Date: 18JUN2008 | Material: Poly-Vinyl Chloride (PVC)

Tolerences (Except As Noted)
Decimals: ± 0.010" [0.25mm]
Fractions: ± 1/100" [0.25mm]
Angles: ± 0° - 30'
Other: ± N/A

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.060 Typical Wall Thickness Except as Noted .010 Unspecified Radius

Construction Consulting Laboratory, International
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# H-156 Date 9-24-14
Reviewed BY BN

Do Not Scale Drawing Dimensions. All Dimensions in "[ ]" Are In Millimeter Equivalents.

Rev	By	Appv'd	Date	Revisions
A				
B				
C				

Area
0..309 in.²

Weight
0.195 lbs./ft.

Part No: 4005 Revision: N/A
Title: Sash Stile, Top & Bottom Rail-Jamb Stile
Drawing No: 4005-01 Sheet No: 1 of 1
Scale: 2:1 Drawn By: LWR Approved By: GJM
Date: 18JUN2008 Material: Poly-Vinyl Chloride (PVC)

Tolerances (Except As Noted)
Decimals: ± 0.010" [0.25mm]
Fractions: ± 1/100" [0.25mm]
Angles: ± 0° - 30'
Other: ± N/A

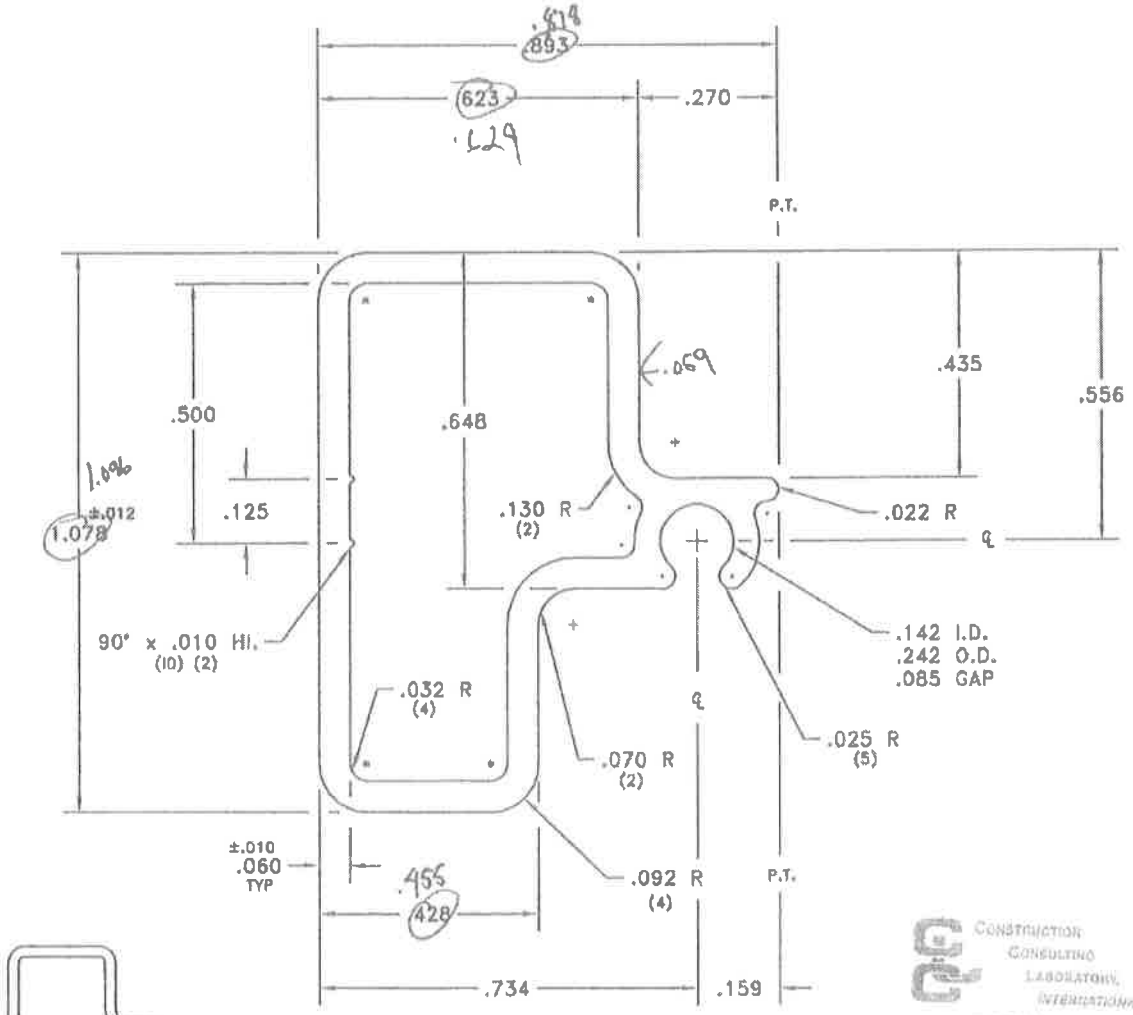
SOLID	SEMI-HOLLOW	HOLLOW
☐	☐	CLASS II

TITLE
400/475 SERIES R-50
FIXED MEETING RAIL REINFORCEMENT

DIE No.	11585
CUSTOMER PT. No.	
CUTTING LENGTH	

ALLOY 6063 TEMPER T5 CIRCLE SIZE 1.2 NUMBER OF VOIDS 0 P/P POCKET SIZE _____

ALL TOLERANCES -- ALUMINUM ASSOCIATION STANDARD -- UNLESS SPECIFIED OTHERWISE





NO EXPOSED SURFACE

ACTUAL SIZE

±.010
.060 TYPICAL WALL THICKNESS EXCEPT AS NOTED

BREAK SHARP CORNERS .016 R. EXCEPT AS NOTED

EST. AREA in^2	.205	EST. TOTAL PER.	6.884
EST. AREA cm^2		EST. OUTSIDE PER.	3.993
EST. WT. PER FT.	.246	CODE (P) FACTOR	28
EST. Kg. PER M.		PRESS LOCATION	8" & 7"
Die Size	10 x 6	Backer Size	4 Hole

DATE	No.	REVISIONS	BY

EXTRUDERS
DIVISION OF ATRIUM CO., INC.
P.O. BOX 1719, WYLIE TX. 75098-1719

CUSTOMER:	KRESTMARK		
CITY	DALLAS, TEXAS		
DRAWN BY: jpl	DATE: 20 February 09	DWG. No.	D-14209
SCALE: 3 : 1			

Construction Consulting Laboratory, International
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 11156 Date 9/24/14
Reviewed BY BN

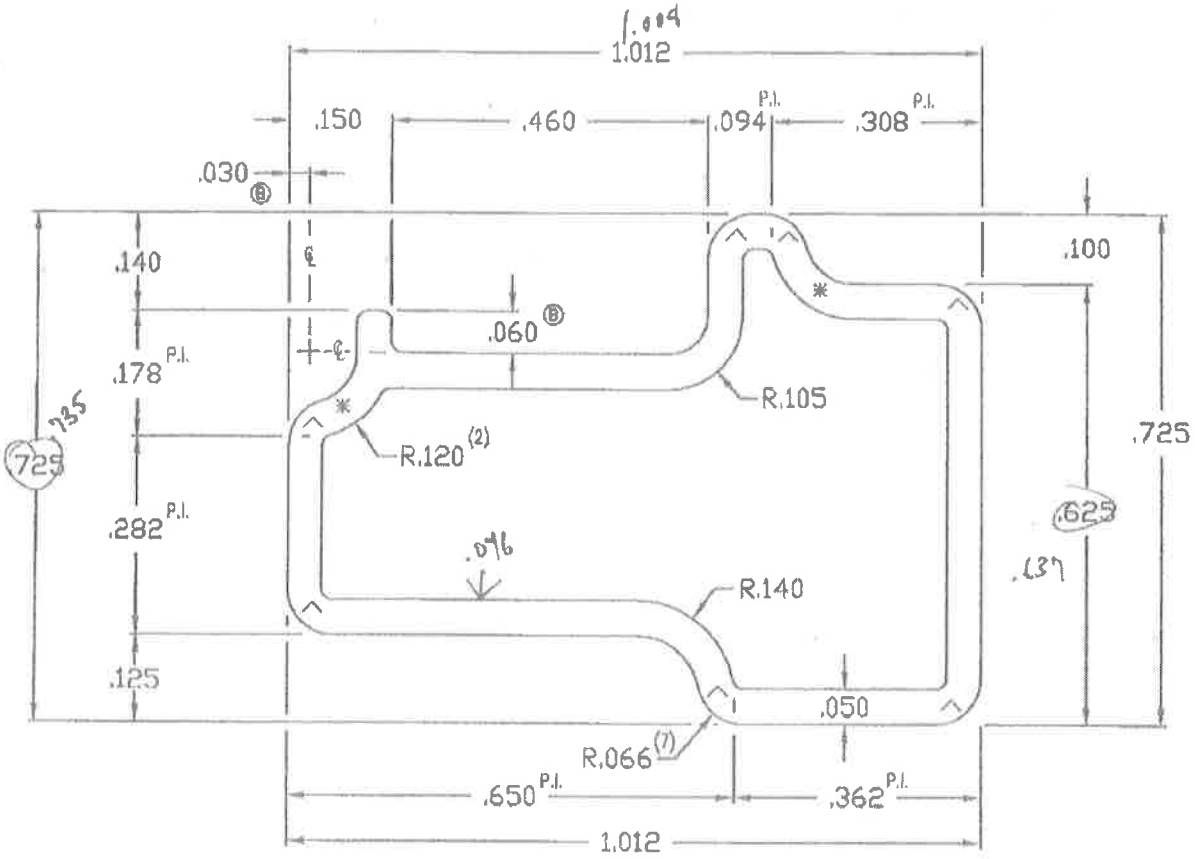
SOLID	SEMI-HOLLOW	HOLLOW	CLASS II

TITLE
400-475 SERIES R-50 LOCK RAIL/SASH STILE REINFORCEMENT

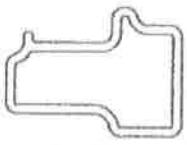
DIE NO.	204-B
CUSTOMER PT. NO.	① 11581
CUTTING LENGTH	–

ALLOY: 6063 TEMPER: T5 CIRCLE SIZE: 1.2 P/P POCKET SIZE: –

ALL TOLERANCES -- ALUMINUM ASSOCIATION STANDARD -- UNLESS SPECIFIED OTHERWISE



ACTUAL SIZE



NO EXPOSED SURFACE

Construction Consultants Laboratories, International
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Reports #11-192, Date 7-21-11
Reviewed BY BN

Ronald Stephens
8-1-13

±.008
.050 TYPICAL WALL THICKNESS EXCEPT AS NOTED

BREAK SHARP CORNERS .016 R. EXCEPT AS NOTED

EST.AREA in²	.153 Ⓑ	EST.TOTAL PER.	6.112 Ⓑ
EST.AREA cm²	–	EST.OUTSIDE PER.	3.265 Ⓑ
EST.WT. PER ft	.184 Ⓑ	CODE (2) (P) FACTOR	33
EST.Kg. PER M	–	PRESS LOCATION:	–
DIE SIZE	–	BACKER SIZE	–

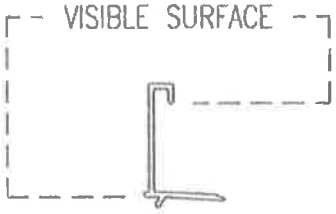
DATE	NO.	REVISIONS	BY
8/11/11	1	ADDED PART NUMBER	RM
8/31/11	2	CHANGE CODE TO P	RM
7/31/13	B	CHANGED SHAPE AND REVISED DATA	RM

P.O. Box 1270
Wylie, Texas 75098-1270

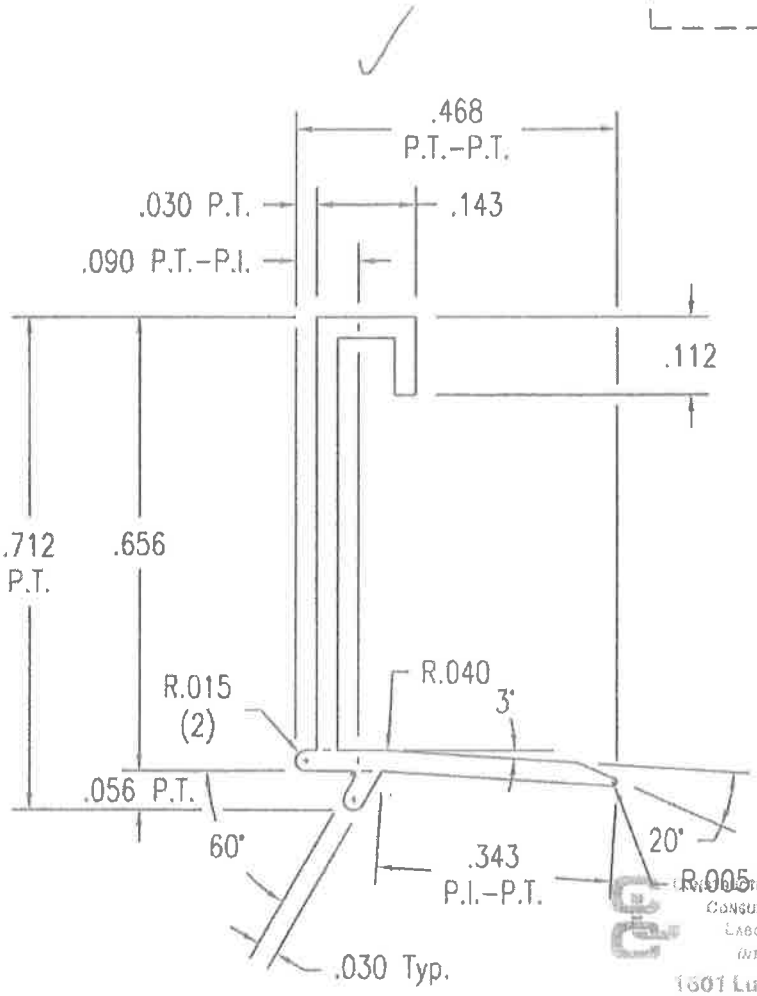
ASCEND CUSTOM EXTRUSIONS, LLC.

CUSTOMER:	KRESTMARK IND. L.P.			
CITY:	–			
DRAWN BY: PFR	DATE: 30 November, 2010		DWG. NO.	D-10204
SCALE: 4 : 1				

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Actual Size



Architectural Consulting Laboratory, International
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 11156, Date 9-24-14
Reviewed BY BN

.030 ±.003 Typical Wall Thickness Except as Noted. Break Sharp Corners .010 Radius Except as Noted.

Date	No.	Revisions	By

Est. Area in.2	.040	Factor	
Est. Wt. Per Ft.	.025	Circle Size	
Est. Perim.	2.672	Class	

Krestmark Ind. L.P.

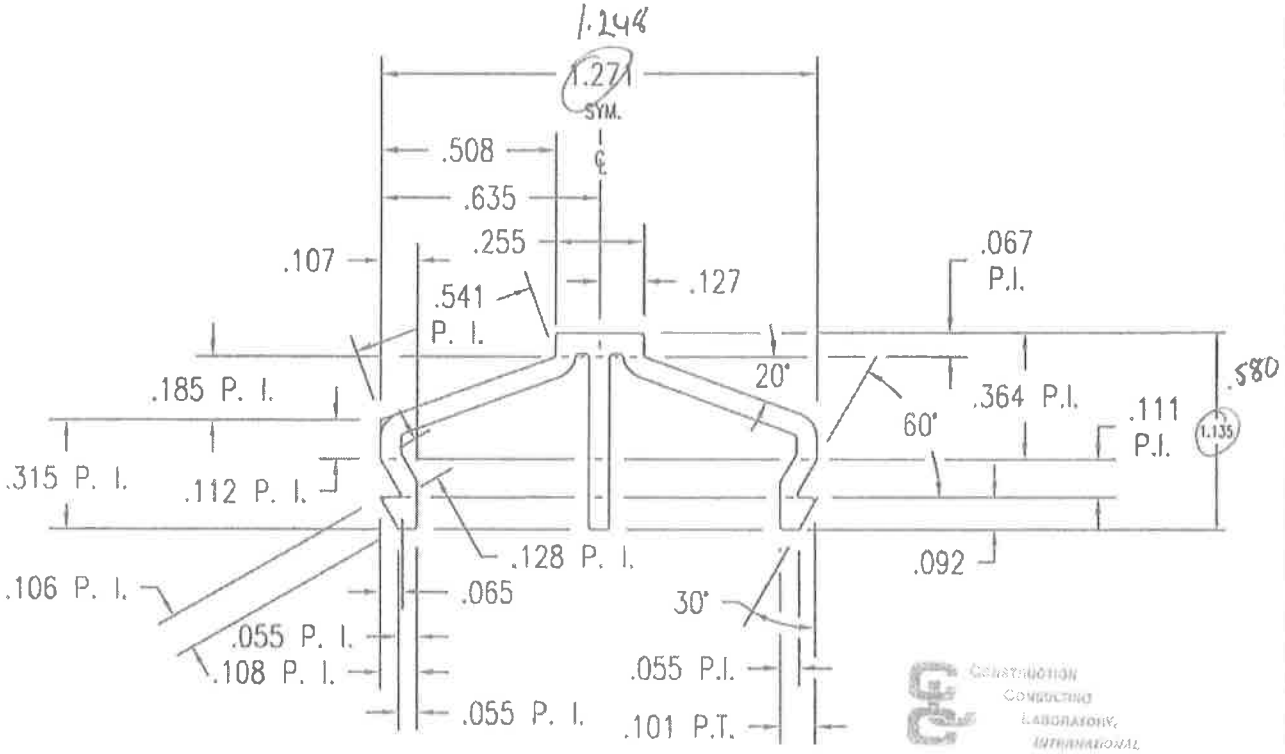
400/475 Series ¾" I. G. Glazing Bead

DRN	CHKD	Scale		
RLS		4 : 1	A	
Material	Hardness	Date		
PVC	D 90	04-30-08		

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Actual Size



Construction Consulting Laboratory, International
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 11156 Date 9-21-11
Reviewed BY BN

060 Typical Wall Thickness Except as Noted. Break Sharp Corners .010 Radius Except as Noted.

Date	No.	Revisions	By

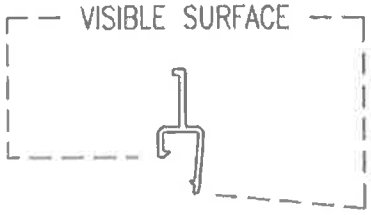
Est. Area in.2	.153	Factor	
Est. Wt. Per Ft.	.097	Circle Size	
Est. Perim.	5.149	Class	

Krestmark Ind. L.P.

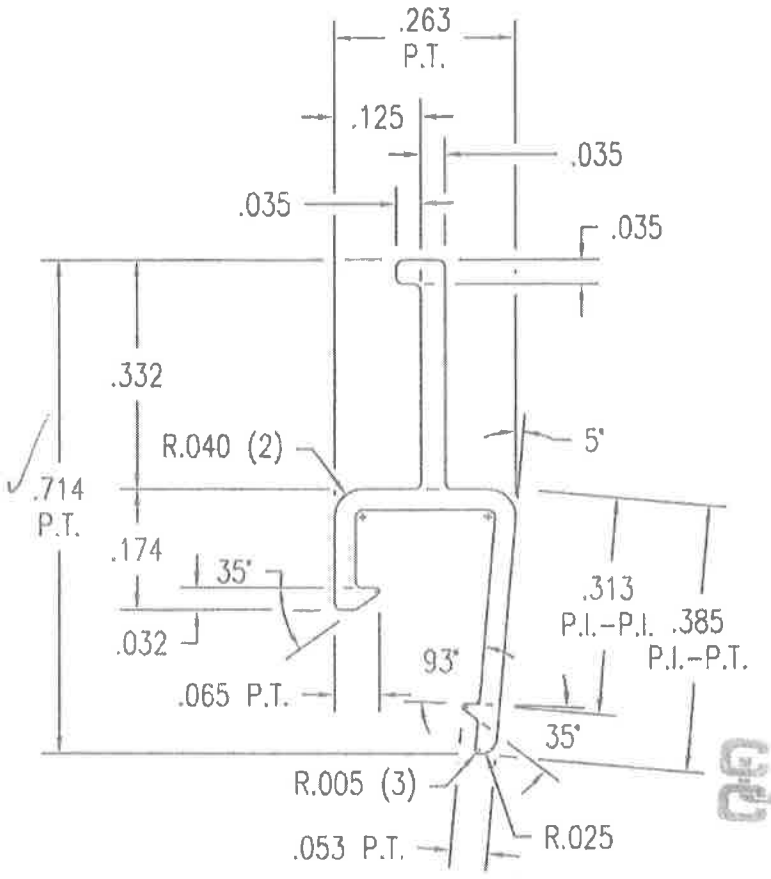
400/475 Series H. S. Roller/Anti-Lift Track

DRN	CHKD	Scale		
RLS		2 : 1	A	
Material	Hardness	Date		
PVC		04-30-08		

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Actual Size



Construction Consulting Laboratory, International
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# M-156 Date 9-24-04
Reviewed BY BN

.030 Typical Wall Thickness Except as Noted. Break Sharp Corners .010 Radius Except as Noted.

Date	No.	Revisions	By

Est. Area in.2	.036	Factor	
Est. Wt. Per Ft.	.023	Circle Size	
Est. Perim.	2.304	Class	

Krestmark Ind. L.P.

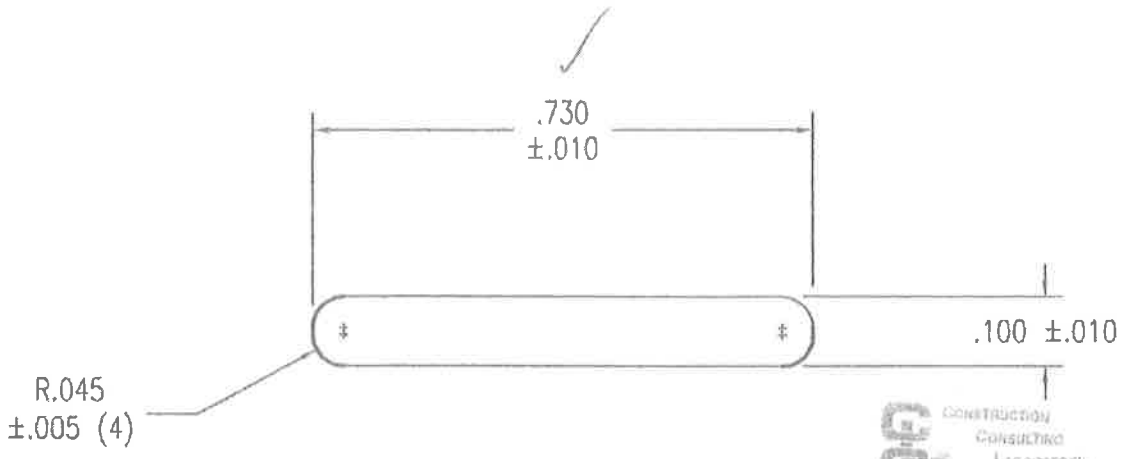
400/475 Series H. S. R-50 Sill Dam Extender

DRN	CHKD	Scale		
RLS		4 : 1	A	
Material	Hardness	Date		
PVC		04-30-08		

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Actual Size



CONSTRUCTION CONSULTING LABORATORY, INTERNATIONAL
1601 Luna Road
Carrollton, Texas 75006
Phone (972) 242-0556
Report# 14156 Date 9.21.14
Reviewed BY BN

N/A Typical Wall Thickness Except as Noted. Break Sharp Corners N/A Radius Except as Noted.

Date	No.	Revisions	By

Est. Area in.2	.071	Factor	
Est. Wt. Per Ft.	.043	Circle Size	
Est. Perim.	1.583	Class	

Krestmark Ind. L.P.

400 Series Setting Block

DRN	CHKD	Scale		
RLS		4 : 1	A	
Material	Hardness	Date		
PVC	A 90	06-06-05		