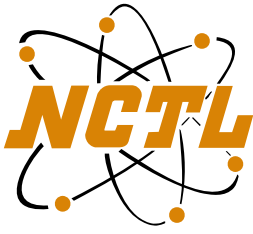


MGM Industries

*SIMULATION PERFORMANCE &
SOLAR HEAT GAIN REPORT*

*“6010”
Single Hung*

NCTL-110-10906-01a



NATIONAL CERTIFIED TESTING LABORATORIES

FIVE LEIGH DRIVE • YORK, PENNSYLVANIA 17406 • TELEPHONE (717) 846-1200
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Simulation Performance, Solar Heat Gain Coefficient, Visible Transmittance and Condensation Resistance Calculation Report

REPORT NO: NCTL-110-10906-01a
SIMULATION DATE: 09/18/07
REPORT DATE: 09/18/07
REVISION DATE: 11/07/07

Client: MGM Industries
287 Freehill Road
Hendersonville, TN 37075

Product Line: MGM Industries' Series "6010" Single Hung

Specification: NFRC 100-2004: "Procedure for Determining Fenestration Product U-Factors".
NFRC 200-2004: "Procedure for Determining Fenestration Product Solar Heat
Gain Coefficients and Visible Transmittance at Normal Incidence".
NFRC 500-2004: "Procedure for Determining Fenestration Product
Condensation Resistance Values".
Therm 5.x / Window 5.x NFRC Simulation Manual (Approved at test date)

**Procedures
and
Compliance:** All U-factor, Solar Heat Gain Coefficients, Visible Transmittance and
Condensation Resistance values were calculated using the following
characteristics: a default value of 0.30 solar absorptance for all products other
than window glazed wall and sloped glazing which have a solar absorptance of
0.50. The best glazing option was used as the configuration for SHGC and VT
specialty products table. NCTL is a NFRC accredited simulation laboratory and
this simulation was conducted in full compliance with NFRC requirements. This
report does not constitute an opinion or endorsement by the laboratory. Ratings
values included in this report are for submittal to an NFRC-licensed IA and are
not meant to be used directly for labeling purposes. Only those values identified
on a valid Certification Authorization Report (CAR) by an NFRC accredited
Inspection Agency (IA) are to be used for labeling purposes. Rounding per
IEEE/ASTM SI 10-1997 except section 5.4.1.3.

PRODUCT LINE DESCRIPTION

General: The product line modeled is MGM Industries' Series "6010" Single Hung.

Model Size Simulations: 1200mm x 1500mm (47.244" x 59.055")

Note: All product drawings are included in Attachment A.

Weatherseals:

Location	Weather Seal Description
Bottom Jamb	(2) single strips of weather-strip
Meeting Rail	(1) single strip of weather-strip
Sill	Bulb Seal

Reinforcement: An extruded aluminum piece of reinforcement was modeled at the lock rail and keeper rail.

Finish: Vinyl

Dividers: Where applicable, dividers were not modeled because the gap between dividers and lites were greater than 3mm. For Solar Heat Gain and Visual Light Transmittance default dividers less than 1" and greater or equal to 1" and default patterns were used for simulations.

Group Leaders: The following group leaders are actual simulated individual products per NFRC 4.2.4 and the NFRC Technical Interpretations where applicable. All remaining individual products' U-factors in the corresponding groups are represented by the group leader's U-factor.

COG Group Leader: Individual products which differ from another (base) individual product in glazing tint and/or obscenity (including obscure glass, fritted glass, and wired glass) only may be assumed to have the same U-factor as the base product unless this change is associated with a change in coating properties.

COG Group Leader:

Glazing ID	Glazing Description	U _{COG}
001	AFG TiAC#36 / Air / AFG Clear	0.481*
005	AFG TiAC#36 / Air / AFG Clear	0.298*

* Group Leader

Modeling Assumptions and Comments Deemed Important:**Sealing Rules:**

All cavities that are opened to the exterior within a frame section shall be modeled according to ISO 15099, Section 6.7.1, which states that cavities greater than 2mm but equal to or less than 10 mm shall be modeled as "slightly ventilated air cavities". For physical testing purposes the product is sealed at the inside surface with tape or equivalent to prevent air infiltration. Air cavities created by this sealing technique must be simulated with the standard NFRC "Frame Cavity" material. If cavities on the frame are sealed (covered) to the surround panel with tape or equivalent, those cavities are also filled with NFRC "Frame Cavity" material within the simulation model. If the frame is not covered or sealed, those areas are left hollow or opened within the simulation model.

Continuous elements:

All elements continuous within the product line are identified from the Bill-of-Materials and detailed drawings via the referenced dimensions and cut lengths as compared to the overall size of the product.

Component Area and Frame Heights:

Frame heights, calculated areas, area weighted values for U-factor, SHGC, and VT, and center -of-glazing are located in approved NFRC simulation programs for all individual products.

General Notes:

The Condensation Resistance results obtained from this procedure are for controlled laboratory conditions and do not include the effects of air movement through the specimen, solar radiation, and the thermal bridging that may occur due to the specific design and construction of the fenestration system opening.

Modeling assumptions:

The product was modeled with a nominal 1" x 4" wood stud attached to the exterior flange.

Miscellaneous assumptions:

1. The screen extrusions were not modeled.
2. All radii are simulated at angles.
3. Any spacer simulated using a spacer system from the Frame Spacer Library match the required configurations for this manufacturer's spacer system.
4. The modeling was performed in accordance with the manufacturer's assembly drawing from a DXF file.

Specialty Products Table: The specialty products method allows the manufacturer to determine the overall product SHGC and VT for any glazing option. The center of glass SHGC and/or VT must be determined using WINDOW 5.2. The method gives overall product SHGC and VT indexed on center of glass properties.

SHGC	No Dividers	Dividers <1"	Dividers ≥1"
0.00	0.003	0.006	0.009
1.00	0.812	0.728	0.650

VT	No Dividers	Dividers <1"	Dividers ≥1"
0.00	0.000	0.000	0.000
1.00	0.808	0.722	0.641

$$\text{SHGC} = \text{SHGC}_0 + \text{SHGC}_{\text{COG}} (\text{SHGC}_1 - \text{SHGC}_0)$$

$$\text{VT} = \text{VT}_0 + \text{VT}_{\text{COG}} (\text{VT}_1 - \text{VT}_0)$$

NCTL Therm Section Filename Methodology

Filename Codes Example: CU_HD2_003.THM	
CU	Spacer (Intercept)
HD	Frame Section (Head)
2	Glass Size (2.5mm)
_003	Glazing ID #3

Individual Product Descriptions and Model Size Matrix of U-Factors, SHGC, VT & CR

All U-factors are given in BTU/HR/ft²/°F

Product Description	Product Number	Pane ID (Exterior)	Pane ID (Interior)	Pane Thickness (Exterior)	Pane Thickness (Interior)	Gap	Gap Fill	% of Gap Fill	Emissivity Surface 2	Emissivity Surface 3	U-factor C-O-G	SHGC C-O-G	VT C-O-G	Spacer	Grid Type	Tint	U-factor	Condensation Resistance	Solar Heat Gain Coefficient (ND)	Visual Transmittance (ND)	Solar Heat Gain Coefficient (<1")	Visual Transmittance (<1")
CLR_SS_AIR	001	885	885	0.098	0.098	0.553	AIR				0.48	0.80	0.83	CU-D	N,G	CL	0.50	41	0.65	0.67	0.59	0.60
CLR_DS_AIR		887	887	0.118	0.118	0.514	AIR				0.48	0.79	0.82	CU-D	N,G	CL	0.50	41	0.64	0.66	0.57	0.59
TiAC36#3_SS_AIR	002	885	964	0.098	0.098	0.553	AIR			0.034	0.30	0.47	0.69	CU-D	N,G	LE	0.36	51	0.38	0.56	0.34	0.50
TiAC36#2_SS_AIR		964	885	0.098	0.098	0.553	AIR		0.034		0.30	0.37	0.69	CU-D	N,G	LE	0.36	51	0.30	0.56	0.27	0.50
TiAC36#3_DS_AIR		887	965	0.118	0.118	0.514	AIR			0.034	0.29	0.37	0.68	CU-D	N,G	LE	0.36	51	0.38	0.55	0.34	0.49
TiAC36#2_DS_AIR		965	887	0.118	0.118	0.514	AIR		0.034		0.29	0.46	0.68	CU-D	N,G	LE	0.36	51	0.30	0.55	0.27	0.49

A baseline product test in accordance with the "NFRC 102: Test Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems" is required in order to validate the "Model Size Matrix of U-Values" as previously indicated. Per Section 1.4.3 of NFRC 100-2004, "the baseline product is the individual product selected for validation testing". **The individual product selected as the baseline product shall be the lowest simulated individual product or an individual product having a simulated U-factor within 0.60 W/(m²*K) (0.10 BTU/HR/ft²/°F) or 20% of the listed lowest simulated U-factor.**

Product Description	Pane ID (Exterior)	Pane ID (Interior)	Pane Thickness (Exterior)	Pane Thickness (Interior)	Gap	Gap Fill	Emissivity Surface 3	Spacer	Grid Type	Tint	U-factor
TiAC36#3_SS_AIR_Sill Reinforcement	885	964	0.098	0.098	0.553	AIR	0.034	CU-D	N	LE	0.36

Note:

1. For lowest U-factor listings where multiple individual products are shown, validation testing can be conducted on any of the configurations listed.
2. Actual simulated individual products are required for product line validation testing.
3. All individual products in the product line were simulated using the approved NFRC THERM program.

For the purposes of validation testing, production line units and sizes shall be used to represent the baseline products. Representative sizes are therefore defined as the production sizes with the least deviation (D) from the model sizes, calculated per NFRC 100. The previously listed model sizes shall be used for baseline product validation testing.

Copies of this report and the detailed product drawings will be retained by NCTL for a period of four (4) years. This report may not be reproduced, except in full, without the approval of NCTL. The results only to the fenestration product simulated. The attached diskette(s) contain(s) all required NFRC data and software files.

NATIONAL CERTIFIED TESTING LABORATORIES



The image shows a handwritten signature in black ink that reads "Christian J. Mitchell". The signature is written in a cursive style. Below the signature is a small logo for NCTL, which consists of the letters "NCTL" in a stylized font with a circular graphic element behind them.

DIGITAL SIGNATURE

CHRISTIAN J. MITCHELL

Simulator



The image shows a handwritten signature in black ink that reads "Steven H. Coble". The signature is written in a cursive style. Below the signature is a small logo for NCTL, which consists of the letters "NCTL" in a stylized font with a circular graphic element behind them.

DIGITAL SIGNATURE

STEVEN H. COBLE

NFRC Accredited Simulator

Simulator-In-Responsible-Charge

Attachments

Report Log

Product Line: MGM Industries' Series "6010" Single Hung

Date:

09/18/07

- Original Report issued to MGM Industries and Inspection Agency

11/07/07

- Revised original report and issued to MGM Industries and Inspection Agency. Revisions include adding validation option for certification.

Door	
Code	Description
EM	Embossed
FL	Flush
LF	Full Lite
LH	1/2 - Lite
LQ	1/4 - Lite
LT	3/4 - Lite
N	Not Applicable
RP	Raised Panel

Grid	
Code	Description
G	Grids between the glass
N	No Muntins
S	Simulated Divided Lites
T	True Muntins

Sealant	
Code	Description
D	Dual Seal Spacer System
N	Not Applicable
S	Single Seal Spacer System

Gap Fill	
Code	Description
AIR	Air
AR3	Argon/Krypton/Air Mixture
ARG	Argon
KRY	Krypton
N	Not Applicable

Glass Tint	
Code	Description
AZ	Azurlite
BG	Blinds between the Glazing
BL	Blue
BZ	Bronze
CL	Clear
DV	Dynamic Glazing (Variable)
DY	Dynamic Glazing (Non-Variable)
EV	Evergreen
GC	Gold (reflective coating)
GD	Gold
GR	Green
GY	Gray
LE	Low 'e' Coating
OT	Other (use comment field)
RC	Solar or Reflective Coating
RG	Roller shades between Glazing
RS	Silver (reflective coating)
SF	Suspended Polyester Film
SR	Silver

Spacer		
Code	Type	Definition
A1-D	Aluminum	Aluminum spacer system - dual sealed.
A1-S	Aluminum	Aluminum spacer system - single sealed.
A2-D	Aluminum (thermally-broken)	Thermally improved aluminum spacer system - dual sealed.
A2-S	Aluminum (thermally-broken)	Thermally improved aluminum spacer system - single sealed.
A3-D	Aluminum-reinforced polymer	Polymer spacer material with aluminum substance - dual sealed.
A3-S	Aluminum-reinforced polymer	Polymer spacer material with aluminum substance - single sealed.
A4-D	Aluminum/Wood	Composite spacer system of two materials - dual sealed.
A4-S	Aluminum/Wood	Composite spacer system of two materials - single sealed.
A5-D	Aluminum-reinforced butyl	Butyl spacer material with aluminum substrate - dual sealed.
A5-S	Aluminum-reinforced butyl	Butyl spacer material with aluminum substrate - single sealed.
A6-D	Aluminum/Foam/Aluminum	Two aluminum spacers separated by foam-type material - dual sealed
A6-S	Aluminum/Foam/Aluminum	Two aluminum spacers separated by foam-type material - single sealed
A7-D	Aluminum U-shaped	U-shaped spacer system embedded in sealant - dual sealed.
A7-S	Aluminum U-shaped	U-shaped spacer system embedded in sealant - single sealed.

Spacer		
Code	Type	Definition
A8-D	Aluminum-Butyl Composite	Exposed corrugated aluminum spacer with butyl - dual sealed.
A8-S	Aluminum-Butyl Composite	Exposed corrugated aluminum spacer with butyl - single sealed.
CS-D	Coated Steel	Coated Steel (galvanized or tinplated) - Dual seal
CS-S	Coated Steel	Coated Steel (galvanized or tinplated) - Single seal
CU-D	Coated Steel U-Shaped	Coated Steel (galvanized or tinplated) U-shaped spacer system embedded in sealant - Dual sealed
CU-S	Coated Steel U-Shaped	Coated Steel (galvanized or tinplated) U-shaped spacer system embedded in sealant - Single sealed
ER-D	EPDM Reinforced Butyl	EPDM reinforced butyl spacer system - dual sealed.
ER-S	EPDM Reinforced Butyl	EPDM reinforced butyl spacer system - single sealed.
FG-D	Fiberglass	Fiberglass - dual sealed.
FG-S	Fiberglass	Fiberglass - single sealed.
GL-S	Glass	Welded glass edge condition at glazing perimeter.
N	Not Applicable	
OF-D	Organic Foam	Organic-based foam spacer system - dual sealed.
OF-S	Organic Foam	Organic-based foam spacer system - single sealed.
P1-D	Polycarbonate- Butyl Composite	Exposed corrugated polycarbonate spacer with butyl - dual sealed.
P1-S	Polycarbonate- Butyl Composite	Exposed corrugated polycarbonate spacer with butyl - single sealed.
PU-D	Polyurethane foam	Polyurethane foam - dual sealed.
PU-S	Polyurethane foam	Polyurethane foam - single sealed.
S2-D	Steel (thermally-broken)	Stainless steel spacer with urethane thermal break - dual sealed.
S2-S	Steel (thermally-broken)	Stainless steel spacer with urethane thermal break - single sealed.
S3-D	Steel/Foam/Steel	Two steel spacers separated by foam-type material - dual sealed.
S3-S	Steel/Foam/Steel	Two steel spacers separated by foam-type material - single sealed.
S5-D	Steel reinforced butyl	Butyl spacer material with stainless steel substrate - dual sealed.
S5-S	Steel reinforced butyl	Butyl spacer material with stainless steel substrate - single sealed.
S6-D	Steel U-channel w/ thermal cap	U-shaped steel spacer system with a thermal cap - dual sealed.
S6-S	Steel U-channel w/ thermal cap	U-shaped steel spacer system with a thermal cap - single sealed.
SS-D	Stainless Steel	Stainless Steel - Dual Seal
SS-S	Stainless Steel	Stainless Steel - Single Sealed
SU-D	Stainless Steel U-Shaped	Stainless Steel U-shaped spacer system embedded in sealant - Dual sealed
SU-S	Stainless Steel U-Shaped	Stainless Steel U-shaped spacer system embedded in sealant - Single sealed
TP-D	Thermo-plastic	Thermo-plastic - dual sealed.
TP-S	Thermo-plastic	Thermo-plastic - single sealed.
TS-D	Thermo-plastic	Thermoplastic spacer with stainless steel substrate - dual-sealed
TS-S	Thermo-plastic	Thermoplastic spacer with stainless steel substrate - single-sealed
WD	Wood	Wood spacer system
ZF-D	Silicone Foam	Silicone foam spacer system - dual sealed.
ZF-S	Silicone Foam	Silicone foam spacer system - single sealed.
ZS-D	Silicone/Steel	Combination of two separate spacers: a steel spacer and silicone spacer - dual sealed.
ZS-S	Silicone/Steel	Combination of two separate spacers: a steel spacer and silicone spacer - single sealed.

ATTACHMENT A

Product Drawings

TEST SPECIMEN COMPLIES WITH THESE DETAILS.

ANY DEVIATION IS NOTED.

TEST COMPLETE: 9/18/07

Bill of Materials Listing

Print Date: Aug 17, 2007

Assembly NCTL-110-10906-01

Product: 6010

Type: SH

<---Deducts--->

Code	Part #	Description	Qty	Height	Width	Unit Code	Vert Hor	Sub Assy	Add Color	Fixed Length	W/Nailing Fin
------	--------	-------------	-----	--------	-------	-----------	----------	----------	-----------	--------------	---------------

ASSCR2	8AX1-3/4TRUSS	Assy Screw #2	4.00			EA		IA			
ASSCR3	6AX1/2TRUSS	Pivot Bar Screw	4.00			EA		IA	N		
GLASS	1CL	Default Glass Type	1.00	2.1250	3.5000	SF		IA	N		
GLSSPC	SWG-9/16	Glass Spacer	2.00	2.1250		LI	H	IA			
GLSSPC	SWG-9/16	Glass Spacer	2.00		3.5000	LI	W	IA			
GLTPEH	VG-116B	Glazing Tape(H)	1.00		3.5000	LI	W	IA			
HEADER	V-716	Frame Top Extrusion	2.00		2.9375	LI	W	IA			Y
LJAMB	V-716	Left Side Extrusion	2.00	1.5313		LI	H	IA			Y
MISC	SB125	Glass Set Blk .075x2	8.00			EA		IA			
MISC	NSB85D	Glass Setting Blocks	7.00			EA		IA			
MLSTFH	20114	Meeting Rail Stiffnr	1.00		3.2812	LI	W	IA			
MTRAIL	V-706	Meeting Rail	1.00		2.8750	LI	W	IA			Y
MULSEB	1	Setting From Bottom	1.00	.0000		LI	H	IA			
MULSET	1	Setting From Top	1.00	.0000		LI	H	IA			
MUNCLP	11052-002	Muntin Clips	6.00			EA		IA			
MUNTNH	536006	Muntin Bar Horizontal	1.00		.6875	LI	W	IA			Y
MUNTNV	536006	Muntin Bar Vertical	1.00	5.1250		LI	H	IA			Y
RJAMB	V-716	Right Side Extrusion	2.00	1.5313		LI	H	IA			Y
SILL	V-716	Bottom Extrusion	2.00		2.9375	LI	W	IA			Y

End of Subassembly IA

ASSCR1	8X1PH	Frame To Sill Screw	4.00			EA		IB			
ASSCR2	8AX3/4FH	Lock Screw	4.00			EA		IB	N		
GLASS	1CL	Default Glass Type	1.00	2.1250	3.5000	SF		IB	N		
GLSSPC	SWG-9/16	Glass Spacer	2.00	2.1250		LI	H	IB			
GLSSPC	SWG-9/16	Glass Spacer	2.00		3.5000	LI	W	IB			
HEADER	V-704	Frame Top Extrusion	1.00		2.1875	LI	W	IB			Y

TEST SPECIMEN COMPLIES WITH THESE DETAILS.

ANY DEVIATION IS NOTED. TEST COMPLETE: 9/18/07

Bill of Materials Listing

Print Date: Aug 17, 2007

Assembly Code: NCTL-110-10906-01

Product: 6010

Type: SH

<---Deducts--->

Assembly Code	Part #	Description	Qty	Height	Width	Unit Code	Vert Hor	Sub Assy	Add Color	Fixed Length	W/Nailing Pin
---------------	--------	-------------	-----	--------	-------	-----------	----------	----------	-----------	--------------	---------------

LATCH	78100-061	Right Tilt Latch	1.00			EA		IB	N		
LATCH	78000-061	Tilt Latch	1.00			EA		IB	N		
LJAMB	V-705	Left Side Extrusion	1.00	.8125		LI	H	IB	Y		
LOCK	3160	Lock	2.00			EA		IB			
MUNCLP	11052-002	Muntin Clips	6.00			EA		IB			
MUNTNH	536006	Muntin Bar Horizontl	1.00		3.5625	LI	W	IB	Y		
MUNTNV	536006	Muntin Bar Vertical	1.00	5.1250		LI	H	IB	Y		
RJAMB	V-705	Right Side Extrusion	1.00	.8125		LI	H	IB	Y		
SILL	V-705	Bottom Extrusion	1.00		2.1875	LI	W	IB	Y		
TLTKEY	PB250	Pivot Bar	2.00			EA		IB			
VSWEEP	32692	Sash Bulb Vinyl	1.00			LI	W	IB	N		
WTSTPH	W23-3019W	Weather Strip(H)	1.00		1.9375	LI	W	IB			
WTSTPV	W23-3019W	Weather Strip(V)	4.00	-.0625		LI	H	IB			

End of Subassembly IB	*****										
ASSCR2	10AX5/8	Balance Cover Screw	2.00			EA		MF			
BALSHO	HILL	Balance Shoes	2.00			EA		MF			
HEADER	V-709	Frame Top Extrusion	1.00		-.2500	LI	W	MF	Y		V-709
JAMEXS	WOOD	Jamb Extension	2.00	.0000		LI	H	MF			WOOD
JAMEXT	WOOD	Jamb Extension	2.00		1.2500	LI	W	MF			WOOD
LJAMB	V-709	Left Side Extrusion	1.00	.3750		LI	H	MF	Y		V-709
MISC	ERCSCW006D402	Miscellaneous	2.00			EA		MF	N		
MISC	092401	Frame Sill Gasket	2.00			EA		MF	N		
MISC	11052-000	Plastic Sill Insert	2.00			EA		MF	N		
MISC	VR2011	Vinyl Shipping Shims	2.00			EA		MF			
RJAMB	V-709	Right Side Extrusion	1.00	.3750		LI	H	MF	Y		V-709
SEAMSL	LV	Seam Sealer	1.00					MF	N		

TEST SPECIMEN COMPLIES WITH THESE DETAILS.

ANY DEVIATION IS NOTED.
TEST COMPLETE: 9/18/07

Bill of Materials Listing

Print Date: Aug 17, 2007

Assembly Code: NCTL-110-10906-01

Product: 6010

Type: SH

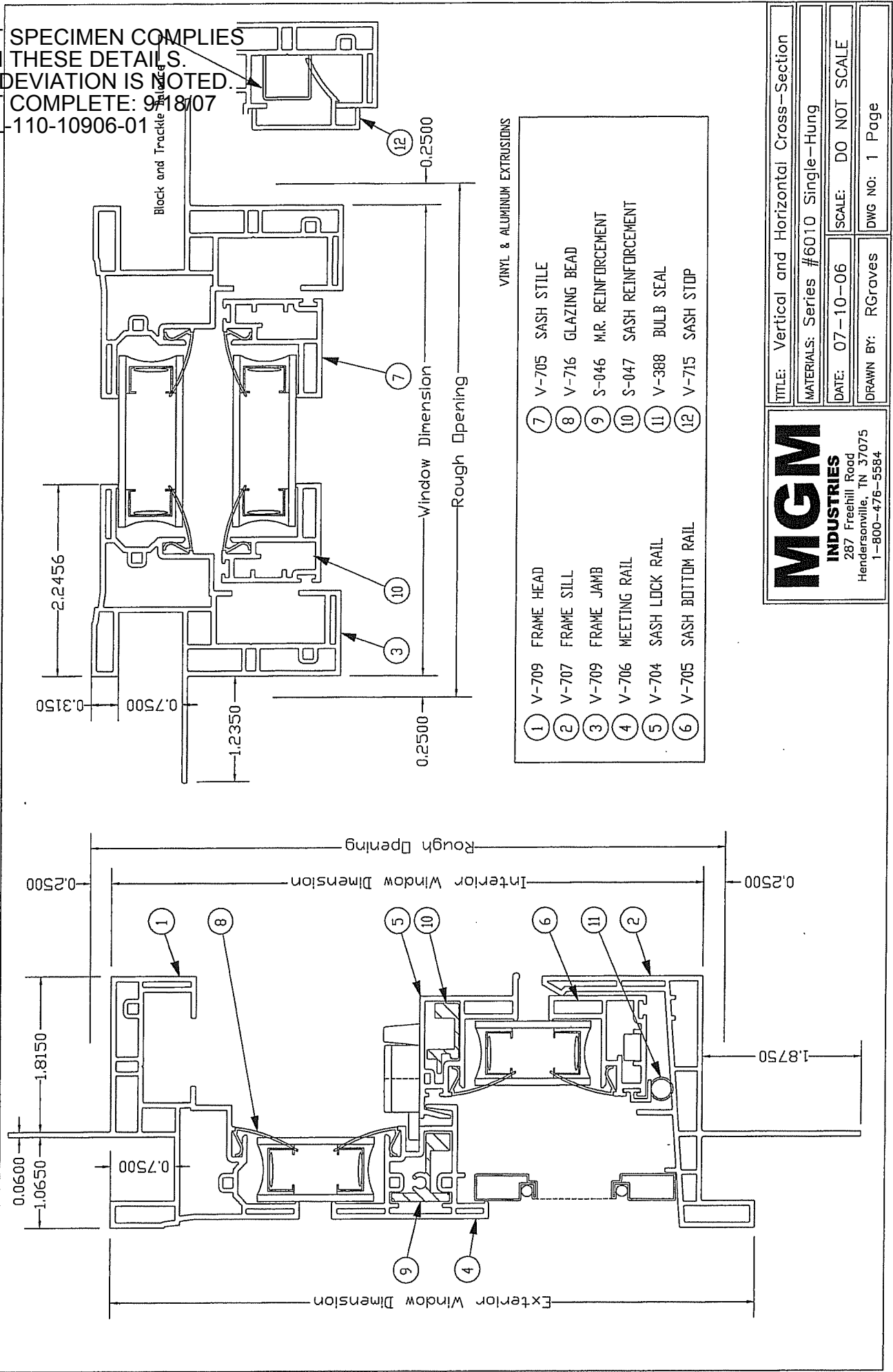
<---Deducts--->

Assembly Code	Part #	Description	Qty	Height	Width	Unit Code	Vert Hor	Sub Assy	Add Color	Fixed Length	W/Nailing Fin
SILL	V-707	Bottom Extrusion	1.00		-2.5000	LI	W	MF	Y		V-707

End of Subassembly MF *****											
CKEYS	V6-211	Corner Keys	4.00			EA		SC			
HEADER	V11BLWT3B	Frame Top Extrusion	1.00		3.3125	LI	W	SC	N		
LJAMB	V11BLWT3B	Left Side Extrusion	1.00	1.1250		LI	H	SC	N		
MISC	74-102	Plastic Plungers	2.00			EA		SC			
MISC	74-151	Plastic Caps	2.00			EA		SC			
MISC	A-412	Plunger Spring	2.00			EA		SC			
RJAMB	V11BLWT3B	Right Side Extrusion	1.00	1.1250		LI	H	SC	N		
SCDEDH	1	Half Screen Deduct		2.6250	4.8125			SC			
SCLOTH	1816	Screen Cloth(Std)	1.00	1.1250	3.3125	SF		SC			
SILL	V11BLWT3B	Bottom Extrusion	1.00		3.3125	LI	W	SC	N		
SSPLIN	.140	Screen Spline	2.00	5.2500		LI	H	SC			
SSPLIN	.140	Screen Spline	2.00		4.5000	LI	W	SC			

End of Subassembly SC *****

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED. TEST COMPLETE: 9/18/07 NCTL-110-10906-01



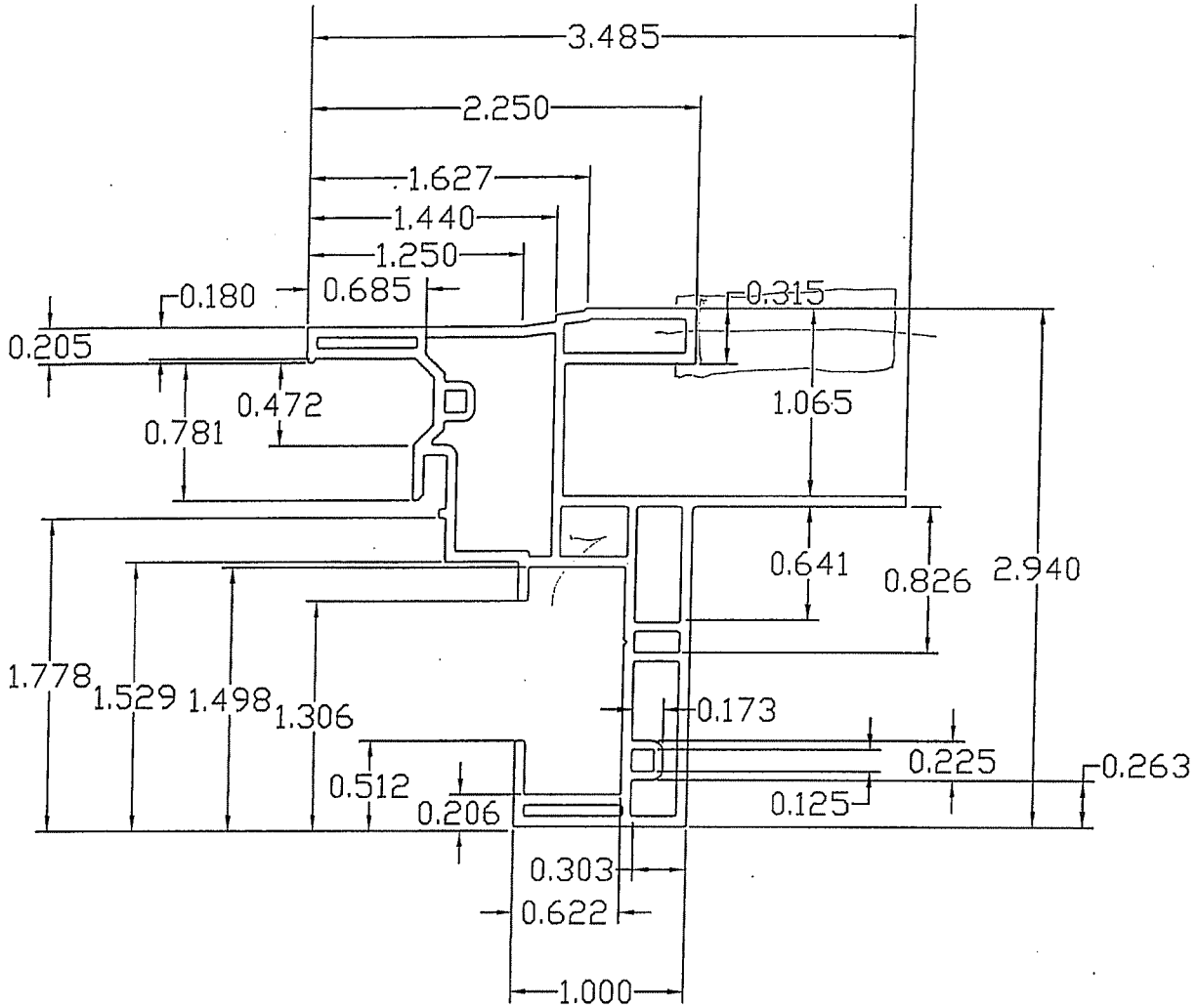
VINYL & ALUMINUM EXTRUSIONS

- ① V-709 FRAME HEAD
- ② V-707 FRAME SILL
- ③ V-709 FRAME JAMB
- ④ V-706 MEETING RAIL
- ⑤ V-704 SASH LOCK RAIL
- ⑥ V-705 SASH BOTTOM RAIL
- ⑦ V-705 SASH STILE
- ⑧ V-716 GLAZING BEAD
- ⑨ S-046 MR. REINFORCEMENT
- ⑩ S-047 SASH REINFORCEMENT
- ⑪ V-388 BULB SEAL
- ⑫ V-715 SASH STOP

MGM
INDUSTRIES
 287 Freehill Road
 Hendersonville, TN 37075
 1-800-476-5584

TITLE: Vertical and Horizontal Cross-Section
MATERIALS: Series #6010 Single-Hung
DATE: 07-10-06
SCALE: DO NOT SCALE
DRAWN BY: RGraves
DWG No: 1 Page

TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 TEST COMPLETE: 9/18/07
 NCTL-110-10906-01



MGM INDUSTRIES
 287 FREEHILL ROAD
 HENDERSONVILLE, TN
 37075

DESCRIPTION:
 6000 Series
 Mainframe
 Head & Jamb

ALL RADI TO BE 0.015
 ALL WALL THK TO BE
 0.062 UNLESS
 OTHERWISE SPECIFIED
 INTERNAL WALLS 0.050

DWG. NO.
 V-709

REV.

WEIGHT
 0.629

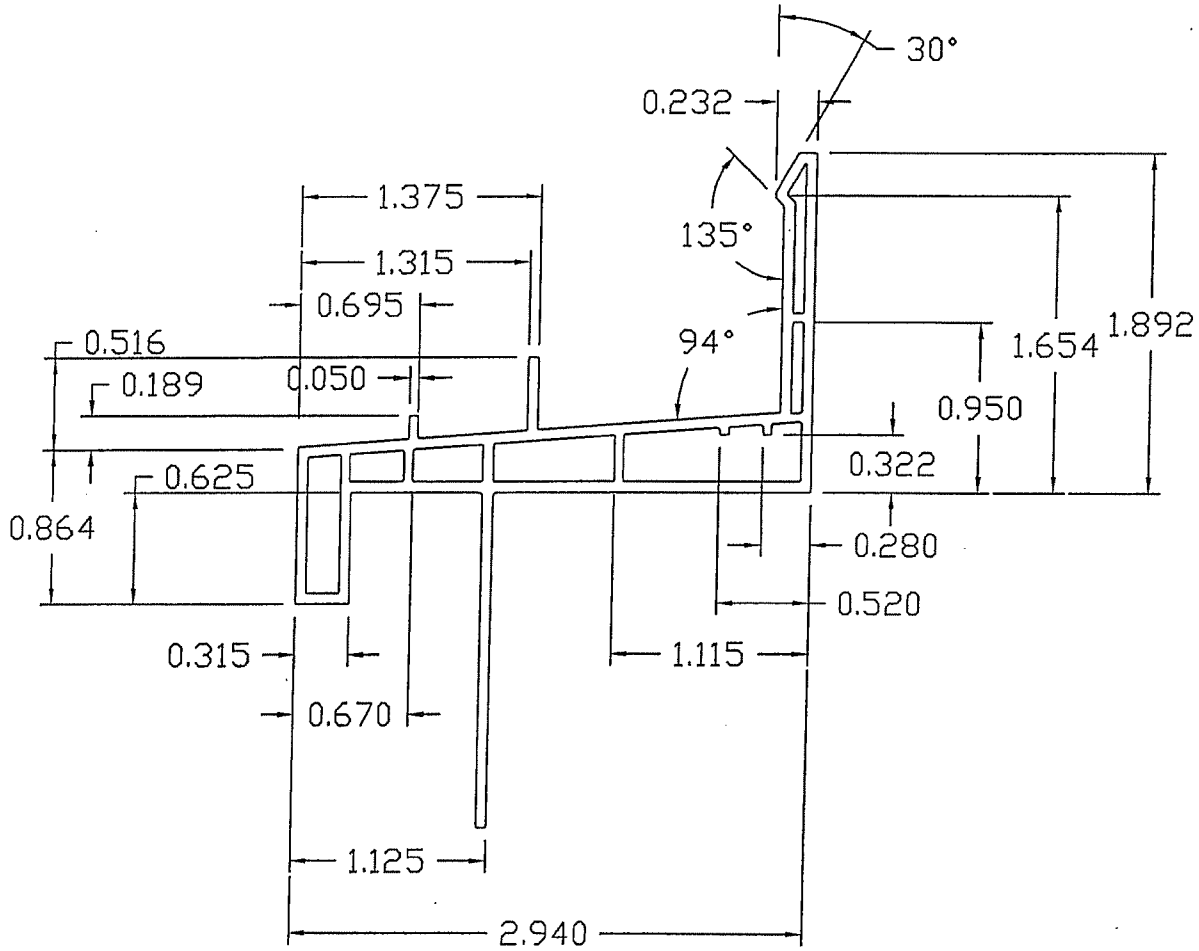
AREA
 1.008

BY: ABG

DO NOT SCALE DRAWING

DATE 11/27/01

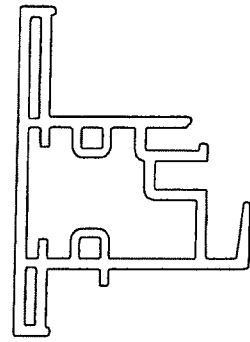
TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 TEST COMPLETE: 9/18/07
 NCTL-110-10906-01



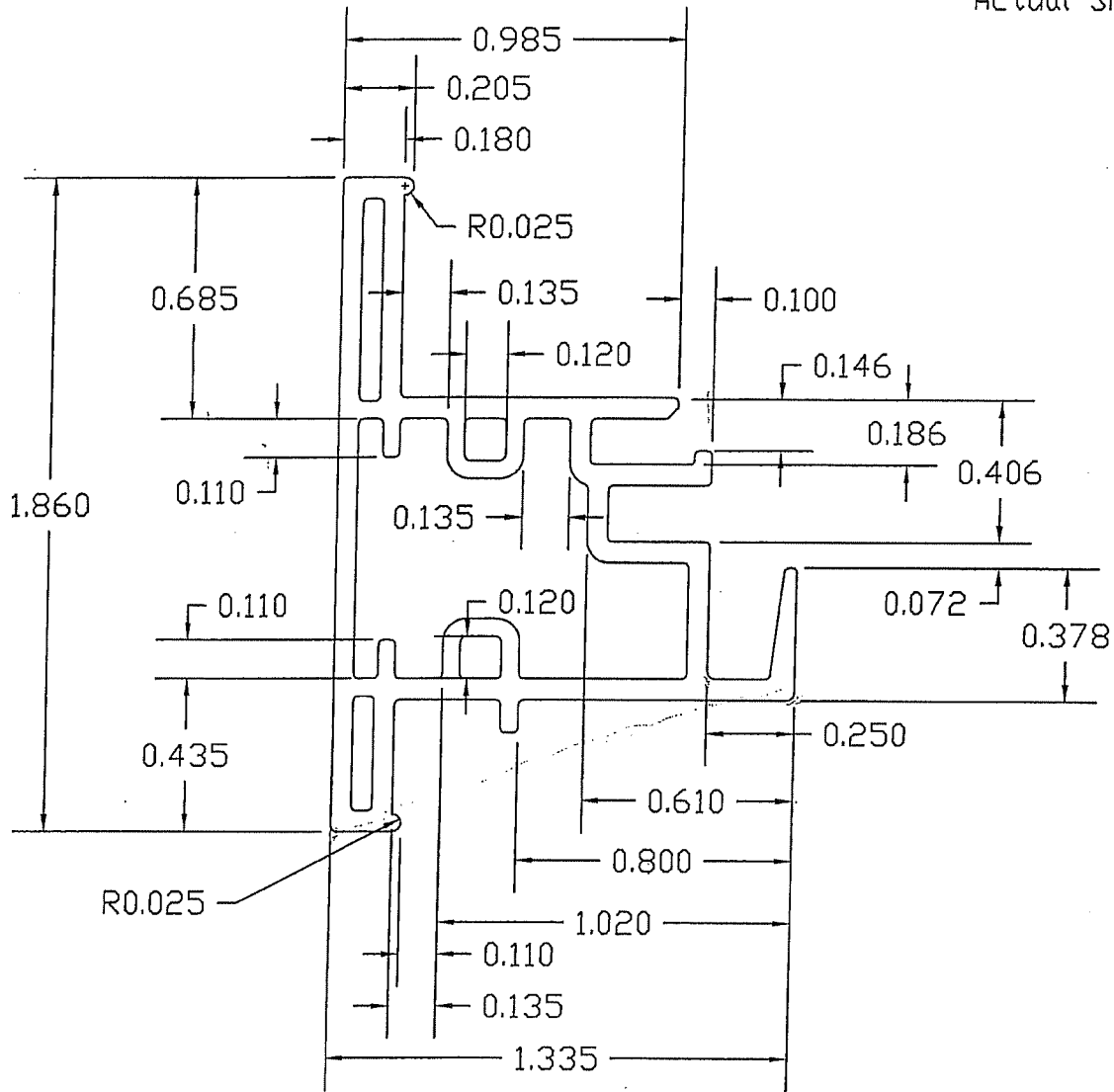
ALL RADI TO BE 0.015. ALL WALL THKS TO BE 0.062 UNLESS OTHERWISE SPECIFIED. INTERNAL WALLS 0.050.

MGM INDUSTRIES 287 FREEHILL ROAD HENDERSONVILLE, TN 37075	DESCRIPTION:	SERIES#:	DWG. NO.:	REV.:
	MAINFRAME SILL	6000	V-707	
	DO NOT SCALE DRAWING	WEIGHT:	AREA:	BY: RGraves
		0.516	.827	DATE: 10/03/03

TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 TEST COMPLETE: 9/18/07
 NCTL-110-10906-01



Actual Size



ALL RADI TO BE 0.015. ALL WALL THKS TO BE 0.062 UNLESS OTHERWISE SPECIFIED. INTERNAL WALLS 0.050.

MGM INDUSTRIES
 287 FREEHILL ROAD
 HENDERSONVILLE, TN
 37075

DESCRIPTION:
 MEETING RAIL

DO NOT SCALE DRAWING

SERIES#: 6000

WEIGHT: .294

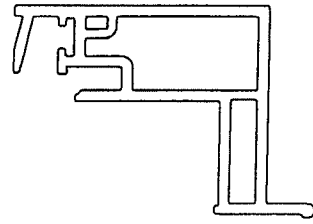
DWG. NO.: V-706

AREA: .471

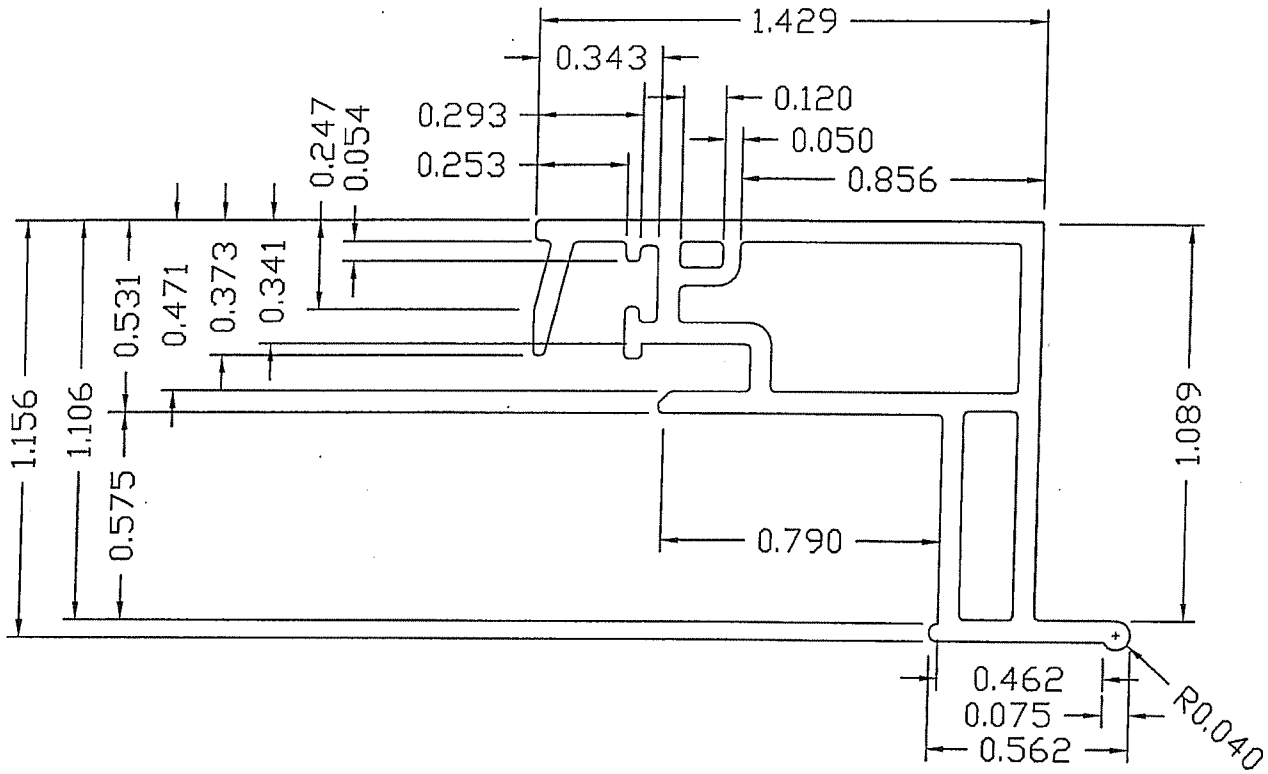
REV.:

BY: RGraves
 DATE: 10/03/03

TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 TEST COMPLETE: 9/18/07
 NCTL-110-10906-01



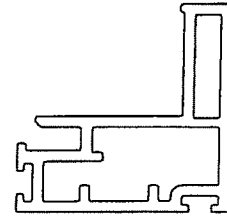
FULL SIZE



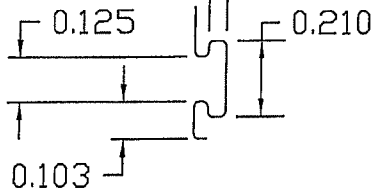
ALL RADI TO BE 0.015. ALL WALL THKS TO BE 0.060 UNLESS OTHERWISE SPECIFIED. INTERNAL WALLS 0.050.

MGM INDUSTRIES 387 FREEHILL ROAD ANDERSONVILLE, TN 37075	DESCRIPTION:	SERIES#:	DWG. NO.:	REV.:
	LOCK-RAIL	6000	V-704	
	DO NOT SCALE DRAWING	WEIGHT:	AREA:	BY: RGraves
		0.222	0.355	DATE: 10/03/03

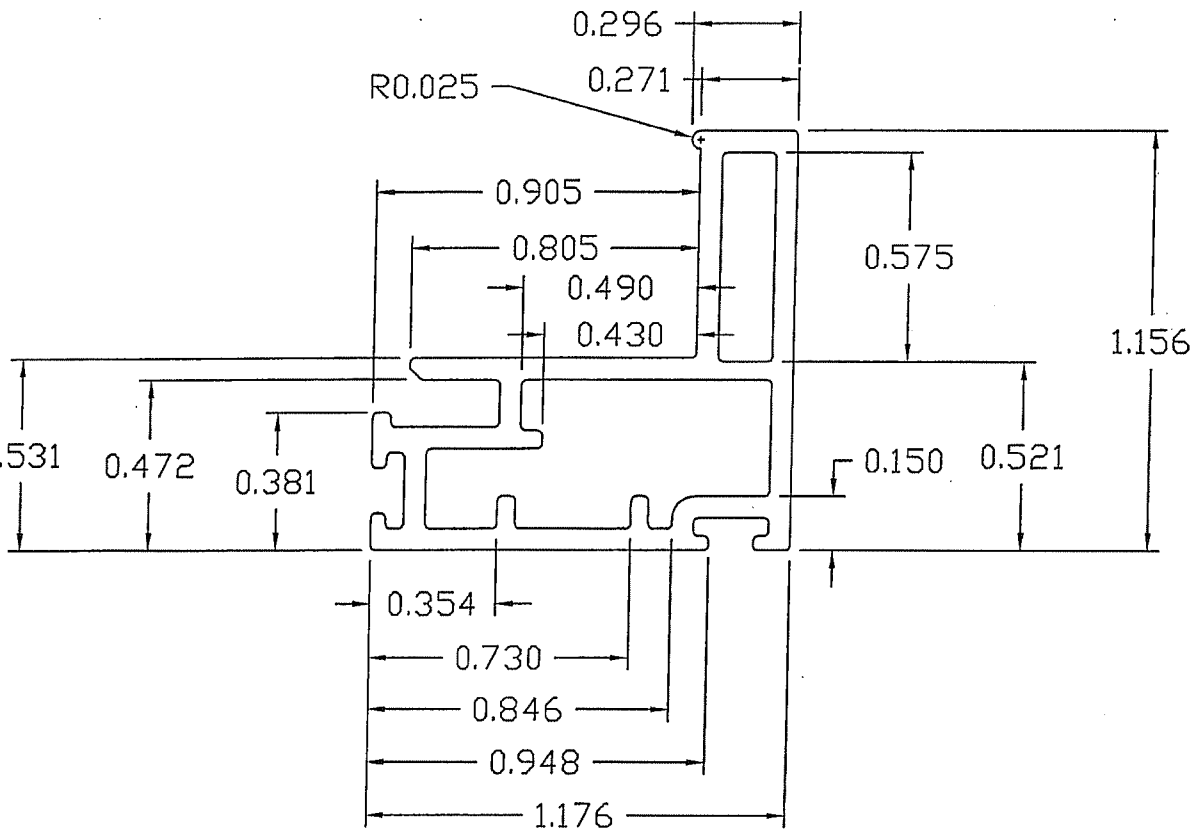
TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 TEST COMPLETE: 9/18/07
 NCTL-11014906-01



ACTUAL SIZE



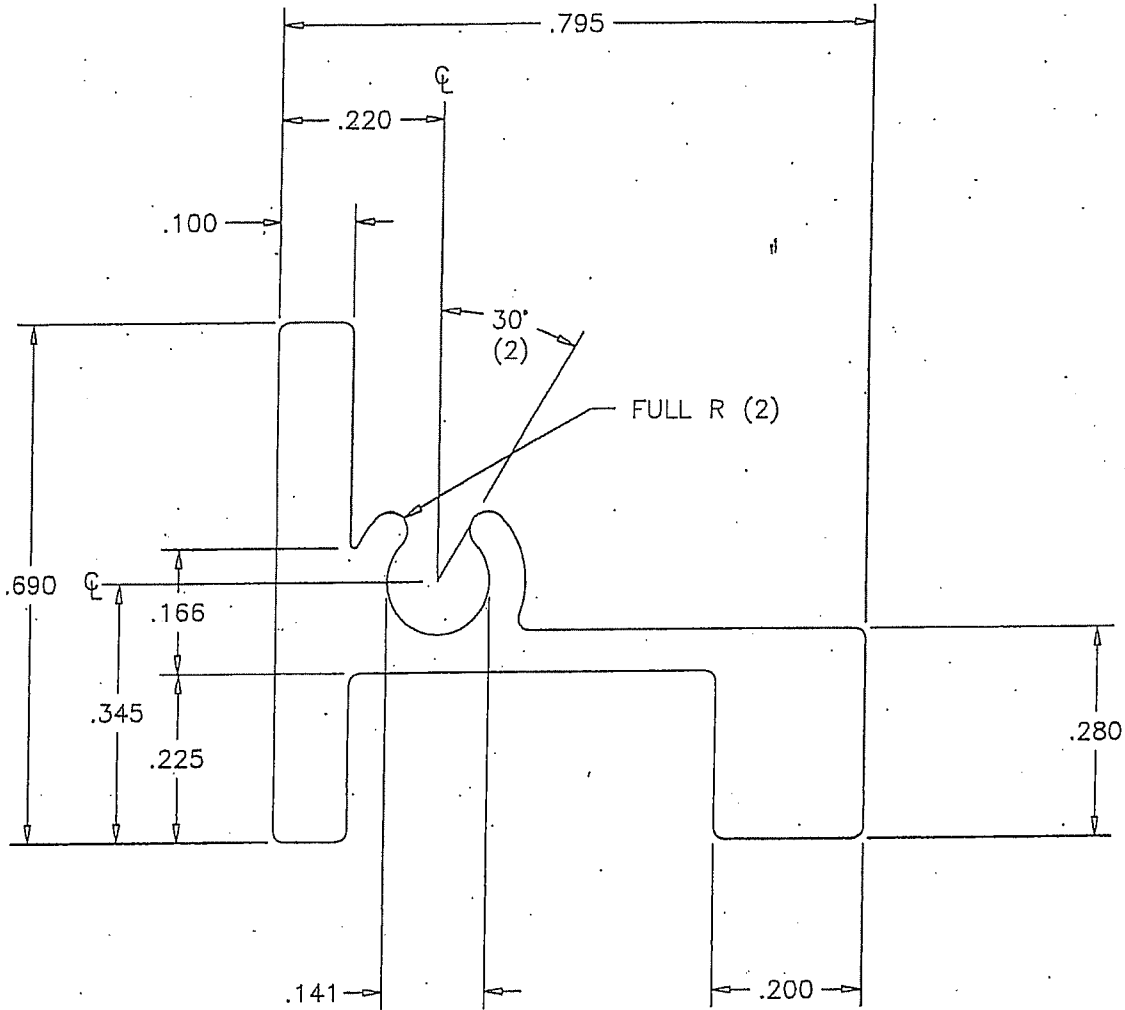
T-Slot Detail (2)



ALL RADI TO BE 0.015. ALL WALL THKS TO BE 0.060 UNLESS OTHERWISE SPECIFIED. INTERNAL WALLS 0.050.

MGM INDUSTRIES 387 FREEHILL ROAD HENDERSONVILLE, TN 37075	DESCRIPTION:	SERIES#:	DWG. NO.:	REV.:
	SASH STILE	6000	V-705	
	DO NOT SCALE DRAWING	WEIGHT:	AREA:	BY: RGraves
		0.197	.0315	DATE: 10/03/03

TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 TEST COMPLETE: 9/18/07
 NCTL-110-10906-01



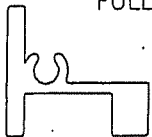
NOTE: MATERIAL = 6061-T6 ALUMINUM

l_{yy} = 0.014

l/c = 0.030

EXCEL #20114

FULL SIZE



VinylSource
 INC.

427 THACHER LANE
 YOUNGSTOWN, OH 44515

DESCRIPTION: FXD MTG RAIL REINFORCEMENT

ALL RADIUS TO BE .015, ALL WALL THK TO BE .05 UNLESS OTHERWISE SPECIFIED	BY	DATE
	JAF	1/8/99

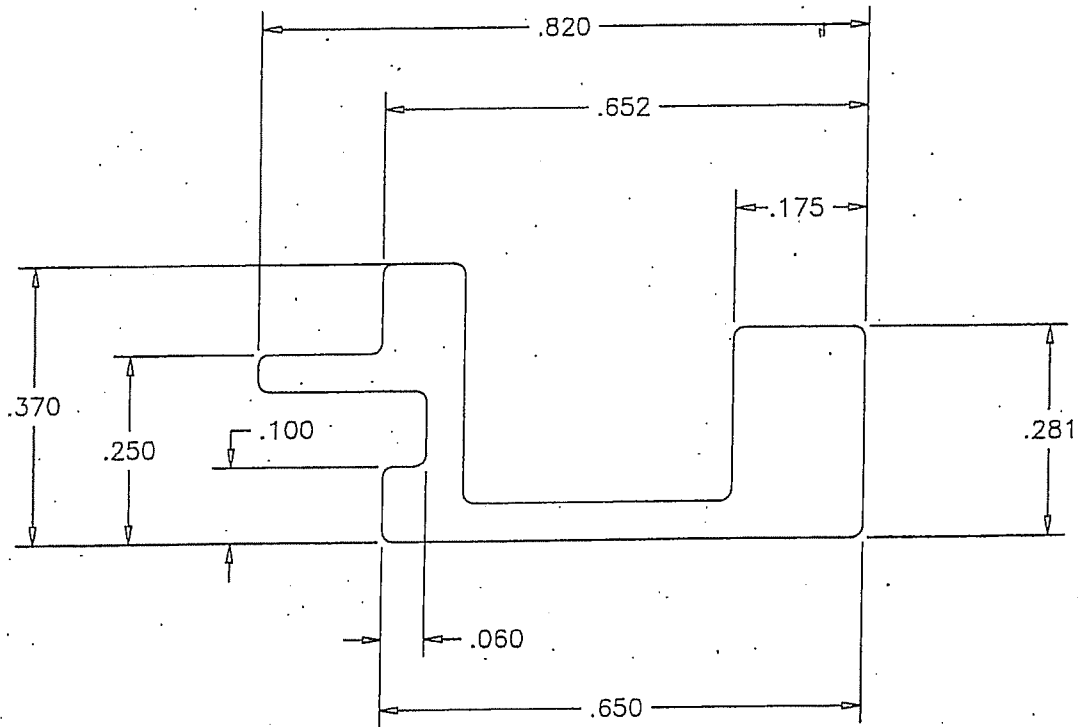
E			
D			
C			
B			
A			

REV	DESCRIPTION	BY	DATE
-----	-------------	----	------

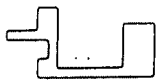
AREA	WT/FT	SCALE	DIE #
.169	.203	4X	S-046

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TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 TEST COMPLETE: 9/18/07
 NCTL-110-10906-01



FULL SIZE



NOTE: MATERIAL = 6061-T6 ALUMINUM
 l_y = 0.007
 I/C = 0.015

EXCEL #20115

VinylSource
 INC.

427 THACHER LANE
 YOUNGSTOWN, OH 44515

DESCRIPTION: SASH REINFORCEMENT

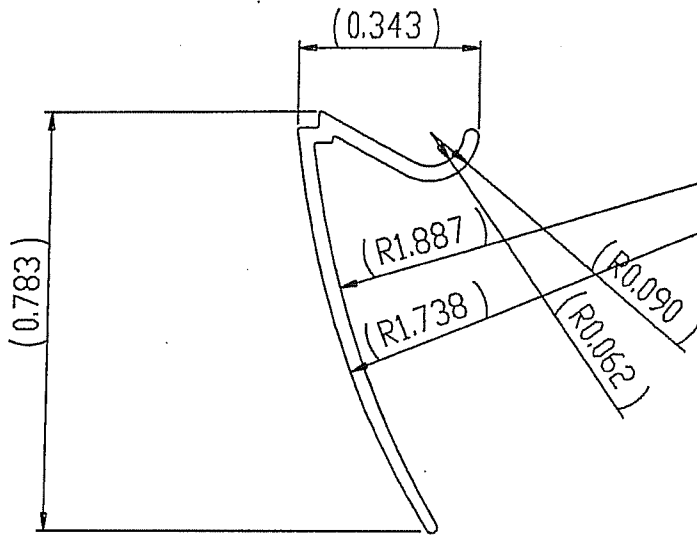
ALL RADIUS TO BE .015, ALL WALL THK TO BE .05 UNLESS OTHERWISE SPECIFIED
 BY JAF DATE 1/8/99

REV	DESCRIPTION	BY	DATE
E			
D			
C			
B			
A			

AREA	WT/FT	SCALE	DIE #
.111	.133	4X	S-047

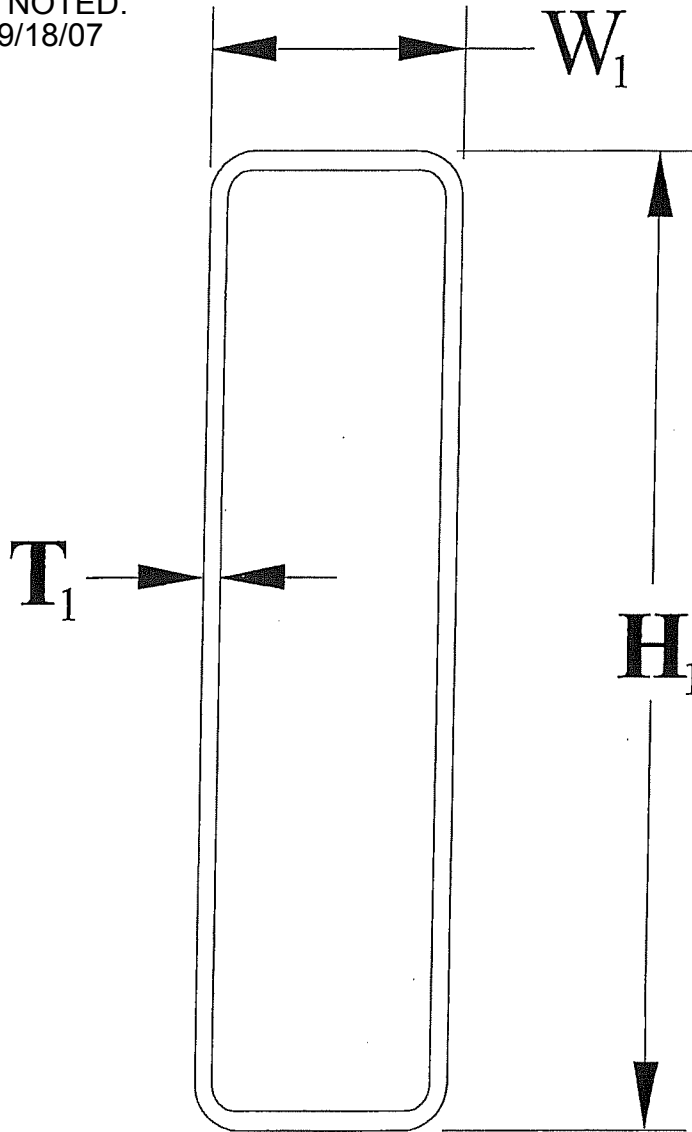
THIS DOCUMENT CONTAINS CONFIDENTIAL AND PROPRIETARY INFORMATION
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TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 TEST COMPLETE: 9/18/07
 NCTL-110-10906-01



MGM INDUSTRIES 287 FREEHILL ROAD HENDERSONVILLE, TN 37075	DESCRIPTION: 6000 Glazing Bead	ALL RADI TO BE 0.015 ALL WALL THK TO BE 0.062 UNLESS OTHERWISE SPECIFIED INTERNAL WALLS 0.050	DWG. NO. V-716	REV.
	DATE 02/22/02	WEIGHT 0.020	AREA 0.033	BY: ABG
DO NOT SCALE DRAWING				

TEST SPECIMEN COMPLIES
 WITH THESE DETAILS.
 ANY DEVIATION IS NOTED.
 TEST COMPLETE: 9/18/07
 NCTL-110-10906-01

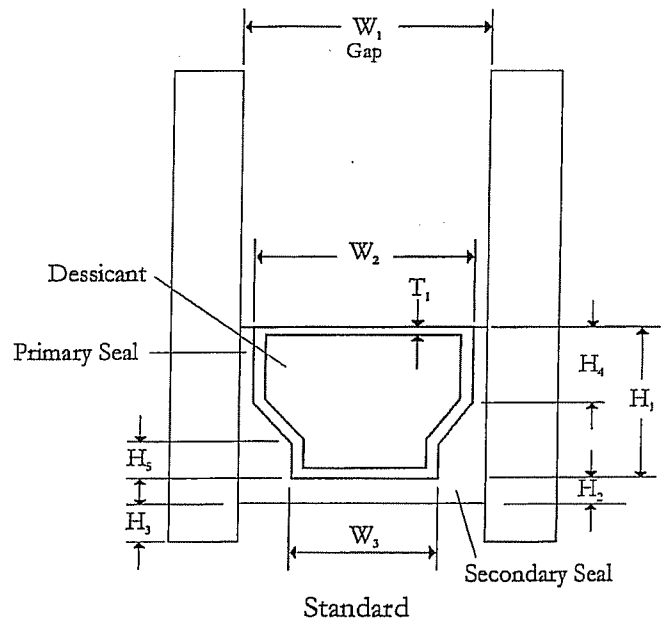
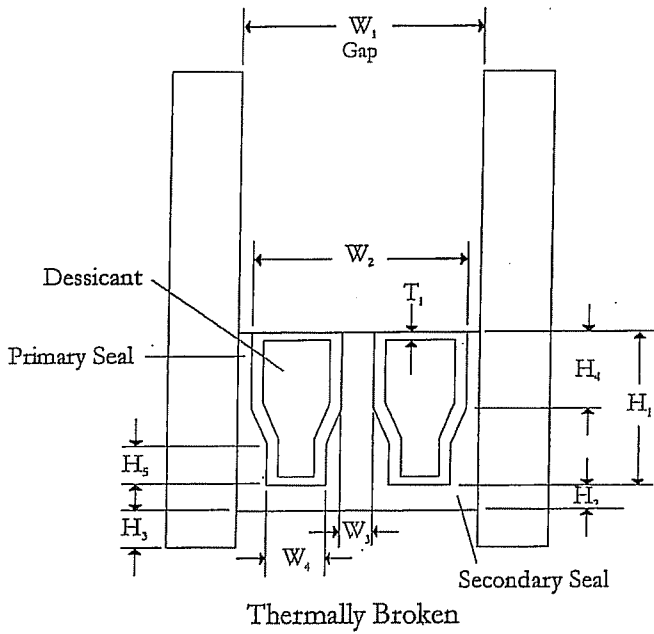
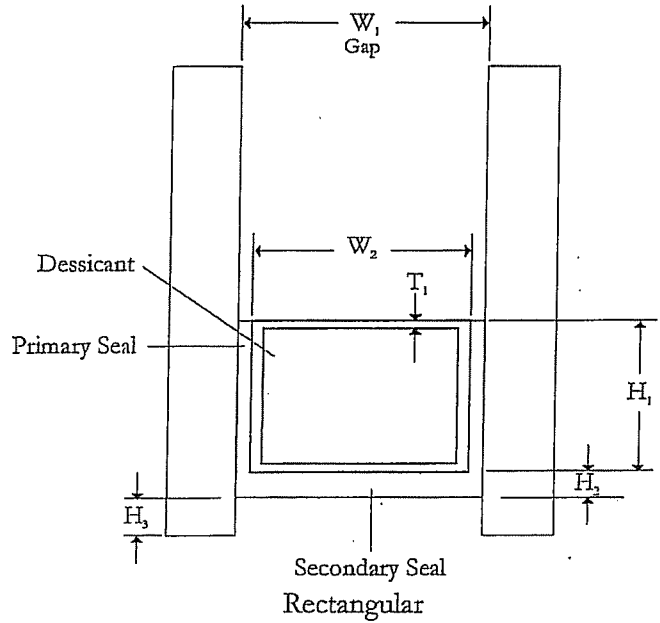
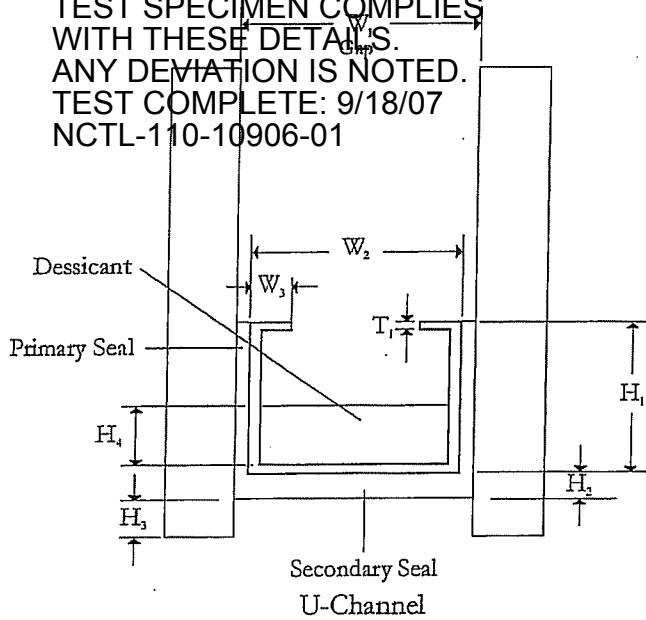


Rectangular

Divider Dimensions -Fill dimensions where applicable - Please fill out a divider sheet for each divider size used.

Dimensions			Material		
<input type="checkbox"/> W_1 <u>.190</u> "	<input type="checkbox"/> W_2 _____ "	<input type="checkbox"/> W_3 _____ "	<input checked="" type="checkbox"/> Aluminum	<input type="checkbox"/> Steel - Galvanized	<input type="checkbox"/> Other _____
<input type="checkbox"/> H_1 <u>.805</u> "	<input type="checkbox"/> H_2 _____ "	<input type="checkbox"/> T_1 <u>.18</u> "	<input type="checkbox"/> Steel - Mild	<input type="checkbox"/> Steel - Stainless	

TEST SPECIMEN COMPLIES WITH THESE DETAILS. ANY DEVIATION IS NOTED. TEST COMPLETE: 9/18/07 NCTL-110-10906-01



Spacer Dimensions - Fill dimensions where applicable - Please fill out a spacer sheet for each spacer used whether spacer type or size.

Gap	Primary Seal	Secondary Seal	Material	Fill
<input type="checkbox"/> W ₁ <u>.576</u> "	<input type="checkbox"/> Butyl	<input checked="" type="checkbox"/> Butyl	<input type="checkbox"/> Aluminum	<input checked="" type="checkbox"/> Dessicant
<input type="checkbox"/> W ₂ <u>.526</u> "	<input type="checkbox"/> PIB	<input type="checkbox"/> PIB	<input type="checkbox"/> Steel - Mild	<input type="checkbox"/> Air
<input type="checkbox"/> W ₃ <u>.076</u> "	<input type="checkbox"/> Polysulphide	<input type="checkbox"/> Polysulphide	<input type="checkbox"/> Steel - Stainless	<input type="checkbox"/> Other _____
<input type="checkbox"/> W ₄ _____ "	<input type="checkbox"/> Silicone	<input type="checkbox"/> Silicone	<input checked="" type="checkbox"/> Steel - Galvanized	
<input type="checkbox"/> H ₁ <u>.300</u> "	<input type="checkbox"/> Urethane	<input type="checkbox"/> Urethane	<input type="checkbox"/> Vinyl	
<input type="checkbox"/> H ₂ <u>.045</u> "	<input type="checkbox"/> None	<input type="checkbox"/> None	<input type="checkbox"/> Foam _____	
<input type="checkbox"/> H ₃ <u>.08</u> "	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	
<input type="checkbox"/> H ₄ <u>.084</u> "				
<input type="checkbox"/> H ₅ _____ "				
<input type="checkbox"/> T ₁ <u>.013</u> "				