

# NEON ENERGY TEST REPORT

**SCOPE OF WORK**

AAMA/WDMA/CSA 101/I.S.2/A440-11 TESTING ON ULTRA, HORIZONTAL SLIDING WINDOW

**REPORT NUMBER**

H8605.01-303-44 R0

**TEST DATE(S)**

12/07/17 - 08/20/18

**ISSUE DATE**

08/20/18

**RECORD RETENTION END DATE**

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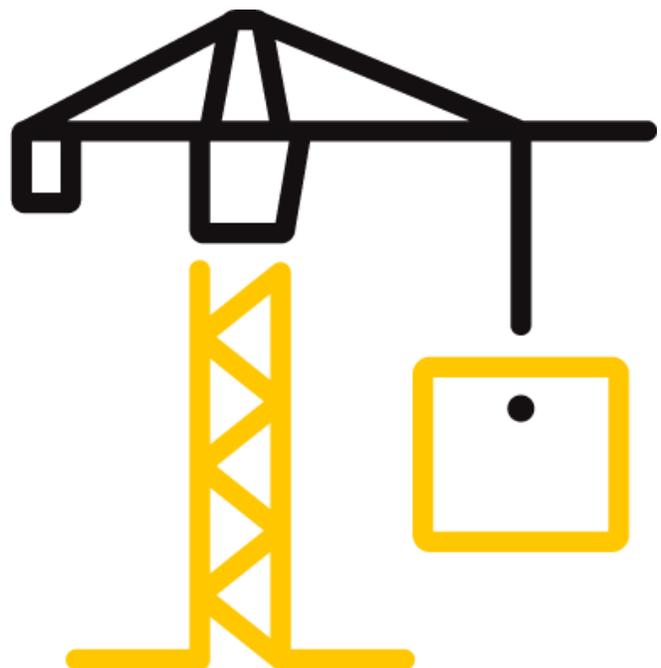
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## TEST REPORT FOR NEON ENERGY

Report No.: H8605.01-303-44 R0

Date: 08/20/18

### REPORT ISSUED TO

#### NEON ENERGY

4989 East La Palma Ave  
Anaheim, California 92807

### SECTION 1

#### SCOPE

Intertek Building & Construction (B&C) was contracted by Neon Energy, 4989 East La Palma Ave. Anaheim California 92807 to perform testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights* on their Ultra Horizontal Sliding Window. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at Intertek test facility in Lake forest, California. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

### SECTION 2

#### SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-11	Class LC – PG40: Size Tested 2591 x 1423 mm (102 x 56 in) – Type HS
Design Pressure	±1920 Pa (±40.10 psf)
Air Infiltration	1.1 L/s/m <sup>2</sup> (0.21 cfm/ft <sup>2</sup> )
Water Penetration Resistance Test Pressure	290 Pa (6.06 psf)

For INTERTEK B&C:

**COMPLETED BY:** Charles Presley

**TITLE:** Technician II

**SIGNATURE:**

**DATE:** 08/20/18

**REVIEWED BY:** Jarod Hardman

**TITLE:** Operations Manager

**SIGNATURE:**

**DATE:** 08/20/18

ctp:ab

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### SECTION 3

#### TEST METHOD(S)

The specimens were evaluated in accordance with the following:

**AAMA/WDMA/CSA 101/I.S.2/A440-11**, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

**ASTM E283-04(2012)**, *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*

**ASTM E330/E330M-14**, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

**ASTM E547-00(2016)**, *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference*

**ASTM E987-88(2009)**, *Standard Test Methods for Deglazing Force of Fenestration Products*

**ASTM E2068-00(2016)**, *Standard Test Method for Determination of Operating Force of Sliding Windows and Doors*

**ASTM F588-14**, *Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact*

### SECTION 4

#### MATERIAL SOURCE/INSTALLATION

Test specimen was provided by the client. Representative samples of the test specimen will be retained by Intertek B&C for a minimum of four years from the test completion date.

The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 1/4" shim space. The exterior perimeter of the window was sealed with sealant. Installation of the tested product was performed by the client.

LOCATION	ANCHOR DESCRIPTION	ANCHOR LOCATION
Through the frame	#10 x 3" Exterior screws	1-screws at 12" on center

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### SECTION 5

#### LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
George Kontalonis	Neon Energy
Charles Presley	Intertek B&C
Jarod Hardman	Intertek B&C

### SECTION 6

#### TEST SPECIMEN DESCRIPTION

**Product Type:** Horizontal Sliding Window

**Series/Model:** Ultra

#### Product Size(s):

OVERALL AREA:	WIDTH		HEIGHT	
	millimeters	inches	millimeters	inches
3.72 m <sup>2</sup> (40.02 ft <sup>2</sup> )				
Overall Size	2591	102	1423	56
Exterior Sash	1310	51 9/16"	1355	53 11/32"
Interior Sash	1310	51 9/16"	1355	53 11/32"

#### Frame Construction:

FRAME MEMBER	MATERIAL	DESCRIPTION
Head, sill, and jambs	Aluminum	Thermally broken extrusion, Part No. TVS 1010, see attached drawings Section 10.
Head, sill, and jambs	PVC	Cover plate, press fit into frame, Part No. AVS-06, see attached drawings Section 10.
	JOINERY TYPE	DETAIL
All Corners	Mitred	Compressed and bonded with two corner connections Part No. Gs 115-224 at each corner, see attached drawings Section 10.

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### Sash Construction:

SASH MEMBER	MATERIAL	DESCRIPTION
Top rail, bottom rail, and stiles	Aluminum	Thermally broken extrusion, Part No. TVS 1010, see attached drawings Section 10.
Interlock	PVC	Interlock receiver clip, Part No. AVS-09, see attached drawings Section 10.
Interlock	Aluminum	Press fit onto sash and PVC clip (Part No. AVS-09), Part No. VS 82, secured to stile with #8 x 1" Phillips round head screws with 30" on center spacing.
	JOINERY TYPE	DETAIL
All Corners	Mitred	Compressed and bonded with one corner connections Part No. Gs 115-224 at each corner, see attached drawings Section 10.

**Reinforcement:** *No reinforcement was utilized.*

### Weatherstripping:

DESCRIPTION	QUANTITY	LOCATION
EPDM Gasket, Part No. L2	2 rows	Inserted into interior face of frame legs, see attached drawings Section 10.
9/32" / 4P weatherstrip	1 row	Channel inserted into exterior face of frames inner leg, see attached drawings Section 10.
8/32" / 4P weatherstrip	2 rows	Channel inserted into sash members, full perimeter, see attached drawings Section 10.
5/16" / 4P weatherstrip	2 rows	Channel inserted into each interlock member, see attached drawings Section 10.
EPDM bulb gasket, Part No. L1	1 row	Channel inserted into Interlock receiver clip, see attached drawings Section 10.

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**Glazing:** *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made.*

GLASS TYPE	SPACER TYPE	INTERIOR LITE	EXTERIOR LITE	GLAZING METHOD
1" IG	Aluminum Spacer – Dual Seal (A1-D)	13/64" clear annealed	15/64" clear tempered	Channel glazed with EPDM gasket Part No. P3.

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Sash	2	1122 x 1175	44-3/16 x 46-1/4	1/2"

### Drainage:

DRAINAGE METHOD	SIZE	QUANTITY	LOCATION
Weep hole	1-1/2" wide by 1/4" high	2	Through exterior face of sill at quarter points.

### Hardware:

DESCRIPTION	QUANTITY	LOCATION
Dual wheel roller	2 per panel	Secured to bottom rail with two #8 x 1- 1/2" Robertson flat head screws, centered 6" from each corner.
Handle assembly	2	Secured to lock stiles mid-span with supplied hardware.
Post lock	2	Secured to primary lock stile with #8 x 1" Phillips flat head screws at quarter points.

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**SECTION 7**

**TEST RESULTS**

The temperature during testing was 20°C (68°F). The results are tabulated as follows:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
<b>Operating Force,</b> per ASTM E2068	Initiate Motion: 17.79 N (4 lbf) Maintain Motion: 44.48 N (10 lbf) Locks: 26.70 N (6 lbf)	Report only  90 N (20.23 lbf)  100 N (22.5 lbf)	
<b>Air Leakage,</b> Infiltration per ASTM E283 at 75 Pa (1.57 psf)	1.5 L/s/m <sup>2</sup> (0.21 cfm/ft <sup>2</sup> )	1.5 L/s/m <sup>2</sup> (0.3 cfm/ft <sup>2</sup> ) max.	1, 2
<b>Water Penetration,</b> per ASTM E547	N/A	N/A	
<b>Uniform Load Deflection,</b> per ASTM E330 Deflections taken at interlock +1200 Pa (+25.06 psf) -1200 Pa (-25.06 psf)	N/A	N/A	3
<b>Uniform Load Structural,</b> per ASTM E330 Permanent set taken at interlock +1800 Pa (+37.59 psf) -1800 Pa (-37.59 psf)	N/A	N/A	3
<b>Deglazing,</b> per ASTM E987 Operating direction, 320 N (70 lbf) Remaining direction, 230 N (50 lbf)	Pass  Pass	Meets as stated  Meets as stated	

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OPTIONAL PERFORMANCE			
TITLE OF TEST	RESULTS	ALLOWED	NOTE
<b>Water Penetration,</b> per ASTM E547 at 290 Pa (6.06 psf)	Pass	No leakage	3
<b>Uniform Load Deflection,</b> per ASTM E330 Deflections taken at meeting rail +1920 Pa (+40.10 psf) -1920 Pa (-40.10 psf)	3.56 mm (0.14") 4.06 mm (0.16")	Report only	4, 5, 6
<b>Uniform Load Structural,</b> per ASTM E330 Permanent set taken at meeting rail +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	0.0 mm (0.00") 0.25 mm (0.01")	4.83 mm (0.19") max. 4.83 mm (0.19") max.	5, 6

*Note 1: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440 for air leakage resistance.*

*Note 2: Test Date 12/07/17 / Time: 9:00 AM (Air Note Only)*

*Note 3: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.*

*Note 4: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation. The deflection data is recorded in this report for special code compliance and information only.*

*Note 5: Loads were held for 10 seconds.*

*Note 6: Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.*

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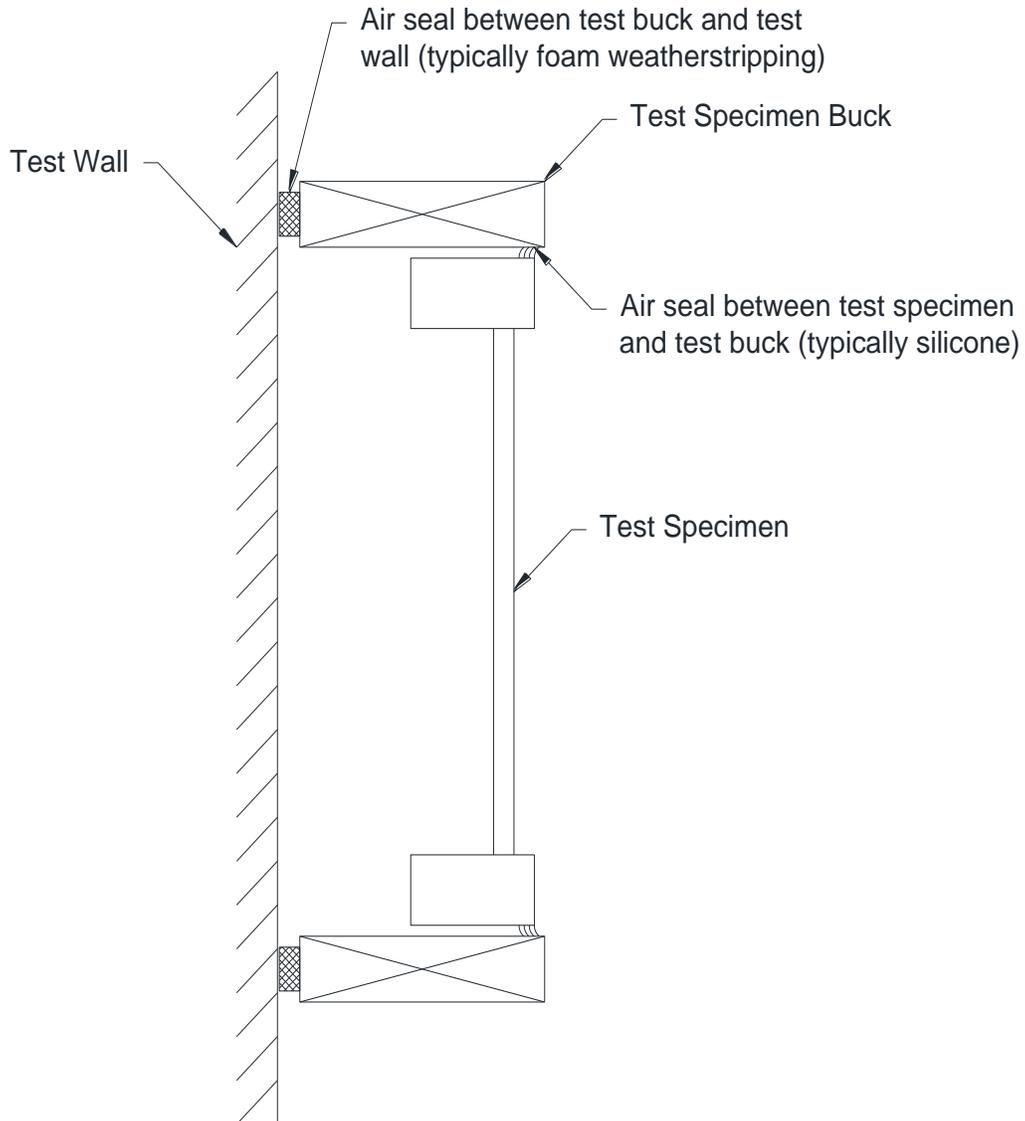
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### SECTION 8

#### LOCATION OF AIR SEAL

The air seal between the test specimen and the test wall is detailed below. The seal is made of foam weatherstripping and is attached to the edge of the test specimen buck. The test specimen buck is placed against the test wall and clamped in place, compressing the weatherstripping and creating a seal.





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### SECTION 9

#### CONCLUSION

The specimen tested successfully met the performance requirements for a **CLASS LC – PG40: SIZE TESTED 2591 X 1423 MM (102 X 56 IN) – TYPE HSrating.**

### SECTION 10

#### DRAWINGS

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

## **Description of test specimen No 2 (2A & 2B):**

Product	Double sliding Window
Manufacturer	Neon Energy S.A.
Date of manufacture	N/A
System	Ultra 2016 Sliding System
Type of opening / Opening directions	Sliding
Frame material	Aluminum profiles with thermal break
Overall frame dimensions (WxH)	2590,8mmx1422,4mm
<b>Frame member</b>	Profile No TVS 1003
Frame joint	mitred, compressed and bonded with corner connection No GS 115-224
Additional profile	Cover plate Profile No AVS-06, clamped internal with brush seal No 9/32"/4P, external on three sides brush seal Item No 15/64"/4P
<b>HS Member</b>	<del>Casement 1: Profile No TVS 1010 / TVS 1011</del> <del>Casement 2: Profile No TVS 1010</del>
Frame joint	mitred, compressed and bonded with corner connection No GS 115-240 / GEM-1
Additional profiles	each casement: coupling profile No VS 82 with additional profile No AVS-09 and cover plate AVS-04, bolted
<b>Rebate seal</b>	
<u>Internal/external:</u>	
Material	Brush, Polypropylen
Item No	8/32"/4p
Corner design	on three sides butt-jointed
<b>Central Jamb</b>	
<u>Internal:</u>	
Material	2 x brush seal, Polypropylen
Item No	5/16" /4P
Corner design	at top and bottom butt-jointed
<u>Center:</u>	
Material	2 x gasket, EPDM
Item No	L1
Corner design	at top and bottom butt-jointed
<u>External:</u>	
Material	2 x brush seal, Polypropylen
Item No	5/16" /5P
Corner design	at top and bottom butt-jointed
<u>Additional Profiles</u>	at top and bottom: joint seal Item No AVS-02-1 bolted and bonded
<b>Infil panel</b>	Glass Unit
Configuration	from inside to outside: 13/64" float – low-e _ 35/64" argon 90% _ 15/64" tempered
<b>Incorporation of infill panel</b>	
<b>Glazing gasket</b>	
<u>Internal:</u>	
Material	Sealing material – EPDM
Item No	P3
Corner design	mitred and bonded
<u>External:</u>	



Material  
Item No  
Corner design

Sealing material – EPDM  
P3  
mitred and bonded

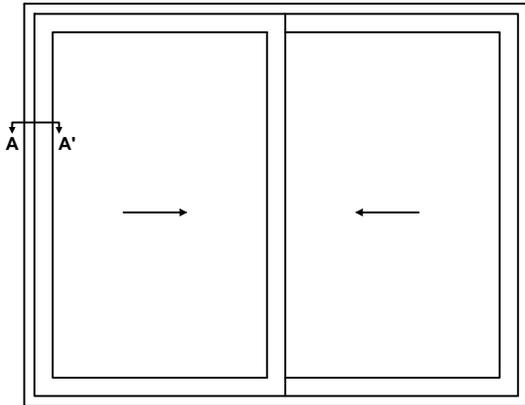
**Hardware**  
Type / manufacturer

Roto Inline



# HORIZONTAL SECTION A-A'

KA. 1:1

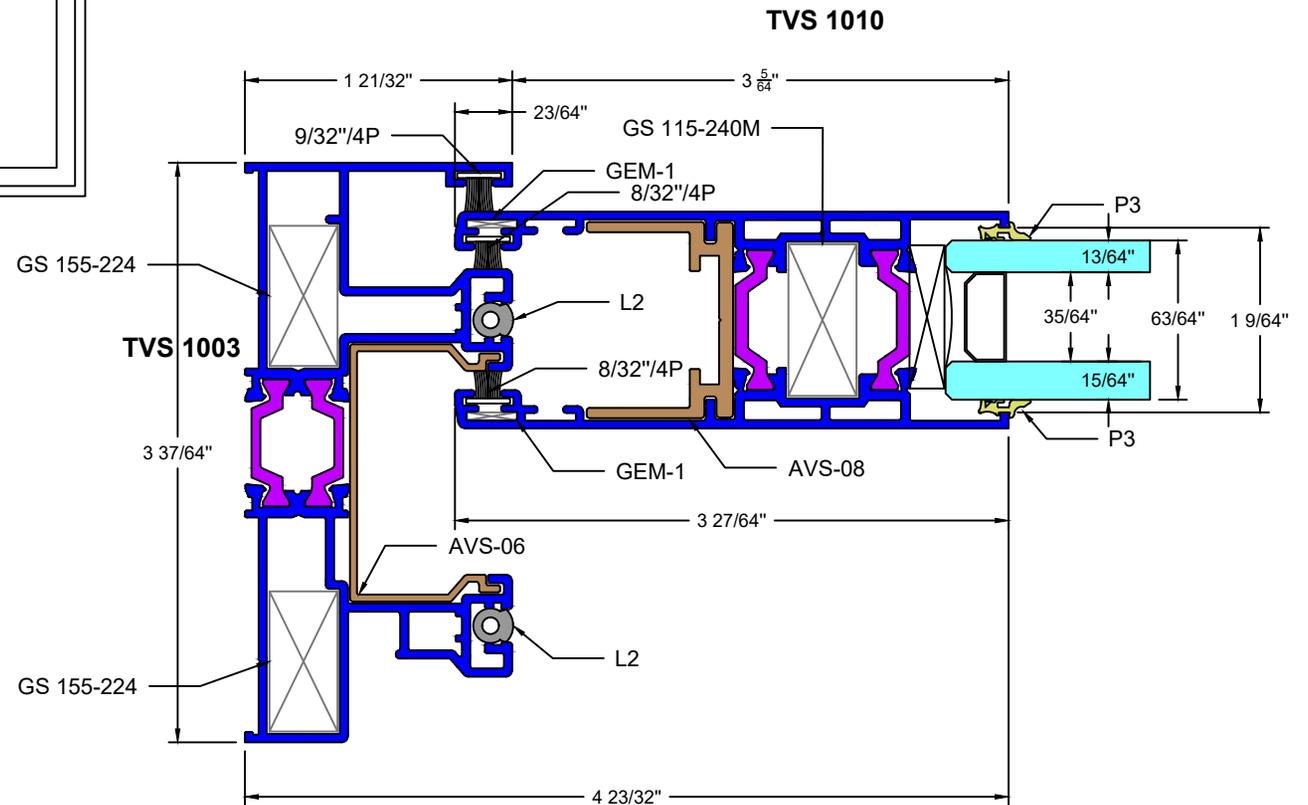


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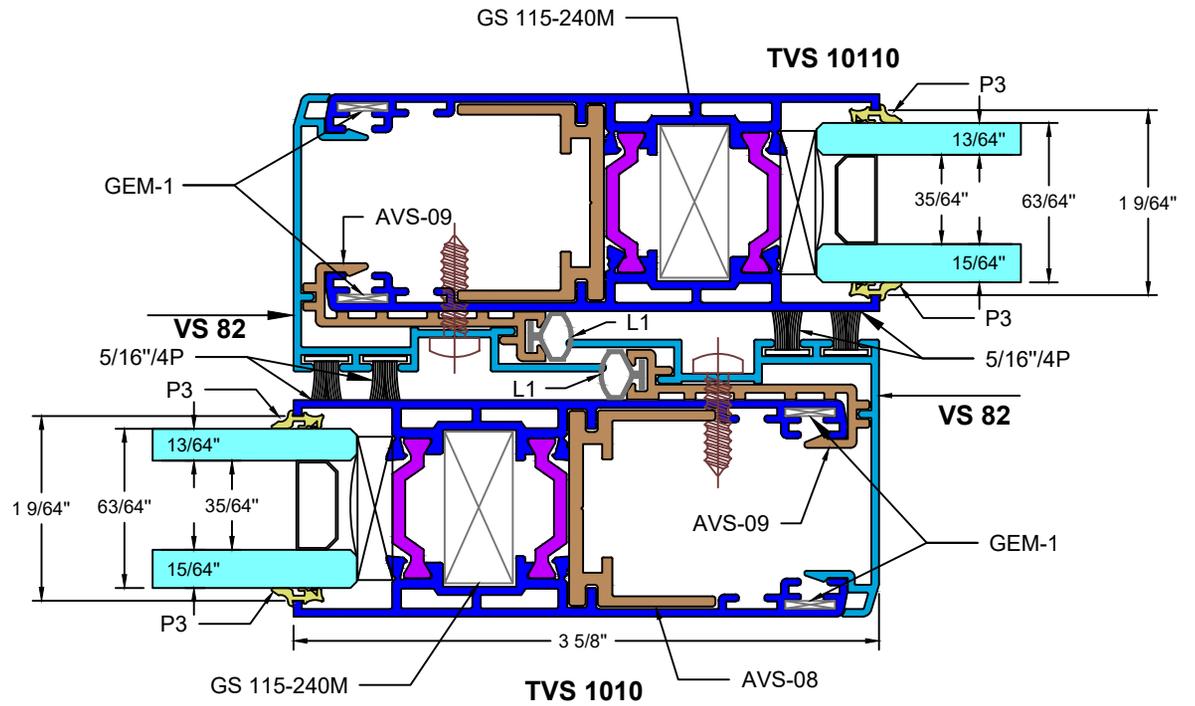
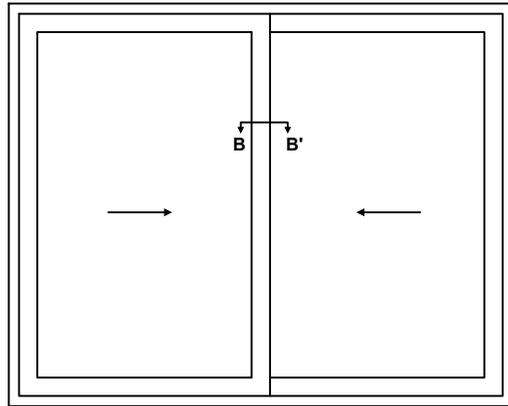
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# HORIZONTAL SECTION B-B'

ΚΛ. 1:1



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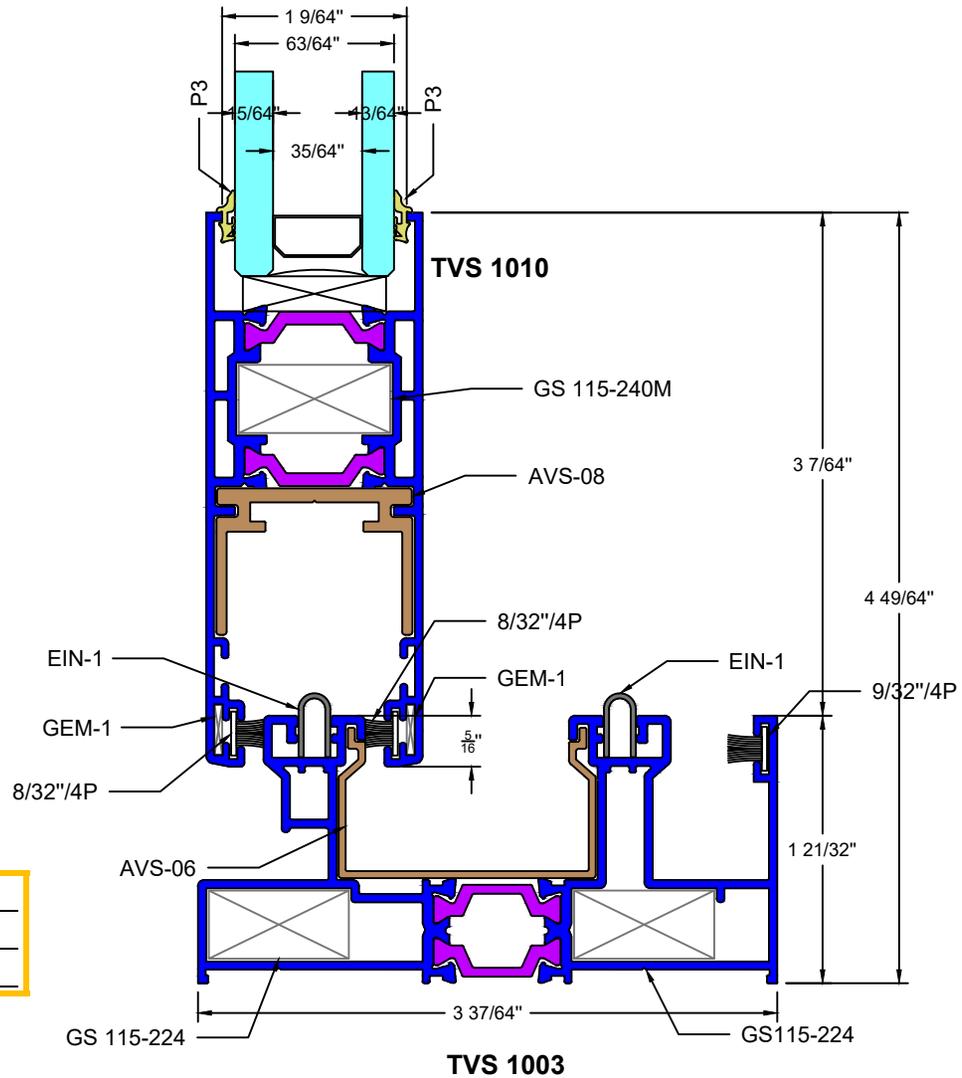
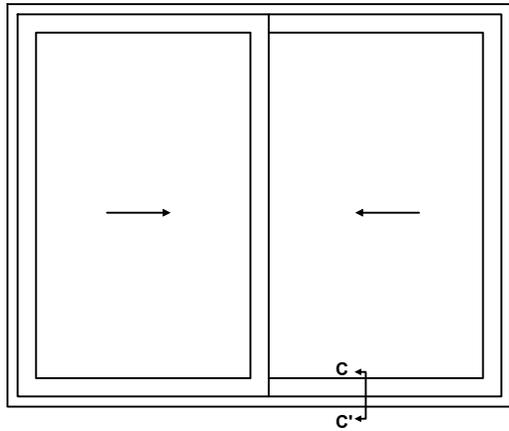
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# VERTICAL SECTION C-C'

ΚΑ. 1:1



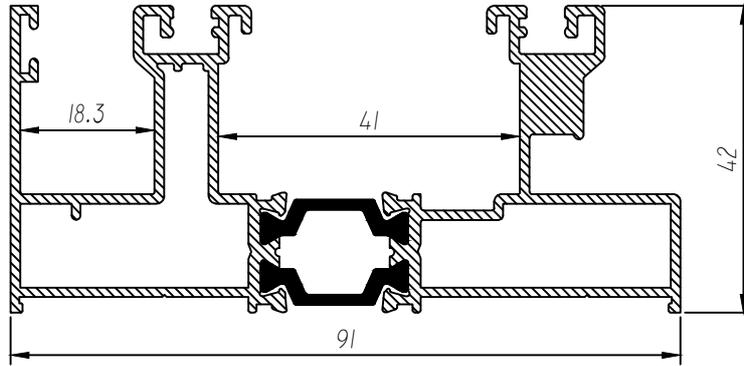
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	Date:	08/29/18
	Verified by:	<i>[Signature]</i>





Profile Ref. No.: **TVS-1003**

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perimeter:	xxx.x	[mm]
th. weight:	1610.0	[gr/m]



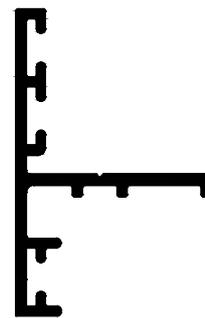
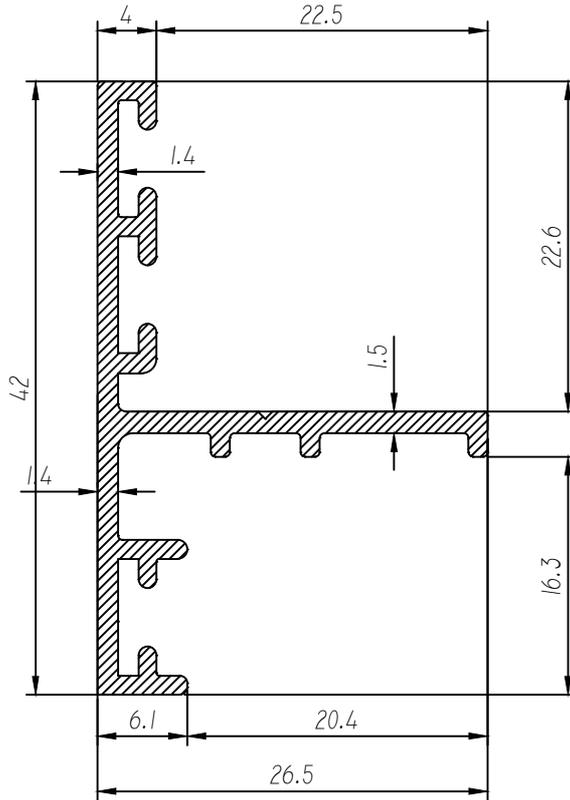
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Profile Ref. No.: **VS 83**

area:	138.3	[mm <sup>2</sup> ]
perimeter:	197.8	[mm]
th. weight:	373.4	[gr/m]



scale 1 : 1

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### SECTION 11

#### REVISION LOG

REVISION #	DATE	PAGES	REVISION
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