



# EcoEvolution<sup>TM</sup>



The logo for Ecolutions, featuring the word "Ecolutions" in a bold, black, sans-serif font with a green and blue gradient. The letter "o" is replaced by a stylized globe icon with a green and blue color scheme. A small trademark symbol (TM) is located to the upper right of the word.

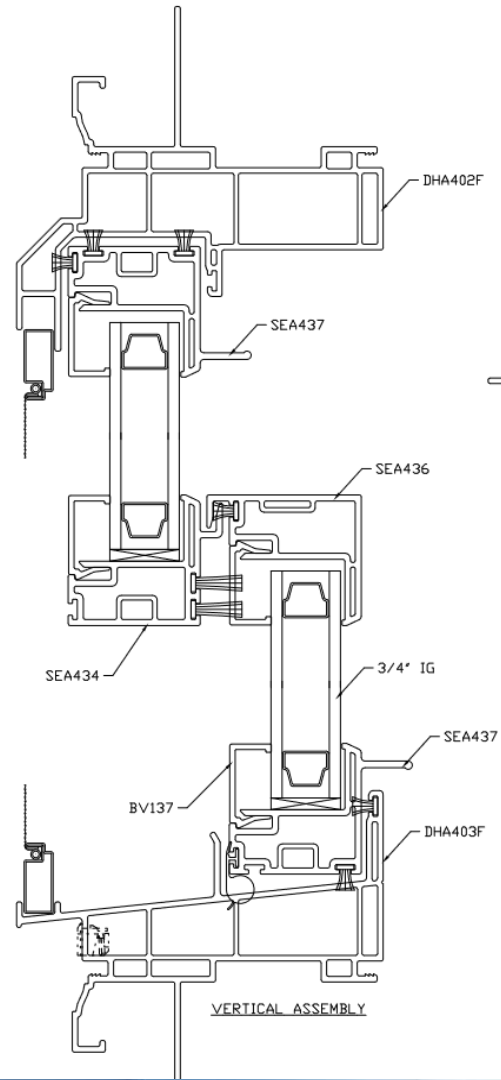
**Ecolutions™**

# **Ecolutions Program**



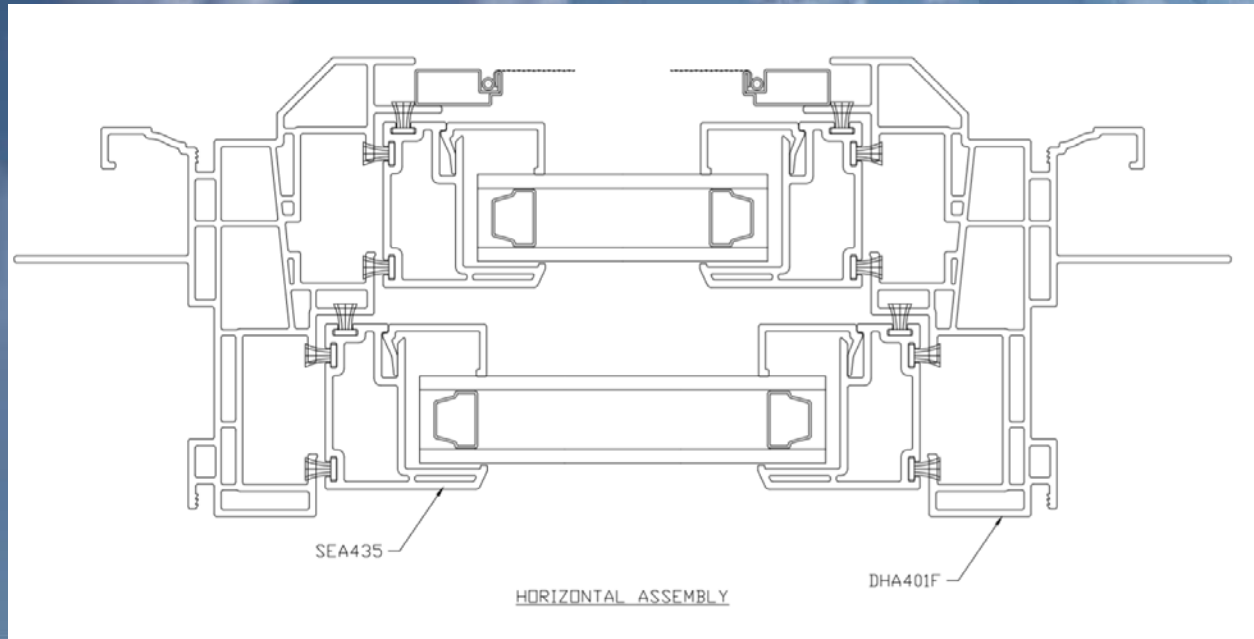
# EcoEvolution<sup>™</sup>

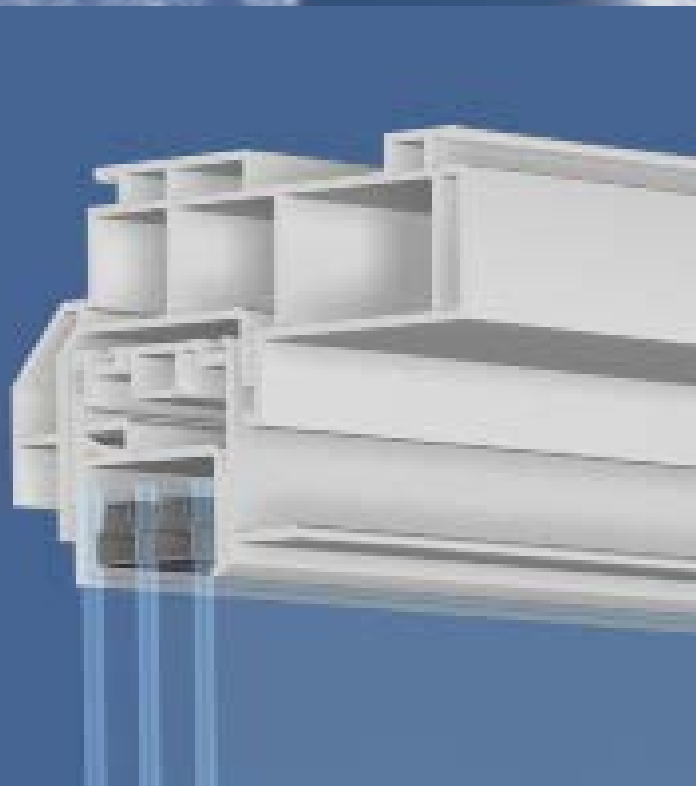
- Cross Sectional Views
- 3.25" RR Frame with Optional Integral 1.5" Nail fin and J Channel
- All Fin configurations available (J, no J, Fin, NO Fin)
- Face accessory grooves with in excess of 50 accessory profiles
- Dedicated Head



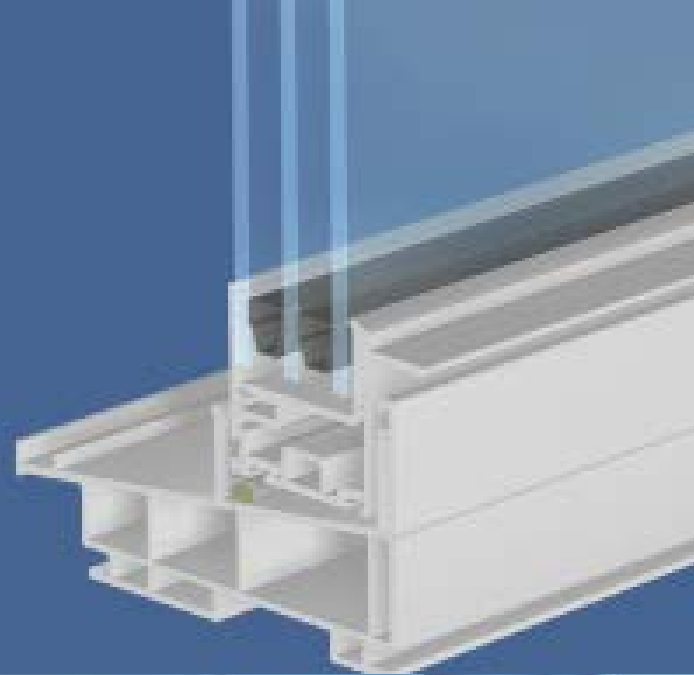


- Cross Sectional Views
- 3.25" RR Frame with Optional Integral 1.5" Nail fin and J Channel
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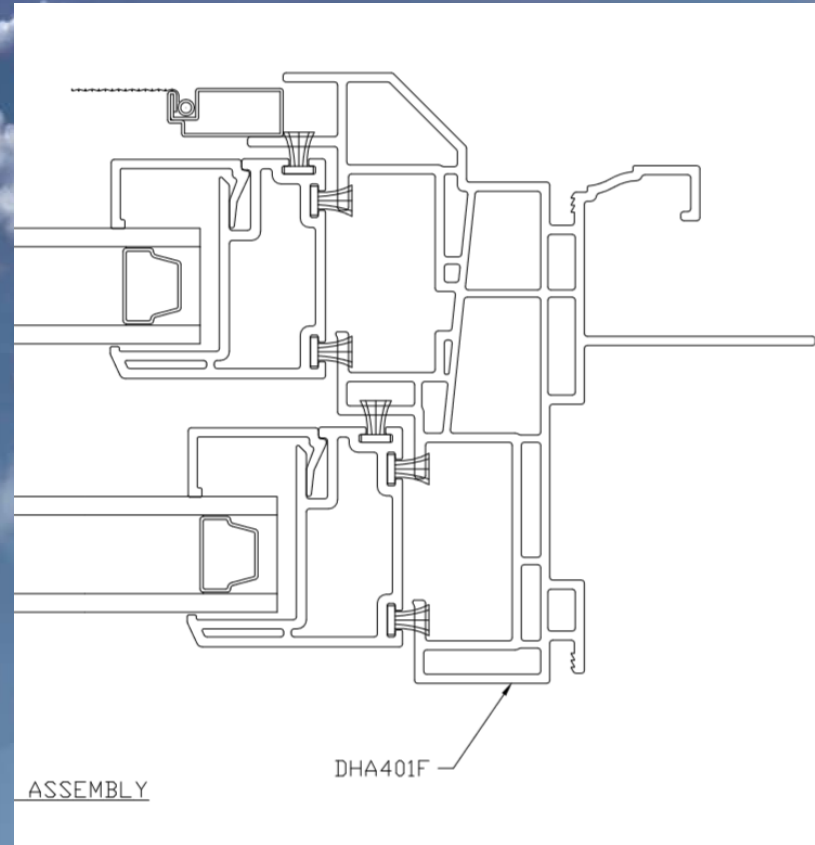
- **Head Detail**
- **Dedicated Head Profile**
- **Triple weather seal at the head**
- **Screen Track for 5/16" Screen**



- Sill Detail
- Sill Up stand for improved Structural Performance (DP50), and Impact
- Triple weather seal at the Sill
- Wept Sloped Sill design



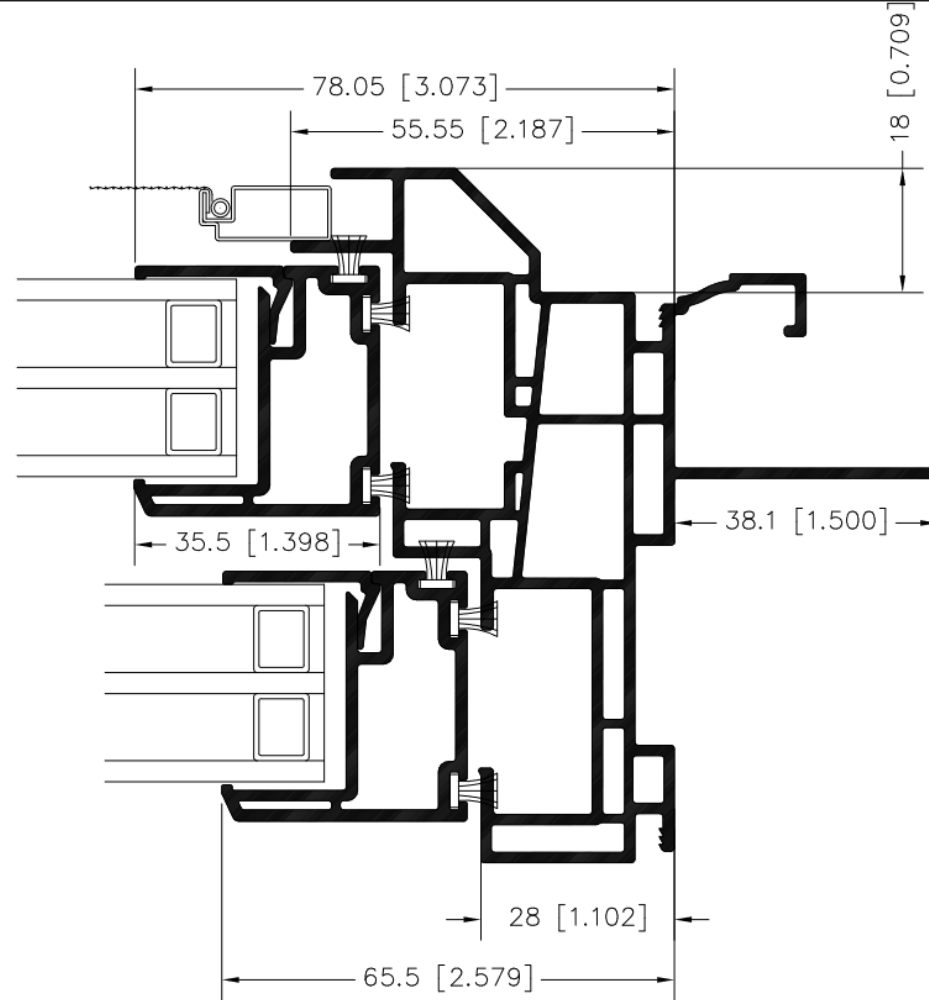
- Jamb Detail
- Unequal Glass Sightlines
- Triple weather seal at the Jamb
- Glazing from  $\frac{3}{4}$ " to 1-1/8"
- Screen Track for 5/16" Screen
- Unobtrusive exterior bevel even with 1-1/8' IG Capability
- Standard Balance Chambers to accept Block & Tackle, Constant, Force and Spiral





- **Horizontal Detail**
- Horizontal detail provides narrow sightlines while still allowing for larger IG pocket and Distinct bevel.

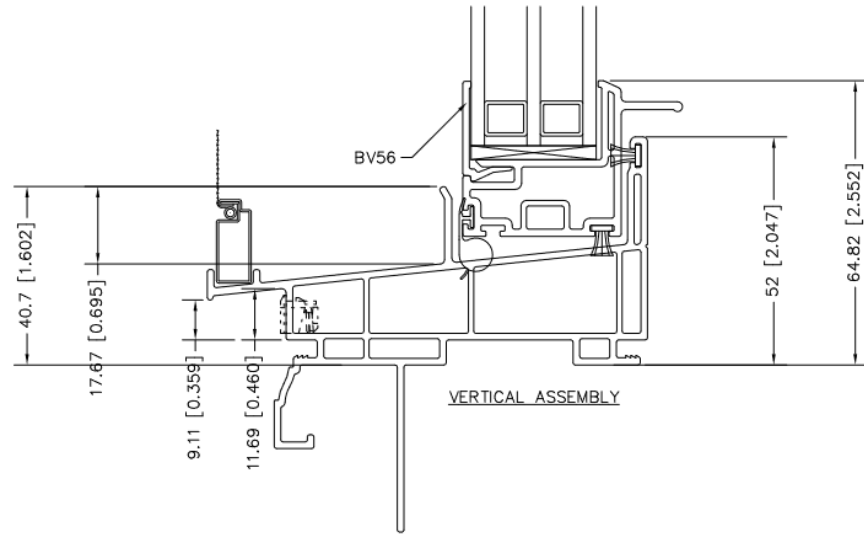
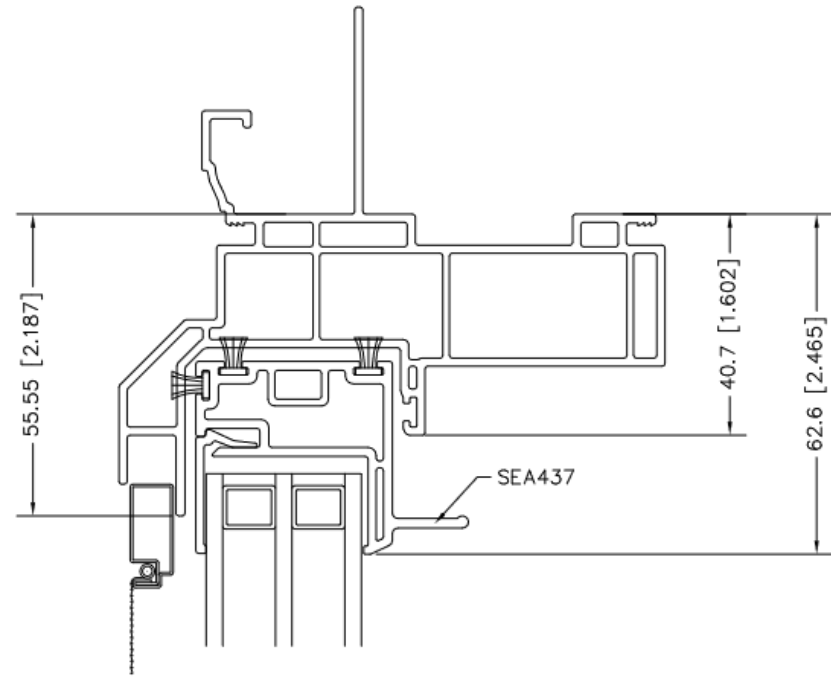
Design enhances egress opportunities







- **Horizontal Detail**
- Vertical detail provides narrow sightlines  
Design enhances egress opportunities

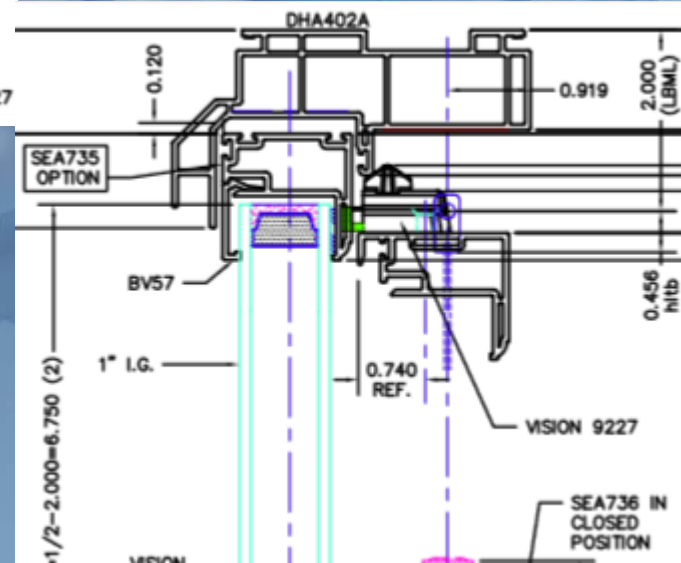
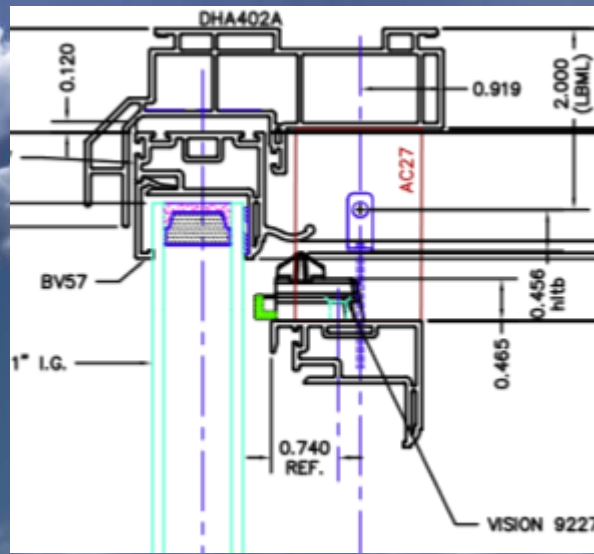




- Egress for New Construction

- Traditional top liftrail version will allow egress at a minimum size of 37x60-1/2

- Dedicated Egress window with liftrail removed will allow egress at a minimum size of 36 x 60



NOTE: Egress using Constant force resulted in slightly larger Egress sizes ie. 33.5 x 66.5



# Sash Design

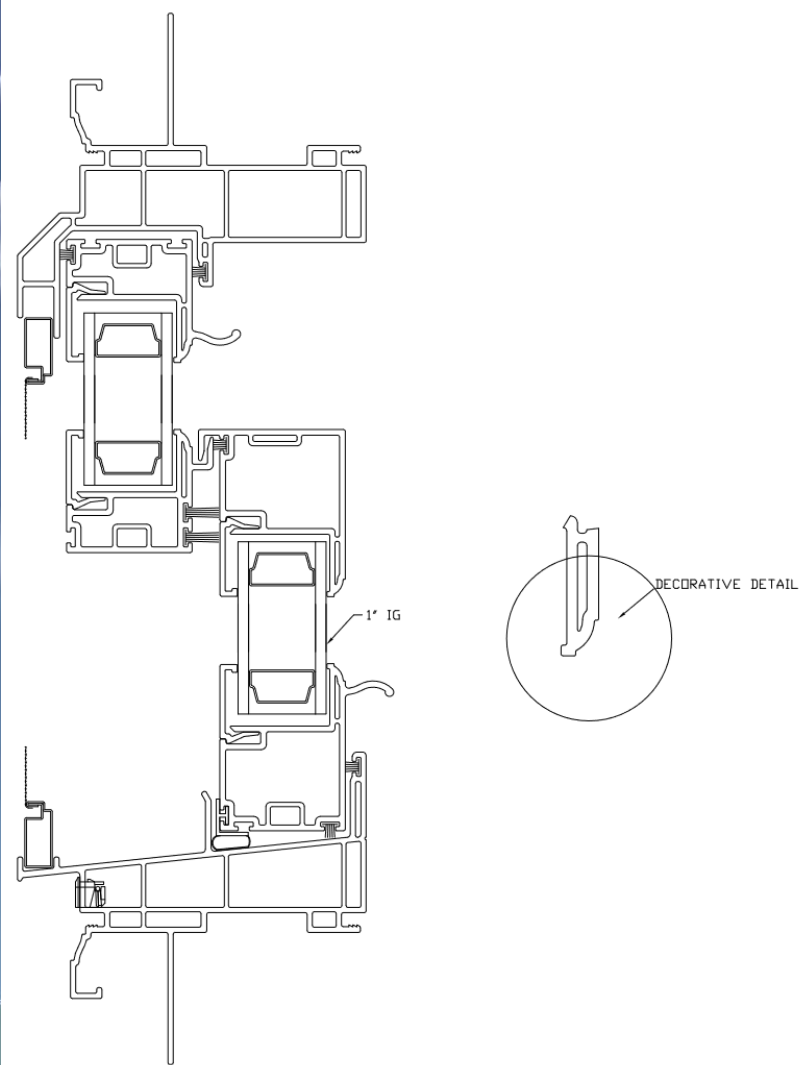
- Meeting Rail Detail
- Unequal or Equal Glass Configurations
- Triple weather seal at meeting rail
- Glazing from  $\frac{3}{4}$ " to 1-1/8"
- Chamber in Lockrail hollow for lock attachment
- Fully enclosed pivot bar cavity
- Traditional Interlock design





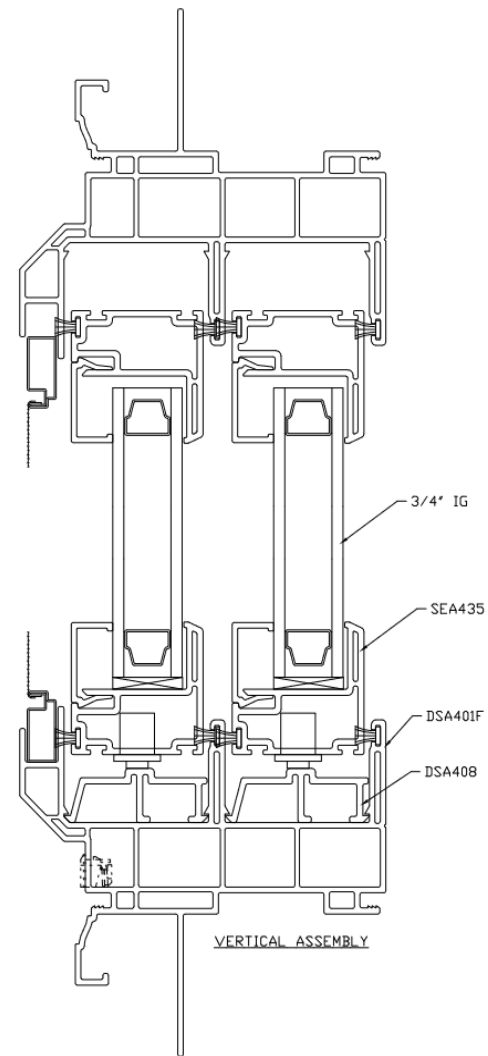
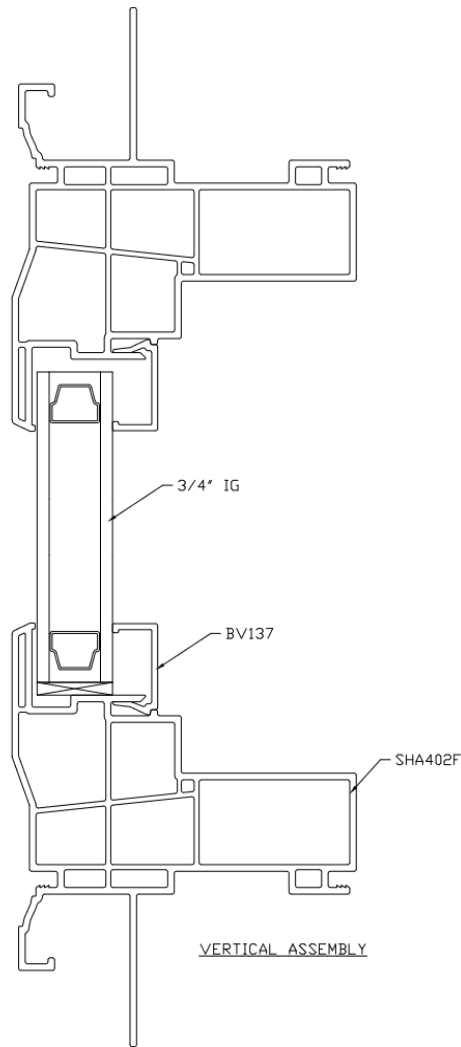
## Ecolutions Decorative Equal Glass Option

- Equal glass option provides a distinct set of new sashes that work in Unequal glass tooling
- Equal Glass version uses detail on glazing leg to create unique appearance
- Equal glass version will allow all Ecolutions glazing and hardware options



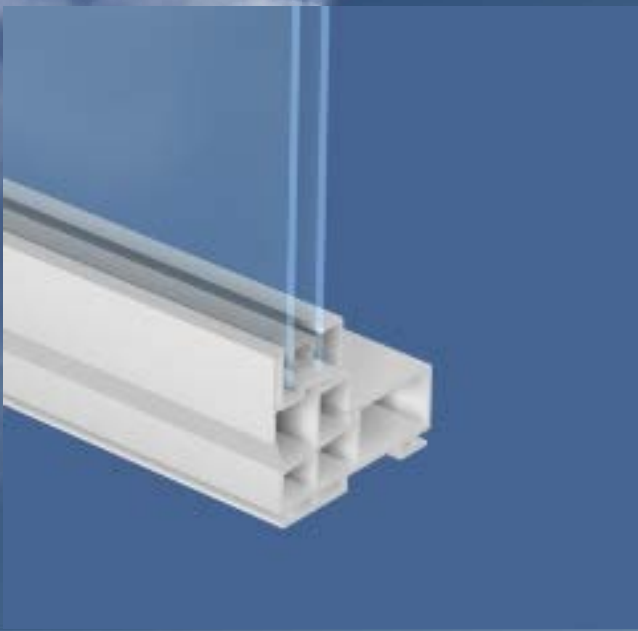


- Double Slider , and Picture Window



**Eco**olutions™

PW Master Frame  
Fin and No Fin





Double Slider  
Exterior View





## Double Slider Interior View

R-PG30 @63 x 44

Impact Tested@ 75x48

- R-PG50
- Un-Equal Glass
- Outboard Sash Fixed to Frame

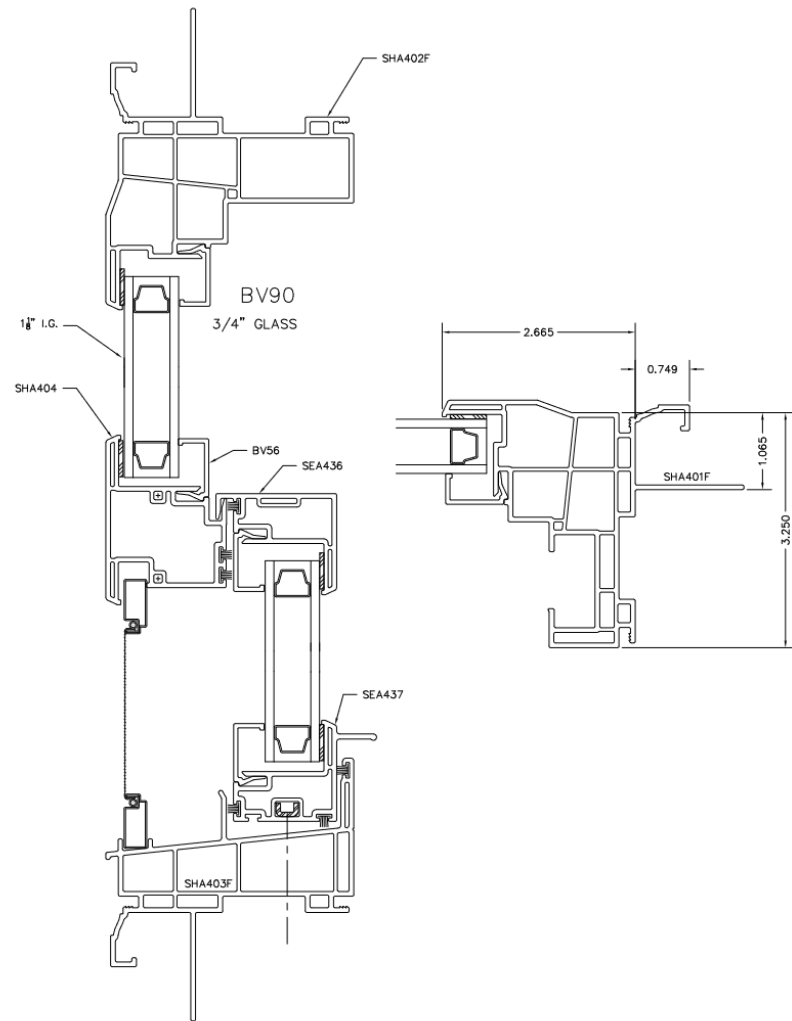


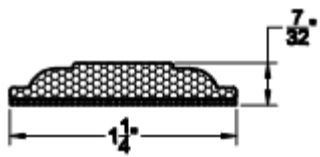




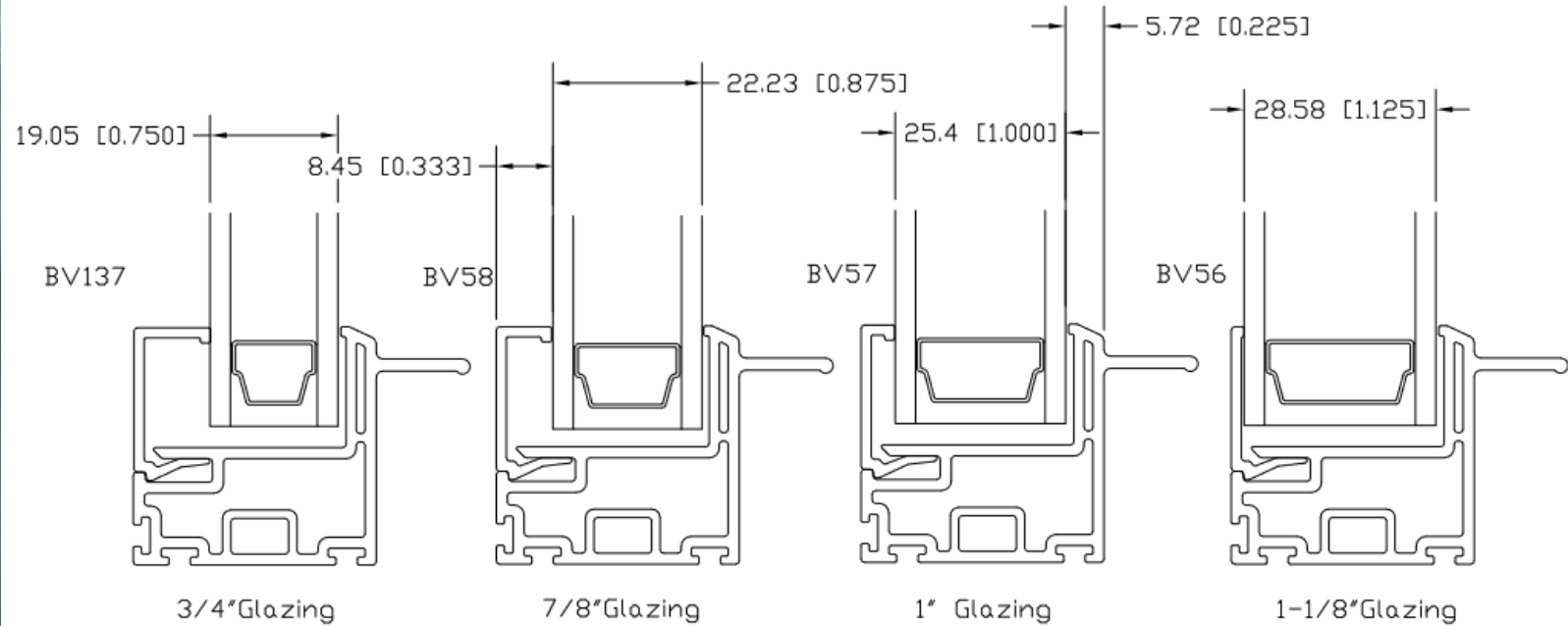
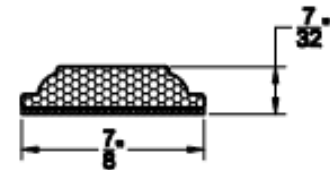
# Single Hung

DP50 capability  
Enhanced Thermal Capability using  
Ecolutions 1-1/8" glass package  
(ideal for STC opportunities)





# Simulated Divided Lites



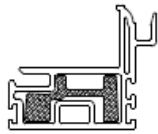
Ideal SDL applications for 1" and 7/8" IG.

7/32" SDL = .218".

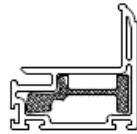
# Reinforcement Options

## REINFORCEMENTS

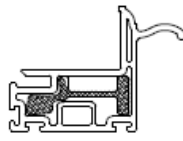
### ALUMINUM



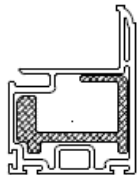
RF SEA434 A0M  
KEEPER RAIL  
SEA734



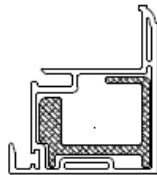
COMMON SASH  
SEA735



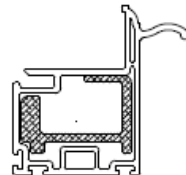
RF SEA745 A0 M  
HANDLE RAIL  
SEA737



RF SEA745 A0 M  
COMMON SASH  
SEA745

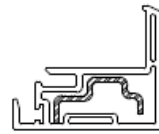


RF SEA746 A0 M  
LOCK RAIL SEA746

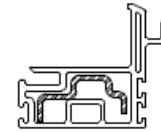


RF SEA745 A0 M  
HANDLE RAIL  
SEA747

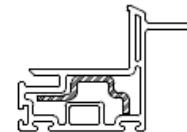
### STEEL



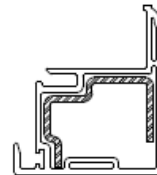
RF 3001 S0 M  
LOCK RAIL SEA436



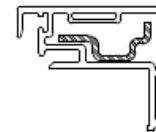
RF 3001 S0 M  
KEEPER RAIL  
SEA434



RF SE3435 S0 M  
HANDLE RAIL  
SEA437



RF 3001 S0M



RF SE3435 S0 M  
LOCK RAIL SEA736

# INNERGY®

Rigid Thermal Reinforcements

Innergy® Rigid Thermal Reinforcements are advanced fiber glass reinforced resin inserts developed by Decuninck. VEKA is now an exclusive distributor for its own window and door profiles in North America.

• Innergy® Rigid Thermal Reinforcements are advanced fiber glass reinforced polyurethane resin inserts, precisely designed to slide easily into your window and door frames during fabrication.

• Innergy® can be designed to provide the structural strength of aluminum with the energy efficiency of a fiber glass resin that has low heat transfer.

• Innergy® is made from Bayer MaterialScience® polyurethane products.

• Innergy® is green to remind consumers – the product starts with an up to 20-percent bio-based resin component in its proprietary formulation.

• Innergy® helps protect against condensation and eliminates staining that can occur with metal reinforcements.



## Exclusive VEKA Profile Shapes



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Innergy® is a registered trademark of Decuninck North America. The color GREEN is a trademark of Decuninck North America LLC.

**INNERGY®** By **VEKA**  
Rigid Thermal Reinforcements



Science For A Better Life

# Sash Infill – Pultruded Fiberglass



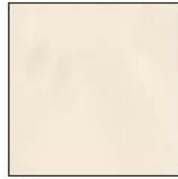
**Natural Oak** *Interior*



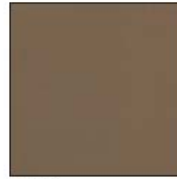
**Cavalier Oak** *Interior*



**Golden Oak**



**Bone**



**Cocoa**



**Bronze**



**Hillside Oak** *Interior*



**Clay**



**Walnut**



**American Cherry** *Interior*



**Brushed Silver**



**Sand**



**Colonial Cherry** *Interior*



**Brown**



**Mahogany**



**American Maple** *Interior*



**Hunter Green**



**Dark Sapphire**



**Yellow Pine** *Interior*



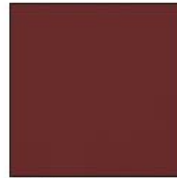
**Rojo Oak**



**Chestnut**



**White**



**Garnet**

*Interior = Applicable for the interior of the window only  
All others are available for both interior and exterior*

# Interior and Exterior Foil Lamination

# Available Locking Hardware



Face Applied Keeper



Traditional Cam Lock

# Available Locking Hardware



Vision Lock/Tilt Combo



# Available Locking Hardware



Lawrence Robo Tilt





Testing

Structural and Thermal

**SUMMARY OF RESULTS**

DP50 with no  
Refo and DSB

Summary of Results		
Title	Test Specimen #1 <i>Reinforced with 1/8" glass</i>	Test Specimen #2 <i>Non reinforced with 1/8" glass</i>
AAMA/WDMA/CSA 101/I.S.2/A440-08 and 11 Rating	Class R-PG30 1219 x 1829 (48 x 72) - H	Class R-PG50 1016 x 1600 (40 x 63) - H
Design Pressure	±1440 Pa (±30.08 psf)	±2400 Pa (±50.13 psf)
Air Infiltration	0.5 L/s/m <sup>2</sup> (0.09 cfm/ft <sup>2</sup> )	0.6 L/s/m <sup>2</sup> (0.12 cfm/ft <sup>2</sup> )
Water Penetration Resistance Test Pressure	260 Pa (5.43 psf)	360 Pa (7.52 psf)

Test Completion Date: 11/10/14

**SUMMARY OF RESULTS**

DP45 with no  
Refo and SSB

Summary of Results		
Title	Test Specimen #1 <i>Reinforced with 1/8" glass</i>	Test Specimen #2 <i>Non reinforced with 3/32" glass</i>
AAMA/WDMA/CSA 101/I.S.2/A440-08 and 11 Rating	Class R-PG30 1219 x 1829 (48 x 72) - H	Class R-PG45 1016 x 1600 (40 x 63) - H
Design Pressure	±1440 Pa (±30.08 psf)	±2160 Pa (±45.11 psf)
Air Infiltration	0.5 L/s/m <sup>2</sup> (0.09 cfm/ft <sup>2</sup> )	0.6 L/s/m <sup>2</sup> (0.12 cfm/ft <sup>2</sup> )
Water Penetration Resistance Test Pressure	260 Pa (5.43 psf)	360 Pa (7.52 psf)

## TEST REPORT

Report No.: E3213.01-501-47

Rendered to:

VEKA INC.  
Fombell, Pennsylvania.06cfm/ft<sup>2</sup>PRODUCT TYPE: PVC Double Hung Window  
SERIES/MODEL: DHA4WWSPECIFICATION(S): AAMA/WDMA/CSA 101/LS.2/A440-11, NAFS 2011 - North American  
Fenestration Standard/Specification for Windows, Doors, and SkylightsAAMA/WDMA/CSA 101/LS.2/A440-08, NAFS - North American Fenestration  
Standard/Specification for Windows, Doors, and Skylights

Title	Summary of Results
AAMA/WDMA/CSA 101/LS.2/A440-08 and -11	Class R-PG30 1219 x 1829 (48 x 72) - H
Design Pressure	±1440 Pa (±30.08 psf)
Air Infiltration	0.5 L/s/m <sup>2</sup> (0.06 cfm/ft <sup>2</sup> )
Water Penetration Resistance Test Pressure	260 Pa (5.43 psf)

Test Completion Date: 11/24/14

## TEST REPORT

Report No.: F1359.01-501-47

Rendered to:

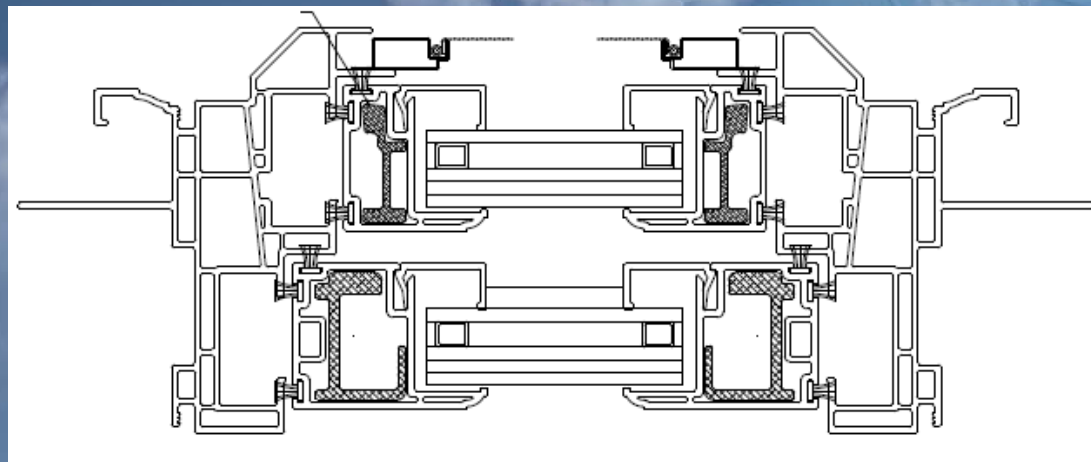
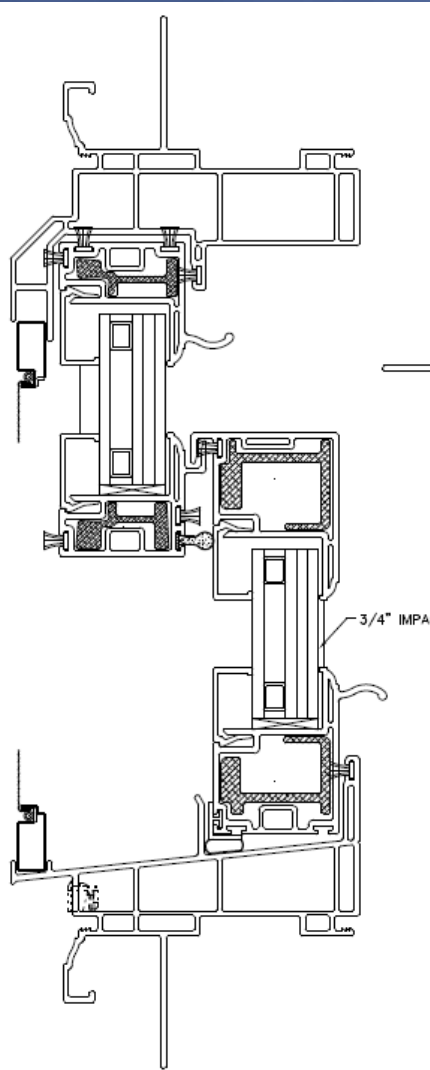
VEKA INC.  
Fombell, PennsylvaniaLC50 Rating  
at 44 x 76PRODUCT TYPE: PVC Double Hung Window  
SERIES/MODEL: DHA4WWSPECIFICATION(S): AAMA/WDMA/CSA 101/LS.2/A440-11, NAFS 2011 - North American  
Fenestration Standard/Specification for Windows, Doors, and SkylightsAAMA/WDMA/CSA 101/LS.2/A440-08, NAFS - North American Fenestration  
Standard/Specification for Windows, Doors, and Skylights

Title	Summary of Results
AAMA/WDMA/CSA 101/LS.2/A440-08 and -11	Class LC-PG50 1118 x 1930 (44 x 76) - H
Design Pressure	±2400 Pa (±50.13 psf)
Air Infiltration	0.7 L/s/m <sup>2</sup> (0.13 cfm/ft <sup>2</sup> )
Canadian Air Infiltration/Exfiltration Level	A2
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)

Test Completion Date: 09/15/15



# Double Hung Impact/LC50



# AAMA 506 TEST REPORT

Report No.: F4526.01-501-47

Rendered to:

VEKA INC.  
Fombell, Pennsylvania

**PRODUCT TYPE:** PVC Double Hung Window  
**SERIES/MODEL:** DHA4WW

## 3.0 Project Summary:

3.1 **Product Type:** PVC Double Hung Window

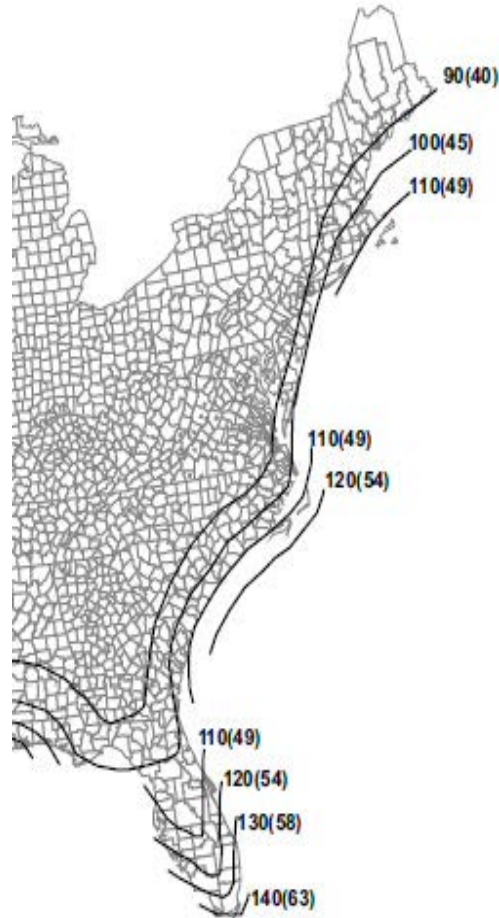
3.2 **Series/Model:** DHA4WW

3.3 **Compliance Statement:** Results obtained are tested values and were secured by using the designated test method(s). The specimen(s) tested met the performance requirements set forth in the referenced test procedures for a  $\pm 2400$  Pa ( $\pm 50.13$  psf) Design Pressure with missile impacts corresponding to Missile Level D and Wind Zone

3.

3.4 **Test Date:** 01/06/16

3.5 **Test Record Retention End Date:** All test records for this report will be retained until January 6, 2020.



## Impact Missile Requirements

Missile Level	Missile	Impact Speed feet/sec (mph)	Typical Use
A	2 gram steel balls	130 (89)	Above 30 ft Wind Zone 1 through 4
B	2 lb. Lumber	50 (34)	Skylights < 30 ft. Wind Zone 2 (Basic)
C	4.5 lb. Lumber	40 (27)	Less than 30 ft. Wind Zone 1 & 2 (Basic)
D	9 lb. Lumber	50 (34)	Less than 30 ft. Wind Zone 3 & 4 (Basic) Wind Zone 1 & 2 (Enhanced)
E	9 lb. Lumber	80 (55)	Less than 30 ft. Wind Zone 3 & 4 (Enhanced)

Wind Zone 1 - 110mph  
Wind Zone 2 - 120mph  
Wind Zone 3 - 130mph  
Wind Zone 4 - 140mph

## DHA4WW R and D Thermal Results 8-5-14

Window System	Sash	IG	Air Space	Refo	Spacer	Total U-Factor Btu/h-ft <sup>2</sup> -f	SHGC	VT	Dividers
DHA4WW	SEA4	3/4" clr/arg90/CS63 SSB	0.563 ARG90	steel	Duralite	0.2831	0.5025	0.6292	No
DHA4WW	SEA4	3/4" clr/arg95/CS63 SSB	0.563 ARG95	steel	Duralite	0.2809	0.5026	0.6292	No
DHA4WW	SEA4	3/4" clr/arg90/CS63 SSB	0.563 ARG90	Fiberglass	Duralite	0.2820	0.5024	0.6292	No
DHA4WW	SEA4	3/4" clr/arg95/CS63 SSB	0.563 ARG95	Fiberglass	Duralite	0.2799	0.5026	0.6292	No
DHA4WW	SEA4	1-1/8" CS63/arg90/clr/arg90/CS63 SSB	0.437 ARG90	steel	Duralite	0.1825	0.3965	0.5563	No
DHA4WW	SEA4	1-1/8" CS63/arg95/clr/arg95/CS63 SSB	0.437 ARG95	steel	Duralite	0.1809	0.3965	0.5562	No
DHA4WW	SEA4	1-1/8" CS63/arg90/clr/arg90/CS63 SSB	0.437 ARG90	Fiberglass	Duralite	0.1815	0.3964	0.5562	No
DHA4WW	SEA4	1-1/8" CS63/arg95/clr/arg95/CS63 SSB	0.437 ARG95	Fiberglass	Duralite	0.1798	0.3964	0.5562	No
DHA4WW	SEA4	3/4" clr/arg90/CS36 SSB	0.563 ARG90	steel	Duralite	0.2730	0.3901	0.5263	No
DHA4WW	SEA4	3/4" clr/arg95/CS36 SSB	0.563 ARG95	steel	Duralite	0.2708	0.3903	0.5263	No
DHA4WW	SEA4	3/4" clr/arg90/CS36 SSB	0.563 ARG90	Fiberglass	Duralite	0.2720	0.3900	0.5263	No
DHA4WW	SEA4	3/4" clr/arg95/CS36 SSB	0.563 ARG95	Fiberglass	Duralite	0.2697	0.3903	0.5263	No
DHA4WW	SEA4	1-1/8" CS36/arg90/clr/arg90/CS36 SSB	0.437 ARG90	steel	Duralite	0.1750	0.2465	0.3917	No
DHA4WW	SEA4	1-1/8" CS36/arg95/clr/arg95/CS36 SSB	0.437 ARG95	steel	Duralite	0.1734	0.2465	0.3917	No
DHA4WW	SEA4	1-1/8" CS36/arg90/clr/arg90/CS36 SSB	0.437 ARG90	Fiberglass	Duralite	0.1740	0.2465	0.3917	No
DHA4WW	SEA4	1-1/8" CS36/arg95/clr/arg95/CS36 SSB	0.437 ARG95	Fiberglass	Duralite	0.1723	0.2465	0.3917	No

\*\* The above results are for R and D purposes only. For official results, simulations must be done by an Independent Accredited Lab.

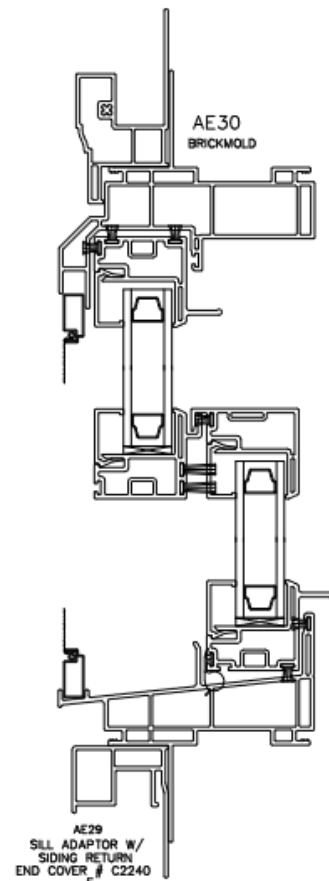
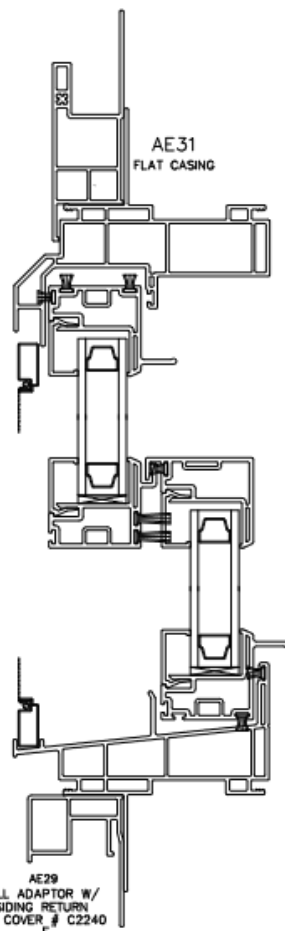
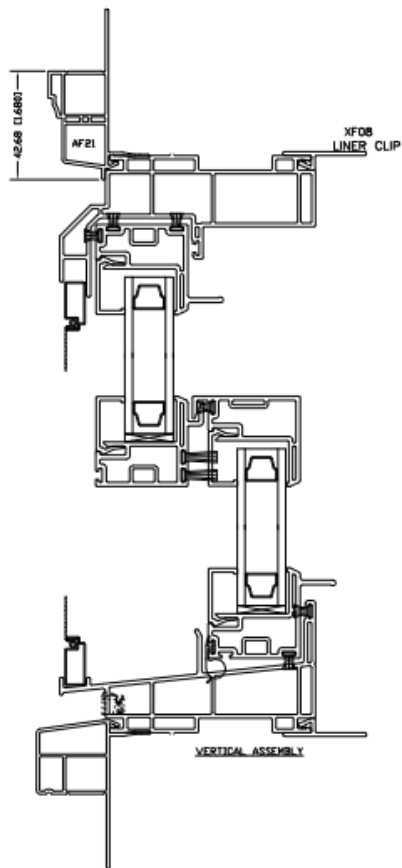
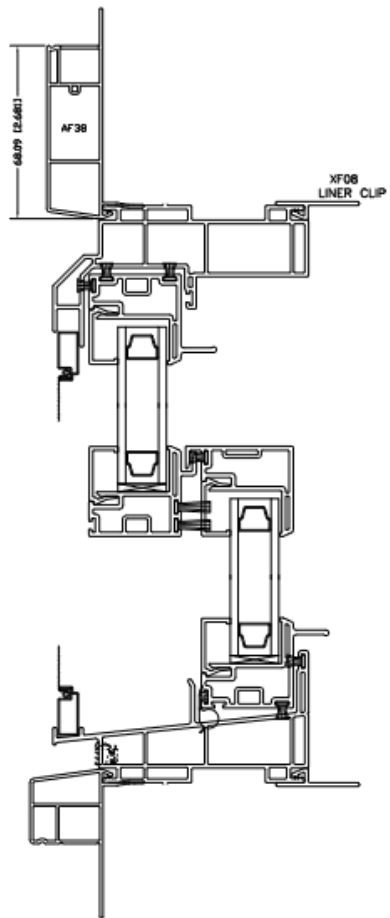
**DHA4WW R and D Thermal Results 8-17-15**

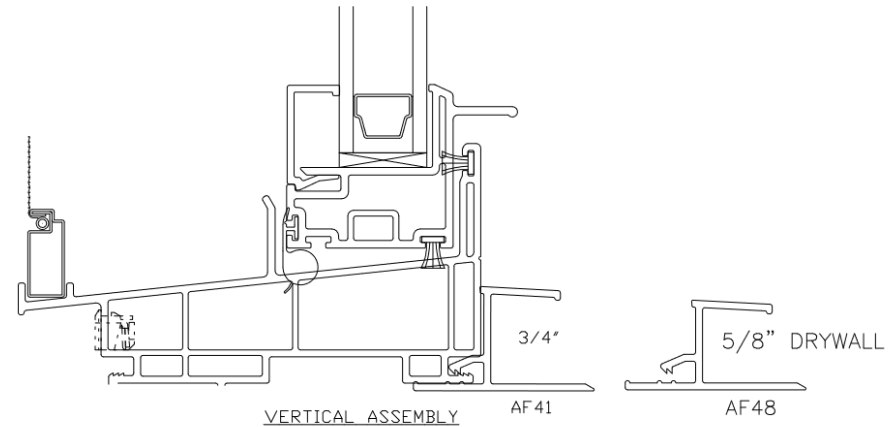
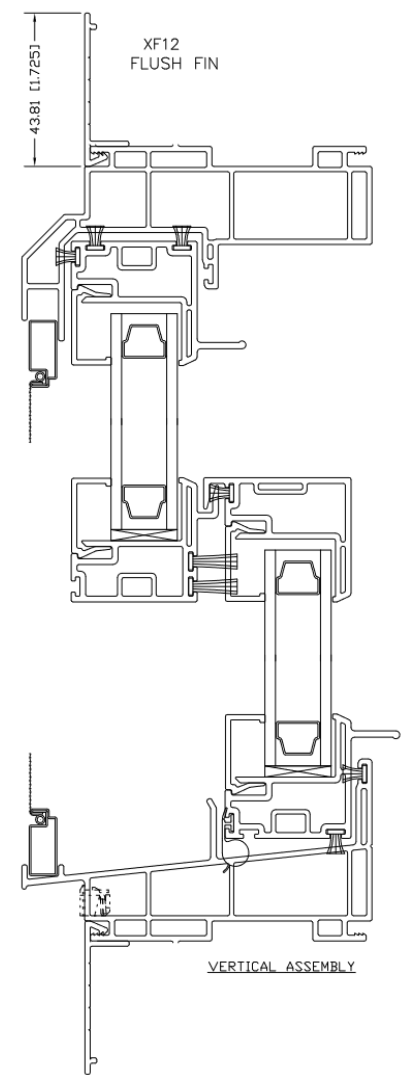
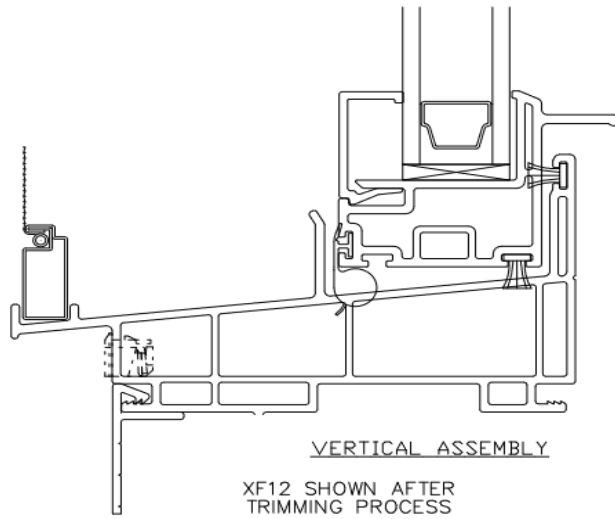
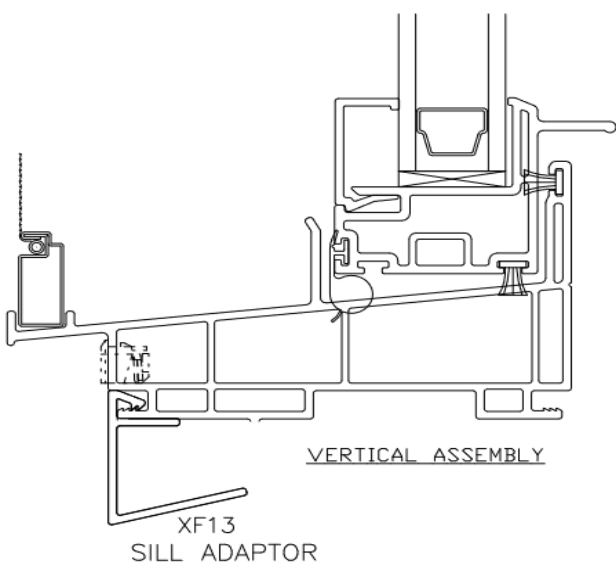
<b>Window System</b>	<b>Sash</b>	<b>IG</b>	<b>Air Space</b>	<b>Refo</b>	<b>Spacer</b>	<b>Total U-Factor Btu/h-ft<sup>2</sup>-f</b>	<b>SHGC</b>	<b>VT</b>	<b>Dividers</b>
DHA4WW	SEA4	3/4" clr/arg90/366 DSB	0.500 ARG90	none	Duralite	0.2670	0.3020	0.5000	No
DHA4WW	SEA4	3/4" clr/arg95/366 DSB	0.500 ARG95	none	Duralite	0.2640	0.3030	0.5000	No
DHA4WW	SEA4	7/8" clr/arg90/366 DSB	0.625 ARG90	none	Duralite	0.2710	0.3040	0.5000	No
DHA4WW	SEA4	7/8" clr/arg95/366 DSB	0.625 ARG95	none	Duralite	0.2690	0.3040	0.5000	No

# Accessory Options

- Flat Casing Options
- Brickmould Options
- Sheetrock Return
- Jamb extensions
- Mulling
- Mulling Accessories

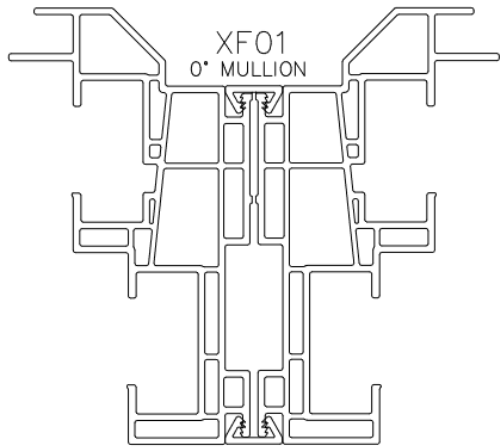




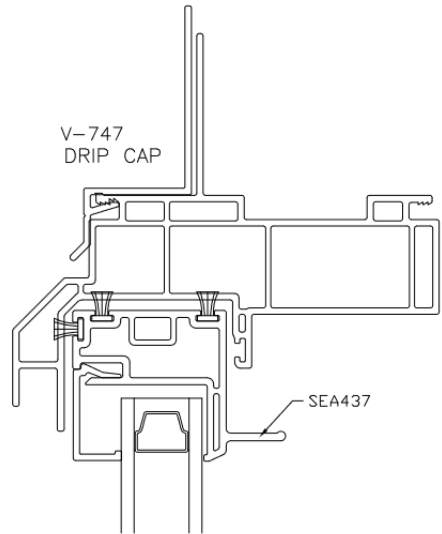
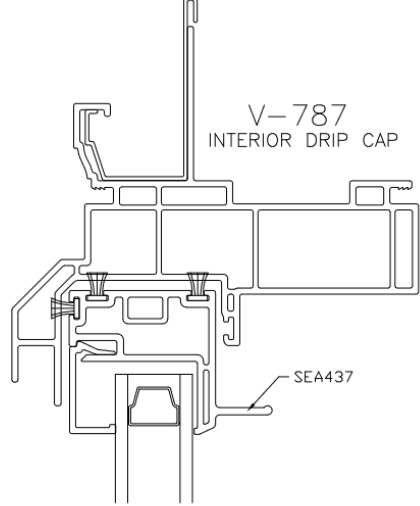
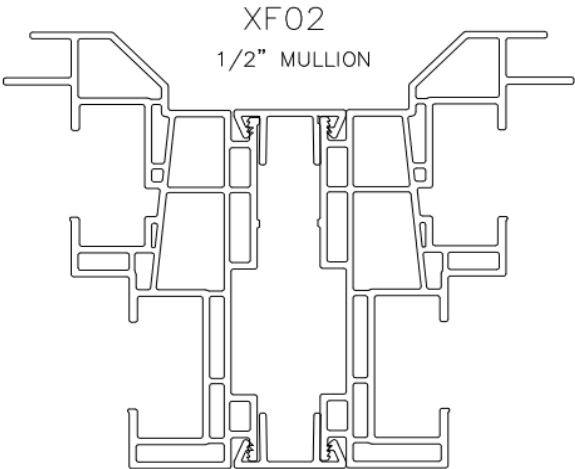


Additional  
Accessory  
Profiles

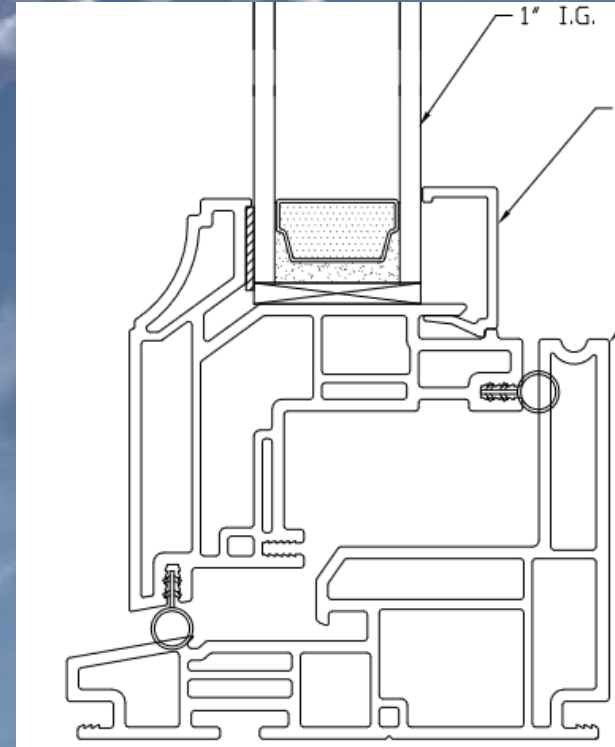
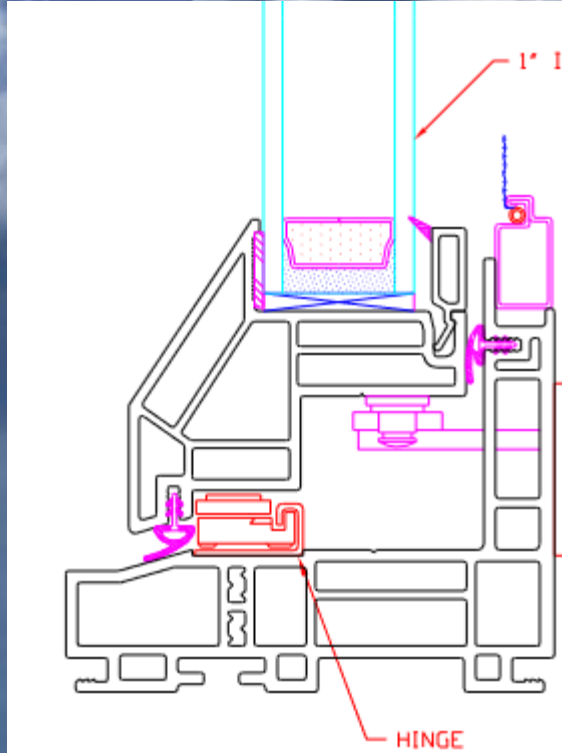
# Standard Mulling Configurations and Mulling Accessories



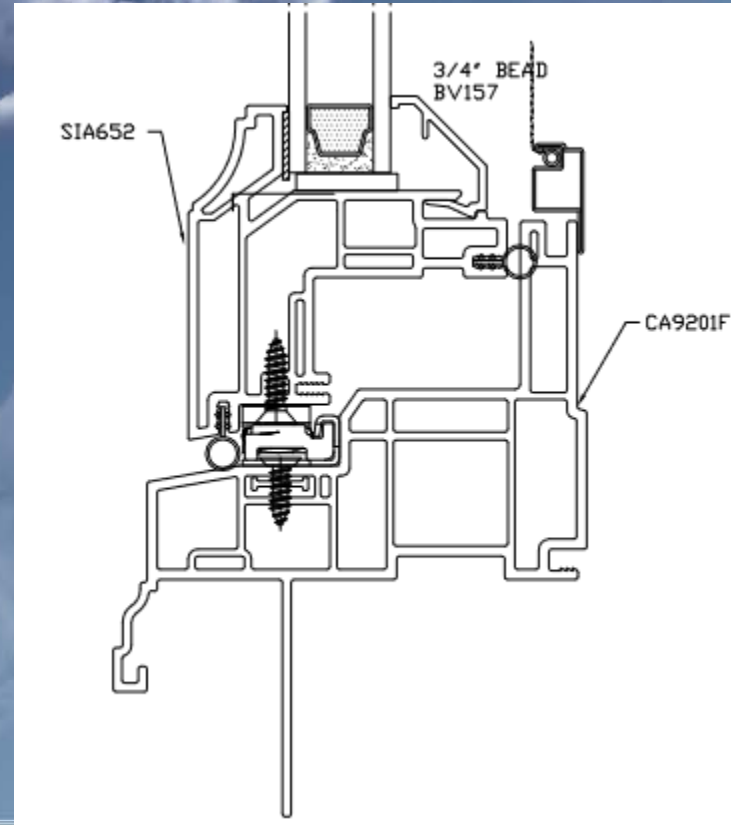
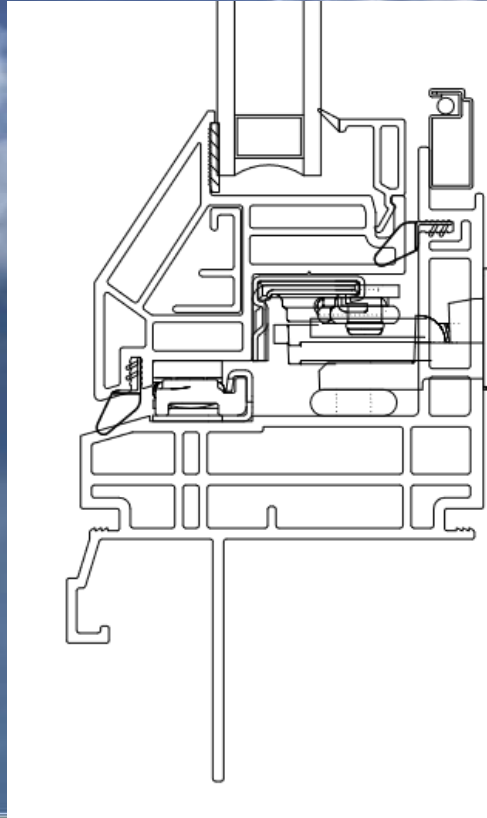
\*



# Complementary Casement RR



# Complementary Casement NC





Thank You

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