

evolutions[®]

elements of engineered pvc performance



Veka Evolutions® Commercial Window Program

VEKA Inc. is proud to introduce the Evolutions line of commercially rated PVC hung and sliding windows. These products, including a Single Hung, Single Slider, Double Hung, Double Slider and Picture window, have all passed the requirements for CW classification under the new 2008 North American Fenestration Standard/ Specification for windows, doors and skylights...AAMA/WDMA/CSA 101/I.S.2/A440-08

Today's commercial window markets are undergoing significant change, both from a structural and thermal requirements perspective. No longer is the status quo acceptable for commercial window and door specifiers. Architects are analyzing the efficiency of entire building envelopes and insisting on new standards for structural and thermal performance on commercial products.



VEKA understands that field mulling, or in-house mulling of commercial windows is critical to the long term successful performance of a commercial product. We encourage the use of existing aluminum mulling profiles (thermally broken H mull or 3 piece mull) in conjunction with the Evolutions system. The evolutions frame is 3-1/4" in depth which matches most aluminum window frame configurations.

VEKA also offers a Structural Mull which has been tested for, and passed, all requirements for the Florida Building Code (recognized as one of the more stringent code bodies in the US). This mull is anchored to the rough opening at the sill and head and then joined to a structural aluminum extrusion that ties the commercial PVC windows together.

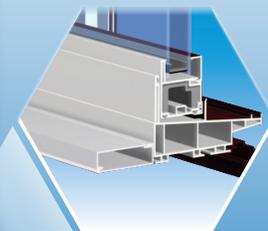
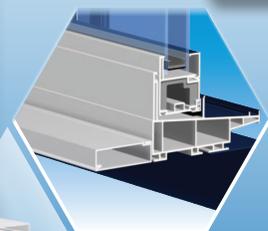


Traditional Aluminum Flat Panning

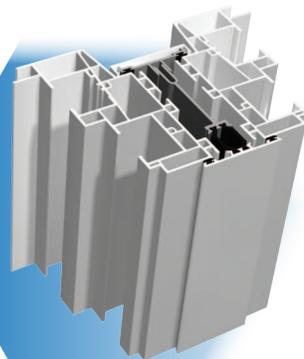
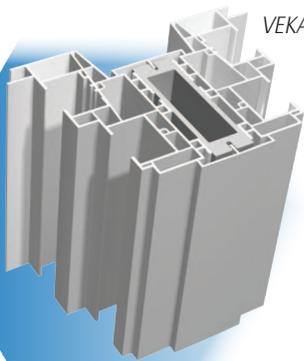


Aluminum Decorative Panning

UP TO 50% PVC performance



VEKA structural mull tested to FBC



Thermally broken H mull or 3 piece mull



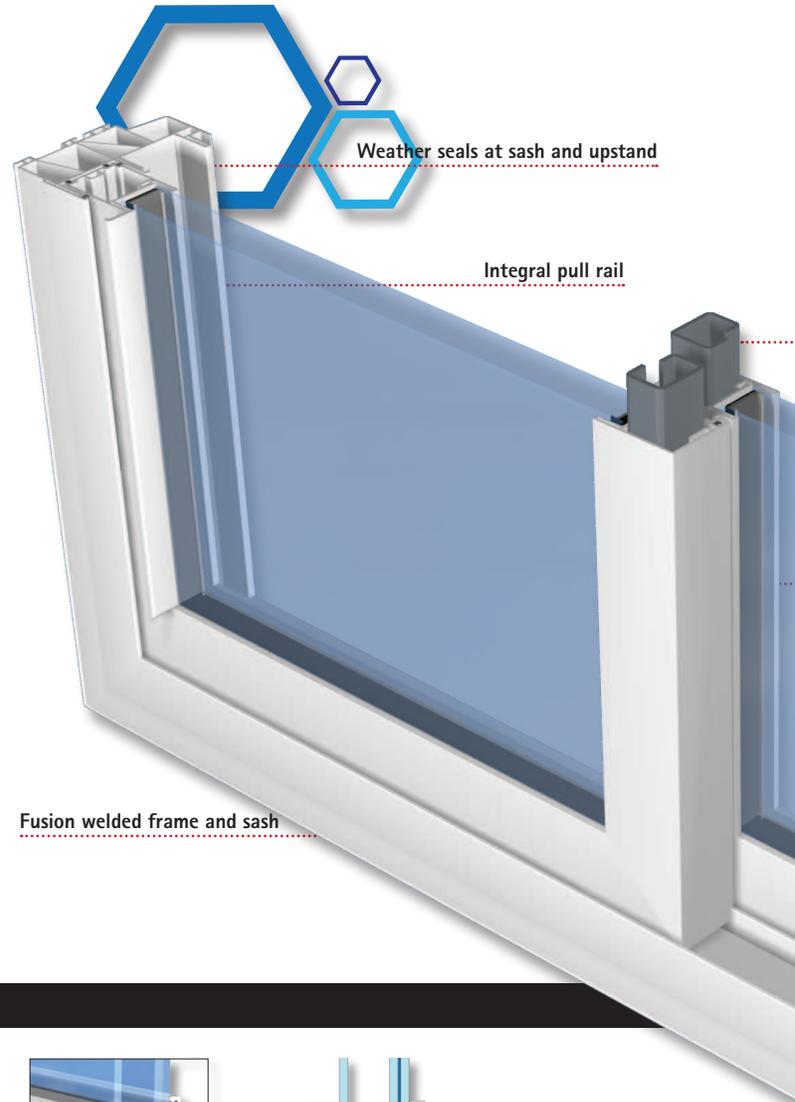
Evolutions picture window unit

Enhanced Thermal Performance

All Evolutions products have undergone computer simulation testing in accordance with the National Fenestration Rating Council (NFRC) for U-Factor, Solar Heat Gain Coefficient, Visible Light Transmittance and Condensation Resistance.

The Evolutions products are designed with a sash platform that allow for the use of Insulated Glass packages of up to 1-3/8". This allows the manufacturer to explore an incredible amount of glass options including triple glass applications and multiple Low E surface usages.

With the Evolutions sash design, each system can far exceed the minimum requirements for NFRC and Energy Star labeling in all climate zones throughout the USA. Even more important, is the ability of these products to be labeled as both CW (Commercially) rated as well as Energy Star compliance.



Evolutions Thermal Performance

Evolutions Double Hung

IG Type	OA IG	Emissivity	Argon	U Value	Test Report
Double	3/4"	.022	90%	.28	ATI A3617.08-116-45
Triple *	1-1/4"	.022	90%	.22	ATI A3617.08-116-45

*= Simulation on Triple glass based on fully reinforced unit / CW rating

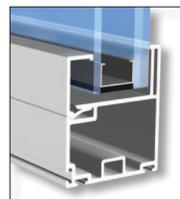
Evolutions Double Slider

IG Type	OA IG	Emissivity	Argon	U Value	Test Report
Double	3/4"	.022	90%	.28	ATI A8274.02-116-45
Triple*	1-1/4"	.022	90%	.20	ATI A8274.02-116-45

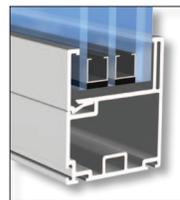
*= Simulation on Triple glass based on reinforced unit / CW rating

Evolutions Picture Window

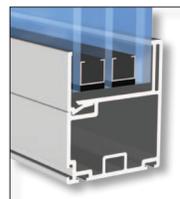
IG Type	OA IG	Emissivity	Argon	U Value	Test Report
Double	7/8"	n/a	n/a	.44	ATI 7574.01-116-45
Triple*	1"	.026	90%	.20	ATI 7575.01-116-46



1" glazing option with laminated glass and warm edge spacer system



1-1/4" glazing option with laminated glass and warm edge spacer system



1-3/8" glazing option with laminated glass and warm edge spacer system

evolutions®



Galvanized steel reinforcing at interlock meeting rail

Lift out sashes for easy cleaning

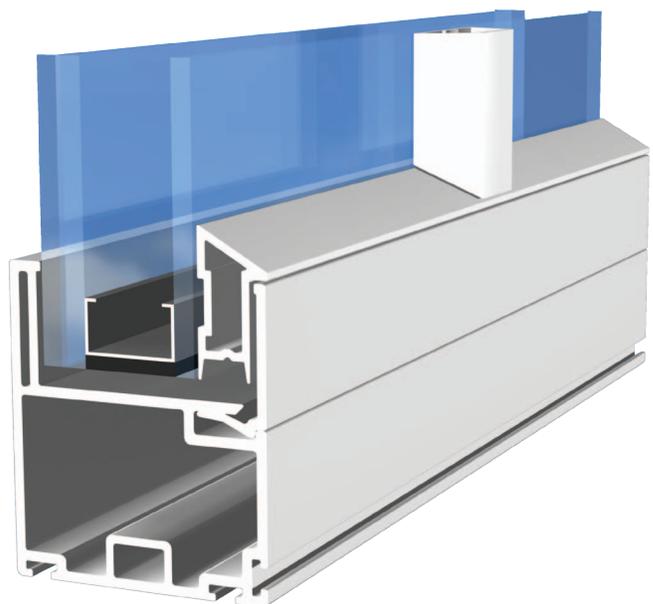
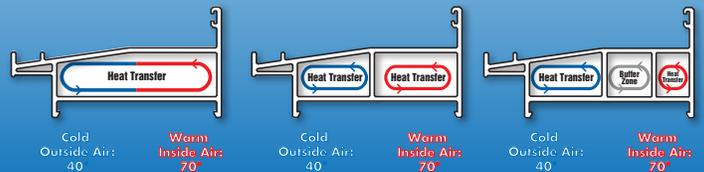


PVC is a natural insulator

PVC does not transmit heat easily through conduction. Even in the cold of winter, PVC window and door frames remain warm to the touch. They create a natural thermal barrier without the added cost of a "thermal break".

PVC windows also utilize multi-chambered profiles in their designs. These chambers divide the spaces found within the window frames and sashes. By dividing the space inside, severe exterior temperatures and comfortable interior temperatures never come in direct contact. PVC windows have the advantage as the chambered profiles are surrounded by a natural insulating material. This means that PVC frame and sash designs are an added feature keeping the interior conditioned space comfortable and lowering heating and cooling bills.

CONVECTION CURRENTS WITHIN A CHAMBERED PROFILE



achievegreen

Evolutions sash using traditional Aluminum Historical Grid application maintaining 1" IG Unit

Sound Control STC/OITC

Comfort can no longer only be defined as a measure of ambient temperature. With construction projects closer to major highways, and commercial renovations more prevalent than ever in highly populated urban areas, comfort is also being measured in terms of sound.



STC and OITC testing is being specified by architects more than ever. Whether renovating college dorms, hospitals, apartment building, or new construction projects abutting major

highways, STC and OITC testing is being requested more frequently.

By taking advantage of the large overall IG width, and incorporating laminated glass the Evolutions systems have undergone Sound Transmission loss testing in accordance with ASTM E 90 and achieved excellent results without the use or application of a secondary window attached to the inside or outside of the unit (as many STC rated products do). By utilizing the overall maximum glass

width of the sash and using laminated glass we can maintain the aesthetics of the finished product and still achieve excellent performance results.

Impact Ratings

All Evolutions products have been Impact Tested in accordance with ASTM E 1886 and ASTM E 1996 Standards for design pressure with missile impacts corresponding to Missile Level D and Wind Zone 3.



By using strategically placed reinforcement within the sash chambers along with utilizing specific hardware requirements, the Evolutions Window can now be used for impact markets

along the eastern seaboard. Being able to produce an impact window on the same production line as your commercial product has huge cost benefits including labor, factory space and inventory.

2008 North American Fenestration Standard/Specification for windows, doors and skylights...AAMA/WDMA/CSA 101/I.S.2/A440-08

The new NAFS standard (published in 2008 and slowly becoming the specification of choice) is recognized in our industry as a "game changer" for many window manufacturers. In addition to the elimination of the "C" (Commercial) and "HC" (Heavy Commercial) classification in favor of a combined classification known as CW (Commercial Window), the standard also now requires a maximum deflection test for a CW classification that previously was only required for HC and AW products.

The deflection test, more commonly referred to as L/175, represents a maximum deflection allowance on sash components that all CW rated windows must pass "under load". This test is performed on the CW gateway size which measures 56 x 91 and may be repeated on down sized units for Optional Performance testing.

This is a "game changer" because under previous specifications (NAFS-05, -97, and prior), no such deflection allowance was part of the requirements for a "C" (commercial) rated product. What this means is any PVC window manufacturer that currently label their window as a "C" (commercial) rated product based on NAFS specifications prior to 2008, may not be able to pass the more stringent "CW" (Commercial Window) requirements in the 2008 Specification because their residential based window designs will not support the reinforcements required to pass the new deflection requirement.

The Veka Evolutions system, however is designed in such a manner, that it incorporates substantial sections of metal reinforcing within the Evolutions "wider platform sash extrusions" to guarantee success during structural testing (including deflections testing) for the CW rating.

Summary of Testing Reports

Product	AAMA Gateway	Primary Product	Air Infiltration	Water Test Pressure	Test Report #
EVOLUTIONS	Test Size	Designator			
Single Hung	56 x 91	CW-PG 45	.13 CFM	7.52 psf	B1130.01-501-47
Optional Performance Class	54 x 76	CW-PG 60		12.12 psf	B1130.01-501-47
Single Slider	71 x 62	CW-PG50	.06 CFM	7.52 psf	B1496.01-501-47
Double Hung / Equal Glass	56 x 91	CW-PG 50	.24 CFM	7.52 psf	B1495.01-501-47
Optional Performance Class	54 x 76	CW-PG 65	.18 CFM	12.12 psf	B1495.01-501-47
Double Hung / Unequal Glass	56 x 91	CW-PG 40	.13 CFM	6.90 psf	B9574.01-501-47
Optional Performance Class	50 x 76	CW-PG 60	.07 CFM	9.2 psf	B9574.01-501-47
Double Slider / Large Sash	71 x 62	*CW-PG 30	TBD	TBD	TBD
	76 x 54	*CW-PG 50	TBD	TBD	TBD

Pinnacle™ Woodgrain & Color Foils for Commercial Color Enhancement

Performance Color Solutions by VEKA



For commercial applications you now have a choice in surface treatment for PVC profiles. Now you have the same selection of colors that today's higher end aluminum window manufacturer or architect is accustomed to. The Evolutions system is available with a warranted exterior foil that tests in accordance with AAMA 307-04 (Voluntary Performance Requirements Test Procedures for Laminates Intended for Use on AAMA Certified Plastic Profiles). Veka currently

provides 11 exterior colored laminates. The standard interior color of the Evolutions products are White or Beige, however, by using our laminate technology we can offer an array of interior woodgrain laminate finishes as well to complement any interior design requirement. Third party inspection agencies and internal testing and audits indicate that Pinnacle laminates are guaranteed to perform under some of the harshest climates and we guarantee it for a period of 10 years.

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VEKA is a qualifying supplier for the achievegreen design management tool for projects using the Green Building Initiative™
www.achievegreen.net

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