

BUILDING TO MAKE A DIFFERENCE.

HOW PLY GEM WINDOWS CAN HELP YOU
MEET YOUR SUSTAINABLE GOALS



BUILDING TO MAKE A DIFFERENCE.

Ply Gem Windows has always had a clear vision for the future.

For years, builders, architects, and consumers have chosen Ply Gem Windows for more than their beauty. They have come to rely on our products for their durability, low-maintenance, and improved energy efficiency.

Today, people also select Ply Gem Windows products to help them meet their sustainable building goals. Our wide product assortment includes features that positively contribute to sustainable building practices, improved energy efficiency, or lifecycle benefits of homes. And as a part of Ply Gem, a leader in the building products industry, Ply Gem Windows offers support, service, sales tools, and national distribution – everything you need to make your next project your best project.

Whether you're looking to lessen your carbon footprint, gain points towards green certification, or simply choose durable products that have a lighter impact on the environment, Ply Gem Windows has products that can support your needs.

IT ALL STARTS WITH THE RIGHT WINDOW.

The energy we use in our homes can have a big impact on the environment. But, by improving a home's energy efficiency, you are taking an essential first step in sustainable remodeling and building. That's where Ply Gem Windows comes in. Our windows and doors provide you with the smart, sustainable features you need.

According to the U.S. Department of Energy, the heat lost through windows can account for 10 to 25 percent of a home's heating bill. Ply Gem Windows are equipped with high performance Low-E glass that helps reduce this energy loss. This can increase your home's comfort and decrease your utility costs.

THE DIFFERENCE IS IN THE GLASS PACKAGE.

LOW-E GLASS. Ply Gem Windows Low-E (low emissivity) glass has a secondary, very thin metallic dual layer coating. This allows the sun's heat and light to pass through the insulated glass, but, at the same time, actually works to reflect radiant heat back toward its source. Since Low-E coating reflects radiant heat waves, it helps keep your home warmer in the winter by trapping radiant heat and cooler in the summer by blocking it from your home. Low-E^{SC} is optimized for warmer climates by applying two heavier layers, through a patented process, resulting in 73% of the sun's radiant heat from entering your home while providing superior insulation in cooler weather to save you energy year round. Low-E^{SH} is optimized for colder climates by applying two thinner layers, through a patented process, providing excellent insulating values with a center of glass U-Factor of 0.29 while allowing 70% or more of the sun's visible light in to brighten your home in colder climates saving you energy year round.



WARM EDGE SPACER SYSTEM. The Warm Edge spacer system reduces thermal transfer around the glass perimeter by utilizing a unique U-shaped channel to separate glass panes and interrupt the natural flow of heat to cold. Ply Gem Windows even offers a Warm Edge+ spacer system that utilizes less conductive materials to provide a lower U-Factor.



HIGH PERFORMANCE GLASS. Ply Gem Windows High Performance (HP) glass packages combine soft coat Low-E, Low-E^{SC} or Low-E^{SH} with gas fill and WARM EDGE or WARM EDGE+ spacer options, providing high performance insulated glass options to meet your specific needs. Our high performance glass packages include HP, featuring one lite of soft coat Low-E and argon gas fill; HP2, featuring two lites of soft coat Low-E with argon gas fill; HP^{MAX}, triple pane



glass package featuring two lites of soft coat Low-E with one interior glass substrate creating two chambers of argon gas fill; and HP^{ULTRA}, triple pane glass package featuring two lites of soft coat Low-E with one interior glass substrate creating two chambers of krypton gas fill. Each of high performance glass packages with standard Low-E are available with Low-E^{SC} or Low-E^{SH} and are designated by the addition of SC or SH to the glass package name.

ENERGY PACKAGE UPGRADES. Ply Gem Windows energy package upgrade options for select replacement window products combine our high performance glass packages with the addition of R-Core[®] to the sash and/or frame. R-Core[®] is our patented* process utilizing pre-formed polyurethane insulation. In addition, Interforce II[™] fiberglass reinforcement is placed in the meeting rails of double hung and slide windows providing DP50 and DP45 product ratings. Our Energy Package options, EP, EP^{SC}, EP^{SH}, EP2, EP2^{SC}, EP2^{SH}, EP^{MAX}, EP^{SC}^{MAX}, EP^{SH}^{MAX}, EP^{ULTRA}, EP^{SC}^{ULTRA} and EP^{SH}^{ULTRA}, provide unsurpassed strength, durability and energy efficiency.



* U.S. Patent Number: 4,516,356

OUR ENERGY EFFICIENT WINDOWS:

- **ARE BUILT TO LAST.** We put a lot of thought into our windows. We utilize high quality materials that increase the strength, improve operation function and enhance the overall durability of our windows. This, in turn, leads to an increased lifecycle.
- **IMPROVE A HOME'S INDOOR AIR QUALITY.** Our energy-efficient windows are designed to be airtight. And, because of this, it reduces the amount of dirt, dust and other impurities that can have a negative impact on a home's indoor air quality.
- **ARE DESIGNED TO CONSERVE ENERGY.** Ply Gem Low-E glass is constructed with a secondary, very thin metallic dual layer coating. This allows the sun's heat and light to pass through the glass, while at the same time, reflecting the radiant heat waves. The result is increased comfort and decreased energy demands.
- **USE FEWER LIMITED RESOURCES.** Many of our windows utilize recycled materials. Our vinyl is manufactured from 10% pre-consumer recycled material, our glass is made with

2% pre-consumer recycled material, and our aluminum is manufactured with 50% remelted post industrial scrap, 25% post-consumer scrap and 25% true prime aluminum.

- **REDUCE THE USE OF VOCS.** Our use of a Regenerative Thermal Oxidizer (RTO), in many of our aluminum Builder Series and Mira Premium Series paint lines, effectively reduces VOCs and hazardous air pollutants by 98%. The RTO operates by combusting the paint fumes through a catalytic process. While this results in greatly reduced emissions, it allows for virtually unlimited painting capabilities.
- **HELP REDUCE OUR CARBON FOOTPRINT.** The wood jambs utilized in our wood products are locally grown within 200 miles of our processing site. This greatly reduces the amount of fuel and pollution involved in transportation. We also practice vertical integration. Because of this improved supply chain and quality control we are able to effectively reduce waste and lower inventory costs.

SUSTAINABILITY TAKES GOOD PRACTICE. OUR PRODUCTS ARE JUST THE START.

- Ply Gem Windows is a part of the Ply Gem Enviro Initiative, which articulates our corporate commitment to developing systems that reduce our overall corporate environmental impact.
- Ply Gem Windows supports a system-wide policy to reuse and recycle pallets and packaging material, which reduces our raw material needs and landfill use.
- Ply Gem and its brands work with suppliers to recycle as many materials as possible, including cores, cardboard padding, paint totes, batteries, light bulbs, toner, and paper.

GETTING TO KNOW GREEN.

Ply Gem Windows isn't in this alone. Sustainability is complicated, and is best achieved within the context of quality building products.

The Environment Protection Agency (EPA), the U.S. Green Building Council (USGBC), and the NAHB have developed sustainable "green" building guidelines and standards that have

helped define sustainable building practices and the industry down the "green" path.

WHAT IS THE EPA ENERGY STAR® PROGRAM?

ENERGY STAR® is a joint program of the EPA and the U.S. Department of Energy. It helps people save money and protect the environment by identifying and encouraging the use of energy-efficient products and practices.

Products that display the ENERGY STAR® logo have met energy efficiency guidelines set by the program, and can help builders and homeowners identify products that reduce energy needs.



OUR ROLE IN ENERGY STAR®.

Ply Gem Windows is an ENERGY STAR® partner. Not only that, we offer a variety of window options that can be configured to meet the ENERGY STAR® guidelines for thermal efficiency in all climate regions.

WHAT IS USGBC LEED?

LEED is a third-party certification program created by the USGBC. LEED has developed specific standards for different project types – LEED for Homes and LEED for New Construction.



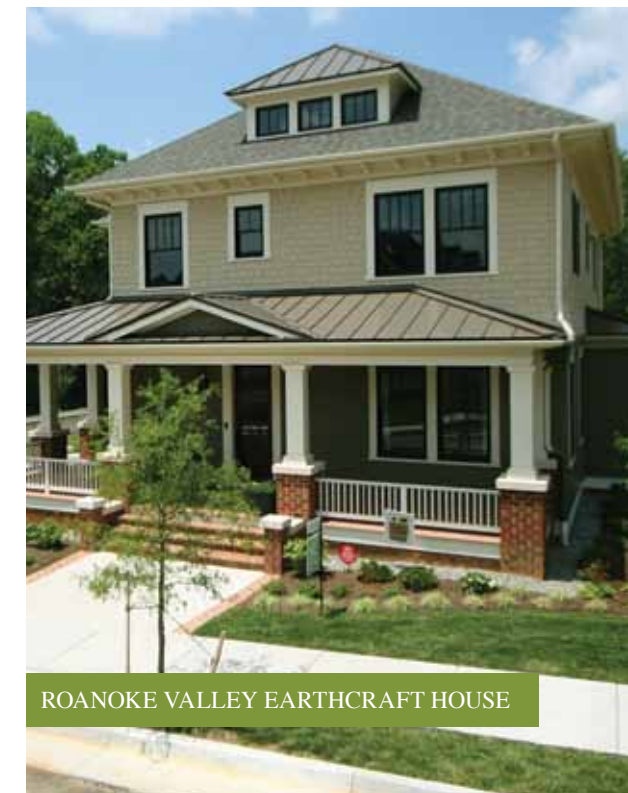
Each standard measures green building performance based on eight categories: site selection, water efficiency, materials and resources, energy and atmosphere, indoor environmental quality, location and linkages, awareness and education, and innovation. LEED Certification provides builders, architects, and consumers with a framework for identifying and implementing practices that are sustainable.

CASE STUDY: ROANOKE VALLEY EARTHCRAFT HOUSE.

When building company Fralin & Waldron decided to embark on a sustainable building endeavor, they turned to Ply Gem Windows. Our Mira Premium Series windows were utilized in all of the residences being built at the new Daleville Town Center neighborhood located outside of Roanoke. Fralin & Waldron had already used Ply Gem Windows Mira Premium Series in the community model home, which was the first home in the Roanoke Valley to receive certified gold EarthCraft House status.

CASE STUDY: SMUD'S HOME OF THE FUTURE

When the Sacramento Municipal Utility District (SMUD) initiated their Home of the Future program to create "zero energy" homes – homes that produce as much energy as they use – they sought out the most advanced green building products and techniques available to achieve their goals. Ply Gem Windows Pro Series windows and sliding doors were selected for their superior thermal performance.



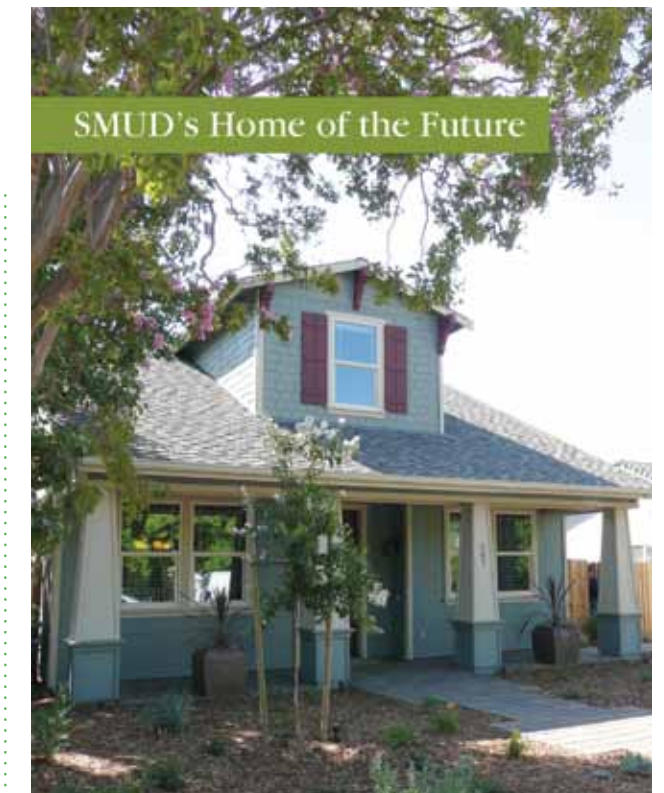
ROANOKE VALLEY EARTHCRAFT HOUSE

Completed in September 2008, this Craftsman-style bungalow is one of the greenest homes in the country. It consumes 80% less energy than a comparable home built to California's Title 24 energy standards (considered the most stringent in the country). In November 2008, the house became the first home in the Sacramento area to be LEED-certified at the Platinum level. It has also received Gold certification by the NAHB National Green Building Program.

OUR ROLE IN LEED

Ply Gem Windows is proud of its association with the USGBC and the investment that we make in building window and door products that assist builders earning points for LEED certification.

We offer numerous products that support projects earning points for Energy & Atmosphere, Material & Resources, and Indoor Environmental Quality categories.



SMUD'S HOME OF THE FUTURE

WHAT ARE THE NAHB GREEN BUILDING STANDARDS?

In 2007, the NAHB and the International Code Council (ICC) worked together to establish a much-needed and nationally-recognized standard definition of what is meant by “Green Building.”

A consensus committee was formed to develop the standard in compliance with the requirements of the American National Standards Institute (ANSI). The resulting ANSI approved ICC-700-2008 National Green Building Standard defines green building for single and multifamily homes, residential remodeling projects, and site development projects while still allowing for the flexibility required for regionally-appropriate best green practices.

Similar to the NAHB Model Green Homebuilding Guidelines, a builder, remodeler, or developer must incorporate a minimum number of features

in the following areas: energy, water, resource efficiency, lot and site development, indoor environmental quality, and homeowner education.

OUR ROLE IN NAHB

Ply Gem products have been selected for Green Approved status based on features including, but not limited to: no additional on-site finish; ENERGY STAR® ratings for windows and doors and insulated siding; certified U-factor (rate of heat loss) and SGHC (Solar Heat Gain Coefficient) of windows and doors. A select number of products exceed ENERGY STAR® qualifications.

Here’s a list of all our windows that are currently Green Approved:

EAST, New Construction

- Mira Premium Series
- Pro Series Classic
- Builder Series 1000
- Builder Series 1100
- Builder Series 1700/2200
- Builder Series 2000,2100,3000,3100
- Builder Series 5000
- Builder Series 5700

EAST, Replacement

- Premium Series
- Pro Series
- Contractor Series

WEST, New Construction

- Mira Premium Series
- Premium Series (vinyl line)
- Pro Series
- Builder Series

WEST, Replacement

- Premium Series
- Pro Series
- Contractor Series

OTHER:

- Home Craftsman 8100

At Ply Gem Windows, we’re always looking to add to our energy-efficient product line. Visit plygemwindows.com for a current list of Green Approved products.

CAN PRODUCTS BE GREEN APPROVED?

The NAHB Research Center has created NAHB Research Center National Green Building Certification. According to the NAHB, “A product bearing the NAHB Research Center Green Approved mark is not certified as being ‘green.’ Rather, the product has been approved as eligible for earning points under the National Green Building Standard toward green certification of a building if the product is used in a qualifying way (for example, insufficient quantity or under certain conditions as noted in the Certificate). Many criteria in the National Green Building Standard™ require the use of products with certain attributes. The Research Center has verified that products bearing the NAHB Research Center Green Approved mark do indeed have such attributes.”



Under this program, Ply Gem has secured Certificates for many of the products they manufacture, including Ply Gem windows and doors. The certificates are available for review at www.plygemwindows.com.

Only products that have earned Certificates from the NAHB Research Center can display the NAHB “Green Approved” logo. This means you can be assured that the product complies with specific green practice criteria in the National Green Building Standard. See the product listing on www.GreenApprovedProducts.com for more information.



SUSTAINABLE FROM START TO FINISH

Ply Gem Windows offer products that can help meet your sustainable building goals.

Our rich product portfolio includes solutions for every sustainable project and every budget. Our high quality windows and doors are beautiful, durable, and low-maintenance.

**From Nov. 2009 - Oct. 2010
Ply Gem Windows manufacturing plants recycled**

- 16,688,168 lbs of Glass
- 8,618,273 lbs of Aluminum
- 6,263,764 lbs of Vinyl

And these are qualities we share with every Ply Gem brand. In addition to quality windows and doors, Ply Gem also offers exterior cladding solutions; fashionable and durable stone veneer; low-maintenance vinyl fence and vinyl and

composite rail; and beautiful, durable exterior finishings like shutters and door surrounds.

Every building project impacts the environment. By choosing products from Ply Gem Windows, you choose products that can help you lessen the impact — and ensure that what you’re building today also helps build tomorrow.

Ply Gem Windows products include features and third-party certifications that can help you make wise product choices. Endorsements by NAHB and ENERGY STAR® help you choose products that support your sustainable goals. And you can use Ply Gem Windows products to support practices that earn points towards LEED, NAHB, and other certifications.

ibid, page 9
ibid, page 6

LEED Fact Sheet Aluminum Sheet & Plate for the Building and Construction Market. October 10, 2009. <<http://www.aluminum.org/Content/NavigationMenu/TheIndustry/SheetPlate/LEEDFactSheetForAluminumBandC/default.htm>>
Green Approved Products. October 20, 2009. <http://www.nahbgreen.org/WholsGreen/home_greenapprovedproducts.aspx>

NAHB	CLADDING				ACCENTS
POINTS AVAILABLE	*Windows	Premium Vinyl Siding	Insulated Vinyl Siding	Polymer Shake and Shingle	Richwood Exterior Finishings
	Vinyl Contractor Series Pro Series Premium Series Builder Series Aluminum Builder Series Wood Clad Mira Premium Series	Timber Oak Ascent™ Varigrain Preferred® Camden Pointe® Board & Batten Victoria Harbor® Full Beaded Nottingham® Ashton Heights® Contractor's Choice®	CSL 600® High Performance Insulated Siding	Heritage Cedar™ Hand-Split Shingle, Perfection Shingle and Round Cut Siding	Shutters, Door Surround Systems, Mantel Systems, Window Mantels, Decorative Moldings, Corner Posts, Mounting Blocks, E-Z Block™ Surface Mounts, Electrical Blocks, Utility Vents and Gable Vents

SOFFIT		ACCESSORIES			Available from other Ply Gem brands	NAHB
Vinyl Soffit	Aluminum Soffit	Aluminum Rain Carrying	Aluminum Accessories	Leaf Protection	Stone Veneer	Fence and Rail
Trivent™ High Performance D5 Premium D5 Standard T4 Soffit Beaded Soffit & Porch Ceiling	Commercial Double 6" Commercial Quad 4" Commercial Triple 4" Durabuilt Double 6" Durabuilt Triple 4"	Gutter Coil Rainware	Trim Coil Fascia Starter Strip Accessories Drip Edge	Leaf Relief® By Ply Gem	Ply Gem Stone	Kroy by Ply Gem Fence and Rail Solutions

GA Indicates products that have been certified by NAHB as eligible for points toward National Green Building Certification. Visit www.GreenApprovedProducts.com for more details.

NAHB STANDARDS

601.7 Building materials or assemblies that do not require additional site applied material for finishing	2-5		ALL GA	ALL GA	ALL GA	ALL
602.4 Drip edge is installed at eaves and gable roof edges	3					
602.5 Gutter and downspout system is installed to carry water at least 5 feet away from perimeter foundation walls	4					
602.8 Termite - resistant	2-6		ALL GA	ALL GA	ALL GA	ALL
602.12 Flashing details are shown on plans and flashing is installed	4					
604.1 Building materials with recycled content are used	1-6					
607.1 Products used contain fewer materials to meet the same end-use requirements as conventional products	2-5	ALL				
608.1 Indigenous materials are used for major elements of the building	2-10		ALL	ALL	ALL	ALL
609.1 Select the more environmentally preferable product or assembly	3-15		ALL			
701.4.6 Fenestration, The NFRC certified U-factor and SGHC for windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with ENERGY STAR®, or equivalent	Mandatory	ALL GA				
702.2 Energy efficiency features are implemented to achieve energy cost performance that exceeds IECC	30-120			ALL		
703.1.1 Total building thermal envelope UA is less than required by Section 402.1.4 of the IECC	10-36 plus 15-45			ALL		
703.1.2 Third-party graded insulation	15			ALL		
703.3 The NFRC certified U-factor and SHGC for windows, exterior doors, skylights, and tubular daylighting devices are in accordance with Table 703.2.2(a) or (b)	5-14, depending on zone	ALL GA				

NAHB STANDARDS

ALL GA	ALL GA	ALL	Fascia, Trim Coil, Accessories GA	ALL	ALL GA	ALL	2-5	601.7 Building materials or assemblies that do not require additional site applied material for finishing
			Drip Edge GA				3	602.4 Drip edge is installed at eaves and gable roof edges
		ALL GA					4	602.5 Gutter and downspout system is installed to carry water at least 5 feet away from perimeter foundation walls
ALL	ALL GA	ALL	Fascia, Trim Coil, Accessories GA	ALL	ALL GA	ALL	2-6	602.8 Termite - resistant
			ALL				4	602.12 Flashing details are shown on plans and flashing is installed
	ALL	ALL	ALL	ALL		Composite Rail	1-6	604.1 Building materials with recycled content are used
					ALL	Composite Rail	3 for each material	607.1 Products used contain fewer materials to meet the same end-use requirements as conventional products
ALL	ALL	ALL	ALL	ALL	ALL	ALL	2-10	608.1 Indigenous materials are used for major elements of the building
ALL							3-15	609.1 Select the more environmentally preferable product or assembly
							Mandatory	701.4.6 Fenestration, The NFRC certified U-factor and SGHC for windows, exterior doors, skylights, and tubular daylighting devices (TDDs) are in accordance with ENERGY STAR®, or equivalent
							30-120	702.2 Energy efficiency features are implemented to achieve energy cost performance that exceeds IECC
							10-36 plus 15-45	703.1.1 Total building thermal envelope UA is less than required by Section 402.1.4 of the IECC
							15	703.1.2 Third party graded Insulation
							5-14, depending on zone	703.3 The NFRC certified U-factor and SHGC for windows, exterior doors, skylights, and tubular daylighting devices are in accordance with Table 703.2.2(a) or (b)

GA Indicates products that have been certified by NAHB as eligible for points toward National Green Building Certification. Visit www.GreenApprovedProducts.com for more details.

The following Ply Gem Windows products have been NAHB Certified. *Builder Series – 1100, 400, 460, 550, 8100, Contractor Series, *Mira Premium Series, Premium Series New Construction, Premium Series Replacement, Pro Series 200, 700, 960, Pro Series Replacement*

LEED	POINTS AVAILABLE	Windows	Premium Vinyl Siding	CLADDING	Polymer Shake and Shingle	ACCENTS
				Insulated Vinyl Siding		Richwood Exterior Finishings
		Vinyl Contractor Series Pro Series Premium Series Builder Series Aluminum Builder Series Wood Clad Mira Premium Series	Timber Oak Ascent™ Varigrain Preferred® Camden Pointe® Nottingham® Ashton Heights® Contractor's Choice® Board & Batten Victoria Harbor® Full Beaded	CSL 600® High Performance Insulated Siding	Heritage Cedar™ Hand-Split Shake, Perfection Shingle and Round Cut Siding	Shutters, Door Surround Systems, Mantel Systems, Window Mantels, Decorative Moldings, Corner Posts, Mounting Blocks, E-Z Block™ Surface Mounts, Electrical Blocks, Utility Vents and Gable Vents

LEED HOMES						
Energy & Atmosphere						
EA 1 Optimize Energy Performance	1 - 34	ALL		ALL		
EA 3 Air Infiltration	Max 3	ALL		ALL		
EA 4 Windows	Max 3	ALL				
Material and Resources						
MR 2 Environmentally Preferable Products	Max: 8	ALL				
Indoor Environmental Quality						
EQ 1 ENERGY STAR® with Indoor Air Package	Max: 13	ALL				

LEED NC COMMERCIAL						
Energy & Atmosphere						
EA Prereq 2 Minimum Energy Performance		ALL				
EA 1 Optimize Energy Performance	1 - 10	ALL		ALL		
Material and Resources						
MR 4.1 Recycled Content, 10% (post-consumer + 1/2 pre-consumer)	1	ALL				
MR 4.2 Recycled Content, 30% (post-consumer + 1/2 pre-consumer)	1	ALL				
MR 5.1 Regional Materials, 10% Extracted, Processed & Manufactured Regionally	1	ALL	ALL	ALL	ALL	ALL
MR 5.2 Regional Materials, 20% Extracted, Processed & Manufactured Regionally	1	ALL	ALL	ALL	ALL	ALL
Indoor Environmental Quality						
EQ 2 Increased Ventilation	1 - 10	ALL				
EQ 8.1 Daylight & Views, Daylight 75% of Spaces	1	ALL				
EQ 8.1 Daylight & Views, Daylight 90% of Spaces	1	ALL				

SOFFIT	ACCESSORIES	Available from other Ply Gem brands	LEED				
Vinyl Soffit	Aluminum Soffit	Aluminum Rain Carrying	Aluminum Accessories	Leaf Protection	Stone Veneer	Fence and Rail	POINTS AVAILABLE
Trivent™ High Performance D5 Premium D5 Standard T4 Soffit Beaded Soffit & Porch Ceiling	Commercial Double 6" Commercial Quad 4" Commercial Triple 4" Durabuilt Double 6" Durabuilt Triple 4"	Gutter Coil Rainware	Trim Coil Fascia Starterstrip Accessories Drip Edge	Leaf Relief® By Ply Gem	Ply Gem Stone	Kroy by Ply Gem Fence and Rail Solutions	

LEED HOMES							
Energy & Atmosphere							
							1 - 34
					ALL		Max 3
							Max 3
Material and Resources							
		ALL	ALL	ALL	ALL	Composite Rail	Max: 8
Indoor Environmental Quality							
							Max: 13

LEED NC COMMERCIAL							
Energy & Atmosphere							
							EA Prereq 2 Minimum Energy Performance
							1 - 10
Material and Resources							
		ALL					1
		ALL					1
ALL	ALL	ALL	ALL	ALL	ALL	ALL	1
ALL	ALL	ALL	ALL	ALL	ALL	ALL	1
Indoor Environmental Quality							
							1 - 10
							1
							1

FOR MORE INFORMATION ON SUSTAINABLE PRODUCTS
AND PRACTICES, VISIT THE FOLLOWING WEBSITES:

www.plygemwindows.com

www.usgbc.org/LEED/

www.plygem.com

www.nahbgreen.org/

www.energystar.gov/

www.GreenApprovedProducts.com



Ply Gem Windows
P.O. Box 787
Wexford, PA 15090-0787
888-9PLYGEM
Web: www.plygemwindows.com



PGW-BP-1110-BB-REV.C
Ply Gem, the Ply Gem logo, the "Building Products. Building Success." slogan, Ply Gem Windows and the Ply Gem Windows logo are trademarks of Ply Gem Industries, Inc. ENERGY STAR® is a registered trademark of the U.S. Environmental Protection Agency. ©2010 Ply Gem Industries, Inc.

For more information, call 866-979-4149.



Windows Siding Stone Veneer Fence+Rail Designer Accents plygem.com



BUILDING PRODUCTS. BUILDING SUCCESS.