BUILDING WITH PURPOSE.

BUILDING TO MAKE A DIFFERENCE.

Ply Gem Enviro

Ply Gem

Building Products. Building Success.

SUSTAINABILITY: DEFINED

At Ply Gem, we're always building towards the future. As an industry leader, we recognize that the industry is evolving. The call from builders, architects and consumers is clear. They want building products that do more than just perform – they want products that save energy, lower maintenance, and protect the air they breathe. In short, they want sustainable solutions.

According to McGraw Hill Construction Studies, two-thirds of homeowners are aware of green building. While green building is prominent in new construction with three out of four builders saying that green building is important to their market strategy, it is also transforming the way remodelers think. In fact, 40% of home remodeling is done using sustainable products and processes, and that number continues to grow every day.

But what exactly does sustainability and green mean? After all, there are a lot of definitions and interpretations. Ply Gem took our cue from the Environmental Protection Agency (EPA). This is how the EPA defines sustainability:

"Sustainability is expressed as meeting the needs of the present without compromising the ability of future generations to meet their own needs."

It's a simple definition, but it gives us a context to work within. Now let's bring it into our world – the construction world where sustainability plays a very important role. A green home is defined as being a home that uses less energy, water and natural resources. It provides a healthier, more comfortable environment for occupants. The benefits of a green home include lower energy and water use costs, reduced greenhouse gas emissions and less likelihood for exposure to mold, mildew and other toxins.

Our industry contributes greatly to the environment. In fact, commercial buildings use one-third of our total energy, two-thirds of our electricity, one-eighth of our water, and transform land that provides valuable ecological resources.* These facts make it pretty obvious: sustainable building can make an immediate and lasting impact in our lives. Ply Gem realizes this. That's why we're committed to providing you with the education, information and products you need to support your sustainable solutions. **Together, we can partner to build a better home and a better way of life.**

*Source: Leadership In Energy and Environmental Design (LEED®)

SUSTAINABILITY:

DEVELOPED

Sustainability is not just about products, but about quality products used within practices that help achieve your sustainability objectives.

It takes a holistic approach to make any project sustainable. Guidelines and standards are being developed and implemented by organizations like the U.S. Green Building Council (USGBC) and the National Association of Home Builders (NAHB) to help define these practices in greater detail. These organizations create the foundation on which green building continues to grow and evolve. We can certainly contribute to project certification, and while certification is nice, Ply Gem commends any steps our customers take towards implementing sustainable practices.

USGBC LEED® NC (New Commercial Construction)

LEED, Leadership in Energy and Environmental Design, is a third-party certification program created by USGBC. LEED was first introduced in March 2000 for new commercial construction. It is the nationally recognized standard for the design, construction and operation of high-performance green buildings. More than 3.2 billion square feet of real estate in the U.S. and 60 countries are pursuing LEED certification. And that number continues to grow by the day.

USGBC LEED® HOMES

LEED for Homes, also sponsored by USGBC, was launched in February 2008. It measures green home 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 recognizes and rewards builders who meet the highest performance standards. Before a home can be LEED Certified, it must meet the standards set by USGBC.

NAHB Green Building Guidelines and Standards

The NAHB established their Green Building Guidelines in 2004. These guidelines are helping members move the practice of green building into the mainstream. Similar to LEED, the NAHB Green Building Guidelines recognize builders who incorporate environmentally friendly practices into every phase of home building. The NAHB Green Building Guidelines cover eight key areas including lot preparation and design, resource efficiency, energy efficiency, water efficiency and conservation, occupancy comfort and indoor environmental quality, operation, maintenance and homeowner education, global impact, and site planning and land development.

For more information about LEED and NAHB points available for using selected Ply Gem products, and for helpful tips on sustainable building, please consult the *Ply Gem Enviro Resource Guide* available at www.plygem.com.

The NAHB Green Building Guidelines are just the start. The NAHB Research Center and the International Code Council (ICC) have initiated a process for the development of an American National Standards Institute standard for green home building and construction practices. The proposed new rating system, the National Green Building Standard, will provide certification for renovation and remodeling projects as well as lot and site development, condos and apartments. The standard is now awaiting approval from the ANSI.

Ply Gem would like to note that individual products are not certified by LEED or NAHB, but choosing environmentally responsible products such as those offered by Ply Gem, can contribute to the overall points gained on a project leading to certification by these and other national and local programs.

CASE STUDY:

CANMORE CIVIC CENTRE

When Marshall Tittemore Architects began planning the Canmore Civic Centre, they turned to CWD Windows and Doors by Ply Gem to provide window solutions that would help earn LEED® certification.

CWD worked with the architect and builder to develop specific glazing, window coating and filtering elements that could withstand temperature extremes, reduce infrared heat gain and do so without compromising the project's need for natural day lighting. The windows functioned well to support the project's natural ventilation goals, which reduces cooling costs. And all were constructed from materials that perform beautifully in the unforgiving mountain climate with minimal maintenance and on-site finishing.

Canmore Civic Centre — Silver LEED certified, and proof that sustainable design is beautiful and achievable with help from Ply Gem products.

Understanding ENERGY STAR®

ENERGY STAR is the government-backed initiative for energy efficiency. The mark identifies new homes, buildings, and products in more than 50 categories that are energy efficient and offer the features, quality, and performance that today's consumers expect.

ENERGY STAR was introduced by the EPA in 1992 as a voluntary partnership to reduce greenhouse gas emissions through increased energy efficiency.*

The energy performance of all ENERGY STAR qualified windows, doors and skylights must be independently tested and certified according to test procedures established by the National Fenestration Rating Council (NFRC). NFRC is a third party, non-profit organization that sponsors certified rating and labeling programs to help consumers compare energy and performance features of windows, doors and skylights. The NFRC label provides performance ratings in a number of categories including the U-factor and solar heat gain coefficient, the two ratings used in ENERGY STAR qualification.**

ENERGY STAR homes are significantly more efficient than standard homes. The following features work together to make an ENERGY STAR home operate at high efficiency:

- **Tight construction and ducts**
- **Effective insulation**
- **Efficient heating and cooling equipment**
- **High performance windows**
- **Efficient products**
- **Independent testing**

*Source: www.energystar.gov

**Source: NFRC

CASE STUDY:

FLORIDA'S FIRST LEED GOLD HOME

When Darren Brinkley, owner of REAL building, envisioned the home he wanted to build, he had two goals in mind: build smart and build green. The resulting 2,300 square-foot contemporary home received Florida's first gold-level LEED home certification.

Darren included green features like a rainwater cistern to provide landscape irrigation and a geothermal heating and air conditioning system. When it came time to choose cladding, he selected Structure® EPS insulated siding from Mastic® Home Exteriors by Ply Gem.

Not only did Structure® provide a robust windload rating of 190 mph, it contributed to the LEED points the project earned for construction materials. That's because of its transportation efficiencies, lack of on-site finishing, low maintenance and its insulation properties, which contribute to the home's energy efficiency.

Structure® from Mastic® Home Exteriors by Ply Gem. Helping make "Home Sweet Home" into "Home Green Home."

SUSTAINABILITY:

DELIVERED

At Ply Gem, we strive to deliver products and solutions that make a positive impact in the home and in the environment. That's why we have developed our Ply Gem Enviro initiative. We want Ply Gem to become your source for sustainable education, information and products that will help you reach your sustainability goals. To learn more, consult the *Ply Gem Enviro Resource Guide* available at www.plygem.com.

The Ply Gem vision is clear.
At Ply Gem, we are committed to the development of green and sustainable products, the use of environmentally responsible practices in operations, and contributing to the improved energy efficiency and lifecycle benefits of homes.

This is our vision. It's the way we are building towards the future. Ply Gem has already taken many steps to help offer you solutions to your sustainability goals with our Ply Gem Enviro initiative. And Ply Gem actively partners with industry leaders like USGBC, NAHB and others that are contributing to the development of sustainable and green building practices.

Fewer Resources

Ply Gem takes a comprehensive approach to sustainable operations. We limit our use of nonrenewable resources by minimizing scrap from operations. Whenever possible, we reintroduce these materials back into our manufacturing process. Some of our siding products contain as much as 80% reclaimed materials.

Energy Efficiency

Many Ply Gem products increase energy efficiency. Not only is this a welcome relief to homeowners when it comes to creating a comfortable home environment and lowering energy bills, it's a welcome relief to the environment. Many of our products qualify for the ENERGY STAR® label, which identifies a product for its efficiency and designates its superior energy performance in homes.

Life Cycle Benefits

Ply Gem's products are designed to be sustainable. There's virtually no maintenance required, meaning no harmful chemicals are needed to repair or restore the product. And, at the end of the long product lifecycle, products can be recycled or repurposed with greater ease.

SUSTAINABLE FROM START TO FINISH.

Sustainability requires a holistic approach. That's why Ply Gem focuses not only on our products, but on our operations as well. We are committed to developing systems that reduce our overall corporate environmental impact whenever possible. And that's just the beginning. We will continue to evolve our processes striving to make things more sustainable – from start to finish.

- We instituted a system-wide policy to reuse and recycle pallets and packaging material, reducing raw material needs and landfill use.
- We installed an on-site ultra filtration system in one facility that prevents 80,000 gallons of waste from entering landfills.
- We reduced our use of city water sources by constructing a 3,000,000 gallon retention pond at one facility to capture storm water runoff for use in manufacturing.
- We use bare aluminum for production that is made from 90% scrap metal.
- We conserve energy by doing simple things, like turning out lights in our facilities on weekends and during shutdowns.
- All of our scrap glass from manufacturing is recycled.
- 100% of our wood waste chips are reused with 40% supplied to farmers and 60% provided to fiber board fabricators.
- We work with suppliers to recycle materials including cores, cardboard padding, paint totes, batteries, light bulbs, toner, paper, etc.
- We have transitioned our transportation routing from static to dynamic, which has reduced our total miles driven by 4.5% resulting in reduced emissions and fuel consumption.

VINYL SIDING

The Ply Gem vinyl siding brands – **Mastic® Home Exteriors, Variform®, NAPCO®, Cellwood®, Georgia-Pacific,** and **Durabuilt®** – combine the best of both worlds – product performance and environmental performance. Ply Gem's vinyl siding brands offer products that meet – and in most cases exceed – the requirements for weatherability, windload, impact resistance and color retention set forth by the Vinyl Siding Institute's Vinyl Siding Product Certification Program.

Environmentally, our siding products rate high by current green building guidelines given their durability, ease of installation, lighter weight, recyclability and absence of field finish requirements. From how our siding is manufactured to how it performs – the vinyl siding brands of Ply Gem are smart, sustainable solutions.

- Boosts R-Value – Insulated siding products from Mastic® Home Exteriors and Variform® add up to an additional R4 of insulation, increasing overall wall system R-value by up to 23%.
- Ply Gem vinyl siding products do not contain silica dust – a material found in some fiber cement products that may potentially cause adverse health effects such as silicosis.
- Manufacturing vinyl siding requires fewer limited resources – salt and natural gas are the primary raw materials used in the manufacturing process, and both are available and abundant.
- Zero-waste manufacturing reclaims all post-production scrap material – either into siding or into alternate uses like pipe.
- For more details about how vinyl siding can contribute to sustainability and green building practices, visit www.vinylsiding.org/greenpaper.

WINDOWS

Ply Gem window brands – **Ply Gem Windows, Great Lakes® Window, and CWD Windows and Doors** – create many windows that have earned the ENERGY STAR® label. These windows are designed to be significantly more energy efficient than standard windows.

- Better insulation through high performance spacer systems and window frame designs.
- Special coatings (Low-E glass) help windows reflect infrared light, keeping homes comfortable in extreme heat and cold.
- Use of multiple Low-E coatings, specifically tailored to the needs of different climate zones.
- Greater efficiency, increased impact resistance and sound insulation through multiple panes.
- Gas fills such as Argon and Krypton enable better insulation than regular air.
- Reduced on-site finishing and on-going maintenance requirements through the creative use of materials and pre-finished wood parts.
- Select CWD Windows by Ply Gem products sold in Canada are registered for use in the Canadian Built Green program. For details visit www.builtgreencanada.ca.

FENCE AND RAIL

Kroy by Ply Gem is a leader in the production of PVC fence and rail and composite rail products. These products are virtually maintenance free and are smart, sustainable choices.

- Kroy's PVC fence lasts a lifetime and is composed primarily of salt and natural gas, both abundant resources.
- Limited waste in manufacturing and installation with virtually 100% of plant-produced scrap being reclaimed in the production process.
- Unlike wood fence products, Kroy fence and rail never needs painting or staining. This reduces exposure to airborne volatile organic compounds and contributes to a lower life cycle cost.

And, Kroy products look good season after season, ensuring not just a smart environmental choice, but a smart aesthetic choice as well. After all, good fences truly do make good neighbors.

METAL ACCESSORIES

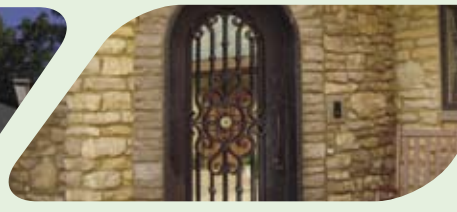
Ply Gem aluminum accessories – available as **Mastic® Home Exteriors, Variform®, NAPCO®, Cellwood®,** and **Leaf Relief®** – offer numerous environmental performance benefits including:

- Fewer limited resources required – the aluminum alloy used is made from approximately 90% recycled and reclaimed aluminum.
- Recyclability – all Ply Gem aluminum accessories are easily recycled.
- Limited waste in manufacturing – our coating process efficiently applies surface finishes at approximately one-third the thickness of field-finished alternatives.
- Our water-based acrylic coating system delivers significantly longer durability and has a significantly lower solvent content than alternative coating systems.

STONE VENEER

United Stone Veneer by Ply Gem offers a complete line of manufactured stone products, which can contribute to a sustainable and healthy home.

- Crafted from reclaimed content, it contains inorganic mineral iron oxides, ensuring superior durability. It never requires site finishing – or refinishing.
- Requires fewer resources to transport to job sites than natural stone because of its lighter weight and creates significantly less scrap when installed.
- Provides a smart solution for both outdoor and indoor applications. With zero off-gassing and its non-combustible nature, it contributes to a healthy – and safe home.



Selected products from all category offerings contribute to the ability to earn LEED and NAHB Green Building points. Consult the *Ply Gem Enviro Resource Guide* available at www.plygem.com.

PLY GEM

BUILDING PRODUCTS. BUILDING SUCCESS.

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