

POLYISO ROOF INSULATION: AN INTEGRAL PART OF SUSTAINABLE BUILDING AND LEED® CREDITS

LEED® Rating System

In the early 1990s, the United States Green Building Council (USGBC) developed the Leadership in Energy and Environmental Design (LEED) Rating System®, as the standard for green buildings. The LEED Rating System establishes basic requirements for the various aspects of sustainable design: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, and Innovation and Design Process. Credits or points are earned for implementation of the technical requirements of the specific LEED rating category. A threshold of 38% of the available points is required to achieve the minimum LEED Certified rating. Higher performance levels are designated as Silver, Gold or Platinum and are achieved by meeting minimum points for each level.

Sustainable Building Design and “Green” Architecture

Today, architects, contractors, specifiers and building owners are using the LEED program to promote the use of design and materials that minimize the overall environmental impact of construction. While many have perceived that this type of building design requires a higher initial investment in the planning and construction of the building, the movement for sustainable or “green” buildings has quickly shifted from a niche construction market to mainstream building design. Building “green” can be a good long-term investment that does not have to cost significantly more than building with traditional materials.

Polyiso Roof Insulation – An Environmental Winner

Polyisocyanurate (polyiso) roof insulation represents over 70% of all insulation used in new roof construction and at least 50% of all insulation used in re-roofing applications. Polyiso insulation presents many superior features that designers need when specifying insulation for use in roof systems:

- Quality Mark^{CM} Certified LTRR-values
- Recycled content
- Excellent fire test performance
- Dimensional stability
- Superior compressive strength
- Moisture resistance
- Extensive building code approvals
- Zero ozone depletion potential
- Negligible global warming potential
- Cost effective
- Preferred insurance ratings
- Highest thermal performance available
- Compatible with most roofing systems

PIMA and polyiso products have received many environmental awards. These include an honorable mention in the Sustainable Buildings Industry Council’s (SBIC) 2003 “Best Practice” Sustainability Awards Program and the U.S. EPA’s Climate Protection Award for the association’s leadership in promoting energy efficiency and climate protection. The EPA also awarded PIMA and its members the Stratospheric Ozone Protection Award for “leadership in CFC phase-out in polyiso insulation and in recognition of exceptional contributions to global environmental protection.”

Polyiso Insulation: An Ideal Product for LEED Building Designs

Polyiso insulation is an ideal choice for LEED building designs because it offers these advantages:

- **Highest Thermal Efficiency** — Polyiso is the most thermally efficient insulation available in the marketplace, as determined using the LTR testing method to determine a 15 year time-weighted R-value. In addition, members of PIMA initiated a third party certification program — Quality Mark^{CM} — to validate these thermal values. Quality Mark^{CM} is a voluntary program administered by FM Approvals, one of the nation's most dependable testing organizations. Well-insulated buildings reduce fossil fuel use, thereby reducing air pollution.
- **Zero Ozone Depleting Potential** — All PIMA polyiso manufacturer members produce rigid foam board with third-generation, zero ozone-depleting blowing agents. All polyiso products are now HCFC-free and CFC-free.
- **Negligible Global Warming Potential** — All PIMA polyiso manufacturing members produce rigid foam board with negligible global warming potential blowing agents. This quality is critical as the impact of climate change, or global warming, is acknowledged as a worldwide environmental concern.
- **Recycled Content** — Virtually all polyiso insulation is manufactured using recycled material. The percentage of the recycled material by weight depends on the individual manufacturer and the thickness of the product. Many facers on polyiso products contain up to 100% recycled materials.

LEED Point Distribution: Potential Credits for Polyiso Use

Using polyiso insulation may gain credits under three of LEED's six rating categories: Energy and Atmosphere, Materials and Resources, and Innovation and Design Process. Here are some suggested opportunities to incorporate polyiso in a LEED building design, using the LEED checklist:

Energy & Atmosphere

- ✓ **Minimum Energy Performance: Prerequisite Credit 2** — Thermally efficient polyiso facilitates compliance with ASHRAE 90.1-1999 and local energy codes.
- ✓ **Optimize Energy Performance: Credit 1** — Polyiso provides the highest thermal resistance per inch of material and can economically contribute to achieving one of the LEED levels of optimized energy performance.

Materials & Resources

- ✓ **Building Reuse: Credit 1** — Polyiso can be and often is reused when building renovations include recover roof applications or partial tear offs in which only the membrane is removed.
- ✓ **Construction Waste Management: Credit 2** — If the total percentage of reused materials in a project does not meet the minimum levels stated in Materials and Resources, Credit 1, Building Reuse, these reuse activities may be applied to this credit.
- ✓ **Recycled Content: Credit 4** — Depending on the product manufacturer and thickness, polyiso can be used toward one of the levels of recycled materials credit.

- ✓ **Local/Regional Materials: Credit 5** — PIMA's six manufacturing members have polyiso insulation plants across North America, so for most projects a credit can be obtained for using materials manufactured within 500 miles of a job site.

Innovation & Design Process

- ✓ **Innovation in Design: Credit 1** — Polyiso is the only zero-ozone depleting, negligible global warming potential, high-performing foam insulation with Quality Mark^{CM} certified LTTR-values. Since ozone-depleting insulations are also available, such as extruded polystyrene, credit for using materials that are HCFC-free (like polyiso) may be granted for innovation in design.

PIMA: Committed to Energy Efficiency and the Environment

PIMA and its members have long been supporters of energy-efficiency, sustainability and the "green" building movement. As the most thermally efficient insulation available in the marketplace, polyiso directly contributes to our nation's effort to conserve energy, mitigate the effects of global warming, and reduce dependence on foreign energy sources.

As an association, PIMA is recognized as a major supporter of public policy that promotes energy efficiency. From support of tax incentives for energy-efficient commercial buildings to efforts aimed at updating a number of outdated state energy codes, PIMA continues to be a leader in the field of energy efficient construction. For more information on polyiso, polyiso manufacturers, PIMA, or any of the Association's activities, please visit our Website at www.pima.org or call (703) 684-1136.

PIMA is the national trade organization that advances the use of polyiso insulation, one of the nation's most widely used and cost-effective insulation products. PIMA's membership consists of manufacturers and marketers of polyiso insulation, as well as suppliers to the industry.

PIMA

Polyisocyanurate
Insulation Manufacturers
Association

For more information please contact:

PIMA

515 King Street, Suite 420
Alexandria, VA 22314
(703) 684-1136 Phone
(703) 684-6048 Fax
www.pima.org • pima@pima.org (e-mail)

Firestone
BUILDING PRODUCTS



Johns Manville

