

Polyiso CI Performance in Below-Grade Applications

About Polyiso Insulation

Polyiso is a rigid foam insulation used in more than 70% of commercial roof construction and offers a continuous insulation solution for commercial and residential wall assemblies. As one of North America's most widely used and readily available building products, Polyiso is a cost-effective insulation option for reducing building energy use and improving the overall service-life of roofs and walls.

The benefits of using Polyiso include:

- High R-value per inch of thickness
- Excellent fire test performance
- Extensive building code approvals
- Cost-effective continuous insulation (ci) solution
- Compatible with most roof and wall systems
- Dimensional stability
- Compressive strength
- Moisture resistance
- Thinner walls and roofs with shorter fasteners
- Long service life
- Preferred insurance ratings
- Virtually no global warming potential
- Zero ozone depletion potential
- Recyclable through reuse
- Recycled content (amount varies by product)
- Regional materials (nationwide production network)

Polyiso Insulation Performance

Polyisocyanurate (polyiso) insulation is a closed-cell rigid foam product recognized for its industry-leading thermal performance. Like extruded polystyrene (XPS) foam products, polyiso insulation's closed-cell foam core provides inherent resistance to moisture – a key performance factor when selecting insulation products for ground contact applications like below-grade and below-slab installations.



Polyiso insulation installed below slab. Photo courtesy of Malm Construction (Montana) and Big Sky Building Supplies (Montana).

Below-Grade Insulation

The use of continuous insulation in exterior below-grade applications protects foundation walls and slabs by isolating the foundation from the ground (e.g., soil, dirt, gravel backfill). Insulation installed below grade saves energy by reducing thermal bridging and improving moisture management.

Polyiso Insulation Below-Grade Product Options

As the leading insulation option for commercial roofing projects, building professionals may ask – **are all polyiso products the same?** The answer is, **NO**. Manufacturers produce polyiso insulation products for a variety of specific applications. Each product is designed to meet the performance requirements of the intended application. Notable differences between product types can include facer type, compressive strength, and other physical properties.

Important: When selecting polyiso insulation for below-grade projects, contact the manufacturer for information on suitable product options for this application.



Surround yourself with the best.

Choosing Polyiso for Below-Grade Projects

The use of below-grade insulation to protect foundation walls and slabs is a familiar concept. How does polyiso insulation compare to traditional insulation options? Polyiso insulation products for below-grade and below-slab applications deliver the performance you need:



Higher R-value – Better thermal performance per inch means fewer delivery trucks and less material on the jobsite.



Low Moisture Absorption – Closed-cell foam structure delivers inherent resistance to moisture absorption.



Durable – Available in the compressive strengths needed to meet the demands of most below-grade jobs.



Installer Friendly – Facers that virtually eliminate jobsite breakage common with traditional below-grade products complement this lightweight insulation that is also easy to handle and cut.



Environmentally Preferred – Lower embodied carbon when compared to traditional below-grade insulation options.

Manufacturer Information

Contact PIMA manufacturing members for below-grade and below-slab product options, technical information, and installation instructions.

Additional Resources

- *Foundation Design Handbook*, Oak Ridge National Laboratory, available at: <https://foundationhandbook.ornl.gov/handbook/toc.shtml>.
- *Foundation Insulation & Frost Protection*, American Chemistry Council's Foam Sheathing Committee, available at: <https://www.continuousinsulation.org/foundation-insulation-frost-protection>.
- *Where to Insulate in a Home*, U.S. Department of Energy, available at: <https://www.energy.gov/energysaver/where-insulate-home>.

ABOUT PIMA

Since 1987, PIMA has served as the voice of the North American rigid polyiso insulation industry. PIMA is a leading advocate for safe, cost-effective, sustainable, and energy-efficient construction. The Association is comprised of polyiso manufacturers and industry suppliers, and represents the public policy interests of its membership at the local, national, and international levels to advance high-performance building practices.

PIMA produces technical bulletins to address key topics related to polyiso insulation. These publications inform architects, specifiers, and contractors about the performance characteristics of polyiso insulation. Always consult individual manufacturers for product specific information, including product data sheets and installation instructions.

For more information on polyisocyanurate insulation, visit www.polyiso.org

