

Corner Bracing with the WarmWall^{cm} System

About Polyiso Insulation

Polyiso is a rigid foam insulation used in over 70% of commercial roof construction, in commercial sidewall construction and in residential construction.

The Benefits of using Polyiso include:

- Quality MarkTM certified LTTR-values
- Highest R-value per inch of thickness
- Excellent fire test performance
- Moisture resistant
- Dimensional stability
- Superior compressive strength
- Extensive building code approvals
- Cost effective
- Recycled content
- Zero ozone depletion potential
- Virtually no global warming potential
- Preferred insurance ratings
- Nationwide availability
- Thinner walls and roofs with shorter fasteners
- 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."



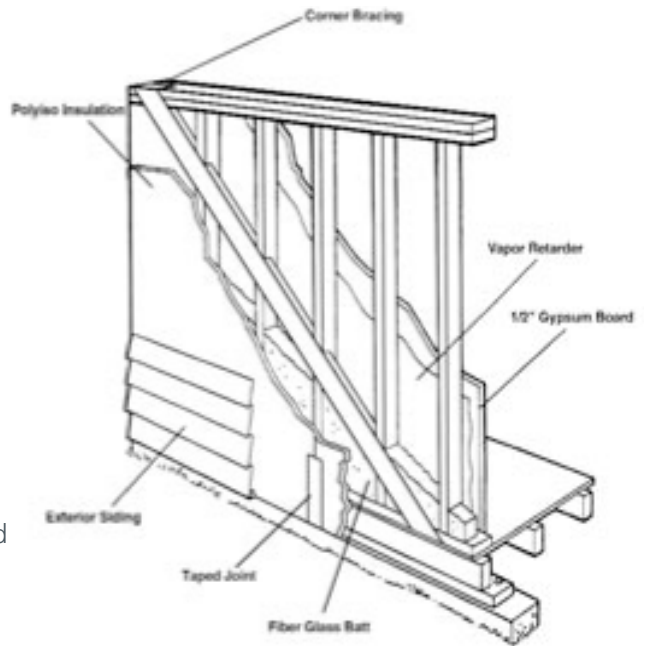
The Superior Sheathing System.

The Polyisocyanurate Insulation Manufacturers Association (PIMA) features WarmWall^{cm} - the Superior Sheathing System. WarmWall^{cm}

is an innovative building concept utilizing foil faced polyiso insulation sheathing to provide a complete envelope of insulation on the exterior of a home. The WarmWall^{cm} concept is extremely beneficial to both wood and steel framed construction, providing insulation over 100% of the exterior walls and increasing the overall thermal performance of a home.

What is the WarmWall^{cm} System?

- Proper corner bracing of framing;
- Insulates 100% of the exterior framed walls with foil faced polyiso insulation keeping energy loss to a minimum;¹
- The exterior joints of the polyiso insulation sheathing are taped to prevent air infiltration;
- Conventional glass fiber batt insulation is placed between the wood or steel framing;
- In heating or mixed climates, a continuous vapor retarder is applied on the interior side of the studs;
- Gypsum board, minimum 1/2" thick, is applied to the interior; and
- Exterior finish is applied in accordance with the manufacturer's recommended application instructions, over the polyiso insulation sheathing.



The WarmWall^{cm} System

¹ Savings can vary. Find out why in the insulation sellers fact sheet on R-value. Higher R-values mean greater insulating power.

The Importance of Corner Bracing

Polyiso insulation sheathing is not a structural material. As such, wall systems with polyiso are required by building codes to have corner bracing to resist lateral loads resulting from wind forces on the home.

Be sure to consult the local building code for specific wind load requirements, since each home design presents different conditions. Homes in seismic regions may require special construction techniques designated by the local building code.

Wood Framing

Model building codes all describe the need for wall bracing that can be found in the following sections:

- ICBO 1997 Uniform Building Code Section 2320.11.3 Bracing
- BOCA 1999 National Building Code Section 2305.7 Wind Bracing
- SBCCI 1999 Standard Building Code Section 2308.2.2 Wall Bracing
- ICC 2000 International Building Code Chapter 23
- National Building Code of Canada Section 2.23.10.2

As shown on the cover, 1" x 4" let-in diagonal wood bracing may be used to reinforce interior and exterior corners. Another option is surface-nailed steel strapping. If either of these methods is used, the entire exterior of the house framing can then be covered by a highly energy efficient polyiso sheathing.

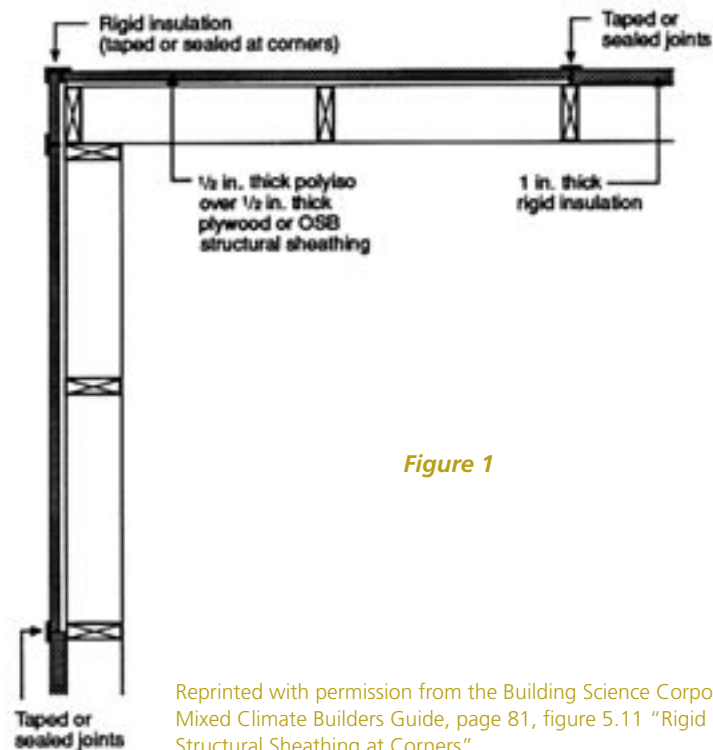


Figure 1

Reprinted with permission from the Building Science Corporation, 1997 EEBA Mixed Climate Builders Guide, page 81, figure 5.11 "Rigid Insulation Over Structural Sheathing at Corners"

Some builders choose to brace corners with 1/2" or 7/16" thick 4 x 8 plywood, OSB, structural grade fiberboard exterior sheathing or foil faced cardboard on the corners. Required nailing schedules are found in the model building codes. When using structural panels as corner bracing, place 1/2" polyiso over the structural sheathing at the corners and 1" polyiso sheathing on the remaining opaque wall sections. This technique, as shown in Figure 1, will insure that 100% of the opaque wall area is covered with a highly energy efficient sheathing.

Steel Framing

The increasing popularity of steel framing in residential construction has demanded the development of new construction techniques. The proper method for corner bracing of steel framing is discussed in great detail in the Prescriptive Method for Residential Cold Formed Steel Framing (2nd Edition), published by the North American Steel Framing Alliance. (website: www.steel framingalliance.com/pubs/techpubs.html)

The WarmWall^{cm} System Provides:

- **A wall system with a high R-value** - increasing the energy efficiency of the home and significantly reducing heat loss;
- **A reduction in air infiltration and exfiltration** - increasing the overall performance of the wall and reducing heat loss;
- **A reduction in the risk of water condensation/intrusion** - increasing thermal and structural performance and reducing builder call backs;
- **Insulation over the entire framing members** - reducing the loss of energy from the home;
- **Increased home builder confidence** - assurance that the builder is providing a quality product;
- **Increased home buyer/owner confidence** - assurance of a quality home with state-of-the-art energy efficient construction techniques.

Remember, normal good construction practices are essential in any building system. Always follow the manufacturers recommended application instructions.

PIMA

For over 20 years, PIMA (Polyisocyanurate Insulation Manufacturers Association) has served as the unified voice of the rigid polyiso industry proactively advocating for safe, cost-effective, sustainable and energy efficient construction.

PIMA produces technical bulletins in an effort to address frequently asked questions about polyiso insulation. PIMA's technical bulletins are published to help expand the knowledge of specifiers and contractors and to build consensus on the performance characteristics of polyiso. Individual companies should be consulted for specifics about their respective products.

PIMA's membership consists of manufacturers of polyiso insulation and suppliers to the industry. Our members account for a majority of all of the polyiso produced in North America.

SAFETY

Polyiso insulation, like wood and other organic building materials is combustible. Therefore, it should not be exposed to an ignition source of sufficient heat and intensity (e.g., flames, fire, sparks, etc.) during transit, storage or product application. Consult the product label and/or the PIMA members' Material Safety Data Sheets (MSDS) for specific safety instructions. In the United States, follow all regulations from OSHA, NFPA and local fire authorities; in Canada, follow all regulations from Health Canada Occupational Health and Safety Act (WHMIS) and local fire authorities.

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



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