



Envelope First Approach to Residential Construction

Builder's Guide to Continuous Insulation (ci): Eliminate Thermal Loss, Control Air Leakage and Prevent Moisture Damage



Greater than 90% of moisture that finds its way into a wall assembly is in the form of vapor that is carried by air leaks. The first line of defense is a good air barrier system such as properly taped and flashed Polyiso foam sheathing.



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CONTINUOUS INSULATION: EASY, FAST & ECONOMICAL

Walls make up the largest part of the building envelope. A strategy that includes continuous insulation will help achieve lower HERS® scores, lower energy usage and reduced air infiltration.

Using just cap nails or staples, the Thermasheath® line of products can be installed with less labor and cost than traditional sheathing because it is light weight, rigid and easily cut in the field to fit the wall contours.

Using R-SEAL Construction Tape to seal the joints produces a fully tested water resistive barrier (WRB) and air barrier that complies with ASTM E331 and ASTM E2178, respectively.

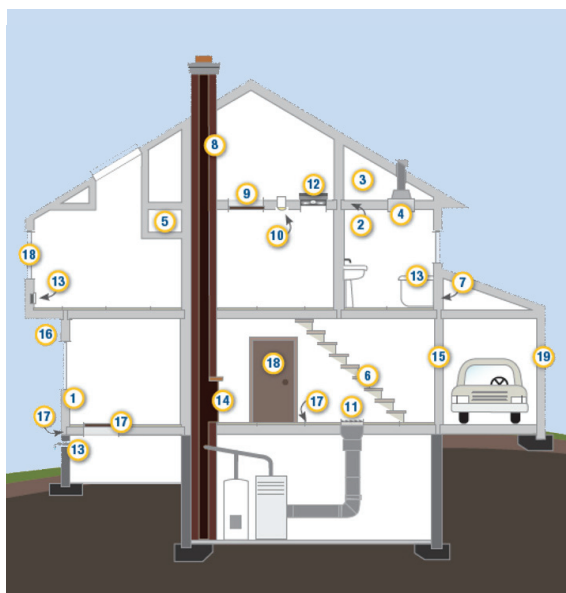
The biggest energy inefficiencies in a home stem from air leaks and thermal bridging - the biggest liabilities are water leaks and vapor intrusion that lead to rot, mold and mildew. Why treat inefficiencies with costly mechanical equipment upgrades rather than eliminate them with a continuous insulation solution?

Rmax provides a one-stop shop for a “wall assembly” solution that protects the home from air, bulk water and damaging vapor.

AIR MANAGEMENT

Studies have shown that up to 40% of energy loss in a home is due to air leaks. Therefore, codes are requiring tighter homes. Installing the Rmax Solution with taped joints and caulked top and bottom plates, creates an air barrier assembly which prevents air leakage on the opaque wall. Strategic air sealing can then focus on other areas providing the builder optimal labor efficiency.

Air Sealing Trouble Spots



The Rmax Solution addresses air leaks at:

- 1-Air barrier & thermal barrier alignment
- 2-Attic air sealing
- 3-Attic knee walls
- 3-Attic knee walls
- 4-Shafts for pipes and ducts
- 5-Drop ceilings and soffits
- 6-Staircase framing at exterior wall
- 7-Porch roof
- 8-Flue or chimney shafts
- 9-Attic access
- 10-Recessed lighting
- 11-Ducts
- 12-Whole house fans
- 13- Wall penetrations
- 14-Fireplace Walls
- 15-Garage/living space walls
- 16-Cantilever floors
- 17-Rim joist, sill plate, floors
- 18-Windows and doors
- 19-Common walls between attached dwellings

Leaving the following areas to focus efforts:

- 2-Attic air sealing
- 4-Shafts for pipes and ducts
- 5-Drop ceilings and soffits
- 7-Porch roof
- 8-Flue or chimney shafts
- 10-Recessed lighting
- 11-Ducts
- 12-Whole house fans
- 14-Fireplace Walls
- 18-Windows and doors

Rmax provides a one stop shop for a “wall assembly” solution that protects your home from air, bulk water and damaging vapor that can lead to rot, mold and mildew.



THERMAL BRIDGING

Fiber glass insulation is only present between the studs leaving 20%-23% of the exterior wall uninsulated. This means the R-value of R-13 insulation in 2x4 16” o.c. framing results in an actual R-9 wall, and R-19 insulation in 2x6 24” o.c. results in an actual R-13.6 wall. If installed incorrectly, fiber glass batts will be even less effective and lead to costly, time consuming red tags.

Rmax continuous insulation covers the studs, eliminating heat transfer from thermal bridging. This means getting 100% of what you’re paying for.

MOISTURE MANAGEMENT

When installed independently or together, Thermasheath® and Thermasheath®-SI create a wall system that is a:

- Fully tested WRB assembly in compliance with ASTM E331
- Fully tested air barrier in compliance with ASTM E2178

Over 90% of the moisture entering a wall assembly is in the form of vapor carried by air leaks. The first line of defense is a good air barrier system such as properly taped and flashed Polyiso foam sheathing.

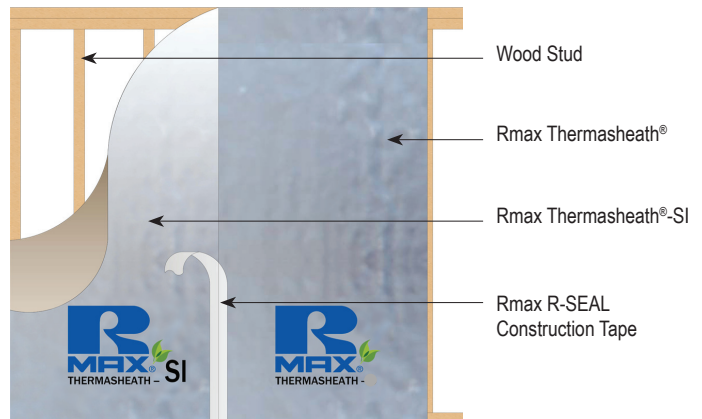
The second most common source of moisture in a wall assembly comes from “bulk water” leaks. When water gets past the cladding, a proven and system tested WRB assembly, along with proper flashing around all openings, prevents water from getting into the stud cavity. Some WRBs, such as wraps, are not system tested and therefore, may not perform as intended.

Another source of moisture is the transition of vapor into a wall assembly through a building material. Differences in temperature and vapor pressure from interior to exterior cause vapor drive through the wall assembly. Installing Polyiso foam sheathing with foil facing will keep the outdoor vapor from entering the wall cavity and condensing.

STRUCTURAL INTEGRITY

Thermasheath®-SI is a composite structural insulation. It has been tested to provide shear strength equal to or greater than standard OSB sheathing.

It is designed to be used intermittently with Thermasheath® to provide the bracing requirements of shear walls. In a typical home the structural board will only need to be used on about 20-25% of the wall area with non-structural, lower cost foam on the rest of the wall.



SUSTAINABLE PERFORMANCE

Rmax insulation solutions and our technical support team can help builders meet the requirements of today’s codes and plan for tomorrow.

Using Rmax continuous insulation solutions provides maximum energy savings, durability, and protection from water damage, with lower material and labor costs.

For warranties, limitations and conditions refer to Rmax Sales Policy and applicable warranties. All documents are located at www.rmax.com. For technical and sales support, email rmax@rmax.com or call (800) 527-0890.

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