

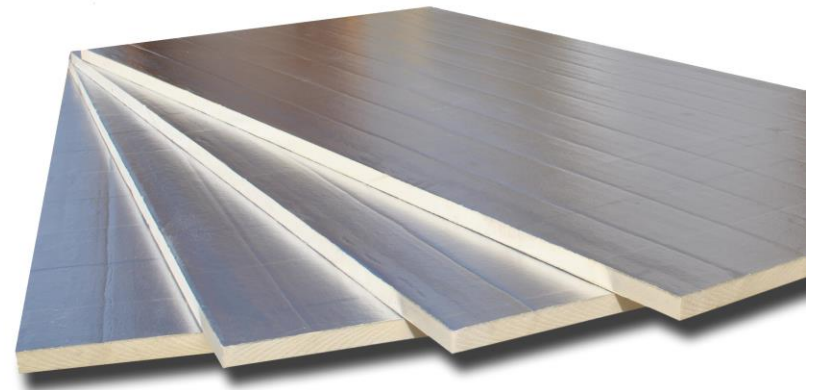
Polyiso Sheathing Used as a Water-Resistive Barrier (WRB) System

Installation Instructions

Revised 11/14/2016

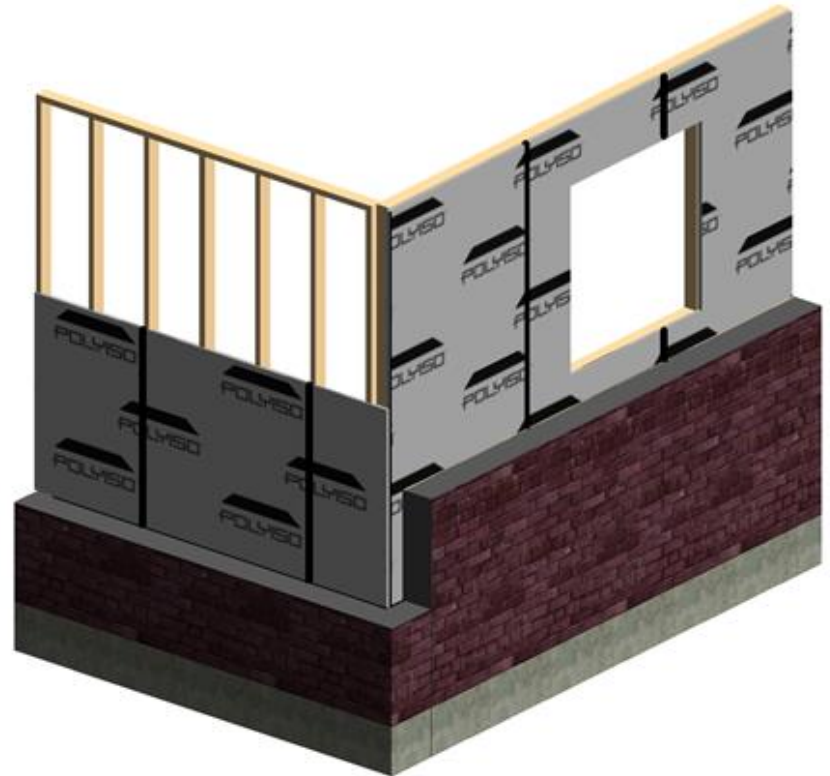
About Polyiso

- R-values of R-6 or more per inch.
- Come in many thicknesses to accommodate almost any end use
- Can be used along with approved tapes as part of a WRB system



Polyiso Products:

- Shall be installed in accordance with:
 - Code compliance requirements per DrJ and ABTG Research Reports
 - Manufacturer's installation instructions
 - The following general installation guidelines



Step 1: Verify Code Requirements

- Benchmark for performance:
 - “One layer No. 15 Asphalt Felt, free from holes and breaks, complying with ASTM D226 for Type 1 felt or other approved WRB...” (R703.2)
- All WRB products other than 15# felt, achieve building code acceptance through the alternative material section of the code



Step 1: Verify Code Requirements

- R104.11 Alternative materials, design and methods of construction and equipment.
 - Not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code
 - Shall be approved where:
 - the Building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and
 - that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code



Step 2: Confirm Equivalence

- To determine equivalence, three separate water resistance tests are performed:
 - Water resistance of Polyiso material alone
 - Water resistance of taped joints
 - Water resistance of full assembly
- Tests 1 and 2 are done under conditions of accelerated aging
- Durability of WRB systems is addressed through aging of materials prior to testing, field studies, and years of practice

Step 2: Confirm Equivalence

- Accelerated aging procedure (used prior to tests 1 and 2):
 - Ultraviolet light exposure: 10 hours per day for 21 days (210 hours at 135-140 degrees)
 - 25 cycles of drying/soaking
 - No visible delamination or blistering of the facing layer is required for acceptance
 - This is the SAME DURABILITY TESTING DONE FOR TAPES

Step 2: Confirm Equivalence

- Test 1: Water Resistance (AATCC Method 127)
 - Test is done under conditions of accelerated aging
 - Test specimens must be held at a hydrostatic head pressure of 21.6" for a period of 5 hours
 - No water leakage on underside of specimen required for acceptance



Step 2: Confirm Equivalence

- Test 2: Taped Joints
 - Test is done under conditions of accelerated aging
 - Test conducted for substrate materials forming foam-to-foam or foam-to-flashing joints
 - Two 3"x6" pieces of foam sheathing, butt-jointed on 6" edge with joint-sealing treatment



Step 2: Confirm Equivalence

- Test 2: Taped Joints
 - Exposed edges of tapes must be exposed to a hydrostatic head of 21.6" for a period of 5 hours
 - No water leakage on underside of specimen required for acceptance



Step 2: Confirm Equivalence

- Test 3: Water Penetration – Full Assembly
 - Test assemblies must be at least 4' wide x 8' high
 - Must include at least one vertical and at least two horizontal unbacked joints
 - No exterior wall covering
 - Assemblies tested at a pressure differential of 6.24 psf for 2 hours
 - Water shall not penetrate to the unexposed face of the sheathing for acceptance



Step 2: Confirm Equivalence

- Test 3: Water Penetration
 - Full Assembly
 - Openings in the assembly are not required
 - If tested without openings, Polyiso must be recognized in an evaluation report as part of a wall covering system
 - Manufacturers typically test with openings so that uses are not limited to specific systems



Step 2: Confirm Equivalence

Comparison of Water Resistance Tests for WRB Materials

	15# Felt	Housewraps	Polyiso
Weathering		✓	✓
AATCC 127		✓	✓
Taped Joints			✓
Full Assembly Water Penetration			✓

Step 2: Confirm Equivalence

- Correlation of Accelerated Aging Tests to Real Time Aging
- Real-world exposure testing:
 - Building Science Corp “Skunkworks” Exposure Facility
 - To test tape resistance to UV, heat and rain, they stick the tape outside for years and watch them
- BSC’s rule of thumb is that if it works after 2 years of this kind of exposure, you are pretty much good to go



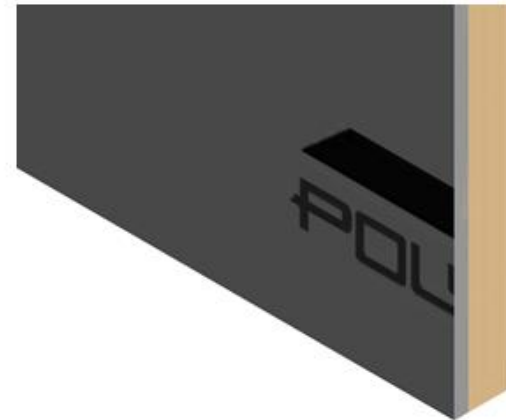
Step 2: Confirm Equivalence

- Photograph taken of tape 15 years after application
- “WRB is a code requirement (IRC 703.1.1, IBC 1403.2) to keep bulk moisture away from things within a wall that need to stay dry, but not all approved WRB systems are created, nor tested equally.” Dr. Lstiburek, Building Science Corp.



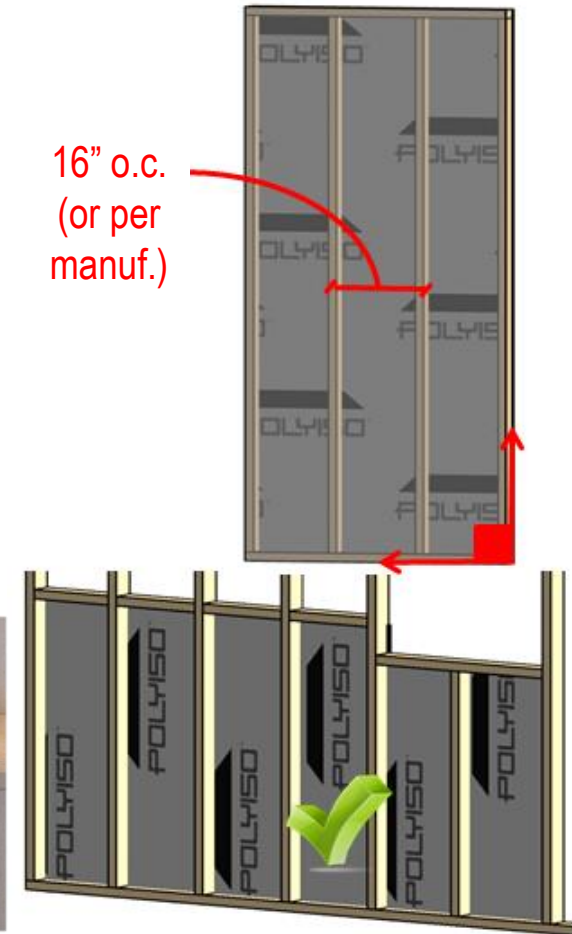
Step 3: Install Insulation Boards

- Ensure wall is square and true
- Align boards with bottom edge of wall



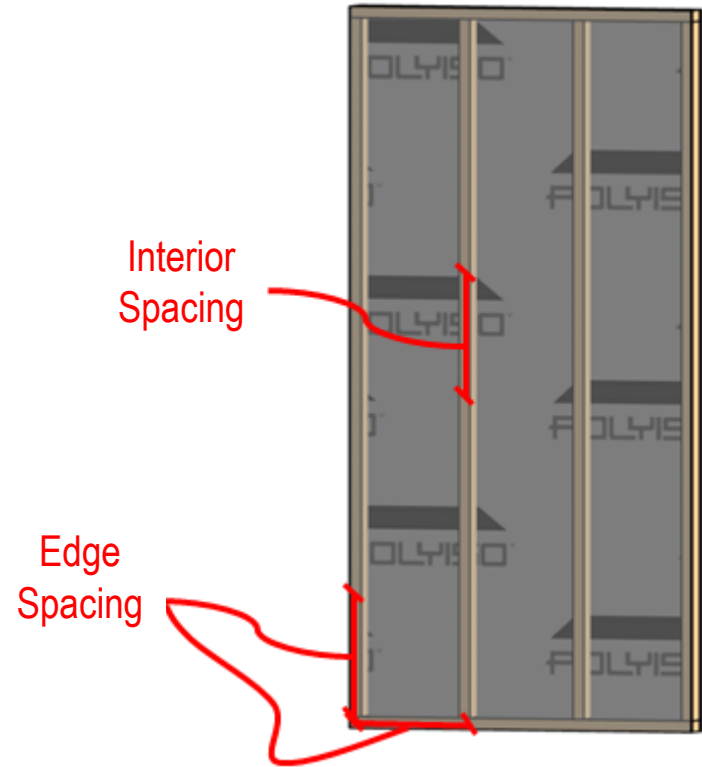
Step 3: Install Insulation Boards

- Verify stud spacing, blocking, and bracing requirements with manufacturer
- Provide framing or blocking for attachment of siding and trim at transitions
 - Seams should not be visible from interior unless allowed by manufacturer



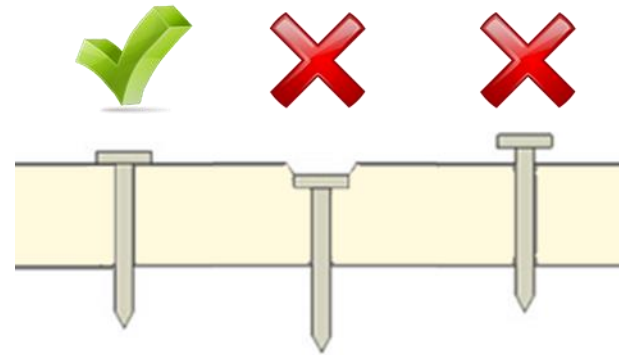
Step 3: Install Insulation Boards

- Space fasteners per manufacturer's instructions
 - Around edges of panel
 - Through panels and into interior members



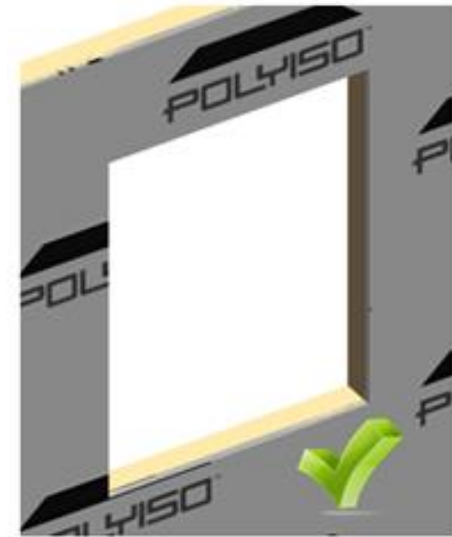
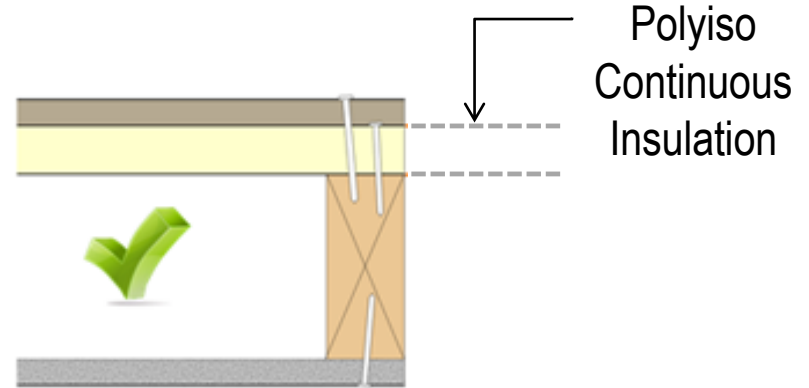
Step 3: Install Insulation Boards

- Drive nails flush and snug
- Do not overdrive nails
- Do not underdrive nails



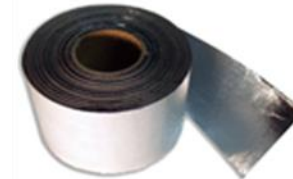
Step 4: Trim Boards at Openings

- Trim boards at all window and door openings
- Cover all framing with Polyiso
- Fit joints tightly



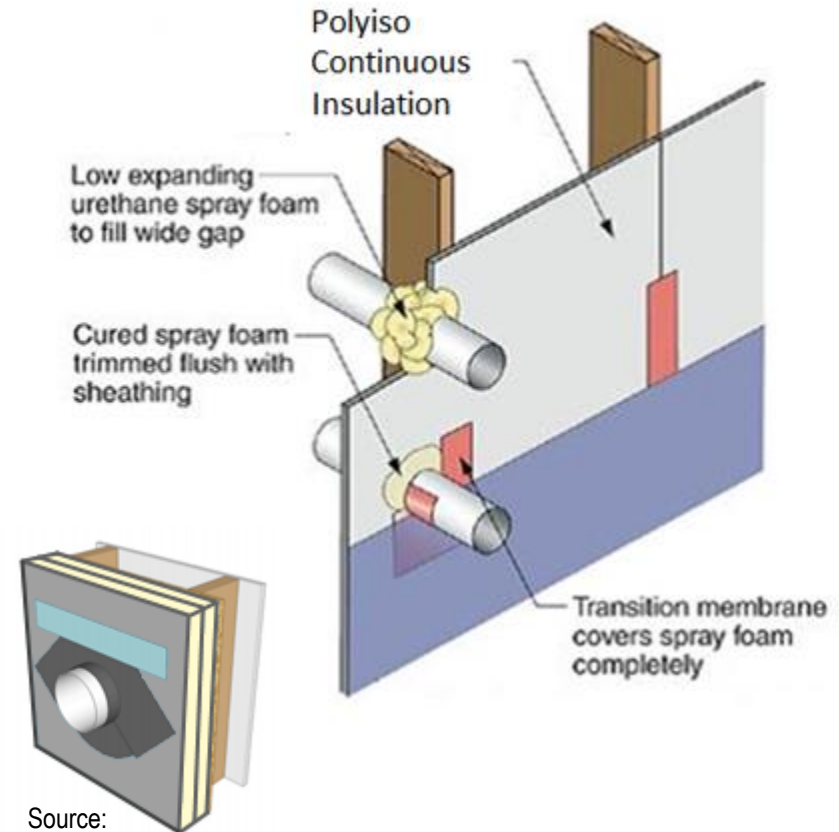
Step 5: Apply WRB Tape

- Ensure clean and dry surface for proper adhesion
- Apply tape in shingle fashion, working upward from the bottom of the assembly
- Center tape over joint to cover fasteners
- Seal all joints and openings per manufacturer's installation instructions



Step 6: Seal Penetrations

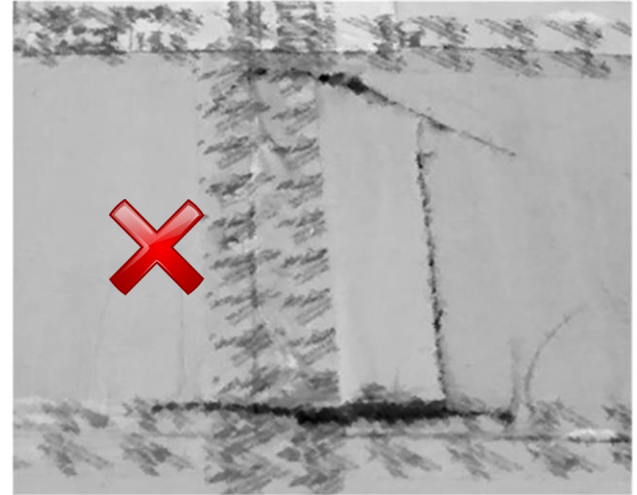
- At pipe and other small penetrations, seal gaps with silicone or expanding spray foam sealant
- Seal joints and openings with joint tape per manufacturer's instructions



Source:
DOE Building America

Step 6: Seal Penetrations

- Repair damaged areas per manufacturer's instructions



Step 7: Install Cladding

- Install cladding as soon as is practical or per manufacturer's instructions
- [See Installation Instructions](#) "Attachment of Exterior Wall Coverings Through Foam Plastic Insulating Sheathing (Polyiso) to Wood or Steel Wall Framing."

