

Guide to MN Residential Energy Code Requirements for Foundation Insulation



Exterior Foundation Insulation

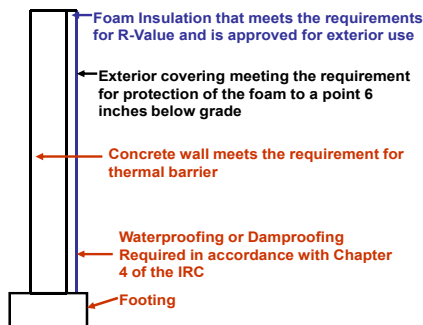
An insulation assembly installed on the exterior of the foundation walls and the perimeter of slabs-on-grade:

1. Shall be of water-resistant materials manufactured for its intended use.
2. Shall be installed according to the manufacturer's specification.
3. Shall comply with either ASTM C578, C612, or C1029 as applicable.
4. Shall have a rigid, opaque, and weather-resistant protective covering to prevent the degradation of the insulation's thermal performance. The protective covering shall cover the exposed exterior insulation and extend a minimum of six inches below grade. The insulation and protective covering system shall be flashed in accordance with IRC Section R703.8.

Spray-applied interior insulation

1. Closed cell polyurethane.
 - A. ASTM C1029 compliant with a permeance not greater than 1 in accordance with ASTM E96 procedure A.
 - B. Sprayed directly onto the foundation wall surface. There must be a one-inch minimum gap between the foundation wall surface and any framing.
 - C. The insulation shall not be penetrated by the placement of utilities.
 - D. Through penetrations shall be sealed.
2. One-half pound free rise open cell foam.
 - A. Sprayed directly onto the foundation wall surface. There must be a one inch minimum gap between the foundation wall surface and any framing.
 - B. The insulation shall not be penetrated by the placement of utilities.
 - C. Through penetrations shall be sealed.

Exterior Foundation Insulation



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INTERIOR FOUNDATION INSULATION SYSTEMS

- An insulation assembly installed on the interior of foundation walls shall meet the following provisions. 1.) Masonry foundation walls shall be drained through the masonry block cores to an approved interior drainage system. 2.) if a frame wall is installed, it shall not be indirect contact with the foundation wall unless that interior side of the foundation wall has been waterproofed. 3.) Comply with the interior air barrier requirements in Section N1102.4.1 (of the MN Res. Energy Code). 4.) Comply with one of the four following interior options , Sections N1102.2.6.8, N1102.2.6.9, N1102.2.6.10, or N1102.2.6.11 of the MN Res. Energy Code.

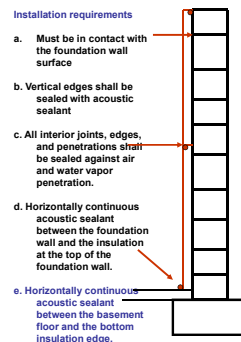
Rigid Interior Insulation

1. Insulation must meet either ASTM C578 or ASTM C1289.
2. Damp proofing, waterproofing, or a water repellent shall be applied to the exposed above grade foundation walls or a layer of damp proofing or waterproofing shall be installed on the entire inside surface of the foundation wall. Water-repellent materials shall comply with ASTM E514 with 90% or greater reduction in water permeance when compared to an untreated sample.
3. Installation requirements:
 - A. Must be in contact with foundation wall surface.
 - B. Vertical edges shall be sealed with acoustic sealant.
 - C. All interior joints, edges, and penetrations shall be sealed against air and water vapor penetration.
 - D. Horizontally continuous acoustic sealant exists between the foundation wall and the insulation at the top of the foundation wall.
 - E. Horizontally continuous acoustic sealant exists between the basement floor and the bottom insulation edge.
4. The insulation shall not be penetrated by the placement of utilities or by fasteners or connectors used to install a frame wall.

Semi-rigid Interior Insulation

1. ASTM C1621 with a maximum permeance of 1.1 per inch.
2. Must have a minimum density of 1.3 pcf and have a fungal resistance per ASTM C1338.
3. Installation requirements.
 - A. Must be in contact with foundation wall surface.
 - B. Vertical edges shall be sealed with acoustic sealant.
 - C. All interior joints, edges, and penetrations shall be sealed against air and water vapor penetration.
 - D. Horizontally continuous acoustic sealant shall be applied between the foundation wall and the insulation at the top of the foundation wall.
 - E. Horizontally continuous acoustic sealant shall be applied between the basement floor and the bottom insulation edge.

Semi-Rigid Interior Foundation Insulation N1102.2.6.8



Un-faced Fiberglass Batt Interior Insulation

1. Waterproofing shall be applied to the entire inside surface of the foundation wall.
2. The top and bottom plates must be air sealed to the foundation wall surface and the basement floor.
3. In addition, an air barrier material and vapor retarder material with a minimum permeance of at least 1, in accordance with ASTM E96 procedure A, shall be installed on the warm-in-winter side of the foundation insulation meeting the following:
 - A. Air sealed to the framing with construction adhesive or equivalent at the top and bottom plates and where the adjacent wall is insulated.
 - B. Air sealed utility boxes and other penetrations.
 - C. All seams shall be overlapped at least six inches and sealed with compatible sealing tape or equivalent.
4. Up to R-13 batts are allowed.

Interior Foundation Insulation

