Residential Unvented Attic Assemblies

Minnesota Residential Code

R806.5 Unvented attic and unvented enclosed rafter assemblies. Unvented attic assemblies (spaces between the ceiling joists of the top story and the roof rafters) and unvented enclosed rafter assemblies (spaces between ceilings that are applied directly to the underside of roof framing members/rafters and the structural roof sheathing at the top of the roof framing members/rafters) shall be permitted if all the following conditions are met:

1. The unvented attic space is completely contained within the building thermal envelope.

2. No interior Class I vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly or on the ceiling side of the unvented enclosed rafter assembly.

3. Where wood shingles or shakes are used, a minimum $^1/_4$ inch vented air space separates the shingles or shakes and the roofing underlayment above the structural sheathing.

4. In climate zones 5, 6, 7 and 8, any air-impermeable insulation shall be a Class II vapor retarder, or shall have a Class III vapor retarder coating or covering in direct contact with the underside of the insulation.

5. Either Items 5.1, 5.2 or 5.3 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.

5.1. Air-impermeable insulation only. Insulation shall be applied in direct contact with the underside of the structural roof sheathing.

5.2. Air-permeable insulation only. In addition to the air-permeable installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing as specified in Table R806.5 for condensation control.

Option 1 (see diagram next page) – Performed Insulation Board Below Roof Sheathing.

- The foam plastic insulation shall be a minimum R-49. MREC Table R402.1.1
- The foam plastic insulation shall have a flame spread index of not more than 75 and shall have a smoke-developed index of 450 when tested in the maximum thickness intended for use in accordance with ASTM E 84. R316.3
- Where the attic space is entered only for the service of utilities, the foam plastic insulation shall be protected by an ignition barrier meeting the requirements of R316.5.3
- Where the attic space is used for any reason other than the service of utilities, the foam plastic insulation shall be protected by a thermal barrier meeting the requirements of R316.4.

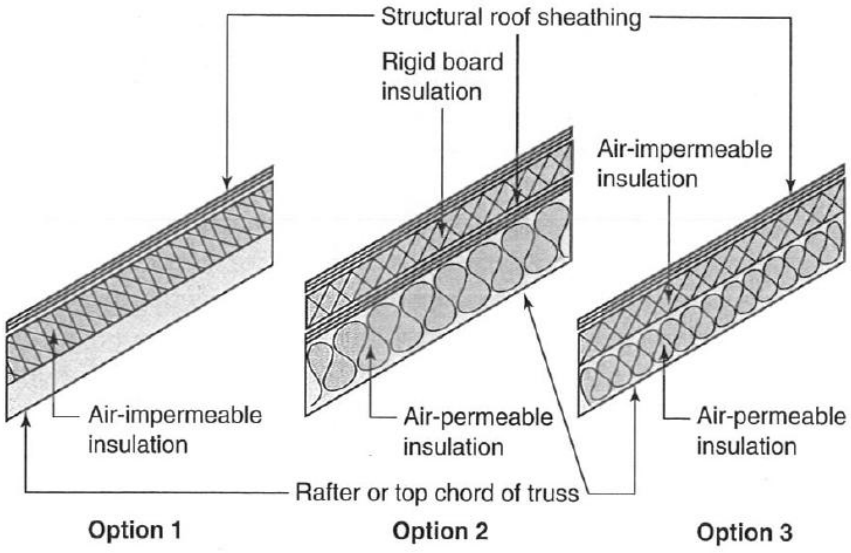

TABLE R806.5 INSULATION FOR CONDENSATION CONTROL

CLIMATE ZONE	MINIMUM RIGID BOARD ON AIR-IMPERMEABLE INSULATION *R*-VALUE[a]
7 (Duluth's Climate Zone)	R-30

a. Contributes to but does not supersede the requirements in MREC Table R402.1.1.

Option 2 (see diagram above) – Preformed Insulation Board Above Roof Sheathing & Air Permeable Insulation Below Roof Sheathing.

- The rigid board or sheet insulation installed directly above the roof sheathing shall be a minimum R-30 (climate zone 7). MN Residential Code Table R806.5
- The air-permeable insulation installed directly below and in contact with the roof sheathing shall be a minimum R-19. (R-30 + R-19 = R-49)

Option 3 (see diagram above) – Preformed Insulation Board & Air Permeable Below Roof Sheathing.

- The air-impermeable insulation shall be a minimum R-30 (climate zone 7). MN Residential Code Table R806.5
- The air-impermeable insulation shall have a flame spread index of not more than 75 and shall have a smoke-developed index of 450 when tested in the maximum thickness intended for use in accordance with ASTM E 84. R316.3
- Where the attic space is entered only for the service of utilities, the air-impermeable insulation shall be protected by an ignition barrier meeting the requirements of R316.5.3
- Where the attic space is used for any reason other than the service of utilities, the air-impermeable insulation shall be protected by a thermal barrier meeting the requirements of R316.4.
- The air-permeable insulation installed directly under the air-impermeable insulation shall be a minimum R-19. (R-30 + R-19 = R-49)

5.3. Where preformed insulation board is used as the air-impermeable insulation layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.