



Roofing Requirements One- and Two- Family Dwellings

Regulatory Services Department
Construction Code Services Division
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The information in this handout is intended for use as a reference when performing roofing work using asphalt-based organic or fiberglass shingles on one-family and two-family residential structures with sloped roofs. In addition to the information in this handout, refer to the shingle manufacturer's instructions.

The code requirements for roofing of one-family and two-family dwellings can be found in the 2006 International Residential Code (IRC) Chapter 9. There are also roofing requirements in the 2006 International Building Code Chapter 15. Both documents are part of the Minnesota Building Code. This handout summarizes the requirements of the IRC and is not intended as a complete list of all code requirements.

City of Minneapolis Policies

Flashing

Existing metal flashing may be re-used if it is in good condition.

Roof Decking

Asphalt-based organic and fiberglass shingle roofing materials must be installed on solid roof decking. When old roofing materials are removed, the original roof boards may have spaces between them. Spaced roof boards can create a fastening problem for asphalt and fiberglass shingles. Any roof boards with spaces greater than ½" must be corrected. The following are approved methods for correcting spacing:

- Install strips of at least 1 X 4 nominal boards in the spaces.
- Re-deck the roof with a minimum 11/32" thick panel sheathing product. No edge of the sheathing can be left exposed to the weather. Cover edges with metal or wood trim.
- Small areas may be corrected by moving boards around to reduce spaces to less than ½" and then add a minimum of 1 X 4 boards to fill the spaces.

Note: Shingle manufacturers have requirements regarding roof sheathing such as not allowing shingle installation on roof boards larger than a nominal 6" in width. Refer to the shingle manufacturer's installation instructions for requirements.

Code Requirements

Existing Roof Layers

All existing roofing layers shall be removed to the roof sheathing prior to installing new roof materials according to IRC Section 907.

Underlayment

Underlayment is a material placed on the roof sheathing before installing shingles. It is usually a thin, black, paper-like material, often referred to as roofing felt. It comes in a roll and is usually 36" wide. It also comes in different thicknesses or weights. The minimum acceptable underlayment is 15# roofing felt.

Underlayment may also be a self-adhering, rubber-like material. This type of underlayment is most often used at the roof edge and in valleys to help minimize damage from ice-dams. Many shingle manufacturers recommend their own type of self-adhering underlayment and where it should be used.

Underlayment shall comply with IRC Section 905.2.3 and its application shall be according to IRC Sections R905.2.7 and R905.2.7.1.

Minnesota's climate is considered severe with respect to underlayment requirements.

An ice barrier is required and shall be installed as follows:

- The ice barrier shall consist of two layers of underlayment (15# roofing felt) cemented together or a single layer of a self-adhering sheet. Whichever product is used, it must be installed parallel to and extend from the eave edge to a point at least 24 inches inside the exterior wall line.
- After installation of the ice barrier, install remaining underlayment as follows:

For roof slopes of 2 units vertical in 12 units horizontal (2:12) up to 4 units vertical in 12 units horizontal (4:12), underlayment shall be two layers of 15# felt. Starting at the ice barrier, install the first course of 36 inch wide underlayment lapping the ice barrier a minimum of 19 inches and install successive courses with a minimum 19" lap over the previous course. Apply the second layer in the same manner. End laps shall be offset a minimum of 6 feet.

For roof slopes of 4 units vertical in 12 units horizontal (4:12) or greater, underlayment shall be one layer of 15# felt. Starting at the ice barrier, apply underlayment shingle fashion, parallel to and starting from the ice barrier edge and lapped a minimum of 2" over the ice barrier. Apply successive courses in a similar manner. End laps shall be offset a minimum of 6 feet.

Flashing

Existing flashing may be re-used provided it is in good condition. Roofing tar or asphalt shall not be used in lieu of metal flashing.

Flashing requirements are found in IRC Section R905.2.8. The following are some locations where metal flashing must be installed: around roof penetrations, in valleys, and at the intersection of a roof and a vertical surface such as a wall. Shingle manufacturers will have some recommendations for the installation of flashing. Valley flashing shall be a minimum of 28 gauge for stainless steel and 26 gauge for galvanized steel. Valley flashing shall be a minimum of 24 inches wide. Flashing at a vertical surface (such as a wall or chimney) shall be installed using the step-flashing method.

Fasteners

Fastener requirements are found in IRC Section R905.2.5. Fasteners shall be long enough to penetrate the roof sheathing a minimum of $\frac{3}{4}$ " or through the thickness of the sheathing. Fasteners shall be of corrosion resistant metal.

Shingles

Asphalt-based organic and fiberglass shingles may only be used on roofs with slopes of 2:12 and greater. Shingles shall have self-seal strips or be interlocking. Shingles normally require four fasteners per 3 tab strip. Refer to manufacturer's instructions for other requirements.

Attic ventilation

Attics should be vented to allow heat and moisture to escape the attic space. Attic ventilation also helps to reduce the formation of ice dams. For new construction, the ventilation requirement is one square foot of vent area per 150 square feet of attic area. The ventilation requirement may also be one square foot of vent area per 300 square feet of attic area depending on placement of vents and installation of an approved ceiling vapor barrier. Some existing homes may not have adequate ventilation to meet the new construction requirement. Inadequate ventilation may lead to problems already stated or may also cause shingles to buckle. It is not required to add more ventilation to an existing home but it is recommended for the reasons stated.

Permit and Inspection

A building permit is required for roofing work. A final inspection is required when the work is complete. More inspections may be done if necessary. The name and telephone number of the building inspector will appear on the building permit. Once you have obtained a permit the building inspector's name and phone number will be listed on the last page, call the inspector with questions or to schedule an inspection. For information regarding obtaining a permit or to print a permit application, visit our web site at: www.ci.minneapolis.mn.us/mdr or call Minneapolis 311 or if outside the Minneapolis city limits call (612) 673-3000.