RESIDENTIAL ROOFING

GENERAL REQUIREMENTS - All code references are from the 2015 Minnesota State Residential Building Code. Roofing work requires a building permit which can be acquired at Coon Rapids City Hall. The City will then inspect the work to verify code compliance and proper material use and installation. Roofing materials are to be installed in accordance with the Minnesota State Building Code and manufacturer’s written installation instructions which must be present at all inspections.

PREPARATION - R907.3 Recovering versus replacement.
New roof coverings shall not be installed without first removing all existing layers of roof coverings where any of the following conditions exist:
1. Where the existing roof boards or roof covering is water-soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, cement or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.
4. For asphalt shingles, when the building is located in an area subject to moderate or severe hail exposure according to Figure R903.5.

UNDERLAYMENT - Table 301.2(1) See footnote h. on ice barrier.
All dwellings, structures attached to dwellings, and all conditioned (heated and/or cooled) structures, require eave flashing to be installed at the eaves and extending on the roof to a point even with 24” past the inside wall line. This barrier shall consist of at least two layers of underlayment cemented together, or be a self-adhering polymer modified bitumen sheet (many times referred to as ice dam protection or ice and water shield). It must be installed the full length of all valleys. On roof slopes of 2/12 to 4/12 the remainder of the roof shall be two layers of 15# felt (applied in shingle fashion), or 1 layer of ice dam protection. On 4/12 or greater slopes, the balance of the roof shall be one layer of 15# felt.

VENTILATION - R806.2 Minimum vent area.
A roof requires ventilation to prevent attic heat build-up, attic moisture and condensation, weather infiltration, and ice dam build up. One square foot of net free ventilation area for each 300 square feet of attic space must be provided where roof and soffit vents are used together. The venting should be equally divided between roof vents and soffit vents.

APPLICATION - R905.1 Roof covering application.
All roofing materials must be installed per the manufacturer’s instructions. Asphalt shingles shall have the minimum number of fasteners required by the manufacturer. For normal application, each shingle strip shall have a minimum of four fasteners. Fasteners shall be of galvanized steel, stainless steel, aluminum, or copper roofing nails. The nails shall have a minimum 12 gage shank and a 3/8” diameter head. Fasteners must penetrate through the roofing material and a minimum of 3/4” into the roof sheathing. They must penetrate through the sheathing if the sheathing is less than 3/4”. Fasteners shall be perpendicular and not penetrate the shingle surface.

FLASHING - 905.2.8 Flashing.
 Flashing shall be installed at wall and roof intersections, wherever there is a change in roof slope or direction, and around all roof openings. Flashing shall be provided per roofing manufacturer’s instructions. Metal flashing shall be of not less than .019 inch (No. 26 galvanized sheet gage) corrosion resistant metal. Open valleys shall have a corrosion resistant metal liner at least 24 inches wide. Flashing against a vertical side wall shall be installed by the step flashing method. Kick-out flashing shall be used where the lower portion of a sloped roof stops within the plane of an intersecting wall cladding. A cricket or saddle shall be installed on the ridge side of any chimney greater than 30 inches wide.

INSPECTIONS
Typically, two inspections are required for a roof application: An eave flashing inspection to observe the placement of the ice dam protection and a final inspection. However, if there is a gap between the roof decking and the fascia that needs to be spanned, then this will need to be inspected as well. Call 763-767-6476 to schedule your required inspections.
CALCULATING THE PROPER NUMBER OF ROOF VENTS

ROOF VENTING WITH ADEQUATE SOFFIT VENTING

1. Determine the square foot imprint of the structure by multiplying length x width (i.e. 40 ft x 24 ft = 960 sq ft).
2. Multiply this number by 0.24 to get the number of square inches of required venting (i.e. 960 sq ft x 0.24 = 230 sq in).
3. Divide the total required roof venting by the amount of venting (in square inches) provided by the type of vents you are using (i.e. 230 sq in/50 sq in (roof louvers) = 4.6 vents. Always “round up” your number to determine the final amount of vents needed (i.e. 4.6 = 5 total louver vents required).

ROOF VENTING WITHOUT SOFFIT VENTING or SOFFIT VENTING WITHOUT ROOF VENTING

Follow the same formula except multiply the square footage of the structure by 0.96 to get the number of square inches of required venting for the roof. Note: it is 4 times the amount of venting.
### Ice and Water Shield (I & W) Application Guide

<table>
<thead>
<tr>
<th>Depth of Overhang</th>
<th>Horiz. Distance of area to be covered</th>
<th>4/12 pitch</th>
<th>5/12 pitch</th>
<th>6/12 pitch</th>
<th>8/12 pitch</th>
<th>10/12 pitch</th>
<th>12/12 pitch</th>
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<tr>
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<td>(3.5')</td>
<td>3' 8''</td>
<td>3' 10''</td>
<td>1.3</td>
<td>3' 11''</td>
<td>1.3</td>
<td>4' 2''</td>
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<td>4' 8''</td>
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<td>5'</td>
<td>1.7</td>
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**ROOF COVERING**

**SNOW**

**WATER**

**UNDERLAYMENT**

**ICE DAM PROTECTION MEMBRANE**

**ROOF DECK**

**24" MIN.**

**ICE DAM**

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**CHIMNEYS REQUIRE A SADDLE FLASHING (CRICKET) WHEN THEIR WIDTH IS 30" OR MORE. THE SADDLE FLASHING CAN BE METAL OR BE COVERED WITH ROOFING MATERIAL**

**CRICKET OR SADDLE FLASHING**

**30" OR WIDER**

**WATER FLOW**

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**STEP FLASHING**

**SELF ADHERING MEMBRANE**

**SELF ADHERING EAVES MEMBRANE**

**HOUSEWRAP**

**DRIP EDGE**

**KICKOUT FLASHING**

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**DAMPERED VENTS ARE REQUIRED ON ALL KITCHEN AND BATHROOM FAN ROOF EXHAUSTS**