

Asphalt Shingle Roofing



Building Inspections

The Minnesota State Building Code and Richfield City Code provide minimum standards for creating an environment of health and safety for all Richfield residents.

PURPOSE: To provide general reference for a residential re-roofing project of homeowners and contractors using asphalt shingles. Always refer to the manufacturer's application instructions.

SCOPE: Applies to all buildings and structures where portions or all of the roof covering is to be replaced.

INSPECTIONS: A final inspection is required. Provide photos of the roof sheathing or roof boards, new sidewall step flashing, kick-out flashing, chimney crickets and other flashings, having no deterioration to them, ice and water protection at the eaves, add ventilation to attic per code. All roofing contractors are required to be licensed by the Minnesota Department of Labor and Industry.

Before undertaking any re-roofing project you should familiarize yourself with all aspects of the reroofing process before you begin. The fact is, there are various conditions about your roof that may limit your product choices or affect the cost of your roofing job. The 2015 Minnesota State Building Code adopts the 2012 International Residential Code (2012 IRC). All "R" code references provided in this brochure pertain to the 2012 IRC.

Do it myself or hire a professional? This is a question only you can answer based on your skill level and time. An asphalt roofing project can be successfully accomplished by the homeowner if you take the time to become familiar with the roofing procedures. Be sure to plan your project around the weather and allow enough time to get a proper cover on the roof before it rains. Steep-sloped asphalt roofs and those with multiple valleys can present special challenges, so be sure you have the right equipment and skills before undertaking this type of roofing project. Other types of roofs such as wood shingles, shakes and clay tile are not normally taken on by the "do-it-yourself" homeowner because of the special skills required. Remember, if you decide to hire a professional, be sure the company is a state-licensed contractor or roofer.

To confirm if your contractor is licensed in Minnesota contact the:

Department of Labor and Industry
Residential Building Contractors
Phone: (651) 284-5069 or 1-800-657-3944
www.doli.state.mn.us/contractor.html
E-mail: DLI.Contractor@state.mn.us

Should I overlay the existing roof or tear off the existing shingles? 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 or roof covering is water soaked or has deteriorated to the point that the existing roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is wood shake, slate, clay, or asbestos-cement tile.
3. Where the existing roof has two or more applications of any type of roof covering.
4. The structural roof components shall be capable of supporting the roof covering system.

What is roof slope and does it limit the choice of shingles? Asphalt shingles shall only be used on roof slopes of two units vertical in 12 units horizontal (2:12) or greater. **Must follow manufacturer's specifications.** The slope of the roof is measured by the vertical rise of the roof to the horizontal run and is expressed as a fraction. A "4/12 roof slope" means the roof rises 4 feet for every 12 feet of horizontal roof span.

Roof slopes from two units vertical in 12 units horizontal (2:12) up to four units vertical in 12 units horizontal (4:12), may use shingles per Manufacturer's installation requirements, which will address a greater potential for ice dam/water backup. This will require two layers of underlayment installed per R905.2.7 or a continuous layer of self-adhering polymer modified bitumen sheet. Less than 2/12 roof slopes require a manufactured product designed for low sloped roof installations.

Roof ventilation is required. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of the roof rafters shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain or snow. Ventilating openings shall have a least dimension of 1/16 inch (1.6 mm) minimum and ¼ inch (6.4 mm) maximum. Required ventilation openings shall be open directly to the outside air. Roof Vent Manufacturers allow only one type of roof ventilation system to be installed on the roof.

Minimum vent area: The minimum net free ventilating area shall be 1/150 of the area of the vented space. Exception: The minimum net free ventilation area shall be 1/300 of the vented space provided one or more of the following conditions are met:

1. A vapor retarder is installed on the warm-in-winter side of the ceiling.
2. At least 40 percent and not more than 50 percent of the required ventilating area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located no more than 3 feet below the ridge or highest point of the space, with the balance of the required ventilation provided by eave or cornice vents.

It may be necessary to add ventilation with your new roof to meet these standards.

Code requirements for asphalt shingles.
Always refer to the manufacturer's application instructions.

Fasteners for asphalt shingles shall be galvanized steel, stainless steel, aluminum or copper roofing nails, minimum 12 gage (0.105 inch (3 mm)) shank with a minimum 3/8 inch (10 mm.) diameter head, ASTM F 1667, of a length to penetrate through the roofing materials and a minimum of 3/4 inch (19 mm) into the roof sheathing. Where the roof sheathing is less than 3/4 inch (19 mm) thick, the fasteners shall penetrate through the sheathing. Fasteners shall comply with ASTM F 1667. Staples are not permitted for shingle application unless specifically noted in the manufacturer's installation instructions.

The code requires that underlayment shall be one layer of non-perforated 15 felt applied shingle fashion, parallel to and started from the eave and lapped 2 inches (51mm), fastened sufficiently to hold in place. In addition, an ice barrier that consists of at least two layers of underlayment cemented together or of a self-adhering polymer modified bitumen sheet, shall be used in lieu of normal underlayment and extend from the eave's edge to a point at least 24 inches (610 mm) inside the exterior wall line of the building.

Valley linings shall be installed in accordance with manufacturer's installation instructions before applying shingles. Valley linings of the following types shall be permitted.

1. For open valley (valley lining exposed) lined with metal, the valley lining shall be at least 24 inches wide and of any of the corrosion-resistant metals in Table R905.2.8.2.
2. For open valleys, valley lining of two plies of mineral surface roll roofing complying with ASTM D3909 or ASTM D6380 Class M shall be permitted. The bottom layer shall be 18 inches (457 mm) and the top layer a minimum of 36 inches (914mm) wide.
3. For closed valleys (valley covered with shingles), use a valley lining of one ply of smooth-roll roofing complying with ASTM D6380 Class S Type III, Class M Type II or ASTM D3909 and at least 36 inches wide or a valley lining (as described in items 1 and 2 above) shall be permitted. Self-adhering polymer modified bitumen underlayment complying with ASTM D 1970 shall be permitted in lieu of the lining material.

Chimneys shall be provided with crickets when the dimension parallel to the ridgeline is greater than 30 inches (762 mm) and does not intersect the ridgeline. The intersection of the cricket and chimney shall be flashed, counterflashed and sloped in a way to direct water past the corners of the chimney. Chimney crickets shall be constructed in compliance with R1003.20.

Kick-out flashing shall be installed where the lower portion of a sloped roof stops within the plane of an intersecting wall cladding, in such a manner as to divert or kick out water away from the assembly a minimum of 2 ½ inches (63.5 mm) when simultaneously re-siding and re-roofing existing buildings and structures. Code does not require kick-out flashing when only re-roofing existing buildings and structures but is highly recommended if feasibly possible to install as to prevent water intrusion to the building envelope.

Sidewall flashing against a vertical-sidewall shall be by the step-flashing method and shall be a minimum of 4 inches (102 mm) in height and 4 inches (102 mm) in width and shall direct water away from vertical sidewall onto the roof and/or into the gutter and providing flashing over each course layer of shingles in a weaving pattern as to direct water flow out over the top of the lower course layer of shingles to day light in shingle fashion.

Other flashing, such as flashing against a vertical wall as well as soil stack, vent pipe and chimney flashing shall be applied according to asphalt shingle manufacturer's printed instructions.

