

# ROOFING



## BUILDING DEPARTMENT

160 LAKE STREET NORTH  
BIG LAKE MN 55309

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This handout is intended only as a guide and is based in part on the 2020 Minnesota Residential Code, Big Lake City ordinances, and good building practice. While every attempt has been made to insure the correctness of this handout, no guarantees are made to its accuracy or completeness. Responsibility for compliance with applicable codes and ordinances falls on the owner or contractor. For specific questions regarding code requirements, refer to the applicable codes or contact your local Building Department.

### **SCOPE**

The scope of this handout will be limited the installation of four types of roofing materials.

- Asphalt Shingles
- Mineral-surfaced Roll Roofing
- Wood Shingles
- Wood Shakes

### **PERMITS, INSPECTIONS, AND LICENSES**

Building permits are required for all roofing projects. Permits can be obtained from Big Lake City Hall, 160 Lake Street North. Permits are issued at the time of application.

The Building Department goal is to conduct one inspection during the course of the work and a final inspection. You will receive information at the time you obtain your permit as to the inspection process.

All contractors engaged in roofing work must have a state contractor's license and show proof of the license to obtain a permit. Specific questions regarding contractor licenses should be directed to the Minnesota Department of Labor and Industry, (651) 284-5069 or 1-800-342-5354.

### **DEBRIS**

The removal of existing roofing materials often results in this debris moving about the neighborhood on windy days. Shingle wrappers and other construction debris are nuisances to other neighbors when they find this material in their yards. As you install a new roof on your dwelling, we ask that you exercise courtesy towards your neighbors by regularly policing your yard and adjoining areas for debris that may blow around.

### **GENERAL**

All roof covering materials must be delivered in packages bearing the manufacturers identifying marks and approved testing agency labels when required.

All asphalt shingles must be either self-sealing or interlocking.

Roof decks must be solidly sheathed for asphalt shingles or mineral-surfaced roll roofing. Solid sheathing may be plywood, OSB, or 1-inch nominal boards. Wood shingles and shakes may be applied over solid or spaced sheathing. Roof decks that are rotted or unsound must be repaired prior to reroofing.

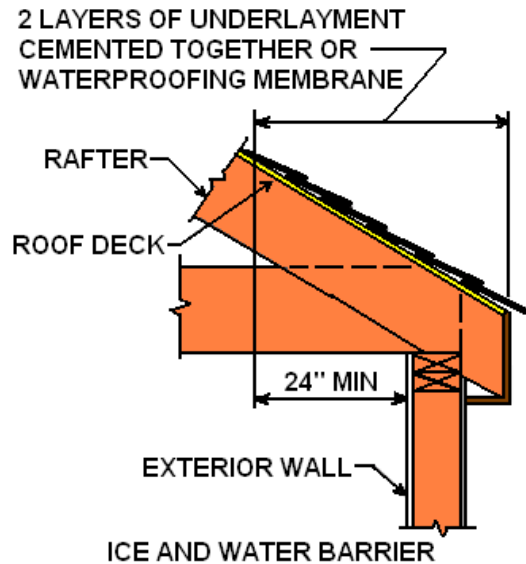
## REROOFING

New roofing may be installed over an existing roof but shall be limited to a total of two layers. Existing flashing in good condition may be reinstalled. Any sheathing that is replaced must be installed and fastened according to the code.

## ICE AND WATER BARRIERS

An ice and water barrier is required on all roofs except for detached accessory buildings (garages). The barrier may be at least two layers of underlayment cemented together or a self-adhering polymer modified bitumen sheet. There are several manufacturers who make materials specifically for this requirement that are marketed under differing trade names. The ice and water barrier must extend from the edge of the eaves to a point at least 24 inches inside the exterior wall line of the building. Ice and water barriers are not required along the rakes or in valleys.

Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane.



## VENTILATION

Ventilation of enclosed attics and enclosed rafter spaces is required. Ventilating openings must be provided with corrosion-resistant mesh with openings of  $\frac{1}{8}$ " to  $\frac{1}{4}$ " inch.

For attics without ceiling vapor barriers, 1 square foot of net free ventilating area should be provided for each 150 square feet of attic area.

For attics with vapor barriers or without ceiling vapor barriers and having at least 50% but not more than 80% of the ventilating area provided by ventilators located in the upper portion of the space to be ventilated and at least 3 feet above the eave vents and the balance of the ventilation provided in the eave vents, ventilation may be 1 square foot of net free ventilating area for each 300 square feet of attic area.

## DRIP EDGE/ GUTTERS

Roof Gutters and drip edge are not required by the code

## FLASHING

Flashing is required at all wall and roof intersections, wherever there is a change in roof slope or direction, and around roof openings. When flashing is metal, it must be corrosion resistant metal with a thickness of not less than 0.019 inch (No. 26 galvanized sheet) (R903.2.).

Flashing against vertical front walls, soil stacks, vent pipes, and chimney flashing must be in accordance with the asphalt shingle manufacturer's printed instructions. Sidewall flashing may be either step flashing or continuous flashing and is required whenever wall and roof intersections occur.

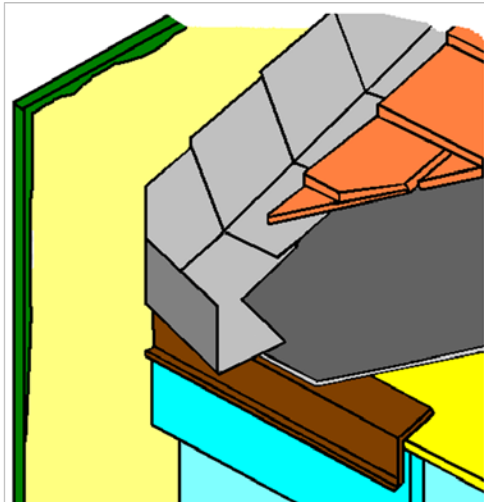
Cricket or saddles are required on the ridge side of any chimney greater than 30 inches wide. Cricket or saddle coverings must be of sheet metal or of the same material as the roof covering.

## KICK-OUT FLASHING

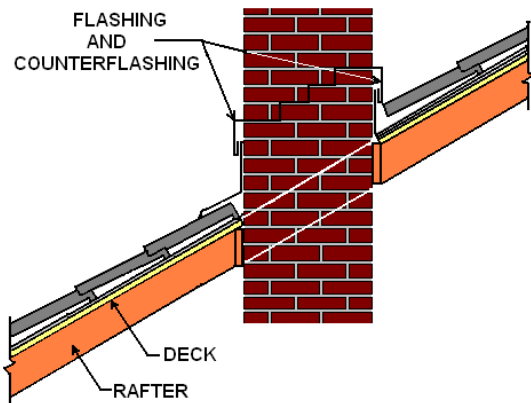
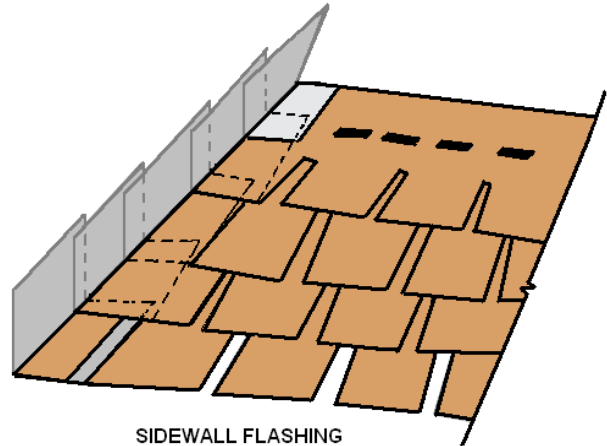
**R903.2.1 Locations.** Flashings shall be installed at wall and roof intersections, wherever there is a change in roof slope or direction and around roof openings. A kick-out flashing shall be installed to divert the water away from where the eave of a sloped roof intersects a vertical sidewall. The kick-out flashing on the roof shall be a minimum of 2 ½" long. Where flashing is of metal, the metal shall be corrosion resistant with a thickness of not less than 0.019 inch (No. 26 galvanized sheet).

**R903.2.1.1 Existing buildings and structures.** Kick-out flashing shall be required in accordance with section R903.2.1 when simultaneously re-siding and re-roofing existing buildings and structures.

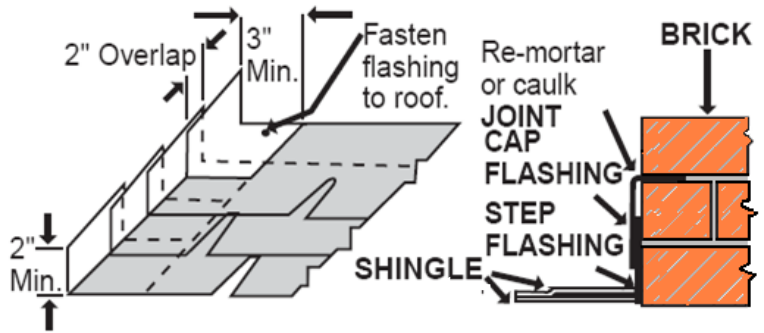
**Exception:** Kick-out flashings are not required when only re-roofing existing buildings and structures.



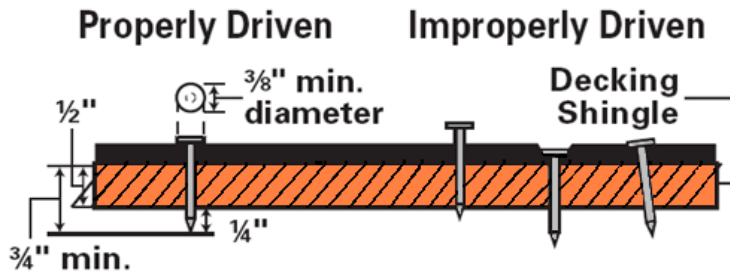
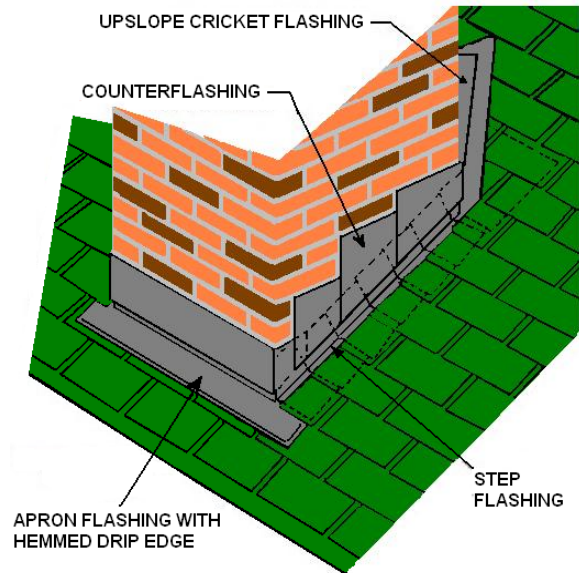
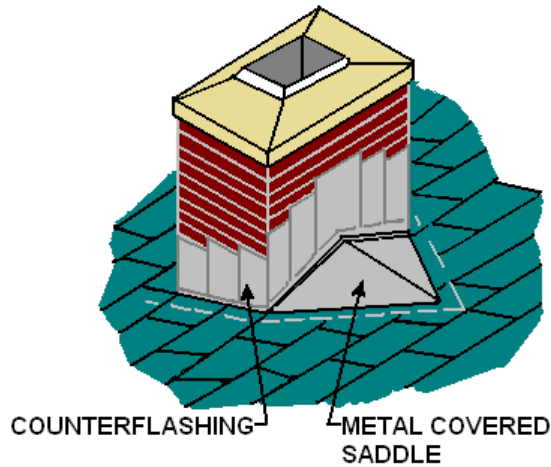
**KICK-OUT FLASHING**



## Sidewall flashing (26-Gauge)



**Cricket or Saddle required if chimney is more than 30 inches wide**



| FASTENER SCHEDULE FOR ROOFING  |   |   |   |
|--|---|---|---|
| Asphalt Shingles   | Mineral-surfaced Roll Roofing   | Wood Shingles   | Wood Shakes   |
| Fasteners for asphalt shingles must be galvanized steel, stainless steel, aluminum, or copper roofing nails, minimum 12 gauge shank with a minimum 3/8" diameter head and of a length to penetrate through the roofing materials and a minimum of 3/4" into roof sheathing or when roof sheathing is less than 3/4" thick, the fastener shall penetrate through the sheathing. | Roll roofing must be installed in accordance with the manufacturer's installation instructions. | Fasteners for wood shingles must be corrosion-resistant with a minimum penetration of 1/2" into the sheathing. For sheathing less than 1/2" in thickness, the fastener shall extend through the sheathing. A minimum of two fasteners per shingle are required. | Fasteners for wood shakes must be corrosion-resistant with a minimum penetration of 1/2" into the sheathing. For sheathing less than 1/2" in thickness, the fastener shall extend through the sheathing. A minimum of two fasteners per shake are required. |

## ASPHALT SHINGLES - R905.2

Asphalt shingles may only be used on roof slopes of two units vertical in 12 units horizontal (2:12) or greater. For roof slopes from 2:12 to 4:12, double underlayment is required. Underlayment must conform to ASTM D 226, Type I; ASTM D 4869, Type I; or ASTM D 6757. For slopes of 4:12 and greater, underlayment must be applied shingle fashion. Laps must be a minimum of 2-inches. End laps must be offset by at least 6 feet.

For normal application, strip shingles must be fastened with a minimum of four nails. For interlocking shingles, two nails are required. See the manufacturer's installation instructions.

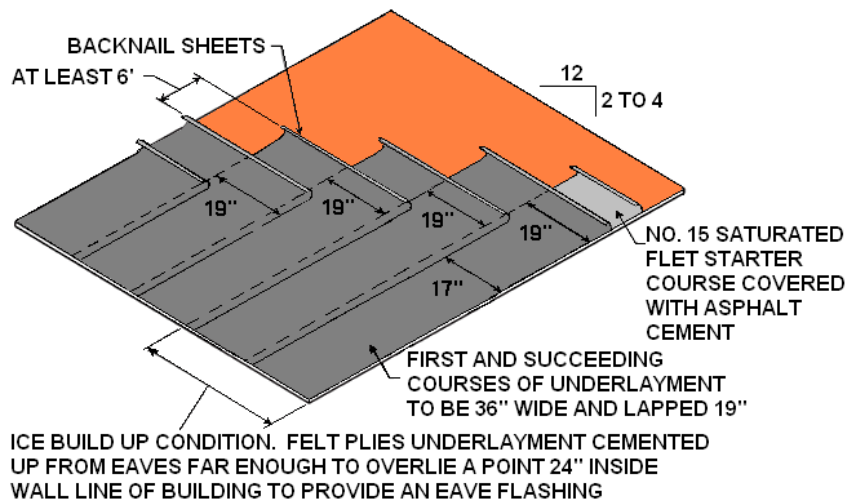
Valleys must be lined in accordance with the shingle manufacturers written instructions. In addition, valleys may be of any of the following:

- For open valleys lined with metal, the valley lining must be at least 24 inches wide and of galvanized steel of at least 26 gage or other approved materials.
- For open valleys, two plies of roll roofing may be permitted. The bottom layer must be at least 18 inches wide and the top layer at least 36 inches wide.
- For closed valleys (valleys covered with shingles), valley lining of one ply of smooth roll roofing complying with ASTM D 224 Type II or Type III and at least 36 inches wide or one of the two methods previously listed may be used.

## MINERAL SURFACED ROLL ROOFING - R905.5

Mineral surfaced roll roofing may only be applied on roofs with a slope of 1:12 or greater. Mineral surface roll roofing must conform to ASTM D 3909 or ASTM D 6380, Class M.

Mineral surface roll roofing must be installed in accordance with the manufacturer's installation instructions.



## WOOD SHINGLES - R905.7

Wood shingles must be installed on slopes that are at least 3:12 or greater. They must be made of a naturally durable wood of grades 1, 2, or 3 approved by the Cedar Shake and Shingle Bureau. A label of an approved grading or inspection bureau or agency must identify each bundle of shingles.

Wood shingles must be installed in accordance with the manufacturer's instructions and the following. Wood shingles must be laid with a side lap of not less than 1 ½" between joints in courses and no two joints in any three adjacent courses shall be in direct alignment. Spacing between shingles may not be less than ¼" nor more than ⅜". Weather exposure may not exceed what is specified in the accompanying table. Wood shingles must be attached to the roof with two fasteners per shingle. Fasteners should be not more than ¾" from the edge of the shingle and not more than 1" above the exposure line.

| WOOD SHINGLE WEATHER EXPOSURE AND ROOF SLOPE |                 |       |                      |                       |
|--|-----------------|-------|----------------------|-----------------------|
| Roofing Material                             | Length (Inches) | Grade | Exposure (inches)    |                       |
|  |                 |       | 3:12 pitch to < 4:12 | 4:12 pitch or steeper |
| Shingles of naturally durable wood           | 16              | No. 1 | 3 ¾                  | 5                     |
|  |                 | No. 2 | 3 ½                  | 4                     |
|  |                 | No. 3 | 3                    | 3 ½                   |
|  | 18              | No. 1 | 4 ¼                  | 5 ½                   |
|  |                 | No. 2 | 4                    | 4 ½                   |
|  |                 | No. 3 | 3 ½                  | 4                     |
|  | 24              | No. 1 | 5 ¾                  | 7 ½                   |
|  |                 | No. 2 | 5 ½                  | 6 ½                   |
|  |                 | No. 3 | 5                    | 5 ½                   |

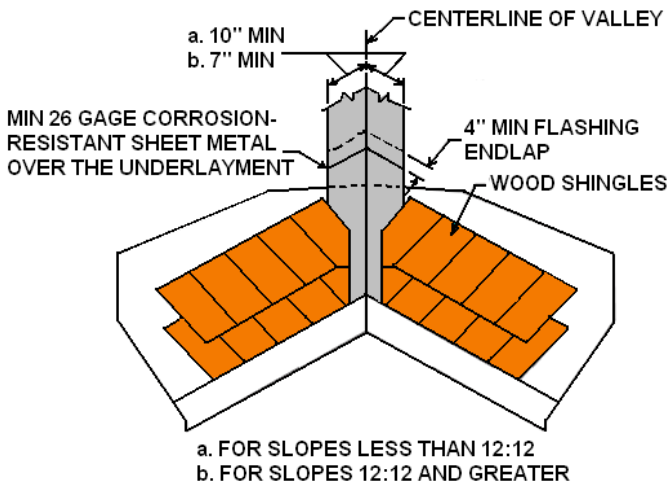
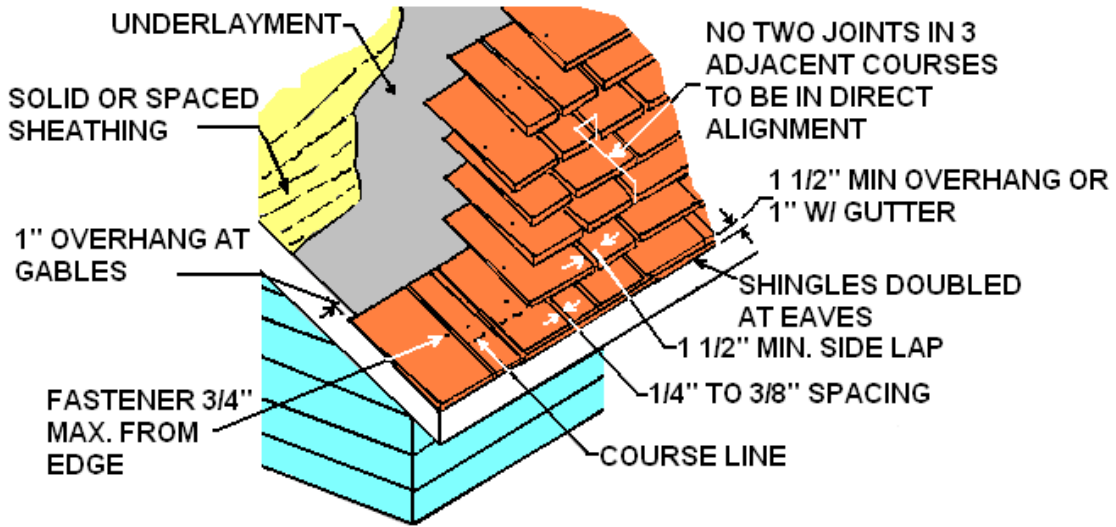


Figure R905.7.4  
WOOD SHINGLE GRADE DESCRIPTION AND EXAMPLE LABEL

## WOOD SHAKES - R905.8

Wood shakes must be installed on roof slopes of 3:12 or greater and must be installed in accordance with the manufacturer's installation instructions and the code. Wood shakes must be laid with a side lap of not less than 1 ½ inches between joints in adjacent courses. Spacing between shakes in the same course must be between ⅛ inch and ⅝ inch for shakes and taper sawn shakes of naturally durable wood and ¼ inch and ⅜ inch for preservative taper sawn shakes. Fasteners for wood shakes must be corrosion resistant. Shakes must be attached with two fasteners per shake. Fasteners must be positioned not more than 1 inch from each edge and not more than 2 inches above the exposure line.

The starter course at the eaves must be doubled and the bottom layer may be 15-inch, 18-inch, or 24-inch wood shakes or shingles. Fifteen-inch or 18-inch wood shakes may be used for the final course at the ridge. Shakes must be interlaid with 18-inch-wide strips of No. 30 felt shingled between each course in such a manner that no felt is exposed to the weather by positioning the lower edge of each felt strip above the butt end of the shake it covers a distance equal to twice the weather exposure. Underlayment must comply with ASTM D 226, Type I.

| <b>WOOD SHAKE WEATHER EXPOSURE AND ROOF SLOPE</b>                |                 |       |                       |
|--|-----------------|-------|-----------------------|
| Roofing Material   | Length (Inches) | Grade | Exposure (inches)     |
|  |                 |       | 4:12 pitch or steeper |
| Shakes of naturally durable wood                                 | 18              | No. 1 | 7 ½                   |
|  | 24              | No. 1 | 10                    |
| Preservative-treated taper sawn shakes of naturally durable wood | 18              | No. 1 | 7 ½                   |
|  | 24              | No. 1 | 10                    |
|  | 18              | No. 2 | 5 ½                   |
|  | 24              | No. 2 | 7 ½                   |
| Taper-sawn shakes of naturally durable southern yellow pine      | 18              | No. 1 | 7 ½                   |
|  | 24              | No. 1 | 10                    |
|  | 18              | No. 2 | 5 ½                   |
|  | 24              | No. 2 | 7 ½                   |

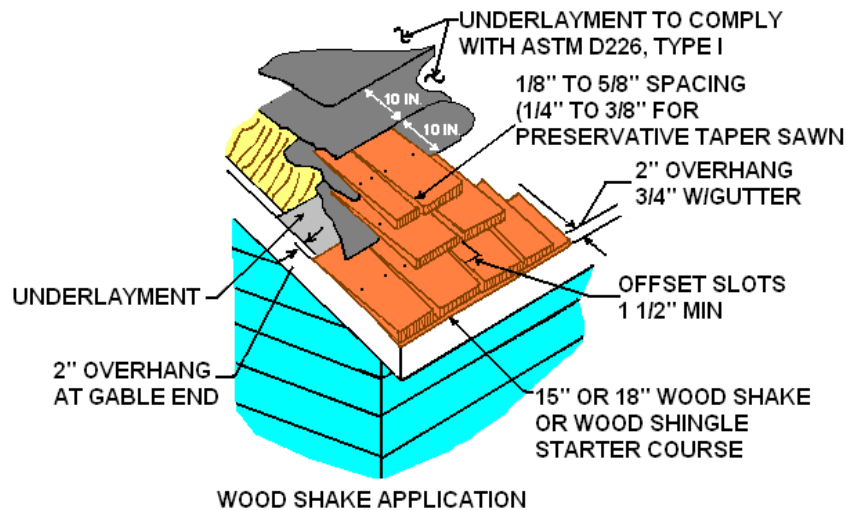


Figure R905.8.9  
WOOD SHAKE DESCRIPTION AND EXAMPLE LABELS