



Roofing Information Sheet

BUILDING PERMITS ARE REQUIRED FOR ROOFING AND/OR REROOFING IN HASTINGS.

Inspections Required:

1. Starter Roll underlayment inspection before applying shingles;
2. Final Inspection when complete.

When work is ready, an inspection must be requested and made prior to concealing. IRC 109.4
Inspection Hours are 9:30 a.m. To 3:30 p.m. - Weekdays. Call 480-2342 to Schedule All Inspections. All
Inspections Require a 24-Hour Notice to the Building Department.

- * Fiberglass or asphalt shingles are not permitted on roofs with a pitch of less than 2:12. These must be designed and roofed as a flat roof. Roofs with a pitch of 2:12 to less than 4:12 pitch apply 2 layers of type 15 felt applied shingle fashion.
- * Wood shingles may not be used on roofs with less than a 3:12 pitch.
- * Wood shakes may not be used on roofs with less than a 4:12 pitch.
- * Roof valley areas must have a continuous 36 inch wide underlayment running down the full length of the valley. Metal valley flashing must be solidly cemented to the underlayment for roofs with slopes of less than 7:12 pitch.
- * All flashing must be of number 28 gauge galvanized sheet steel - corrosion resistant and extend 11 inches up each way from any valley. On wood shakes and shingle roofs the valley flashing must have a 1 inch splash diverter at the flow line of the valley.
- * The entire roof deck must be covered with a 15# roofing felt with 2 inches minimum lap horizontally and 4 inches minimum lap vertically.
- * 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.
- * Minimum area: The total net-free ventilating area shall not be less than 1:150 of the area of the space ventilated except that reduction of the total area to 1:300 is permitted, provided at least 50 percent and not more than 80 percent of the required ventilating area is provided by ventilators located in the upper portion of the space to be ventilated at least 3 feet (914 mm) above the eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents. As an alternative, the net free cross-ventilation area may be reduced to 1:300 when a vapor barrier having a transmission rate not exceeding 1 perm is installed on the warm-in-winter side of the ceiling.

WOOD SHINGLE APPLICATIONS

Wood Shingle Underlayment Starter Edge	<p>Two layers of 15# felt solidly cemented together between plies extending from the eave up the roof to a line 36 inches inside of the exterior wall line of the building.</p> <p style="text-align: center;">Or</p> <p>An approved thermoplastic ice and water shield starter edge extending from the eave up the roof to a line 24 inches inside the exterior wall line of the building.</p>
Wood Shingle Attachment	Minimum 14 ½ gauge corrosion resistant nails with a 7/32 inch head or corrosion resistant staples. Fasteners must be long enough to penetrate the sheathing ¾ inch or through the sheathing.
Number of Fasteners for Wood Shingles	2 Fasteners per Shingle
<p><i>Contact the Inspections Department for Maximum Exposure And Method of Wood Shingle Installation.</i></p>	

WOOD SHAKE APPLICATIONS

Wood Shake Underlayment Starter Edge	<p>Two layers of 15# felt solidly cemented together between plies extending from the eave up the roof to a line 35 inches inside of the exterior wall line of the building.</p> <p style="text-align: center;">Or</p> <p>An approved thermoplastic ice and weather shield starter edge extending from the eave up the roof to a line 24 inches inside the exterior wall line of the building.</p>
Wood Shake Attachment	Minimum 13 gauge corrosion resistant nails with a 7/32 inch head or corrosion resistant staples. Fasteners must be long enough to penetrate the sheathing ¾ inch or through the sheathing.
Number of Fasteners for Wood Shakes	2 Fasteners per Shake
<p><i>Contact the Inspections Department for Maximum Exposure And Method of Wood Shake Installation.</i></p>	

FIBERGLASS AND ASPHALT SHINGLE APPLICATIONS

PITCH	2:12 TO LESS THAN 4:12	4:12 AND GREATER
Underlayment Starter Edge	An ice barrier that consists of at least two layers of underlayment cemented together or a self-adhering polymer modified bitumen sheet shall be used in lieu of normal underlayment. This shall continue up the entire pitch of the roof.	An ice barrier that consists of at least two layers of underlayment cemented together or a self-adhering polymer modified bitumen sheet shall be used in lieu of normal underlayment. This shall start at the eaves and continue up to 24" inside the exterior wall line. From there a 15 lb felt or equivalent for the remainder of the roof.
Attachment of Shingles	Corrosion resistant nails, 3/8" heads. Fasteners must be long enough to penetrate into the sheathing 3/4" or through the thickness of the sheathing, whichever is less.	
Number of Fasteners	4 per 36" to 40" shingle 2 per 9" to 18" shingle	

This pamphlet is a compilation of some of the standard requirements based on the State Building Code and City Zoning Code for projects of this type. This information packet does not contain all of the specific codes for construction and should only be used as a guide. The permittee is responsible to meet all code requirements applicable to each project.

Existing residential roofs

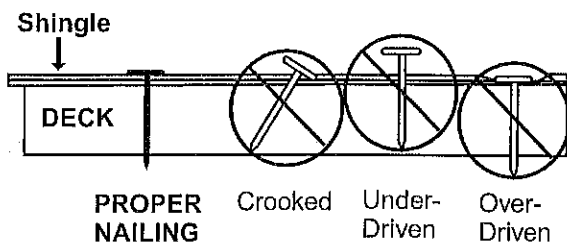
According to the 2006 International Residential Code the state of Minnesota has been classified a moderate exposure for hail damage. As such, the code dictates that no overlay of asphalt shingles is allowed. All re-roofing projects will require the existing roof system be removed.

Permit requirements

A building permit is required for all roofing projects beyond simple repairs. Contact a member of the Inspections staff with questions about what constitutes a repair.

Required Inspections

A final inspection is required when the roof is complete. Pictures verifying Ice Barrier installation shall be on site for the final inspection. Pictures shall show all areas where Ice Barrier is required as well as visual to identify property.



Fasteners

Asphalt shingles shall be fastened with not less than four nails. Nails shall be not less than 12-gauge with 3/8 inch minimum diameter heads. Nails shall be of sufficient

length to penetrate through roofing material and at least 3/4 inch into roof sheathing or through the thickness of the sheathing, whichever is less. Nail head shall be driven so that it tightly bears against the shingle but does not cut the surface of the shingle. Nails must be installed in the location on each shingle per the manufacturer's instructions. Any crooked nails should be removed and replaced. (See illustration.)

Note: Use of other types of fasteners must be approved by the Building and Inspection Division.

Sheathing

Roof sheathing shall be checked prior to re-roofing and repaired or replaced if rotted or unsound. Replacement sheathing shall conform to the requirements of the Building Code and the sheathing manufacturer.

Roof pitch

Asphalt shingles shall not be used on roofs with less than a 2:12 pitch and require special application procedures for pitches less than 4:12. Manufacturer's instructions on package must be followed.

Underlayment

A. For roof pitches of 2:12 to less than 4:12

Two layers of 15# felt applied shingle fashion. Starting with a 19 inch strip and a 36 inch wide sheet over it at the eaves, each subsequent sheet shall be lapped 19 inches horizontally.

Note: For ice protection materials, the manufacturer's installation instructions must be followed.

B. For roof pitches of 4:12 and over

One layer of 15# felt lapped two inches horizontally and 4 inches vertically. End laps shall be offset by six feet in all applications.

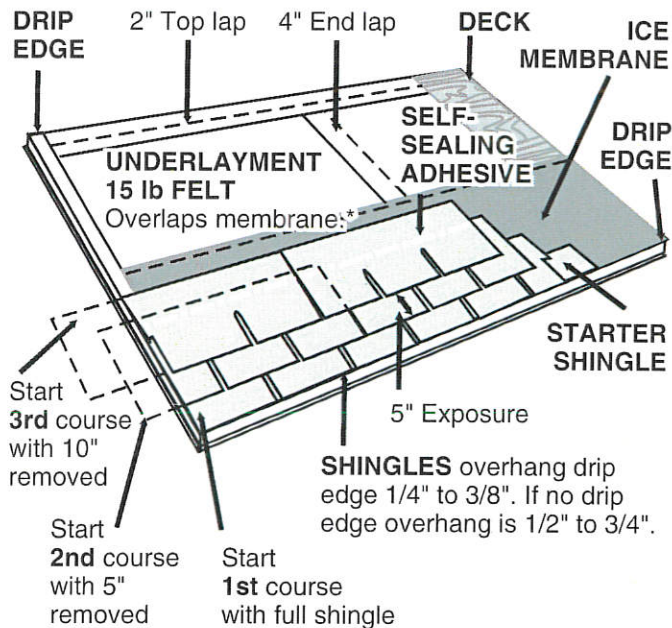
Valley underlayment

Valley linings shall be installed per the manufacturer's requirements and Chapter 9 of the Minnesota State Residential Code.

Valley flashing

When existing flashing is no longer serviceable, it shall be replaced. Valley flashing shall consist of not less than No. 26-Gauge corrosion-resistant, galvanized sheet metal or other code approved, valley lining material. The metal shall extend at least 12 inches from the center line each way. Sections of flashing shall have an end lap of not less than four inches. Alternately, the valley may consist of woven asphalt singles or closed-cut style applied in accordance with the manufacturer's instructions.

Shingle application using 5-inch method



***Felt underlayment must overlap the ice membrane a minimum of 2 inches.**

Other flashing

All other flashing and roof vents shall be checked and if rusted or in bad condition shall be replaced. When replacing flashing of metal, it shall be of not less than No. 26-Gauge corrosion-resistant metal. Roof vents and other flashings must be installed according to manufacturer's instructions. Generally, all require the bottom part of the vent to be placed above the shingles so that about half of the vent is above the lower shingles and half is below the uppermost shingles. Any replacement of flashing at masonry chimneys must be properly cut in and re-tuckpointed or caulked with an approved product.

Skylight:

Basic sheet metal components

All dimensions approximate.

BACKER FLASHING under shingles minimum 3 courses. Where necessary (depending upon anticipated debris and/or snow accumulation), hold shingles up 1 course and nail high.

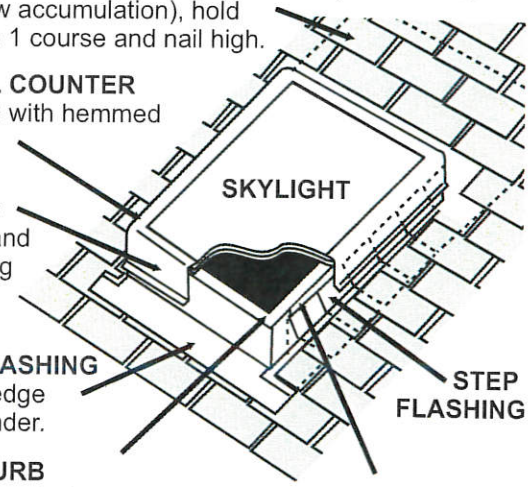
INTEGRAL COUNTER FLASHING with hemmed drip edge.

COUNTER FLASHING over base and step flashing approx. 2" min.

APRON FLASHING with lower edge hemmed under.

RAISED CURB (2" x 8" suggested as minimum to attain flashing clearance.)

WATERPROOFING UNDERLAYMENT turned up under curb



Vertical wall flashing (26-gauge)

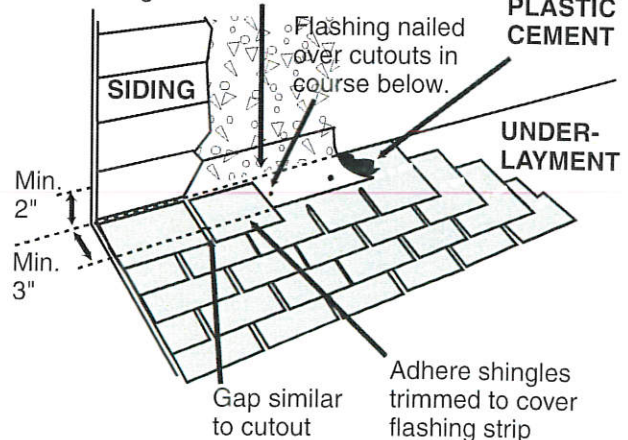
1. Apply shingles up the roof until a course must be trimmed to fit at the base of the vertical wall. Plan to adjust the exposure slightly (and evenly) in the previous courses, so that the last shingle is at least 8 inches wide (vertically). This allows a minimum 5 inch exposure of the top course and a 3 inch headlap.
2. The flashing strip should be bent, using a metal brake, to extend at least 2 inches up the vertical wall and at least 3 inches onto the last shingle course; that is, to the top of the cutout.

WATER RESISTIVE BARRIER

installed over flashing.

FLASHING STRIP

ASPHALT PLASTIC CEMENT



- Apply the flashing, 8 feet to 10 feet over the last course of shingles. Embed the flashing in asphalt plastic cement, or another approved adhesive, and nail it to the roof every 12 inches. Do not nail the strip to the wall.
- If side laps are necessary, overlap the pieces at least 6 inches. Do not fasten in this joint area.

Ice dam protection membranes

Required for ALL heated/conditioned building structures.

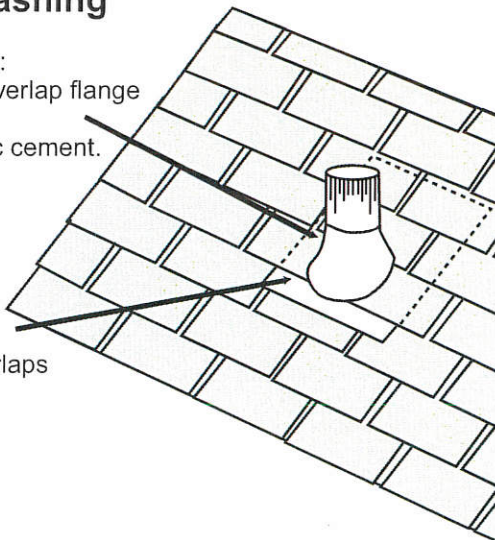
A. For roof pitches of 2:12 to less than 4:12

Same as for underlayment and, additionally, an approved waterproofing underlayment shall be installed to a point no less than 24 inches inside the exterior wall line. When the manufacturer's specifications are more restrictive than the Building Code, the manufacturer's specifications shall be followed.

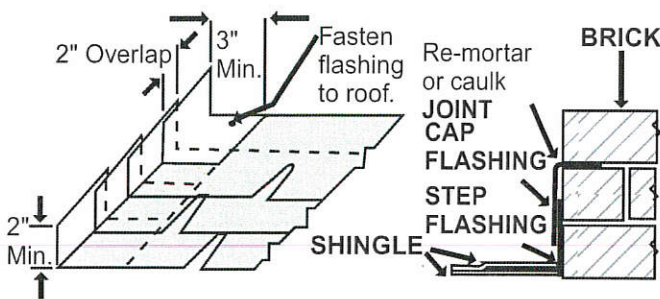
Shingle application around flashing

Top and sides:
SHINGLES overlap flange and are set in asphalt plastic cement.

Bottom:
FLANGE overlaps shingles.



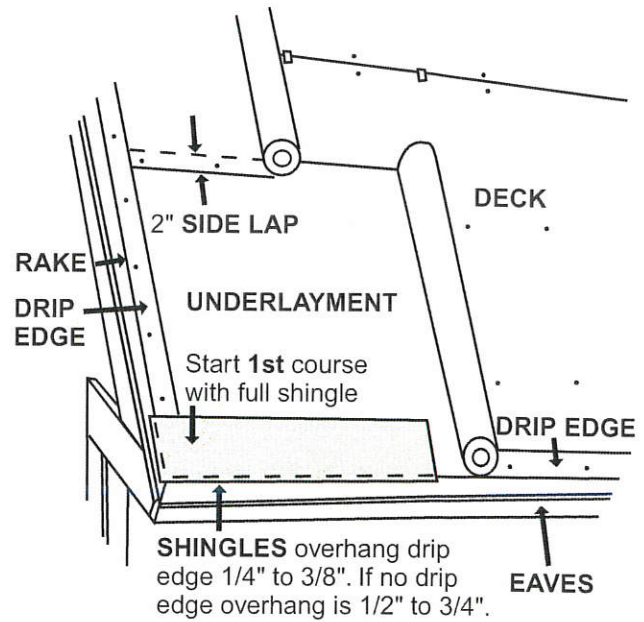
Sidewall flashing (26-Gauge)



B. For roof pitches of 4:12 and over

Same as for underlayment and, additionally, a manufactured ice protection membrane or its code-approved equivalent assembly must be installed per manufacturer's instructions including, but not limited to, the following: The membrane shall extend from over the metal or wood drip edge to a point not less

Ice protection underlayment

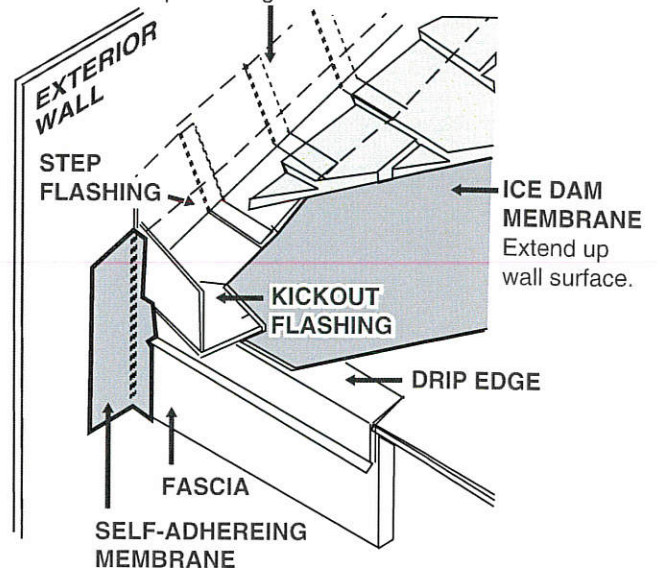


Installation: When applying underlayment, keep the product as wrinkle-free as possible. Unroll the underlayment parallel with the eaves. The underlayment should go over eaves' drip edge flashing, but go under the rake's drip edge flashing.

than 24 inches measured horizontally inside the exterior wall line. Depending on the depth of the soffit and width of the product, more than one layer could be required. The underlayments must extend to the outer edge at all fascia boards.

Kick-out flashing

WATER RESISTIVE BARRIER/HOUSEWRAP
Place over Step Flashing.



Roof and soffit vents

If necessary, additional roof and soffit vents must be installed so that for every 300 square feet of attic area there is at least 1 square foot of ventilation. At least 50 percent, but not more than 80 percent, shall be in the upper portion of the roof and the balance to be provided by eave or soffit vents.

Exhaust vents

Care should be taken to ensure that kitchen and bathroom exhaust fan pipes are connected to the appropriate dampered exhaust roof vent with no openings into the attic that would allow exhaust air back into the attic space. The exhaust vents shall be installed the same as other attic vents and vent pipe flashings.

When re-roofing around furnace flues, take care to not dislodge the joints of the flue pipe within the attic or within interior chases this pipe might pass through. If in doubt, consult a licensed heating contractor.

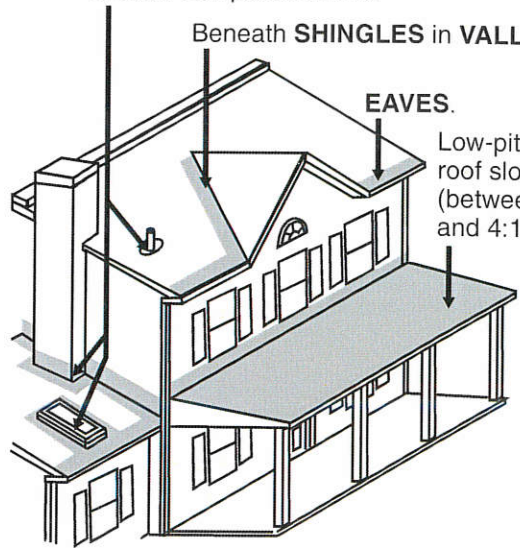
Where to use ice protection

At concealed **FLASHING**
around roof penetrations.

Beneath **SHINGLES** in **VALLEYS**.

EAVES.

Low-pitched
roof slope
(between 2:12
and 4:12).



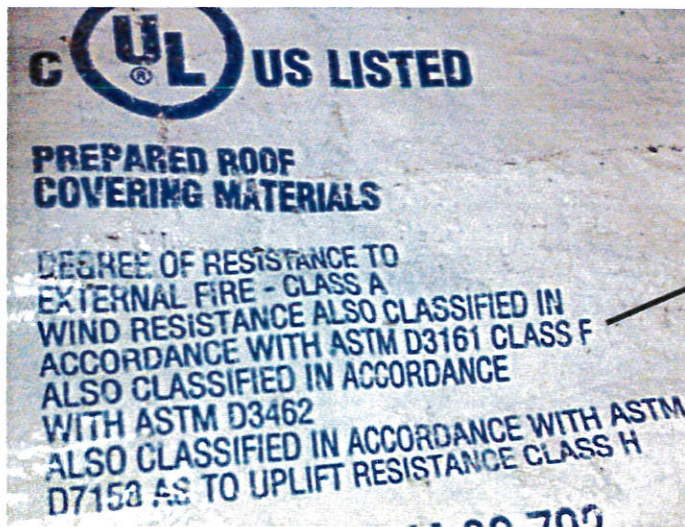
ROOF COVERING MATERIAL NOTICE

Minnesota State Building Code requires all buildings to meet a 90 MPH 3 second gust standard. Manufactures may use one of any three standards to test their shingles. The chart below shows the classification ratings.

Wind Speed	UL 997 or ASTM D3161	ASTM D7158	
60MPH	Class A	--	Not code acceptable
90MPH	Class D	Class D	Code acceptable
110MPH	Class F	--	Code acceptable
120MPH	--	Class G	Code acceptable
150MPH	--	Class H	Code acceptable

It has come to the City's attention that there are shingles for sale locally that do not meet the Minnesota State Building Code (MSBC) for wind resistance.

To verify compliance with MSBC, check the wind resistance classification printed on the packaged bundle of roof covering material. See below for an example.



As long as the wind resistance is a Class D, F, G or H or reads 90 MPH or higher than the shingles are code acceptable for wind.

(This example is acceptable)