CITY OF MILACA
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Asphalt Roofing Information Sheet

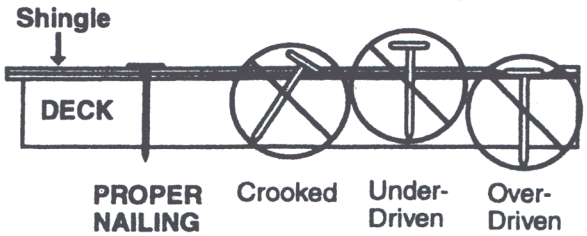
Existing residential roofs

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.

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 manufacturer of the product.

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 before applying shingles.

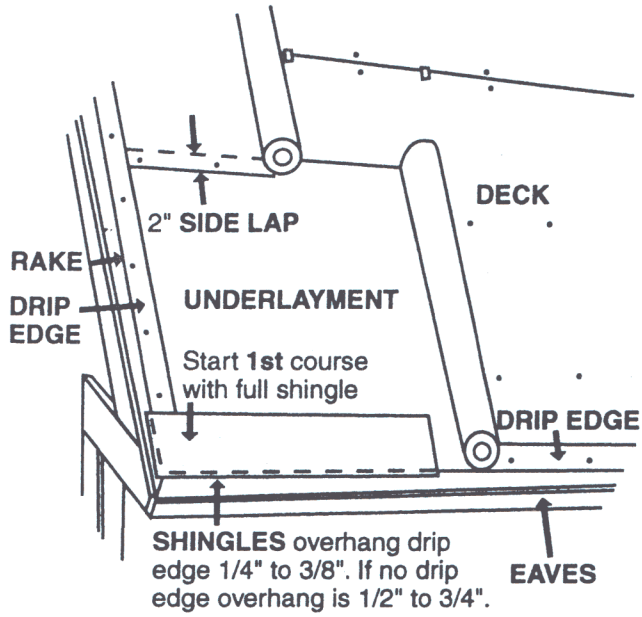
Valley flashing

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.

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.

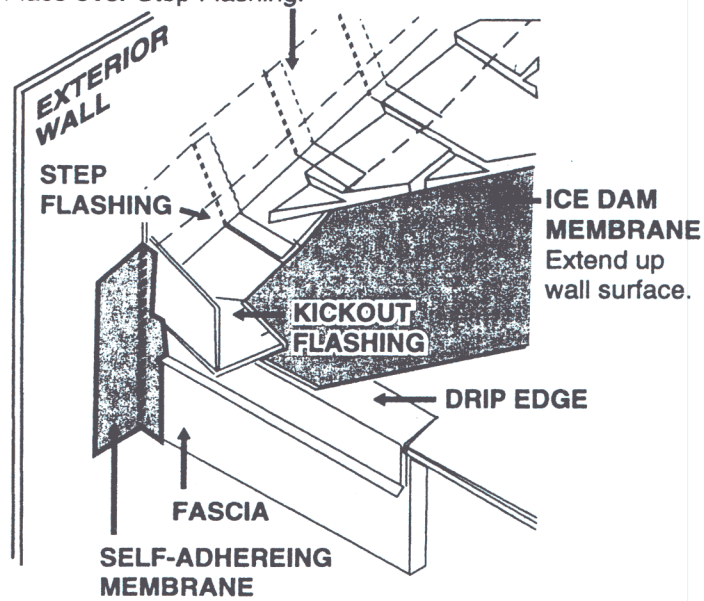
Ice protection underlayment



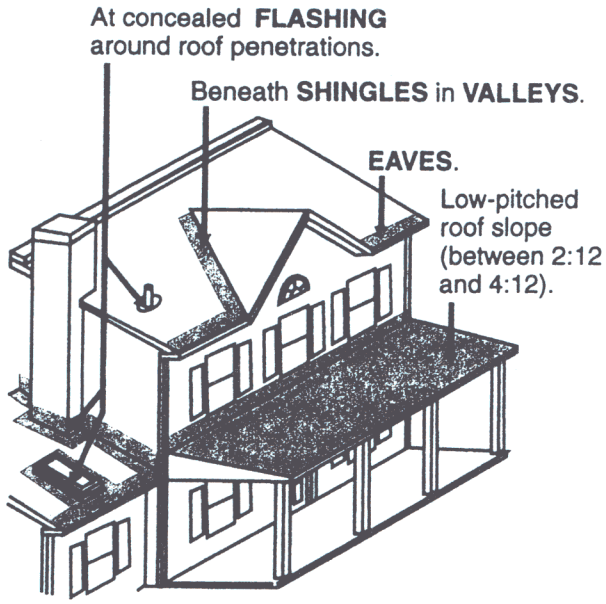
Installation: When applying underlayment, keep the product as wrinkle-free as possible. Unroll the underlayment parallel with the eaves. The underlayment should go over eaves' drip edge flashing, but go under the rake's drip edge flashing.

Kick-out flashing

WATER RESISTIVE BARRIER/HOUSEWRAP
Place **over** Step Flashing.



Where to use ice protection



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.

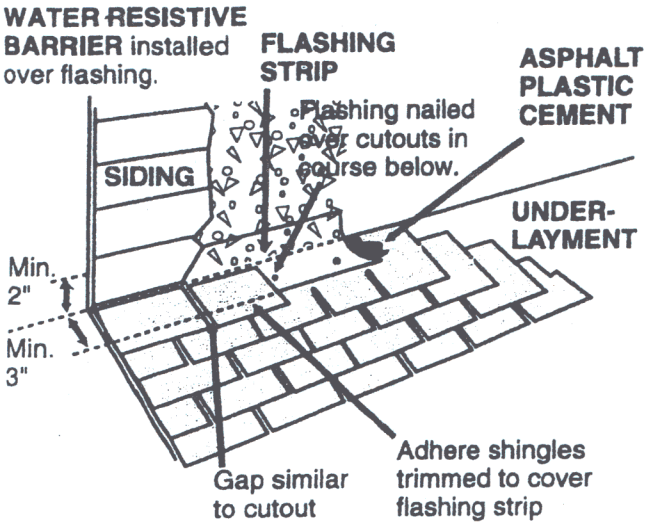
Exhaust vents

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.

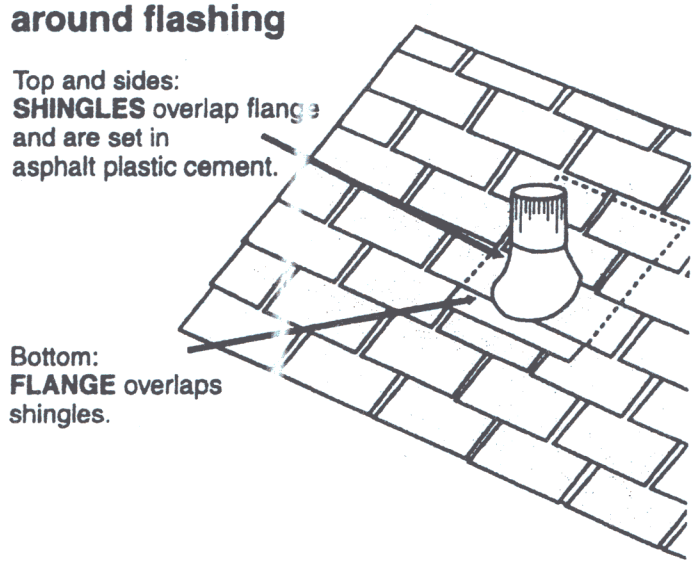
Vertical wall flashing (26-gauge)

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 inchs wide (vertically). This allows a minimum 5 inch exposure of the top course and a 3 inch headlap.

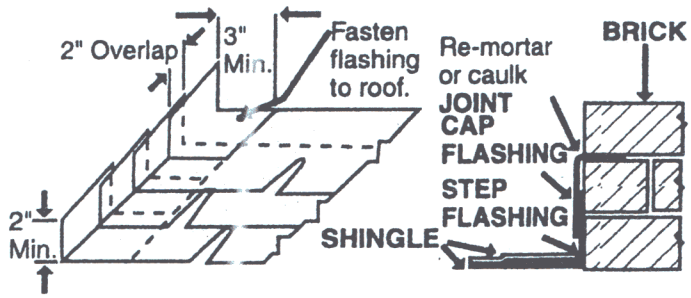


2. The flashing strip should be bent, using a metal brake, to extend at least 2 inches up the vertical wall and at least 3 inches onto the last shingle course; that is, to the top of the cutout.
3. Apply the flashing, 8 feet to 10 feet over the last course of shingles. Embed the flashing in asphalt plastic cement, or another appropriate adhesive, and nail it to the roof every 12 inches. Do not nail the strip to the wall.
4. If side laps are necessary, overlap the pieces at least 6 inches. Do not fasten in this joint area.

Shingle application around flashing



Sidewall flashing (26-Gauge)



Ice dam protection membranes

Required for ALL heated/conditioned building structures.

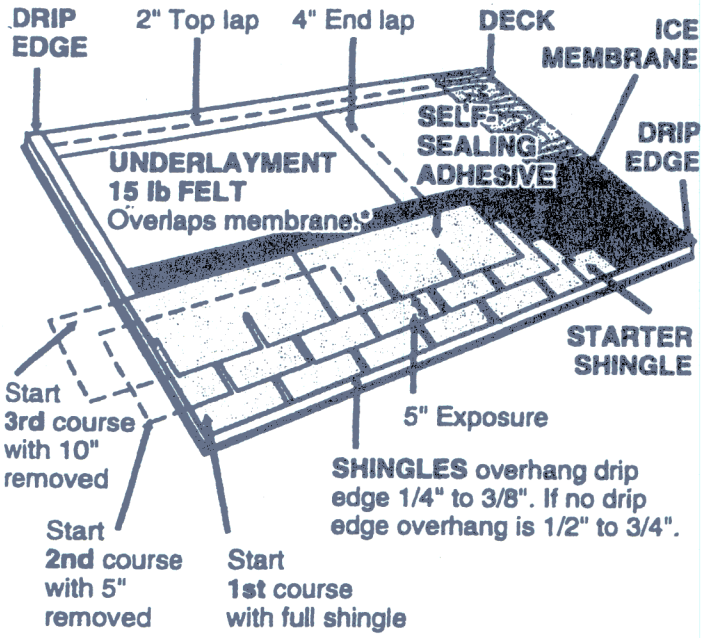
A. For roof pitches of 2:12 to less than 4:12

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

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 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.

Shingle application using 5-inch method



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

Skylight: Basic sheet metal components

All dimensions approximate.

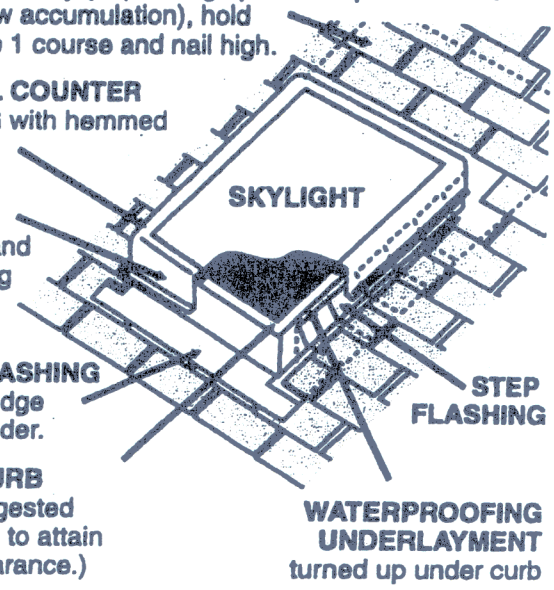
BACKER FLASHING under shingles minimum 3 courses. Where necessary (depending upon anticipated debris and/or snow accumulation), hold shingles up 1 course and nail high.

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.)



Inspections Required

(Call at least 24 hours in advance)

Underlayment - Photos must be submitted in lieu of Inspection

- The roof deck must be clean, smooth and solid
- Ice guard protection

Roof final inspection:

- To check the entire job
- If corrections are required, a correction notice will be left on the job site

Note: Permit holder must call for all inspections including reinspections if required.

R703.8 Flashing (exterior walls). **Minnesota Amendment** The Minnesota amendment added new flashing requirements at new locations. Exterior wall flashing shall be installed in shingle-fashion and extend to the surface of the exterior wall finish or to the water-resistive barrier. Approved corrosion-resistant flashing shall be installed at all of the following locations:

1. Exterior window and door openings. Flashing at exterior window and door openings shall extend to the surface of the exterior wall finish or to the water-resistive barrier for subsequent drainage.
2. At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco openings.
3. Under and at the ends of masonry, wood, or metal copings and sills.
4. Continuously above all projecting wood trim.
5. Where all exterior porches, decks, or stairs attach to a wall or floor assembly of wood-frame construction.
6. At wall and roof intersections.
7. At built in gutters.
8. **Where exterior material meets in other than a vertical line.**
9. **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.**

Kick-out flashing is required on new roof and any re-roofing jobs that have the conditions listed in number 8 & 9.

R905.2.7.1 ICE PROTECTION

In areas where the average daily temperature in January is 25 degrees F (-4 degrees C) or less, 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.

Please provide a photo to the City of Milaca Building Department showing conformance to the R905.2.7.1 Ice Protection requirement. This photo will be kept on file by the City of Milaca Building Department.