CeDUR™

Timeless • Durable • Beautiful

Installation Recommendations

Introduction - CeDUR™ Shakes

CeDUR™ Shakes are inspired by the enduring beauty of natural cedar shakes. **CeDUR™** is manufactured using state of the art polyurethane technology that was developed to withstand harsh: fire, hail, wind, and UV conditions. Discerning property owners choose **CeDUR™** as the low maintenance, high performance roofing product that enhances the beauty and value of their property. The product combines the beauty of natural cedar shakes with unsurpassed durability and ease of standard shakes installation methods. **CeDUR™** Shakes are a lightweight, fire, hail, and wind resistant product that are ideal for projects that demand a natural cedar shake appearance.

CeDUR™ Shakes are

- UL 2218 Class 4 impact rated
- Class "A" Fire rated without the requirement of a special fire-resistant underlayment. ASTM E108, UL 790
- Rated @ an insulation value of R > 2.0 R factor (approximately 20% greater than natural Heavy Cedar Shakes)
- 115 mph wind resistant rated for the "Standard Application" – at a 10" exposure. ASTM E330, UL 1897 (warrantied to 90mph)
- Above 115 mph wind resistance installations are considered "High Wind Application" – consult **CeDUR™**.
- Resistant to water absorption.
- Colored throughout for stability and uniformity at cuts. Solid product, no cavity back.
- Lightweight (170 lbs. per Square).
- Resistant to rot, moss, and insects
- **CeDUR™** Shakes are protected by a 50 Year Limited Material Warranty.
- Ideal for new construction and re-roofing applications for residential and commercial projects

Design

CeDUR™ Shakes are a realistic synthetic shake alternative with a nominal 3/4" thick butt edge which tapers to 1/8" thick. It is manufactured in three widths: 5¼ ", 7¼", and 12¼" & four natural wood colors. The shakes are reproductions of natural wood cedar shakes. **CeDUR™** Shakes provide a personal preference option for architectural compatibility, roof appearance, fire resistance and roofing weight. Refer to the **CeDUR™** Shakes Technical Specifications for details and coverage based on exposure and spacing between shakes.

Pitch

The minimum roof pitch for **CeDUR™** Shakes is a 4:12 slope. Applications below 4:12 are considered decorative. For pitches under 4:12, please consult CeDUR for proper installation recommendations.

Roof Framing

CeDUR™ Shake's lightweight system allows direct replacement of existing roof systems without the structural evaluations and enhancements necessary for heavier roofing products. This product feature also holds true for new construction. No unusual design or engineering considerations are required. **CeDUR™** Shakes weigh approximately 30% less than Asphalt Architectural Shingles and less than natural Heavy Cedar Shakes. **CeDUR™** Shakes are approximately 80% less than the weight of standard Concrete Roof Tile.

Decking

Install **CeDUR™** Shakes on solid decking consisting of either code-complying, 15/32" thick American Plywood Association (APA) rated plywood, APA rated wood panels, or other building materials meeting these minimum requirements in accordance with DOC PS-1.

Temperature/Cold Climates – Storage & Installation

CeDUR™ Shakes should be stored at temperatures above 40ºF and pallets should not be stacked more than two pallets high.

CeDUR™ Shakes can be installed in temperatures as low as 20°F.

Underlayment (For pitches 6:12 and above)

No special underlayment is required for a Class a Fire rating. One of the following base underlayment's is required as part of the normal application process.

- One layer of Number 30 base sheet conforming to ASTM D 226 covering the entire roof deck; or alternatively, synthetic underlayment manufactured for and utilized for shingle underlayment purposes. Verify with the manufacturer that the specific base sheet is water resistant.
- **Ice Protection**
  In areas where the average daily temperature in January is 25°F (-4°C) or less, install an ice barrier that consists a self-adhering polymer modified bitumen sheet in lieu of normal underlayment at the eaves. Extend ice protection underlayment from the eaves edge to a point at least 24 inches (610mm) inside the exterior wall line of the building.
- **Valley's**
  Install a high temperature ice/water barrier that consists of a self-adhering polymer modified bitumen sheet in lieu of normal underlayment at the valley's.

To assure proper horizontal alignment we recommend that chalk lines be snapped frequently. These chalk lines should be placed on the underlayment so that the shakes are aligned by the tips rather than the butts.

*Chalk Lines should be snapped on the underlayment with the tips of the shakes following the lines. Do not snap lines on the **CeDUR™ Shakes** or use red chalk as the chalk may permanently discolor the shakes.*

Note: A base (dry in) underlayment may be installed covering the entire roof deck prior to the **CeDUR™** Shake installation assembly described above as a temporary dry-in if desired or if required by local building codes. The **CeDUR™** roofing system can be installed over existing temporary dry-in providing the material lays flat and tight to the roof deck.

Underlayment (For pitches between 4:12 and under 6:12)

In addition to one of the base sheet options described above, install one layer of ASTM D 226 type II 36-inch NO 30 underlayment at the eave line. After applying the starter shakes, a minimum 18" wide strip of interlay of ASTM D 226-type II (ASTM D 4869) No. 30 shall be laid over the top portion of the starter shakes, the butt end of the interlay course extending up-slope onto the sheathing and/or dry-in, approximately 9 inches above the fascia (For a 1 inch overhang). After installing the field shakes over the starter shakes, position the bottom edge of the next interlay on the 10-inch line of the interlay previously installed, with successive courses laid on the 10-inch line (or less depending on roof layouts less than 10") Refer to the installation diagram following the written text.

Note: Felt interlayment on the **CeDUR™** Shakes is to be installed so it does not extend below a line that is twice the exposure above the butt (i.e. a 23.5" shakes at 10", exposure would have felt applied 20" above the butt). No felt should be visible between the side joints of the shakes (keyway). Refer to the **CeDUR™** Shakes Technical Specification Details.

Starter

CeDUR™ Shakes "Starter" is to be installed at all eave-lines. Butts of the starter shakes and first course of **CeDUR™** Shakes are to project equally beyond the finished fascia as determined by conditions to insure proper water drainage. Typical installation is a ¾" - 1 inch (25.4 mm) overhang. Where gutters are present, the overhang may be adjusted to insure proper water flow into the gutters.

Secure each 15" **CeDUR™** Starter with four corrosive resistant fasteners.

Refer to the **CeDUR™** Shakes Technical Specification Details.

Gable Ends - Rakes

Extend **CeDUR™** Shakes approximately ¾ inch over gable - rake ends.

Exposure

A 10" (254 mm) weather exposure for straight-line installations is standard, and has been used for all calculations, testing and certifications, and the basis for the product warranty. When 1" staggered installation is used, shakes exposure is laid at 9" (229 mm) exposure and random shakes are at 10" (254 mm) exposure or 1" (25.4 +/-) stagger. The maximum recommended stagger is 2 inches (8" exposure).

Spacing (Keyway) & Joint Off-Set

CeDUR™ Shakes are resistant to water absorption. Expansion and contraction due to temperature or moisture content fluctuations (hot/cold, wet/dry or freeze/thaw) is negligible, thereby permitting the choice of spacing between shakes to be based on roof appearance only. The minimum standard keyway is ¼" and the maximum standard keyway is 3/8".

Note: The number of **CeDUR™** shakes per square are based on a nominal 3/8" keyway.

Off-Set joints between courses a minimum of 1 ½".

Packaging

CeDUR™ Shakes are packaged with 7 each of 5 ¼", 7 ¼", and 12 ¼" wide-pieces per bundle (total 21 pieces). The pieces are 23-1/2" length. When installed with a Standard 10" weather exposure and a 3/8" keyway, 168 field pieces or 8 bundles will cover 1 roofing square (SQ). Closer spacing between shakes will require additional field pieces.

Color

CeDUR™ Shakes will, by design, shift color upon exposure to the sun. This color change takes place gradually over a four to eight-week period (depending on time and intensity of sun exposure) and then stabilizes at a weathered wood color for the life of the product.

Installation

CeDUR™ Shakes are applied on solid sheathing / wood board and plank roof decks in the same manner as wood shakes, in accordance with National Roofing Contractors Association (NRCA) guidelines and applicable building codes. Refer to the detail schematics following the written text.

For a standard straight installation install **CeDUR™** shakes one at a time starting in the lower left-hand corner or lower right-hand corner. The first course of **CeDUR™** shakes should be laid directly on the starter tiles with the butt of the shake flush with the butt of the starter tile. **CeDUR™** shakes should be laid individually with a rack type system, also known as rack-style, stair-stepping, or pyramiding; to prevent same size shake directly on top of another and laid so that the alignment markers are covered.

For a rack style installation start with two **CeDUR™** shakes at the eave and place one **CeDUR™** shake above at the recommended 10" exposure. Place the next **CeDUR™** shake at the eave and work towards the peak diagonally increasing one course with each shift either right or left. The pattern should look like one half of a pyramid or one long diagonal row of **CeDUR™** shakes on the roof.

The **CeDUR™** shakes should be laid with an approximate 1/4" – 3/8" gap between each shake. The gaps between shakes on adjacent courses should offset by a minimum 1½". To assure proper horizontal alignment we recommend that chalk lines be snapped frequently.

Workability

CeDUR™ Shakes may be sawn, planed, sanded, nailed, stapled, and/or screwed with common roofing tools and materials. It will not split to width in the traditional wood shakes installation manner due to its non-fibrous and uniform composition. The shakes can also be scored with a utility knife and snapped at the score-line.

CeDUR™ Shakes requires no sealing or treatment to cut edges due to their closed cell structure which permits no significant water absorption.

Fastening – Standard Application

Secure each 5 ¼" and 7 ¼" **CeDUR™** Shake with two corrosive resistant fasteners; and, each 12 ¼" **CeDUR™** Shake with three corrosive resistant fasteners.

Nails: minimum 11-gauge shank and 5/16" head, ring shank roofing nails (1 ¾" in length typically).

Staples: 15/16" CRN by 16 GA by (1-7/8" in length typically). Building code dependent.

Screws: Corrosive resistant screws with a minimum 5/16" head may also be used.

Fasten a minimum 1" from shakes edge and place in the fastening zone 1" above the butt line of the course to follow. Fasteners shall be of sufficient length to fully penetrate a minimum of 3/4" into and / or through the decking. Do not fasten through the void area between shakes and roof deck unsupported by the **CeDUR™** Shakes course below. Fasteners are to be driven flush to the product surface; and, not over driven or under driven. Fasteners are to be driven perpendicular to material face. Non-compliance to these fastening requirements may void the warranty.

Hip and Ridge – Factory Formed & Two-Piece Field Assembled

Pre-formed one-piece units (10" (254 mm) exposure). Two concealed standard roofing fasteners per side (see fastener section – increase length) are required at the over-lap. Install 1 layer of #30 felt under the hip & ridge pieces.

Pitch Range for Hip & Ridge - Factory Formed

4:12 – 7:12 Low Hip : Low Ridge.
Above 7:12 – 11:12 Low Hip : Medium Ridge.
Above 11:12 – 14:12 Medium Hip : High Ridge.
Above 14:12 – 21:12, Ridge to be field assembled per below instructions

Two Piece – Field Assembled

CeDUR™ Shakes supplied for this Hip & Ridge option are 5 1/4" wide field pieces. The Weather Exposure is the same as the field exposure of the roof shakes. Pieces are to be alternately lapped. Standard roofing gauge fasteners of sufficient length to fully penetrate roof sheathing / boards is required, placed two per side, driven a minimum of 1" from each edge, and 1" - 2" above the butt line of the course to follow. Fasteners are to be concealed by the subsequent overlapping unit. Install 1 layer of #30 felt under the ridge pieces. Refer to the **CeDUR™** Shakes Technical Specification Details.

12-inch-wide - Piece Bundle (optional)

Bundles of 12" **CeDUR™** Shakes are available as an accessory option to provide additional pieces for valley/hip cuts. This accessory option helps to minimize waste and facilitate job site production.

Snow Brackets (Optional)

Standard snow brackets should be considered in areas with high snow load requirements.

Metal Flashing

Roof flashing shall not be less than No. 26 gage (0.019 inches - .048 mm) corrosion resistant sheet metal.

Sections of flashing shall have an end lap of not less than 4 inches (102 mm).

Single crown (W) valley flashing shall extend 11 inches (279 mm) from the centerline each way. A 36" minimum width, high-temperature self-adhered polymer modified bitumen membrane underlayment shall be installed in the valley prior to valley metal installation. Reference Detail # 2 on page # 8 for the two acceptable methods of valley metal installation: Stripped in edge flanges or Hemmed edges secured with metal clips and fasteners which do not penetrate the valley flashing.

Chimney / Skylight / Side Wall - Step Flashing

Step flashing is to extend not less than 5" under the shakes and not less than 5" up the vertical surface that the shakes butt up against. A moisture-resistant barrier is to be installed between galvanized flashing and vertical surfaces. When chimneys, curbs, skylights, or any vertical protrusion through the roof are at least 30" wide; saddles or crickets are required. These flashings are to extend not less than 10" under the shakes. In areas with adverse weather conditions, extended metal flashing lengths and / or a 36" wide layer of pressure sensitive polymer modified bitumen flashing strip-in sheet are required.

Step flashing must be used where vertical surfaces occur in connection with slopes. Flashing is to be formed of separate pieces, installed with each course of shakes, and lap no less than 3". Counter-flashing is to be installed in a step manner to follow the joints of masonry and be raggled into mortar joints / properly surface mounted.

Dormer Flashing

Dormer flashing shall run up not less than 6" under the shakes and a minimum of 5" up the vertical interface. Windows, caps, and all other projections at points where rainwater accumulates are to be protected with metal flashing. Metal flashing is to be extended up under the shakes at the sidewalls and behind outside finish materials for a distance of at least 5". In areas with adverse weather conditions, extended metal flashing height is recommended.

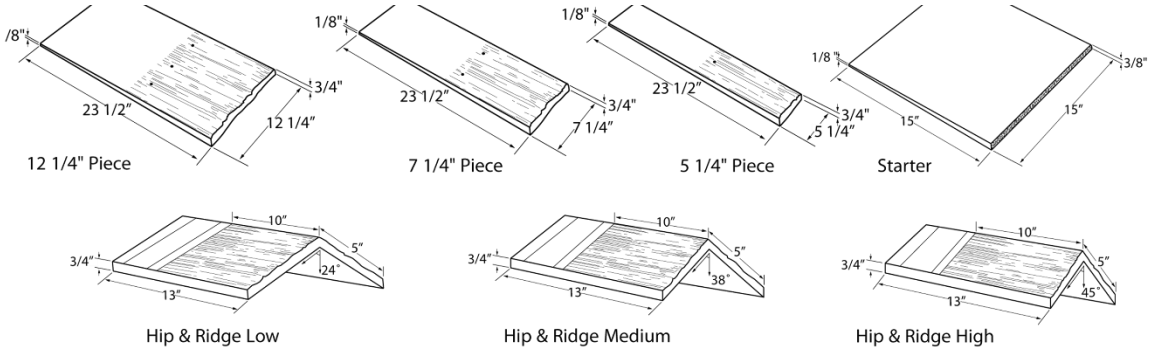
Pipe Flashing

All pipes projecting through roofs must have a deck flashing and be water proofed appropriately. The flashing flanges are to extend out on the roof not less than 6". The flashing flanges are to be of sufficient length to cover the shakes course below the pipe, and extend up under the butt of the course above, as far as possible without being punctured by fasteners. Maintain a 1" (25.4 mm) shakes clearance around the pipe projection.

Safety and Health

Occupational Safety and Hazard Administration (OSHA) prescribed safety standards, are to be followed during product loading and installation; as well as and any subsequent roof traffic.

Product Dimensions



Available Sizes & Installed Weight

Length	23 ½”
Width	5 ¼”, 7 ¼”, 12 ¼”
Thickness	3/4” tapered to 1/8”
Installed Weight per 100 sq. ft.	170 lbs.
Pieces per Bundle	7 pieces each of 5 ¼”, 7 ¼”, & 12 ¼” shakes
Bundles per pallet	36

Coverage (based on 3/8” standard keyway)	
10” Standard Exposure	
SQ/Bundle	0.125
Pieces/SQ	168
SQ/8-Bundles	1
SQ/Pallet of 36 Bundle	4.5

CeDUR Diagrams – CeDUR installs in a similar fashion to Cedar Shakes

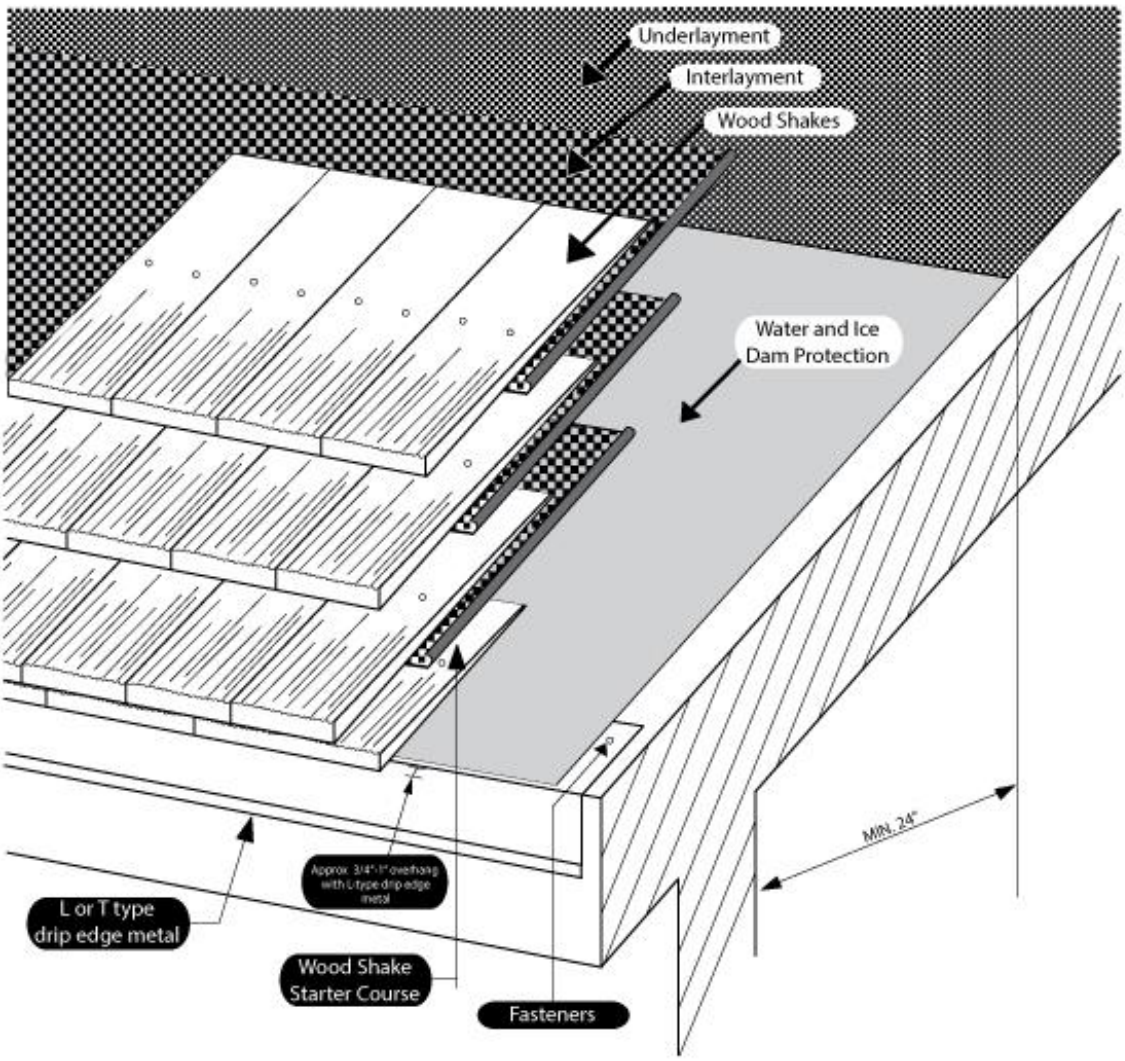
Use CeDUR material where Wood Shakes are referenced in the following drawings

(Used with permission from NRCA)

1.) Standard Field Lay-out Drawing

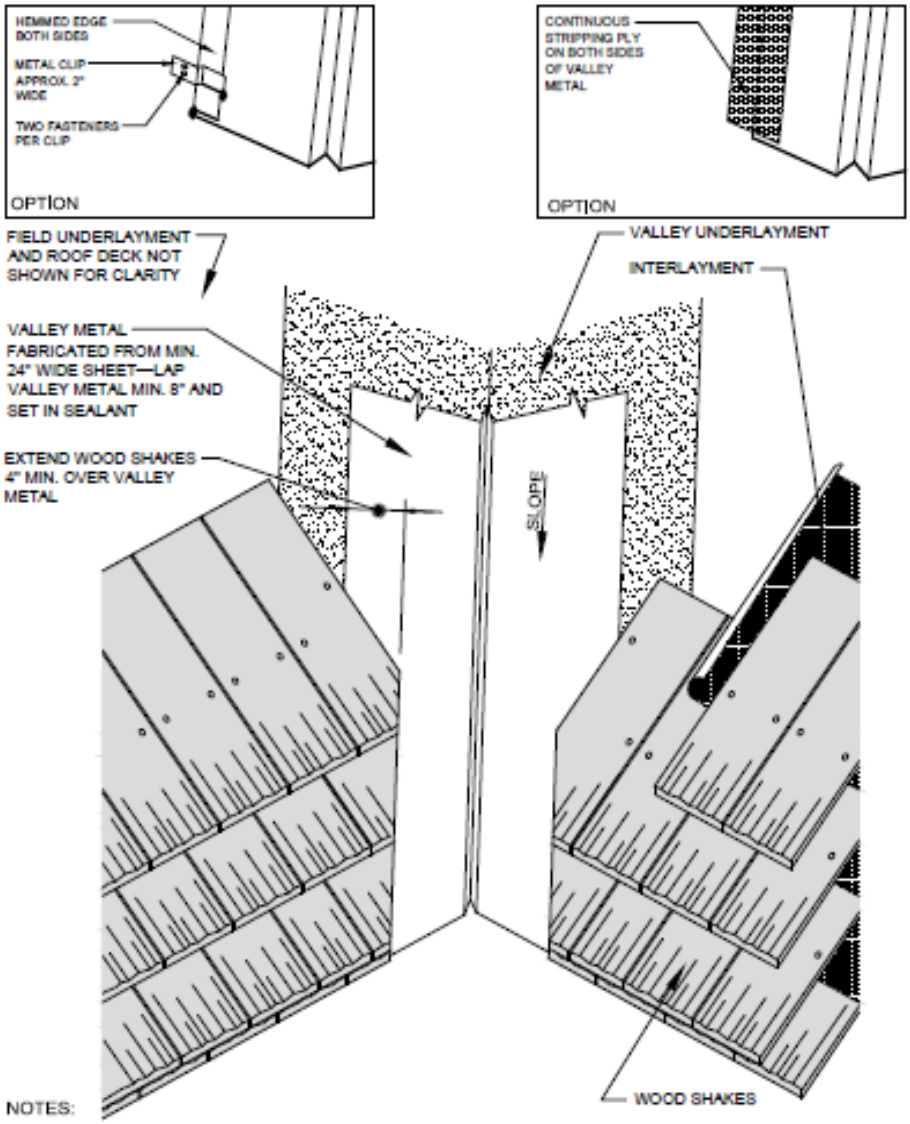
CeDUR Diagrams – CeDUR installs in a similar fashion to Cedar Shakes
Use CeDUR material where wood shakes are referenced in the following drawings

1.) Standard Field Lay-Out Drawing with interlayment

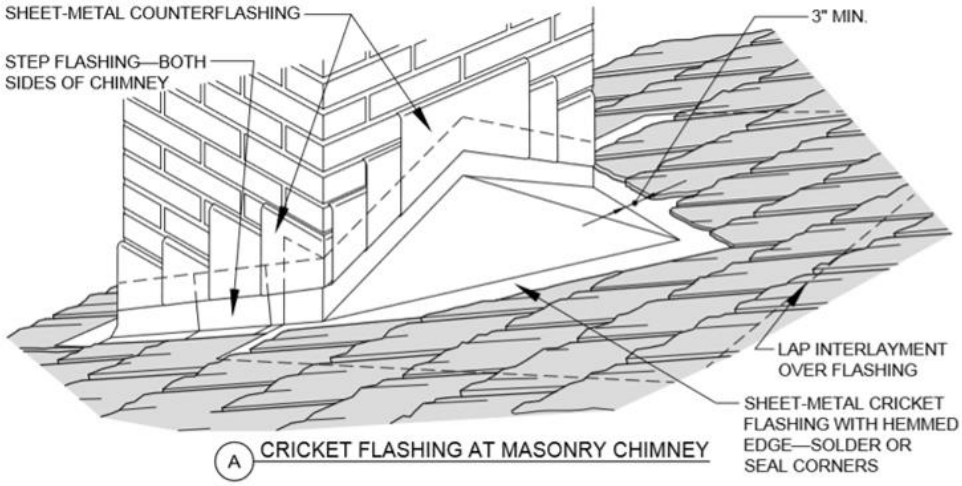


Eave with water and ice-dam protection membrane

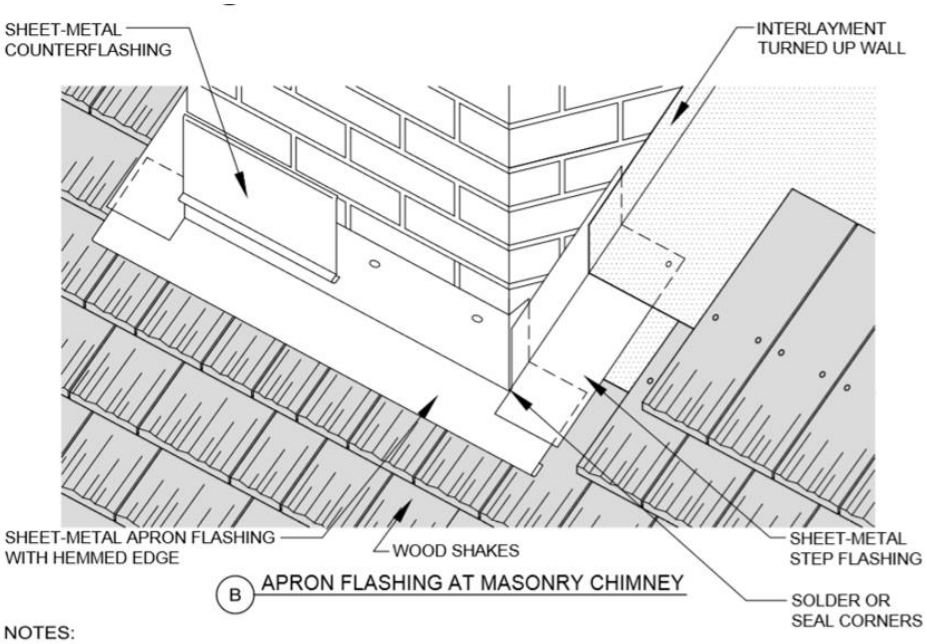
2.) Valley Flashing Detail (Use either of the two options detailed below)



3.) Cricket Flashing



4.) Apron Flashing



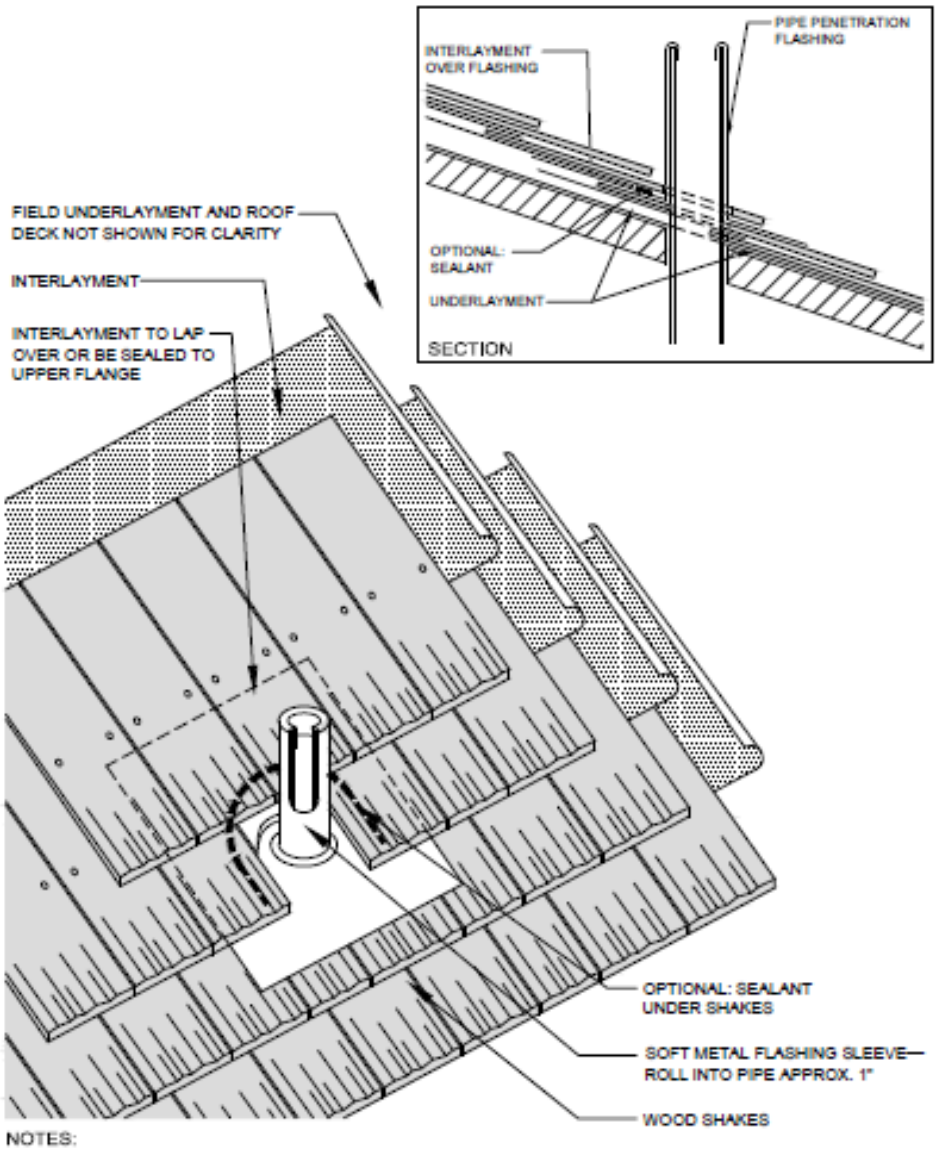
NOTES:

1. THIS DETAIL APPLIES TO CHIMNEYS THAT ARE WIDER THAN 24 INCHES.
2. FOR SECUREMENT AND JOINERY OPTIONS FOR SHEET METAL AND COUNTERFLASHING OPTIONS, REFER TO THE NRCA ROOFING MANUAL: ARCHITECTURAL METAL FLASHING, CONDENSATION CONTROL AND REROOFING.
3. REFER TO THE INTRODUCTION OF THE CONSTRUCTION DETAILS CHAPTER FOR ADDITIONAL INFORMATION.

CHIMNEY WITH CRICKET FLASHING

2013 *NOT DRAWN TO SCALE* **WOOD SHK(C)-13**

5.)Vent Pipe Flashing



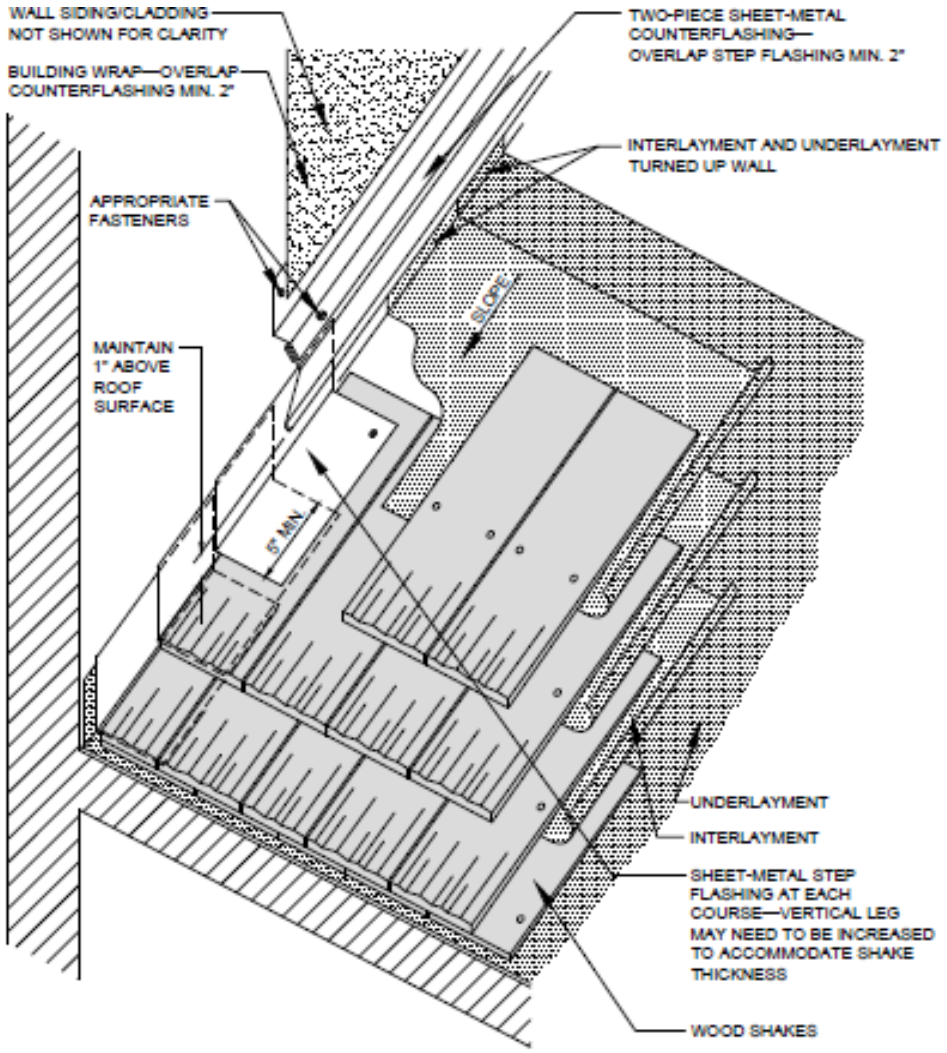
NOTES:

1. REFER TO THE INTRODUCTION OF THE CONSTRUCTION DETAILS CHAPTER FOR ADDITIONAL INFORMATION.

VENT PIPE PENETRATION

2013 *NOT DRAWN TO SCALE* **WOOD SHK(C)-12**

6.) Sidewall Step Flashing



NOTES:

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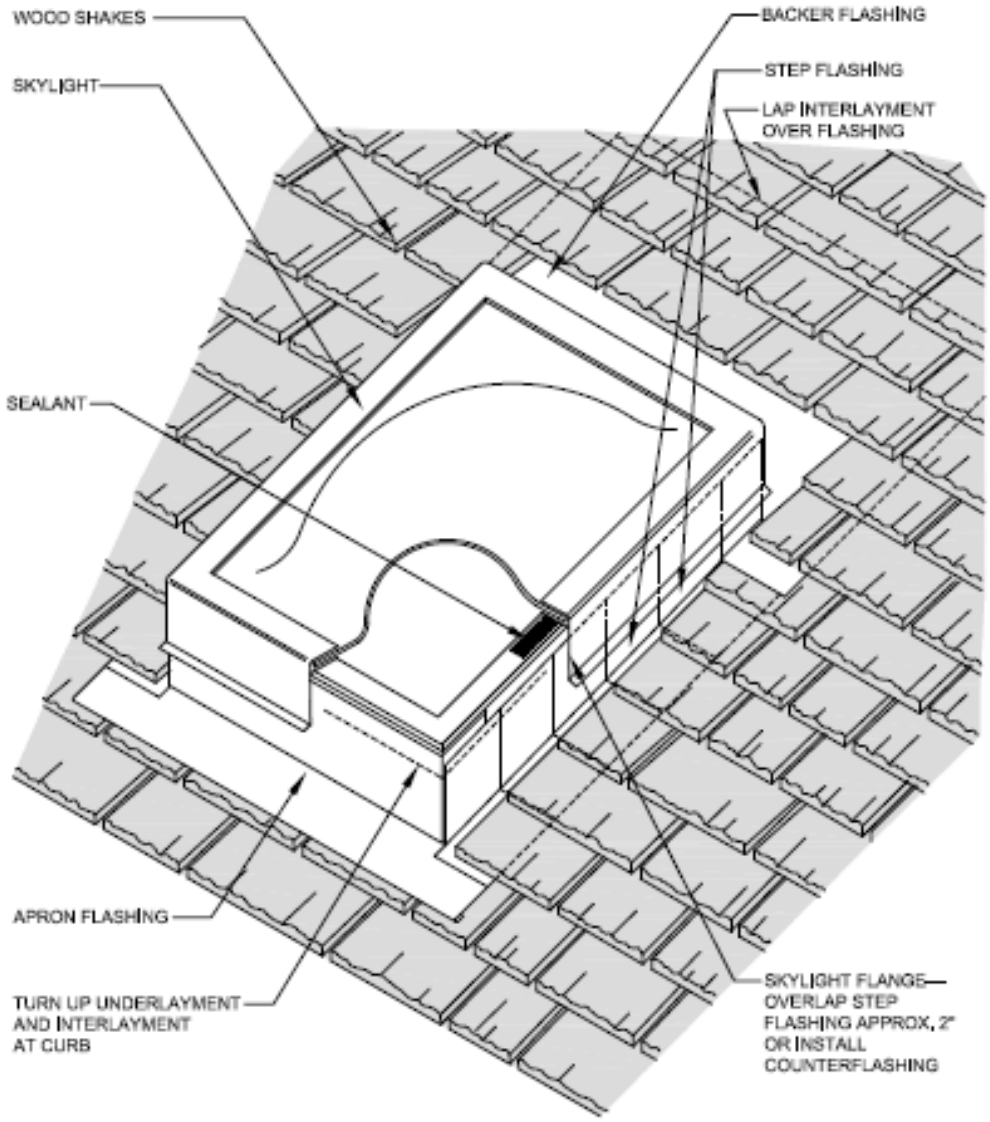
2. REFER TO THE INTRODUCTION OF THE CONSTRUCTION DETAILS CHAPTER FOR ADDITIONAL INFORMATION.

SIDEWALL FLASHING WITH TWO-PIECE COUNTERFLASHING

2013 *NOT DRAWN TO SCALE* **WOOD SHK(C)-10**

7.) Curb Mounted Skylight Flashing



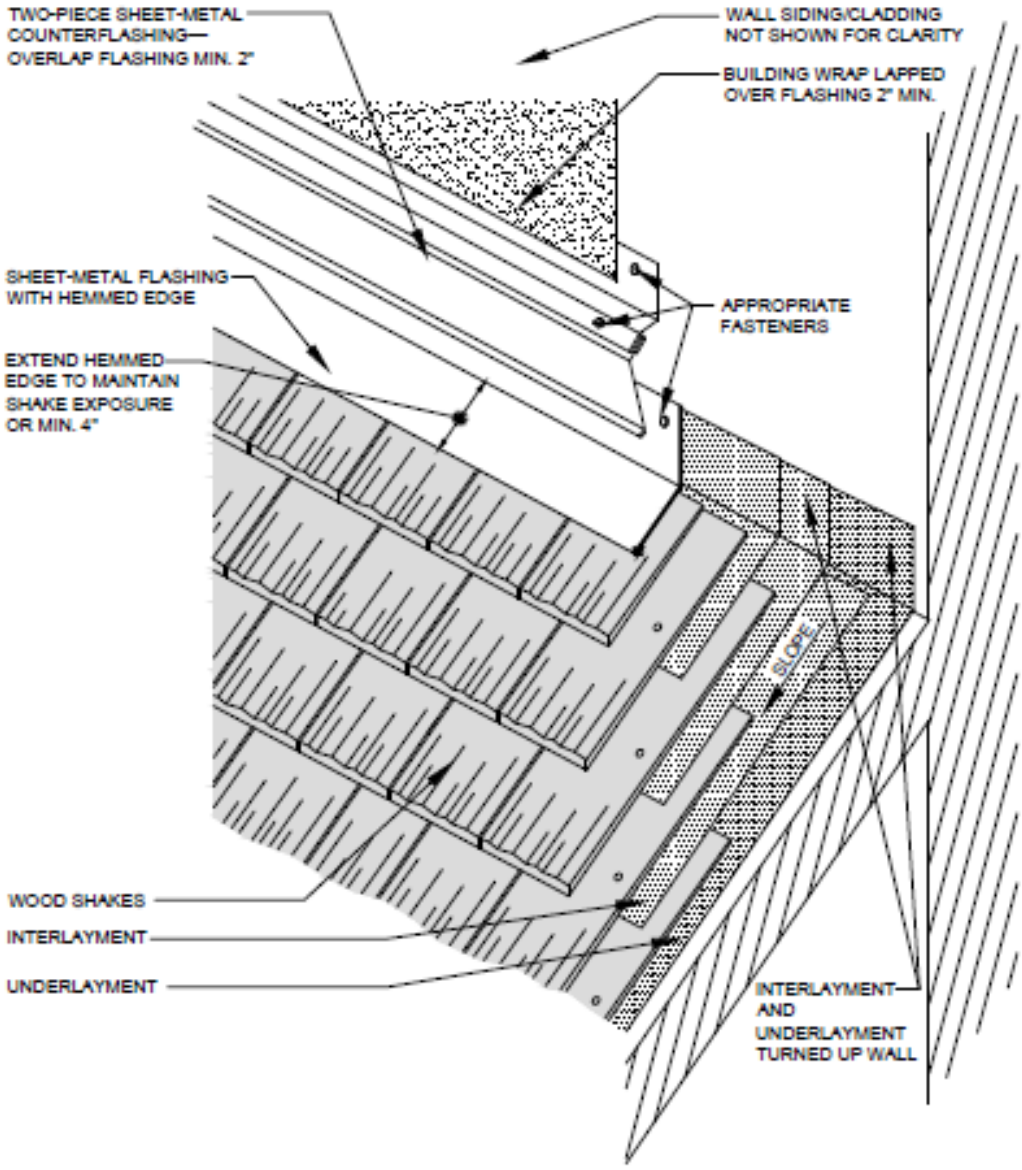
NOTES:

1. WHERE DEEMED NECESSARY, HOLD WOOD SHAKES UP ONE COURSE DEPENDING ON ANTICIPATED DEBRIS AND/OR SNOW ACCUMULATION.
2. INSTALL CRICKET AT SKYLIGHTS THAT ARE WIDER THAN 24 INCHES.
3. REFER TO THE INTRODUCTION OF THE CONSTRUCTION DETAILS CHAPTER FOR ADDITIONAL INFORMATION.

CURB-MOUNTED SKYLIGHT

2013 *NOT DRAWN TO SCALE* **WOOD SHK(C)-15**

8.) Headwall Flashing



NOTES:

1. FOR SECUREMENT AND JOINERY OPTIONS FOR SHEET METAL AND COUNTERFLASHING OPTIONS, REFER TO THE NRCA ROOFING MANUAL: ARCHITECTURAL METAL FLASHING, CONDENSATION CONTROL AND REROOFING.
2. REFER TO THE INTRODUCTION OF THE CONSTRUCTION DETAILS CHAPTER FOR ADDITIONAL INFORMATION.

HEADWALL FLASHING

2013 *NOT DRAWN TO SCALE* **WOOD SHK(C)-9**