

COUNTRY MANOR SHAKE

INSTALLATION MANUAL



8510 Industry Park Drive | P.O. Box 701 | Piqua, OH 45356
800-543-8938 | info@classicroof.com

TOOLS & SAFETY

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SUGGESTED TOOLS

Some of the tools that may be needed for the proper installation of Perfection Country Manor Shake roofing include:

- | | | | |
|---------------------|-------------------|------------------|-------------------|
| ■ Hammer | ■ Hand drill | ■ Ladders | ■ Soap pencil |
| ■ Power saw & mitre | ■ 3/4" drill bits | ■ Tape measure | ■ Extension cords |
| ■ Tin snips | ■ Hand flangers | ■ Chalk line | ■ Safety Glasses |
| ■ Utility knife | ■ Pliers | ■ Portable brake | ■ Zip Tool |
| ■ Pop rivet gun | ■ Roof jacks | ■ Caulking gun | |
| | ■ Scaffolding | ■ Compass | |

Remember to follow each tool manufacturer's instructions on safety and maintenance.

SAFETY CONSIDERATIONS

Caution must be exercised when positioning a ladder.

Set the ladder to extend at least 36" above the point of support.

Set the ladder at an angle so that the horizontal distance from the foot of the ladder to the building is about 1/4 the working length of the ladder.

The ladder should be secured to a permanent part of the roof to ensure safety. Inspect for damaged rungs and examine the locking system.

Upon reaching the roof, inspect it for working hazards. Note the presence of loose roofing or

weakened substrate, protrusions such as pipe jacks, electrical wiring, nails, stabilizing wires, moss growth or dampness that might make the roof slippery, material and equipment that could slip, and extension cords.

Power saws, especially on cutbacks, must be handled with extreme caution, and should be used by only professional, experienced installers. The use of shatterproof safety glasses with side protection is essential not only during cutback procedures but also when cutting aluminum panels.

Pay attention to the presence of other individuals on the roof.

REVIEW:

TOOLS & SAFETY

- Assemble tools before beginning the job.
- Be aware of hazards to yourself and others.

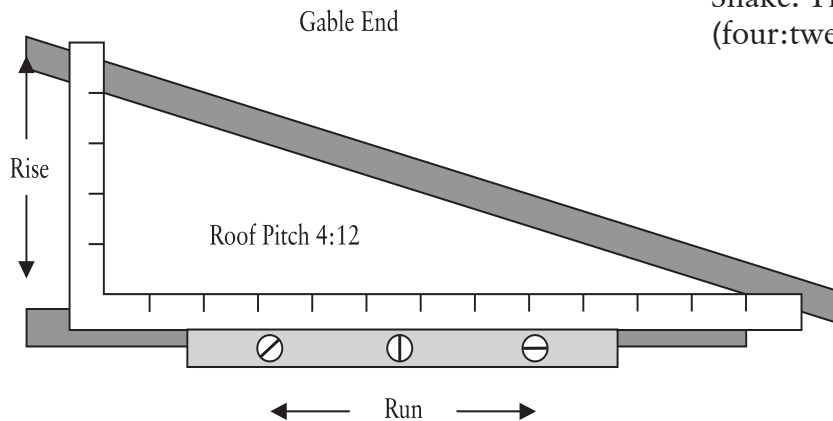
Notes, Observations, & Questions

ROOF PREPARATION

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SLOPE REQUIREMENTS

In areas free from snowfall, the minimum roof pitch is 3:12 (three:twelve) for Country Manor Shake. The minimum roof pitch is 4:12 (four:twelve) in areas of heavy snowfall.



ROOF TEAR OFF

Assure the homeowner that property will not be damaged during tear off. Workers should employ caution at all times during this procedure.

Dust control is critical when removing wood shakes. Wood roofing should be placed in barrels, which are then unloaded off the roof into a container located close to the work area.

Before starting a project, check for any obvious interior and exterior damage.

Replace damaged or rotted areas with new lumber before roofing.

After the old roof has been removed and any deteriorated lumber has been replaced, provide ½" minimum decking or equivalent. Fasten per local code requirements.

The building inspector may wish to inspect the deck before installation begins.

Be sure to comply with local building codes.

ROOF OVERS

Country Manor Shake can be installed over these roofing systems:

- Asphalt composition shingles
- Wood shingles or wood shakes with a maximum butt thickness of 3/4".

Inspection of asphalt composition shingle roofs should include:

- The number of layers of asphalt shingles. (Because of weight constraints, some local building officials limit the number of layers of old roof that can be covered over.)
- The condition of the asphalt shingles. (Badly buckled or cupped shingles should be repaired to provide a flat, smooth surface.)

Before reroofing over wood shingles or medium wood shakes, remove and replace any damaged material.

Wood shingles are approximately 18" in length with a maximum butt thickness of 3/8". The shingles are typically laid with a 5" exposure to the weather.

Medium wood shakes with a maximum butt thickness of 3/4" are the only wood shake product allowed to be roofed over with Country Manor Shake.

WOOD SHINGLE/ MEDIUM WOOD SHAKE ROOF-OVER PREPARATION

Remove all hip and ridge caps. Nail down any loose or curled shingles and protruding nail heads. If necessary, build up ridges with lumber to maintain the roof slope.

Use a circular saw to cut around the entire perimeter of the roof an adequate distance to allow 1" X 4" lumber to be installed flush with the fascia. Use a carbide tip blade for best results. Set the saw depth to cut only the wood shingles; do not penetrate the wood deck or sheathing.

Remove the outer edge of the wood shingles in these areas.

This cutback procedure is being executed on the outer edge of the building, and extreme caution must be used.

Inspect the outside perimeter, including both deck and fascia, for any deterioration.

If damage has occurred, remove and replace the damaged material.

In Perfection's field experience, most wood shakes do not provide a uniform, solid nailing surface. Wood shakes in some instances have been damaged by mold and moss growth. Badly deteriorated wood shakes should not be roofed over. In some cases, a medium shake can be prepared to accept Country Manor Shake. The three areas of concern with wood shakes are:

- the height of the butts
- weather deterioration that results in cupped, curled, and lifted shakes
- the performance of the existing roofing when it is used as a fastening surface.

Some local building codes do not allow re-roofing over wood shakes or shingles. It is important to note that all local building codes should be followed.

In some situations, re-roofing over wood shakes can be accomplished. The following specifications must be followed to roof over wood shakes:

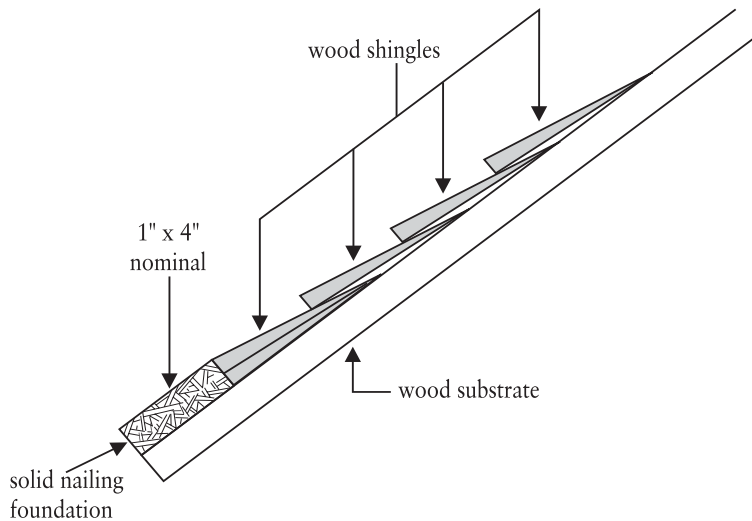
- **Maximum Butt Height:** The maximum allowable butt height for shakes that will be roofed over is $\frac{3}{4}$ ". Anything greater than $\frac{3}{4}$ " is unacceptable for roofing over.
- **Hip/Ridge Caps:** All existing hip and ridge caps must be removed. All ridges must be built up to maintain existing slope.
- **Cut Back:** The entire perimeter of the roof must be cut back 4" from the edge. A double layer of 1"x4" lumber should be nailed securely to the roof structure. CM-126 Extended Eave Drip Edge or field-fabricated drip edge must be utilized to cover the height of the lumber. This drip edge must be field-formed with a minimum fascia dimension of 2 $\frac{1}{2}$ ".
- **Shake Butts:** Cupped shakes must be removed or fastened to correct any gaps. Any individual shakes that are lifted must be fastened down tightly so that there is no gap between the underlying wood shake.

- **Underlayment:** Two layers of 30-lb. felt or 1 layer of SP-6000 RoofGuard underlayment with an 18" vertical and 6" horizontal lap is the minimum underlayment requirement. (This is to resist felt punctures.) Alternately, underlayment must comply to any fire rating requirements.

- **Nailing Panels:** When roofing over existing wood shingles or shakes that are attached to spaced sheathing, special precautions must be taken. Attach all courses of Country Manor Shake either to spaced sheathing when available or to roof rafters when a course falls over a gap in the sheathing. Extended nail clips are also available from Perfection. These courses should be hand nailed with 3" aluminum nails to ensure adequate penetration. The felted roof should have chalk lines laid to match locations of roof rafters.

Any questions concerning this procedure should be directed to a Perfection Roofing Specialist.

WOOD SHAKE ROOF-OVERS (CONT.)



Install the necessary 1X4 lumber around the perimeter of the roof. This will provide a solid nailing foundation to which the drip edge, starter strip and end caps can be securely fastened. Make sure the 1" x 4" is nailed into rafters and/or fascia.

SHEATHING & FELT UNDERLAYMENT

The minimum sheathing thickness for new construction application or redecking is:

1/2" Plywood Type

Follow local codes to anchor the plywood sheathing securely to the roof framing. Inspect the plywood for gaps and weak spots.

The minimum requirement for felt underlayment is:

One layer 30-lb. Felt or SP-6000 RoofGuard

A minimum 18" vertical and 6" horizontal lap is required. Underlayment should overhang all roof edges and extend up all penetrations at least 1 1/2".

Important: A full course of underlayment must be installed before the drip edge and starter strip. The next course of underlayment is then installed into the Starter Strip. See pages 3.10-3.11 for underlayment detail for Slotted Starter Strip. A full width of underlayment is installed up all valleys, after the initial layers of underlayment are woven across the valley.

U.L. FIRE RATINGS

The following are the Underwriter's Laboratories fire rating underlayment requirements:

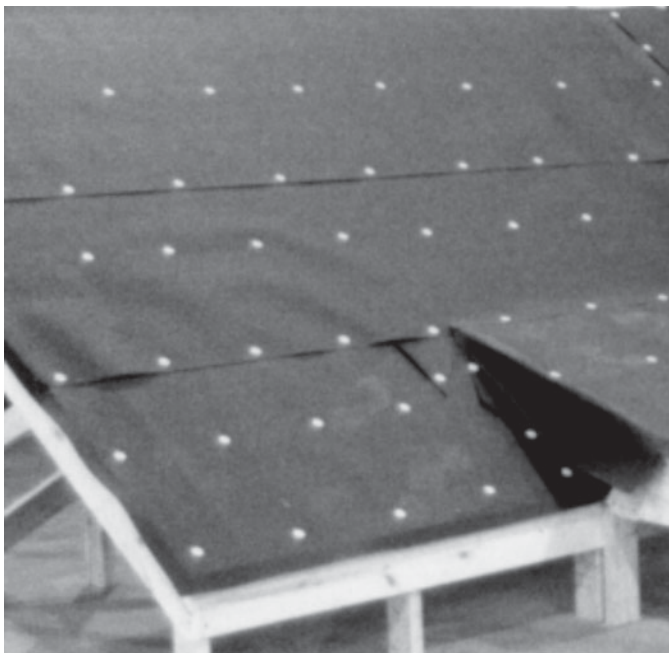
Class A - Formed aluminum shingles, for installation as Class A prepared roof covering when laid over two or more layers of Elk "Verashield Underlayment." Suitable for installation over minimum 15/32 inch-thick plywood decking or over an existing asphalt, wood shingle or wood shake roof.

Class B - Formed aluminum shingles, for installation as Class B prepared roof covering when laid over one or more layers of Elk "Verashield Underlayment." Suitable for installation over minimum 15/32 inch-thick plywood decking or over an existing wood

shingle or wood shake roof.

Class C - Formed aluminum shingles, for installation as Class C prepared roof coverings when laid over Type 30 asphalt organic felt. Suitable for installation over minimum 15/32 inch-thick plywood decking or over an existing asphalt, wood shingle or wood shake roof.

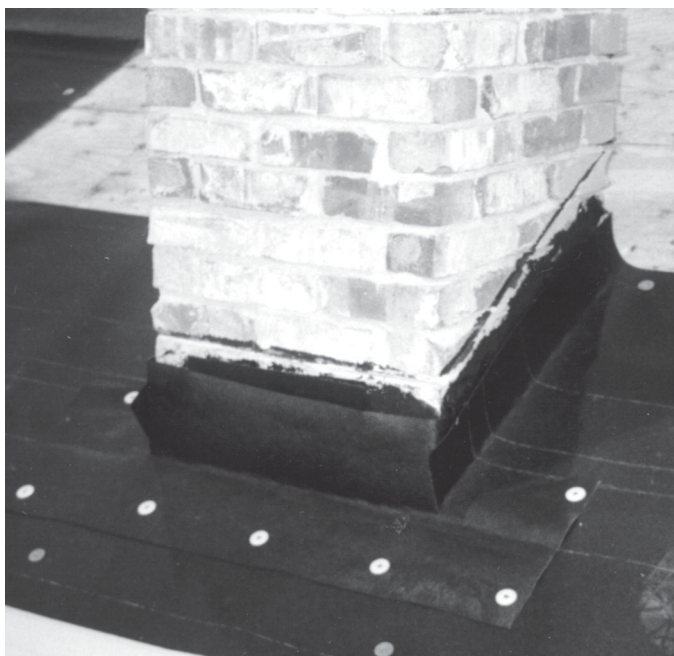
UNDERLAYMENT APPLICATION



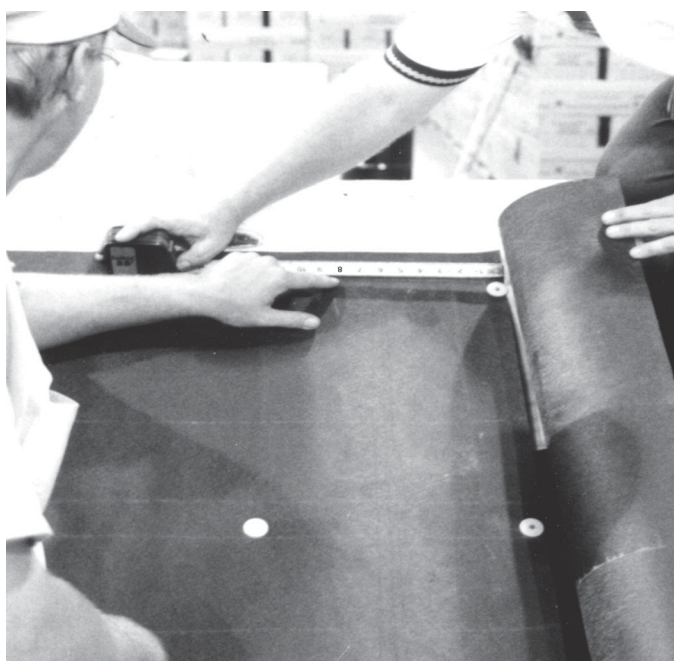
Underlayment should be securely fastened with one nail every square foot using N-501 Plastic Top Felt Nails.

The underlayment is fastened as needed to resist tearing or wind blow off. Local building codes govern.

Unroll the underlayment. Eliminate any buckles or ripples. The underlayment can then be attached. Do not overstretch the SP-6000 RoofGuard Underlayment



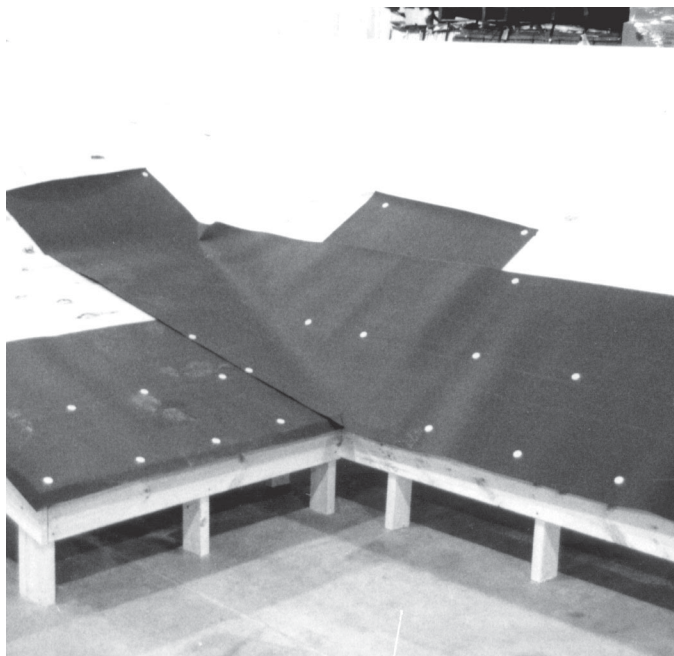
Around a large protrusion, such as a chimney, skylight or dormer, allow the underlayment to extend at least 1 1/2" up the protrusion, or as high as possible without interfering with any flashing or panel installations. Where the underlayment is cut around any protrusion, secure the underlayment to the protrusion with roofing cement or VP-275 sealant. This is done to prevent water from infiltrating the underlayment-covered roof prior to panel installation. It is important to do this neatly and to avoid puncturing or tearing the underlayment.



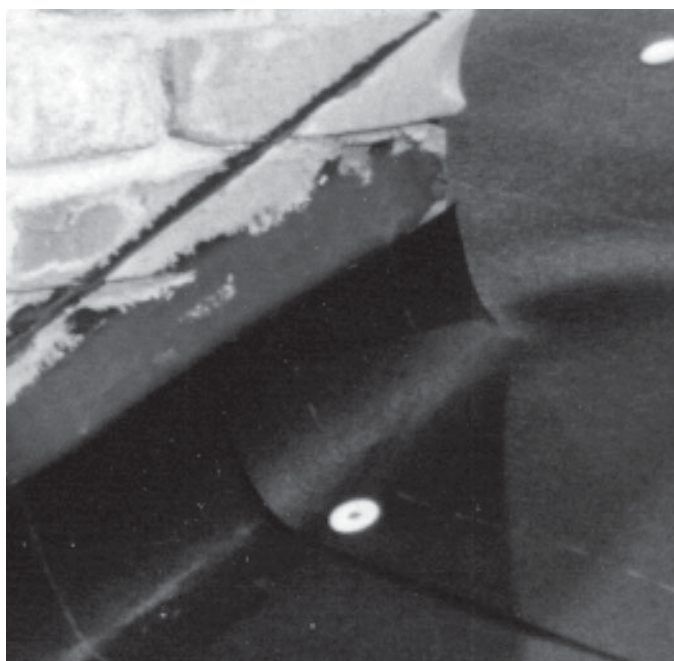
Make sure that the underlayment overlaps a minimum of 18" vertically and 6" horizontally.

The underlayment lines, if present, should be used to ensure proper alignment.

Since underlayment has a tendency to sap, do not use the underlayment lines for panel alignment. Snap chalk lines on the underlayment to align the courses of panels.



At a valley location, run the felt completely across so that the courses of underlayment are interwoven and lap at least 8" at the top of the preceding course, providing double coverage at the valley. The underlayment should conform to the valley to avoid any tears or punctures. Apply a third layer of underlayment with a full width extending the entire length of all valleys.



Extend the underlayment at least 1 1/2" upward around protrusions, such as pipes, vents, electrical conduits, chimneys, and skylights. Apply roofing cement or VP-275 sealant to ensure a watertight seal. If the underlayment tears or fractures, install patches made of underlayment and roofing cement to seal these areas thoroughly.

It is critical that the underlayment be installed properly to avoid problems in the future. Metal roofing can develop condensation beneath it during certain weather conditions. The underlayment prevents such moisture from causing a problem.

REVIEW: ROOF PREPARATION

- Inspect thoroughly before and after felting. (Thoroughly repair any felt tears).
- Roof over composition or wood shingles or medium wood shakes only.
- Minimum roof slope is 3:12 (4:12 in areas of heavy snow).
- Lap underlayment a minimum of 18" horizontally and 6" vertically. At hips and ridges, double lapping is required. Valley is triple lapped.

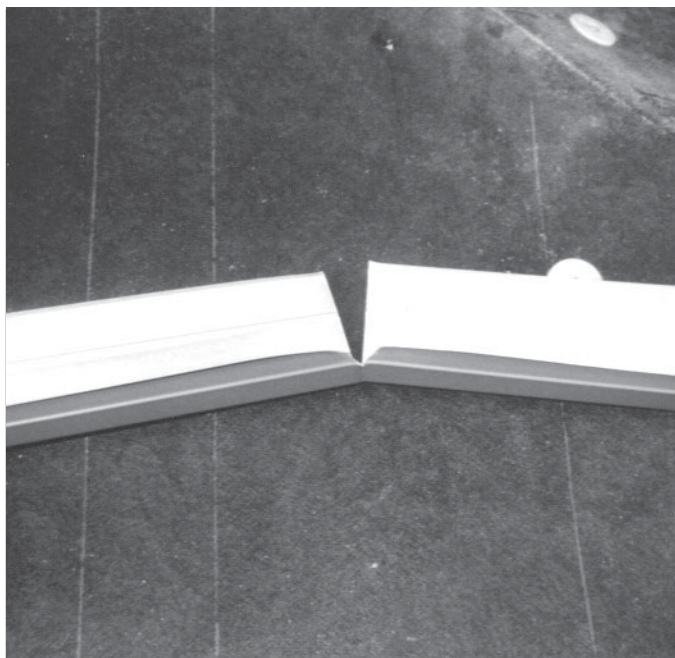
Notes, Observations, & Questions

EAVE & GABLE TREATMENT

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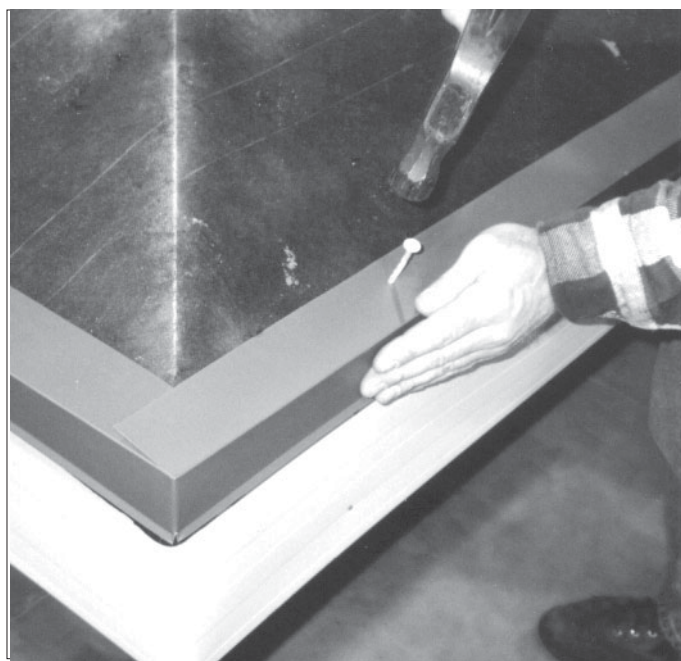
*Important: All detail work demands
meticulous consideration.*

DRIP EDGE



The standard eave and gable drip edge for Country Manor Shake is CM-105.

Cut the drip edge around corners, notching both the nailing surface and the drip hem, and bend it to form the corner.



Secure the drip edge in place by nailing it every 24".

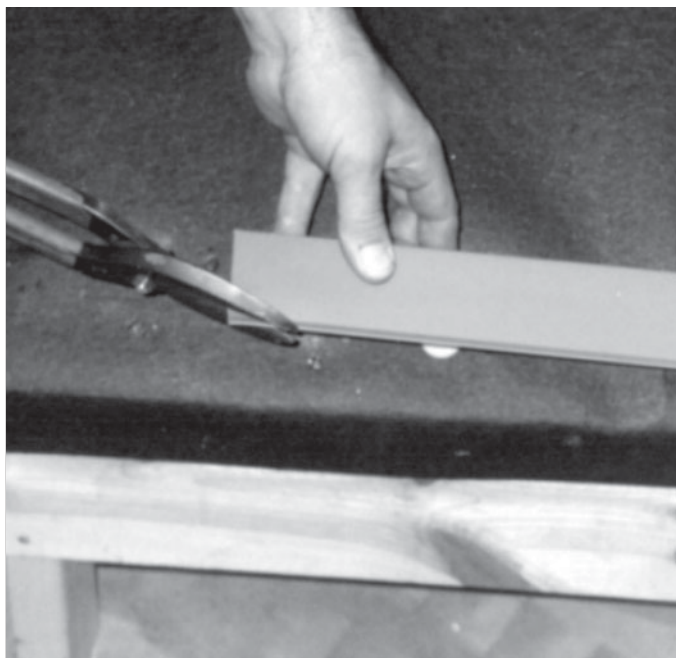
Nail into rafters when the underside of the deck is exposed to view.

Fastener Specifications

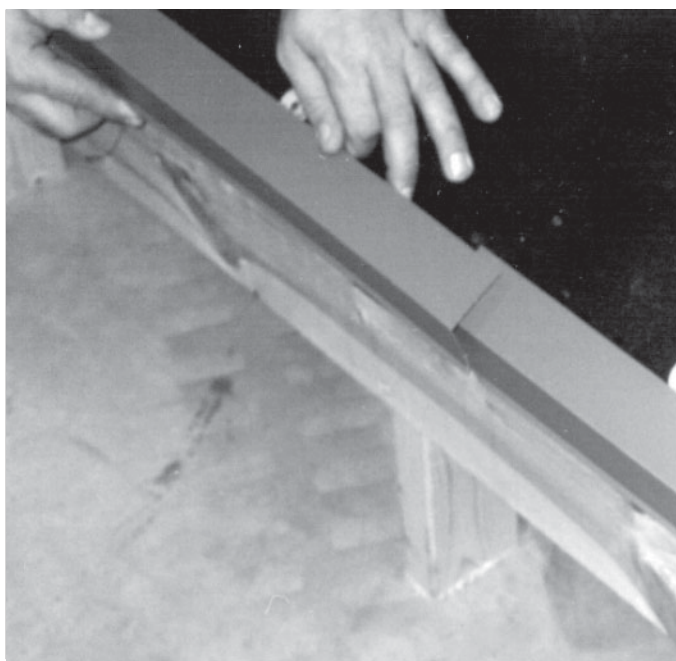
Perfection approves the use of the following fasteners only:

- 1) pure aluminum
- 2) stainless steel

Fasteners must be ringshank nails, screwshank nails or screws. Fasteners should be long enough to fully penetrate the decking, or at least 1" into solid lumber.



Where the drip edge overlaps, cut the bottom of the drip face at an angle, removing some of the drip hem and fasten it in place.



Open the drip hem of the next piece of drip edge. Slide it over the installed piece

The angle cut of the drip hem should nest inside the drip hem of the installed piece.

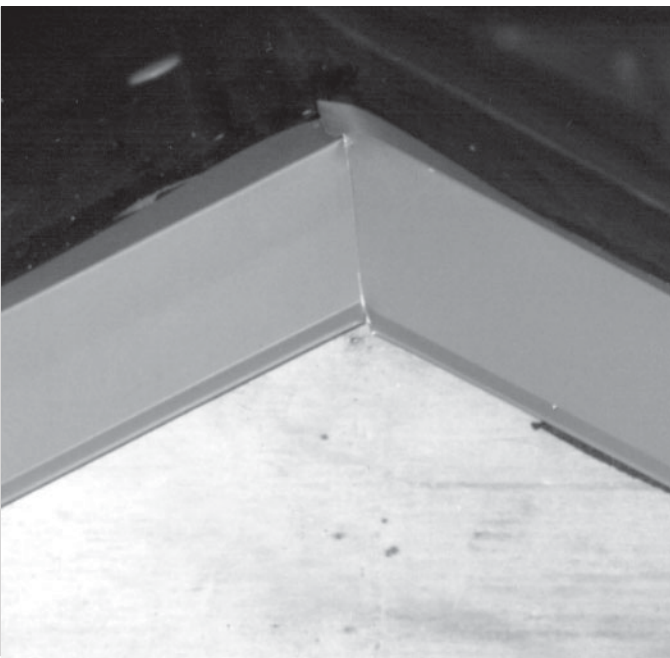
GABLE EDGE



When installing drip edge at a ridge location, place the drip edge on one side of the gable, mark a vertical line down the ridge intersection and cut about 1" past the line.

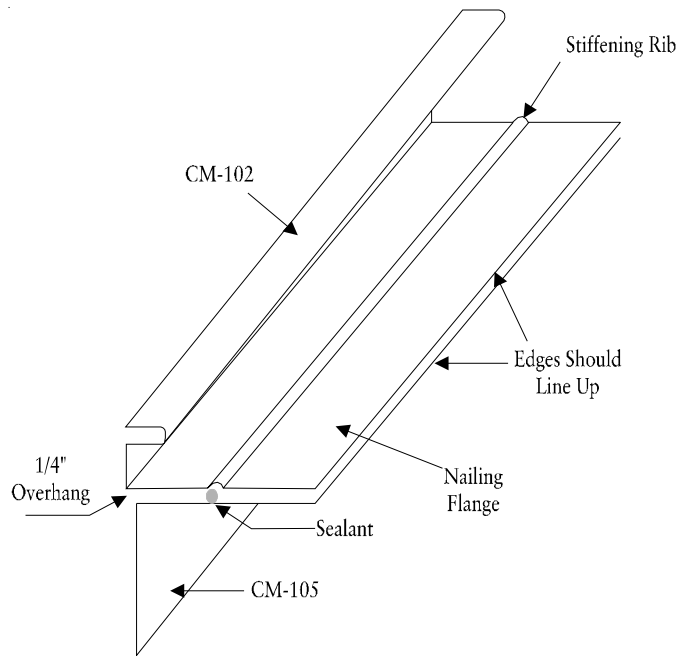
Remove the excess material that will prevent the next piece of drip edge to rest flat against the deck and fascia.

Then cut a V-groove at the top of the drip edge and bend the nailing surface to conform to the ridge angle.



Mark and trim the second piece of drip edge to ensure an attractive overlap. Be sure water cannot get underneath of the drip edge at the joint.

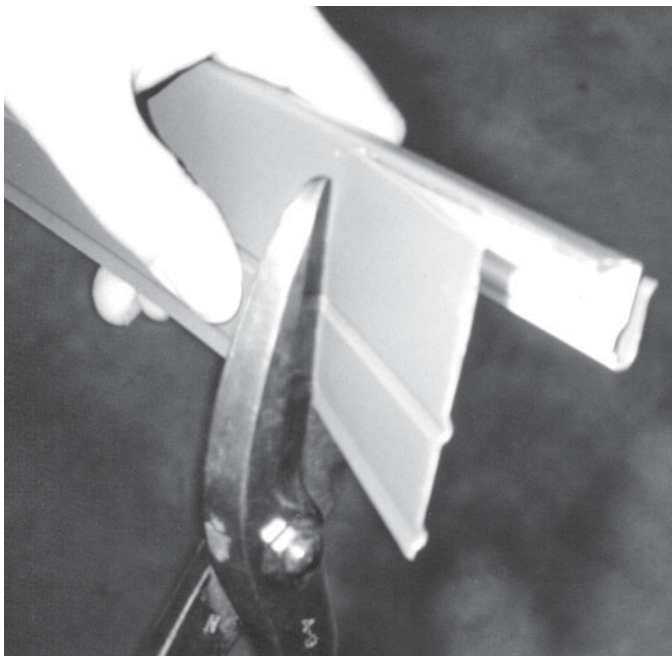
STARTER STRIP



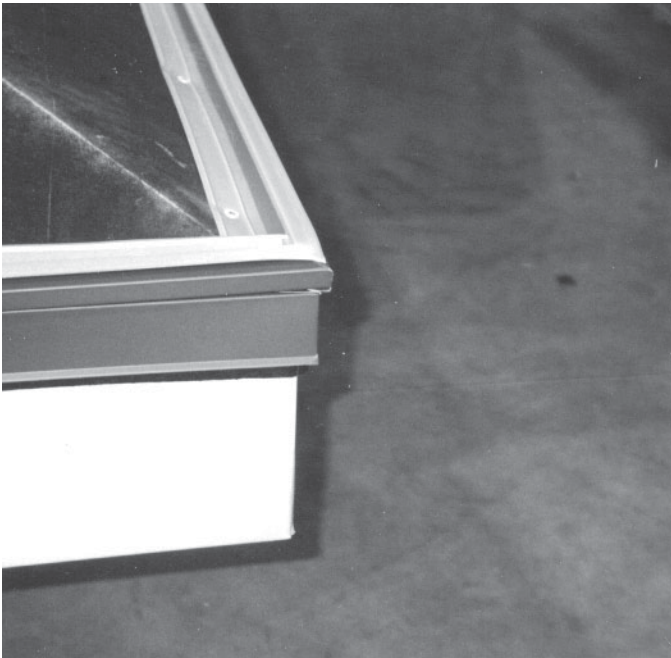
Perfection starter strip (CM-102) is provided in twelve foot lengths, in colors to match the Country Manor Shake.

This is designed to be installed in conjunction with the CM-105 drip edge.

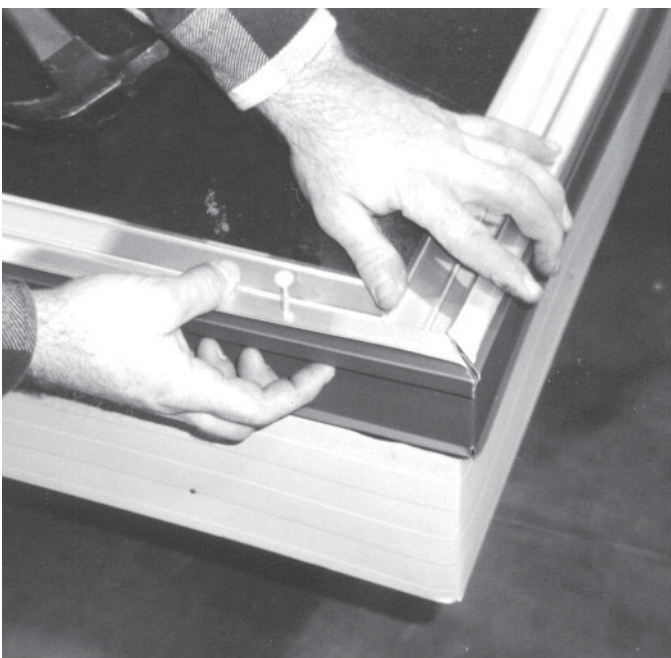
A bead of sealant must be applied between the CM-105 drip edge and the CM-102 starter strip.



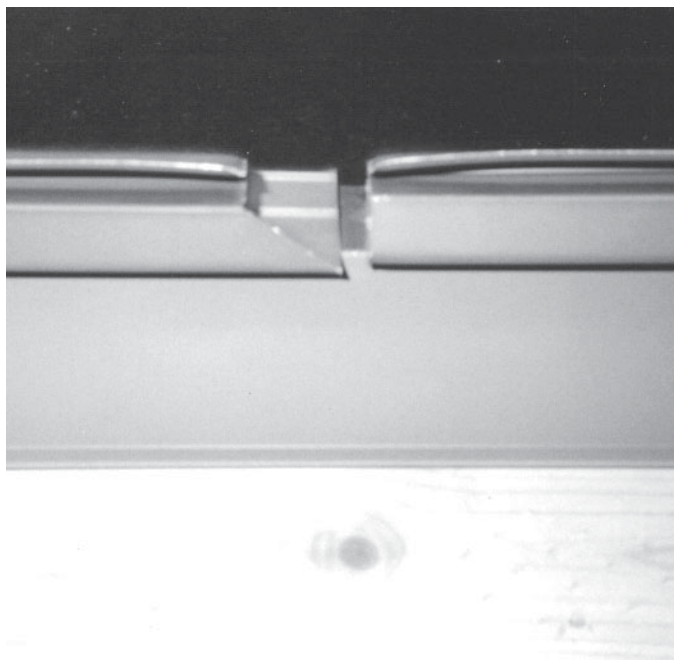
Always make a drain slot in the Starter Strip where it will overlap any accessories with water-return channels. Do this by cutting a 3" wide notch in the nailing hem and face.



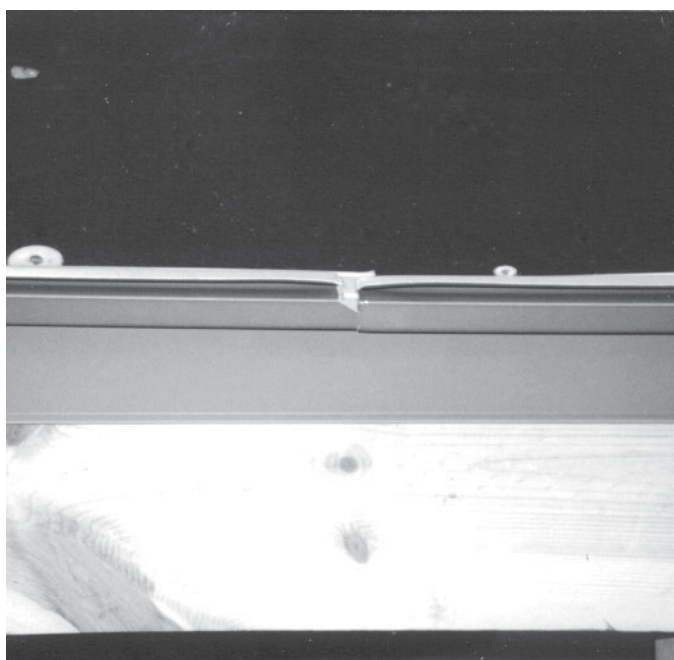
Position the CM-102 so its front edge overhangs the drip edge by 1/4".



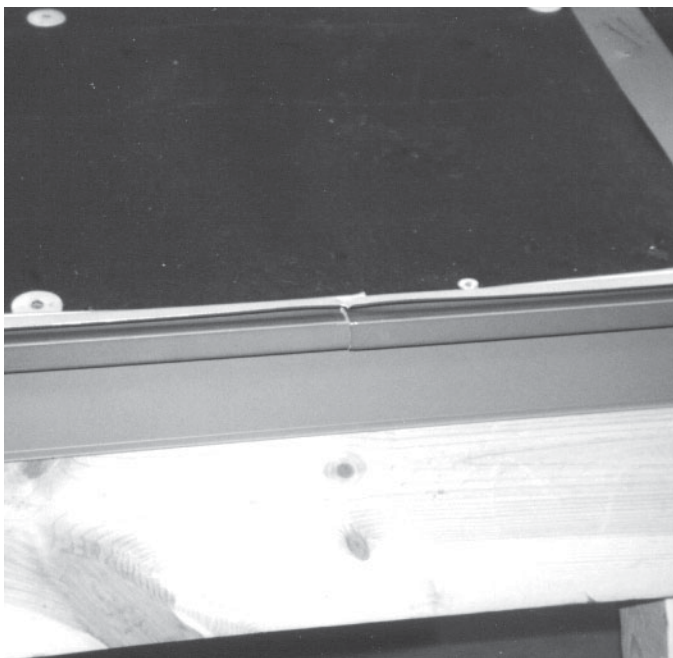
The starter strip is nailed at a minimum of every 6" below the lowermost stiffening rib of the CM-102.



When two pieces of starter strip meet, angle-cut the lock and the face of the starter strip to be installed.

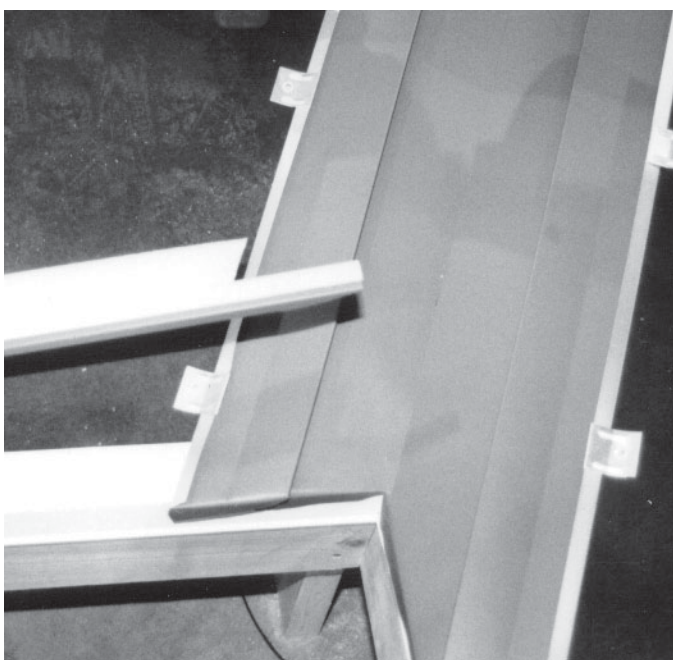


Slide the angle-cut piece of starter strip into the installed piece of starter strip.



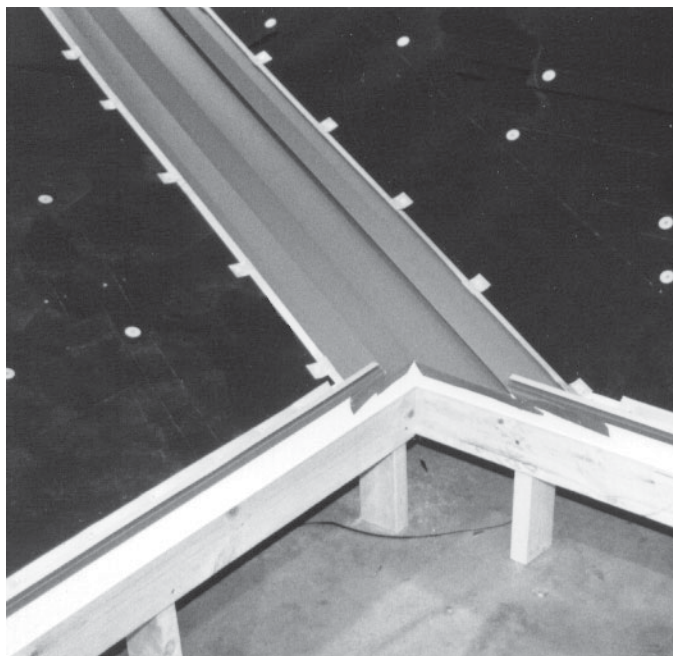
Insert the trimmed piece of starter strip to be installed until the angle-cut is concealed.

After positioning the second piece, nail as specified.



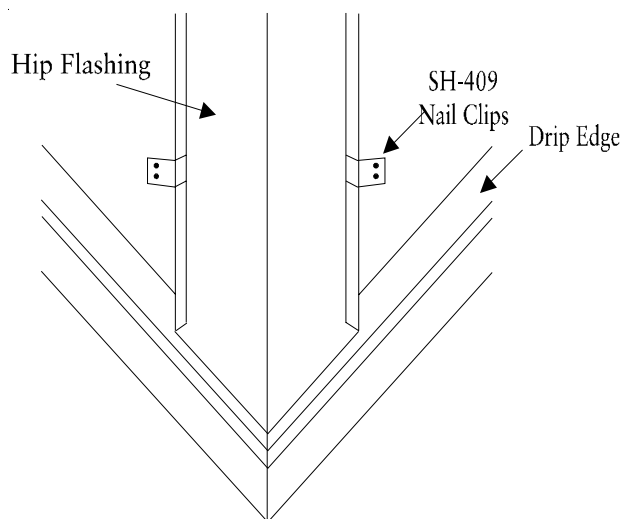
Install starter strip into and out of the valley. Place the starter strip into the valley, marking where it intersects the water return leg and the return rib.

Cut and remove the nailing hem of the starter strip. The starter strip should extend over the valley's water return channel.



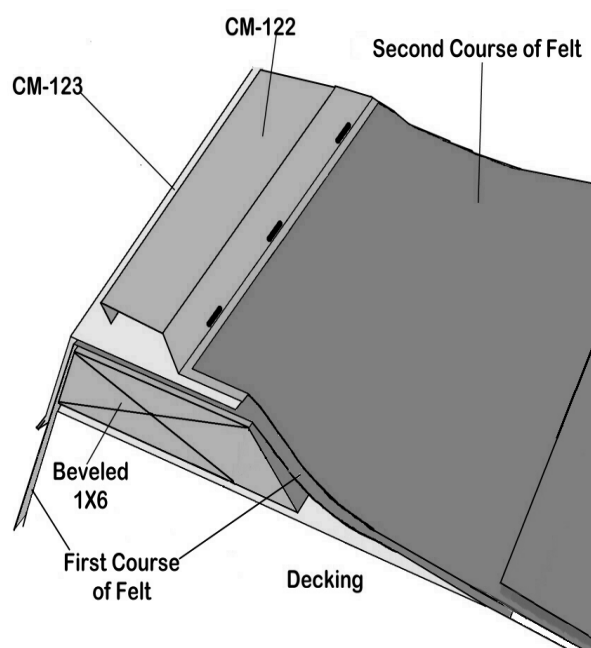
This notched in the starter strip will allow water to drain out of the valley's water return channel.

Note: See section 4 for complete valley installation techniques.



If a hip exists, a field fabricated hip flashing must be formed. See page 8.2 for detailed hip flashing formation and installation procedures. As with the valley, remove the nailing flange and some of the face of the CM-102 to allow that may accumulate in the hip flashing to drain under the lock of the CM-102.

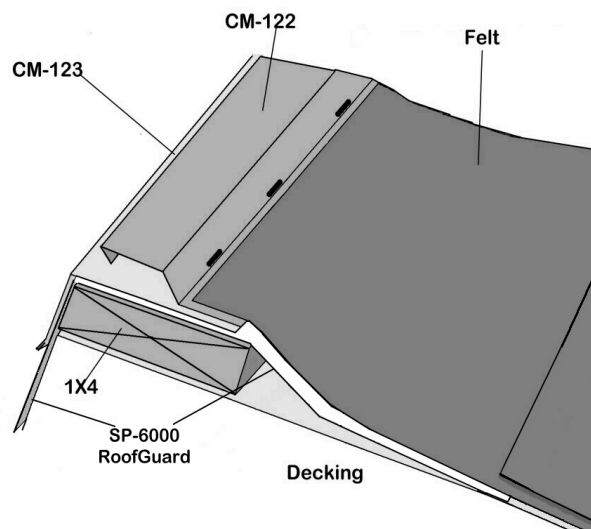
SLOTTED STARTER STRIP



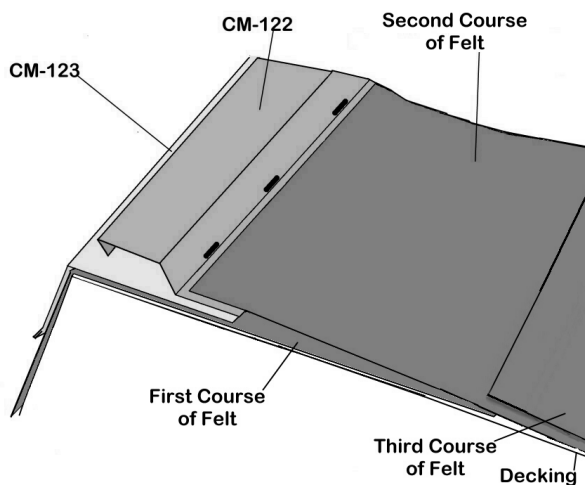
CM-122 slotted starter strip is designed to be used with CM-123 slotted starter drip-edge. These parts offer an alternative to CM-102 and CM-105 and are recommended for use in areas with heavy snowfall and wind-driven rain.

When installing the underlayment, place the first course so that it overhangs the eave by at least 1 1/2". The second course of underlayment must lay on the nailing hem of the CM-122 Slotted Starter Strip. However, this course must not cover the "weep holes" of the slotted starter strip. The holes allow any condensation to flow through the starter strip and exit the roof.

The starter strip and drip edge in this illustration are installed on a beveled 1"x6" to lift the butt edge of the first course of shingles. If the 1"x6" is not installed, the pitch of the first course of shingles will not be the same as the pitch of the succeeding courses of shingles.

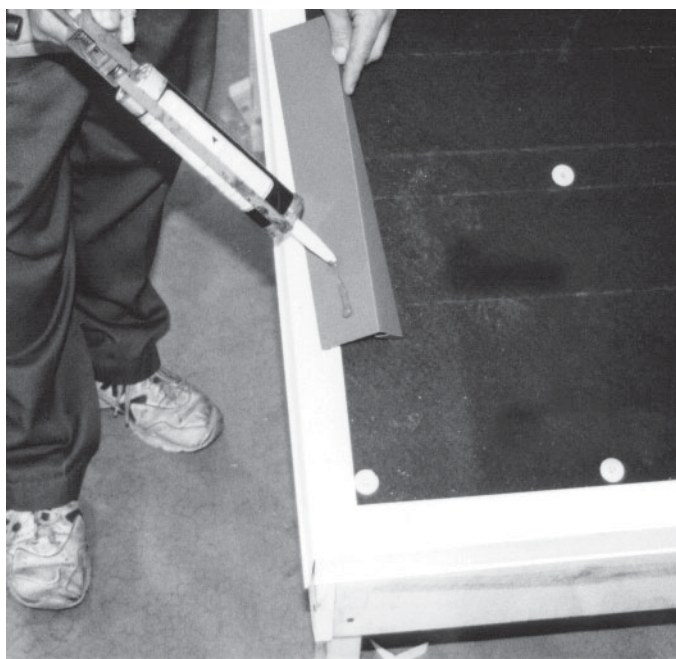


CM-122 and CM-123 installed on a 1"x4" and an initial course of SP-6000 underlayment. Do not allow the underlayment to cover the weep holes in the slotted starter strip. SP-6000 is used for its tear resistance in spanning a non-beveled edge.

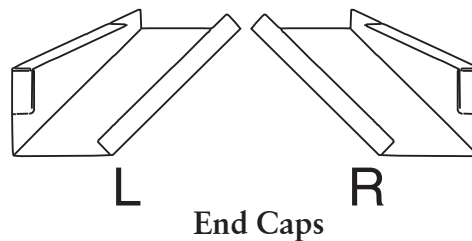


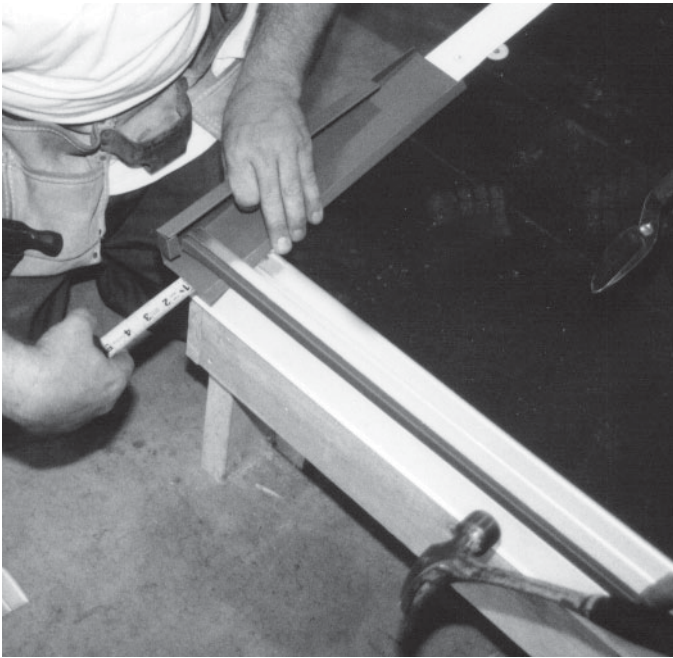
CM-122 and CM-123 installed directly on the decking and underlayment. Again, this will alter the angle of the first course of shingles.

END CAPS



Before installing an end cap, apply a bead of sealant to the bottom of the end cap.

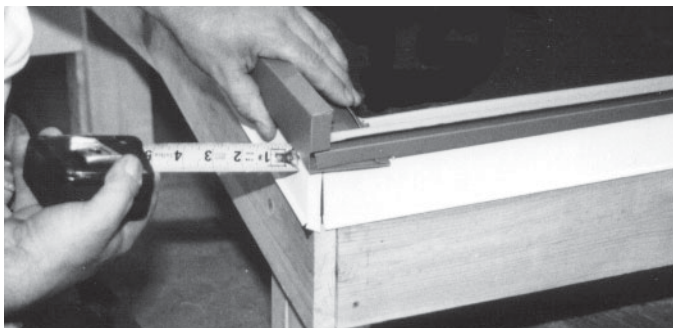




Position the end cap so that it extends 1" past the eave drip edge.

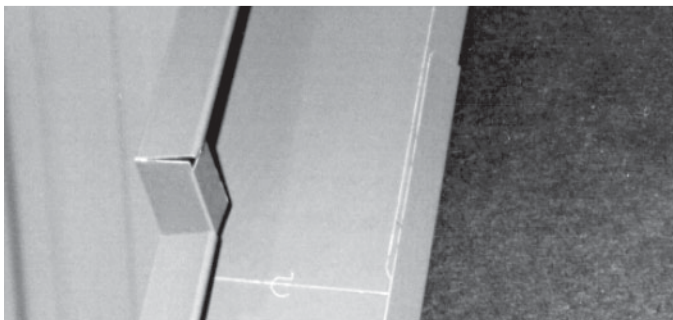
At the same time, position the end cap beyond the gable drip edge $\frac{1}{4}$ ".

The end caps should be adjusted by bending the tab when they do not align with the individual shake profiles.



When installing the first end cap, one nail should be approximately 3" from the bottom of the cap, and the other should be approximately 1" from the top of the cap. Apply sealant to the lower nail head.

Slide all the subsequent end caps into the end caps below, and fasten in place with one nail. Place the nail in the open area approximately 1" from the top of the cap.



It is important to make sure that the end caps are tightly nested so that their coverage will be equal to the coverage of the shake panel.

REVIEW: EAVE & GABLE TREATMENT

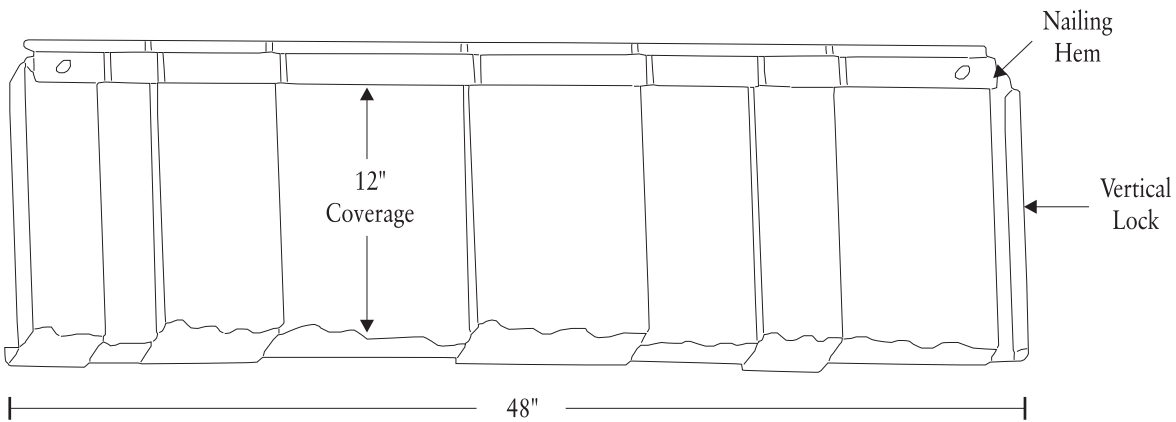
- Install eave and gable drip edge after felt has been applied.
- Incorporate felt into the starter strip.
- Make a joint in the starter strip to allow for expansion and contraction.
- Starter strip should overhang the drip edge by 1/4".
- Remove starter strip nailing hem to accomodate flashings with water return channels.
- Use CM-122 Slotted Starter Strip and CM-123 Drip Edge in areas of heavy rain, high winds, or snowfall.

Notes, Observations & Questions

PANEL INSTALLATION

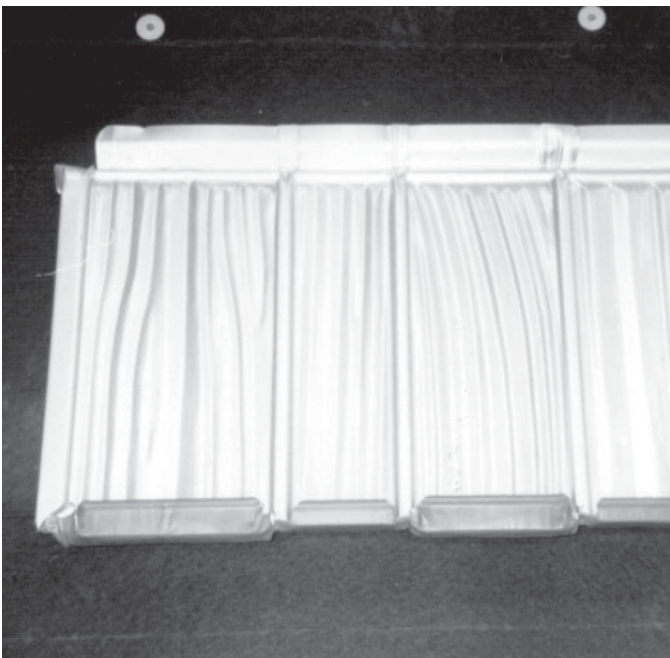
■ Panel Installation.....	5.2
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PANEL INSTALLATION



Country Manor Shake is packaged 25 pieces per carton. The panel covers a width of 48" wide and consists of eight individual sections.

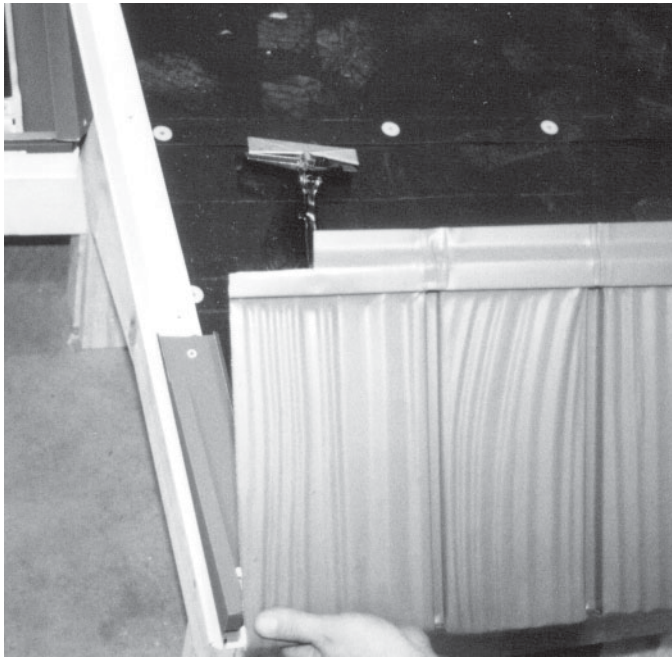
The eight sections have alternating thicknesses and lengths. The short shakes measure 12 1/4", and long shakes measure 12 5/8". The actual coverage is 12".



Each panel has a continuous horizontal interlock and nailing hem along the top.

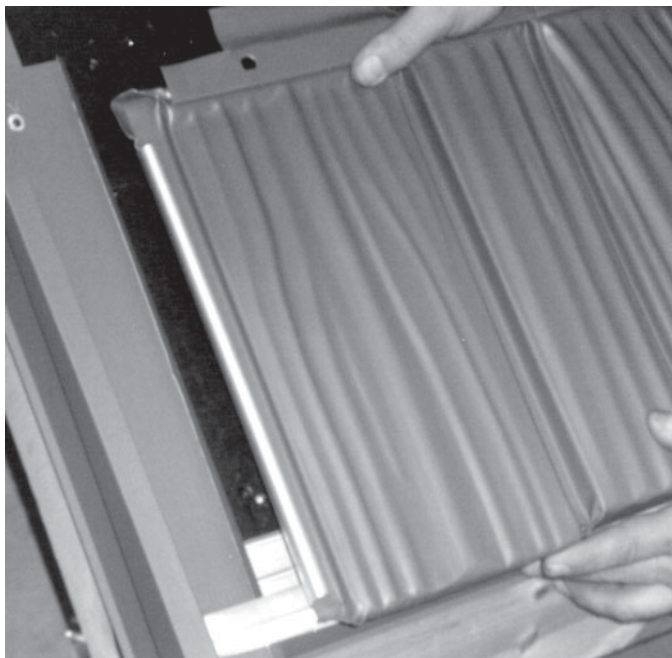
Along the bottom of the panel are eight individual tabs which form the bottom lock.

Vertical sidelocks are also present in each panel.

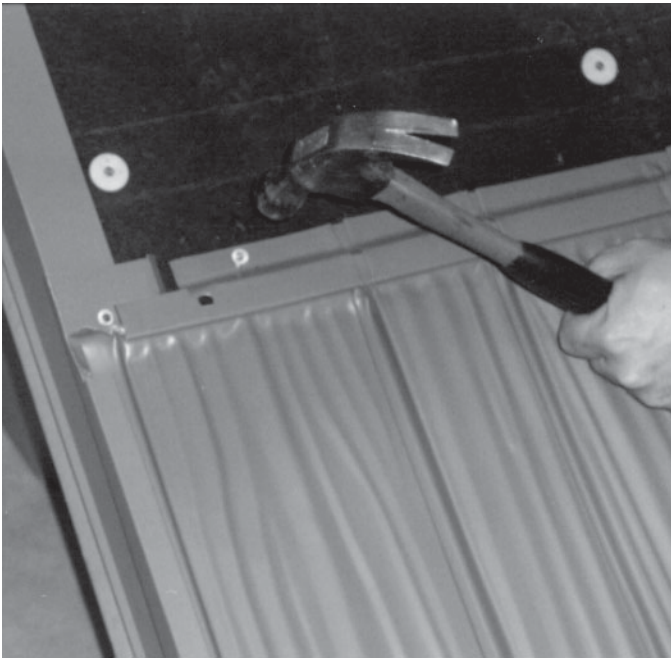


To install the first panel on a gable roof, start in the lower left hand corner of the roof section.

Measure 3" in from the edge of the panel and cut and remove the top nailing hem portion. The purpose of the notch is to keep the nailing hem from blocking the water return channels at the end caps.



Then insert the panel into the end cap and apply firm pressure to lock the bottom of the panel into the starter strip, making sure all eight tabs on the bottom of the panel are seated into the starter strip.

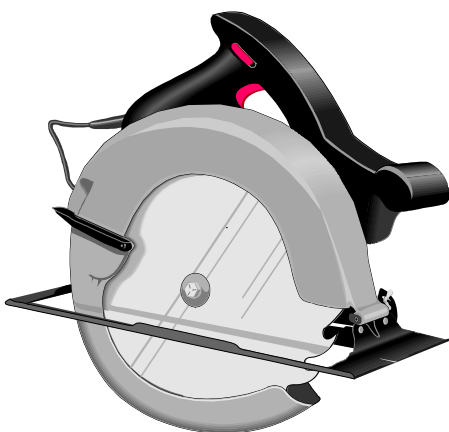


Once the panel is locked into place, nail on both ends and in two intermediate locations.

Full panels should have a minimum of four nails, and all panels less than full length should have at least one nail per foot.

Lock the next panel by engaging the side lock and securing the tabs into the starter strip.

RANDOM APPEARANCE



Before installing the second course of shakes, remove a portion of the left end of the panel to provide a random appearance.

Cut the shakes using a circular saw blade designed for cutting nonferrous metals.

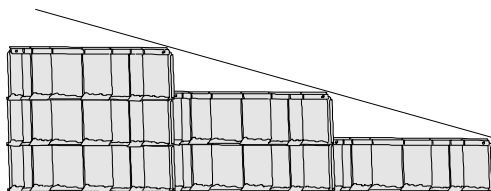
Remember to lubricate the saw blade periodically to ensure easier cutting and smoother edges.

A portable saw table will make cutting the panels much easier.

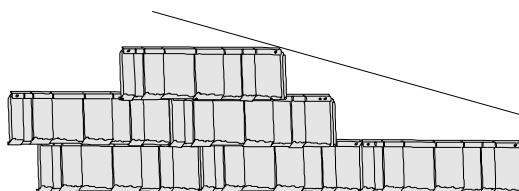
A saw guide will provide a suitable track for cutting. This saw guide can be adjusted for vertical and diagonal cuts.



To ensure a random look with the panels, stagger the courses. Do this by using an alternating series of small and larger starter pieces.



Wrong



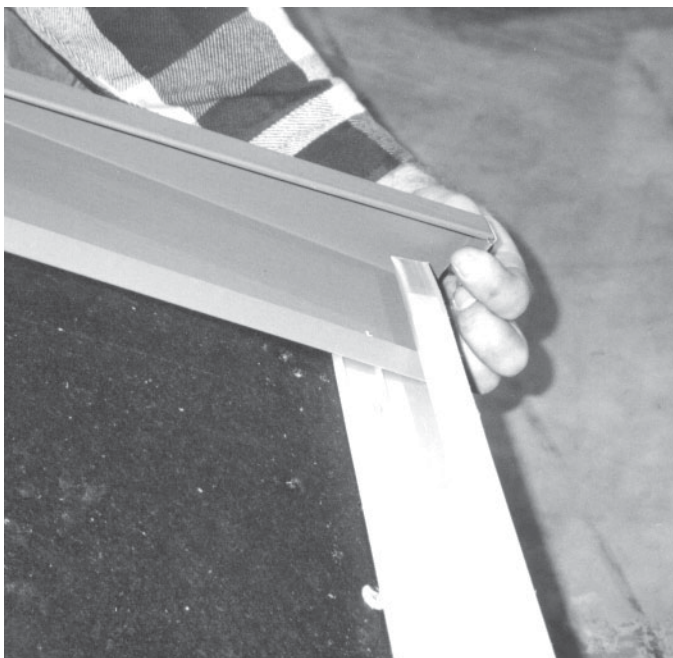
Right

Make sure that the end of panels never line up diagonally 3 or more times in a row.

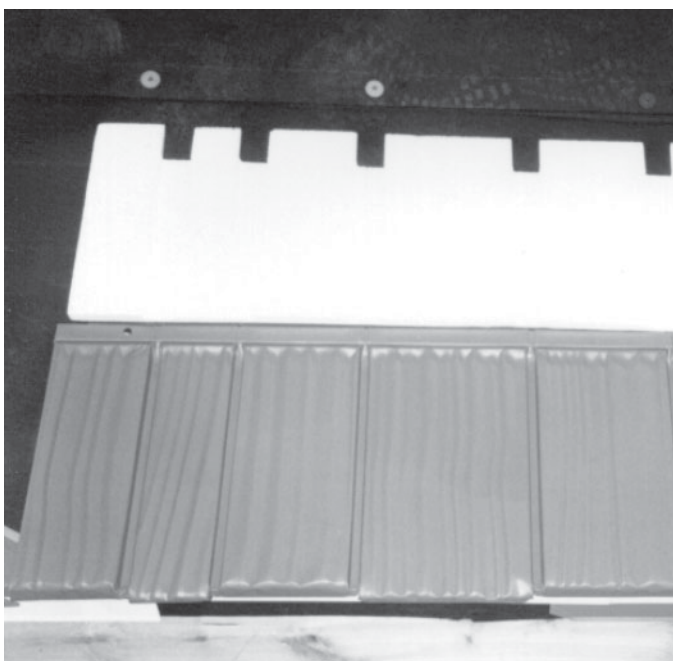
For example, randomness can be achieved by utilizing the following series of panels.

However, this sequence is not mandatory.

- Start with a full panel 48"
- Second panel 40"
- Third panel 24"
- Fourth panel 14"
- Fifth panel 38"
- Sixth panel 27"
- Seventh panel 10"

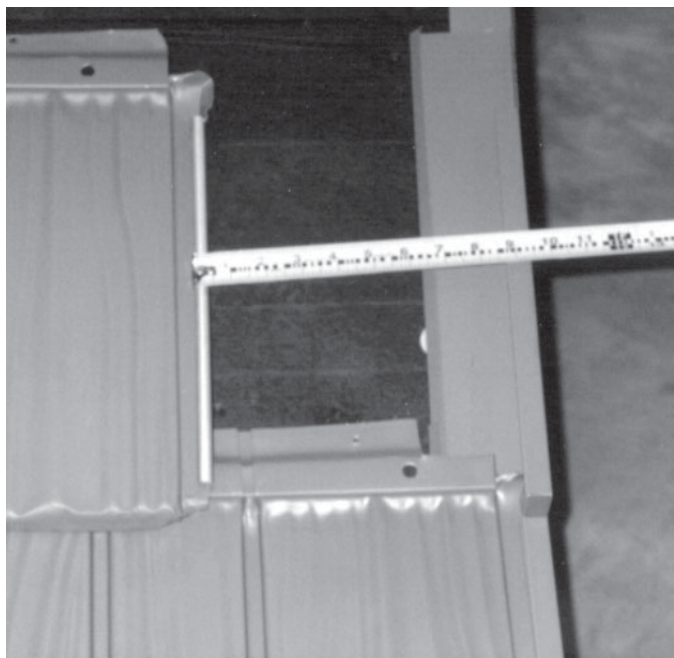


When starting or ending with a long shake, bend in the tab at the bottom of the end cap to accommodate the longer length shake. Lock the panel into place and nail.



Premolded polystyrene inserts can be installed with the individual panels. The insert gives the panel increased rigidity and walkability.

All remaining steps are identical to those for uninsulated panels, except at areas where the polystyrene will have to be cut back to avoid interference with flashings and end cap drainage.



When finishing a course at the gable end, measure from the side lock of the last full panel to the inside of the end cap. Cut this last panel of the course to this measurement.



To avoid ending with an unmanageable section of panel, transpose lines from such areas as valley and gables. Since panels install from left to right, transpose reference lines from right to left to establish a starting point. Measure from the ending location back toward the starting area in increments of 48". When installing the first panels, don't position them within 6" of the reference line.

If it becomes necessary to install a small piece of shake that has no hem for nailing, secure the panel in place by using a bead of sealant as an adhesive in the vertical lock.

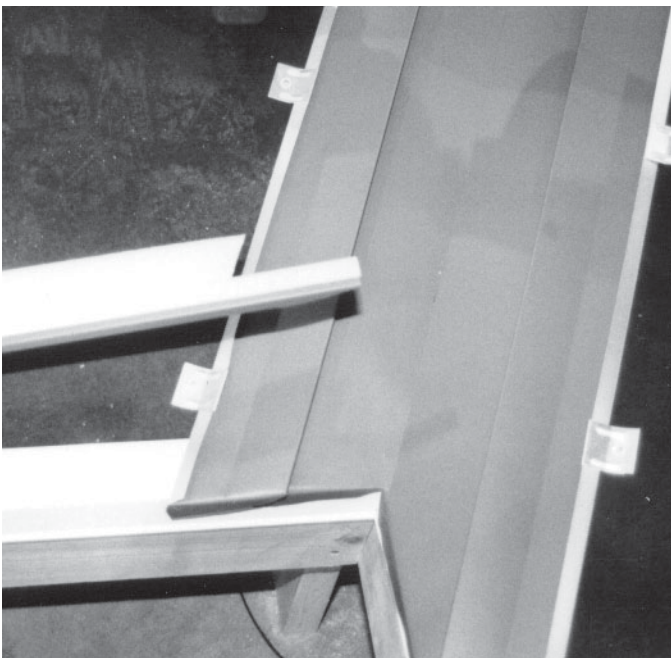
Perfection's VP-275 is the only approved sealant.

Use caution when walking on the completed roofing areas.

The possibility of damaging the shake panels can be minimized by exercising precautionary measures.

Additional protection may be necessary in areas of heavy foot traffic.

PANELS INTO VALLEY



Install starter strip into and out of the valley as described on pages 3.8 and 3.9.



Position the panel in the valley, allowing excess material for folding the panel into the valley. Mark the top and bottom of the the panel where it intersects the standing rib and mark where nailing hem intersects water return leg.

Measure approximately $\frac{3}{4}$ " past the nailing hem/standing rib intersection at the top of the panel and $1\frac{3}{4}$ " past the butt/standing rib intersection at the bottom of the panel. Make a line between the pounts and cut the panel. The material past the standing rib is needed to field form a diagonal sidelock on the panel. Cut and remove the nailing hem that covers the valley's water return channel.



Lay the panel face down and flatten the grooves toward the middle. If the panel is the first panel to cover the valley, remove the lower $\frac{1}{3}$ butt and the bottom lock of the panel that covers the valley's water return channel. Removing these portions of the panel will allow the valley to drain properly.



Cut excess material away from face of panel and nailing hem. With a hand brake or hand flanger, bend the flattened area in excess of 90° .

Remove all but $3/4$ " of the excess material. Form a $3/4$ " lip to lock it into the standing rib of the valley.



Lock panel into starter strip and over return rib and fasten. Then squeeze the panel and standing rib lock together.

These procedures are also used when installing panels out of a valley.

It is important to make sure that the panel is cut to an accurate angle. Mis-cuts or badly angled pieces should not be forced into the valley.

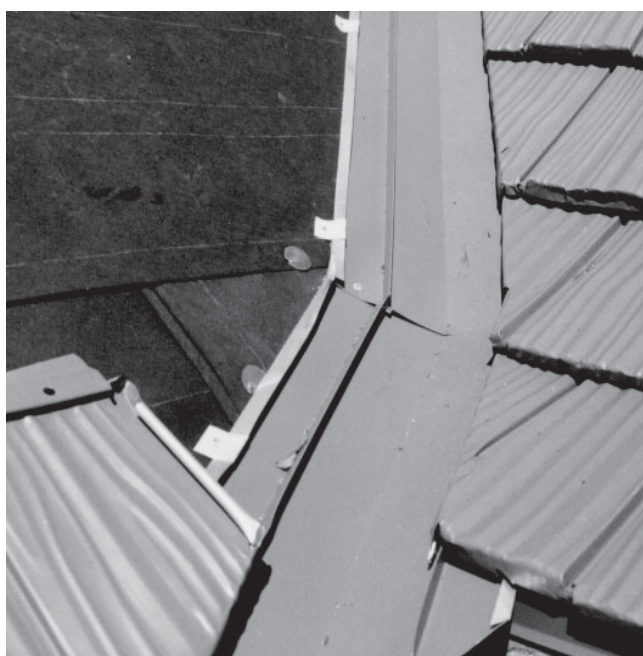


When installing panels in and out of valley, make certain that panels are running parallel to the ridge. At no time should any nails or other fasteners penetrate the valley base flashing.

The succeeding courses of panels should be installed out of the valley, keeping in mind the concept of random panel appearance and alignment.

Note the different roof pitches on either side of the valley.

DOG LEG VALLEY



The panel that intersects the valley transition should be cut and bent to adapt to the angles of the dog leg valley.

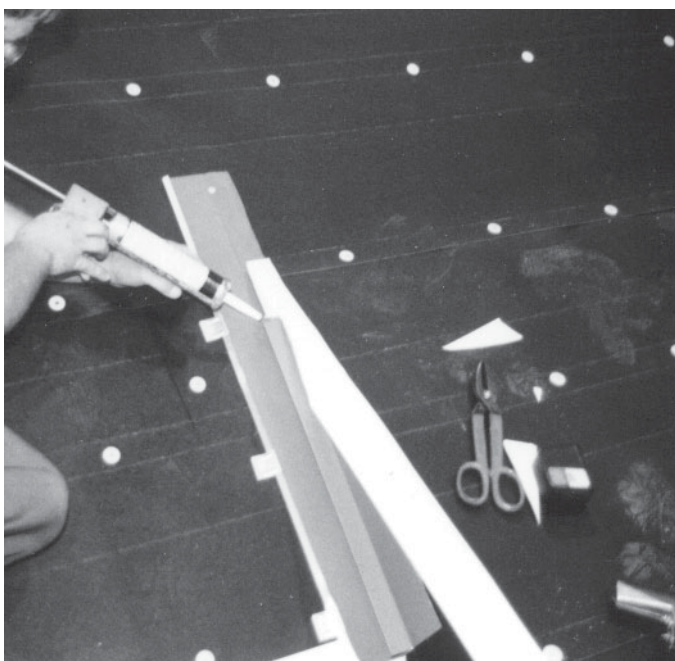
STAGGERED STARTS



To illustrate a staggered start, an offset gable is used. The top locks of two roof sections will not align. Prepare to install the panels by completing the following steps:

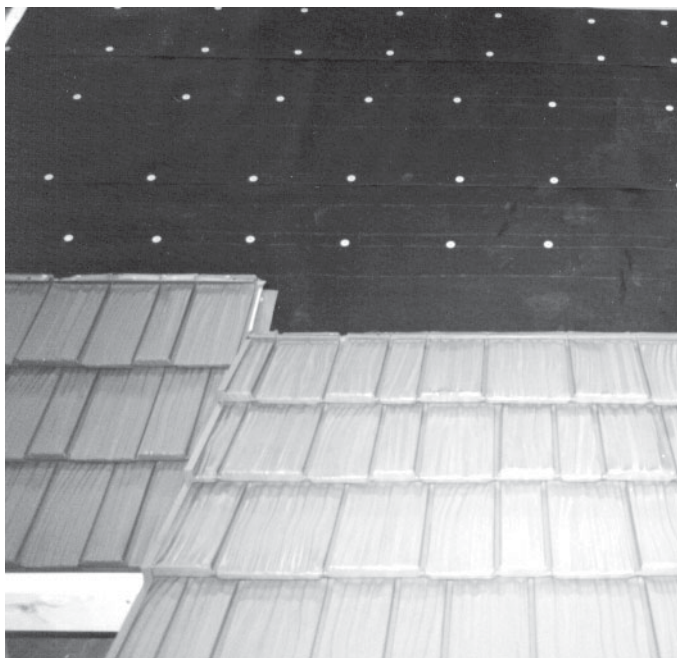
Install sidewall flashing as described in Section 6.

Install starter strip as described in section 3.

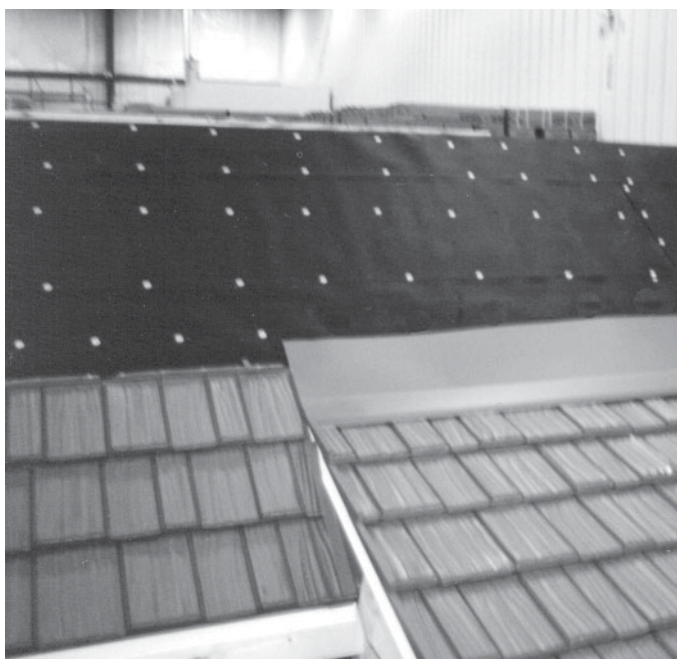


Install drip edge on the offset gable end and apply sealant where it intersects the sidewall flashing.

Install end caps as described in section 3.

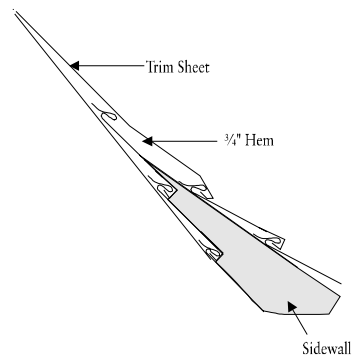


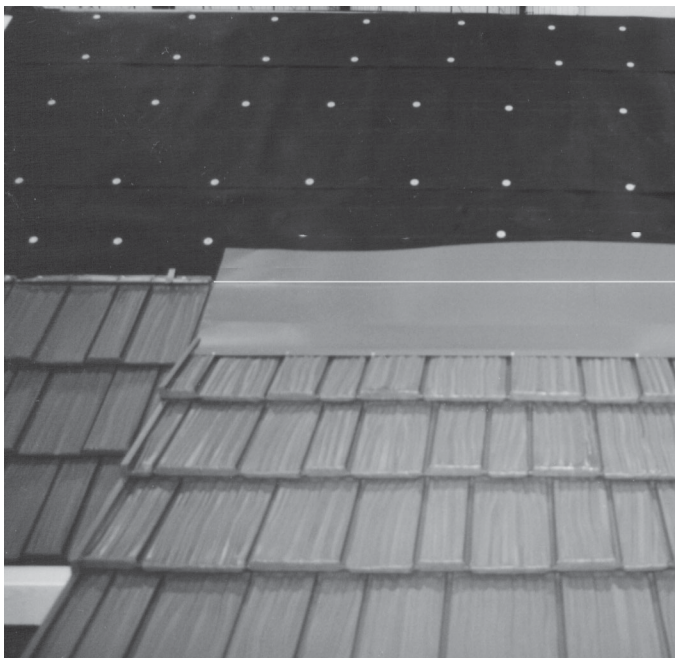
Install panels into both roof sections until a short course situation occurs.



Field-form a flashing to compensate for the offset.

The flashing should cover the top lock of the lower course and extend past the top lock of the higher course. Bend a $\frac{3}{4}$ " hem with a slight angle on the lower portion of the flashing to add rigidity to the trim sheet. Fasten in place.





Snap a chalk line parallel to the lower courses extending from the top lock of the upper course of panels onto the flashing.



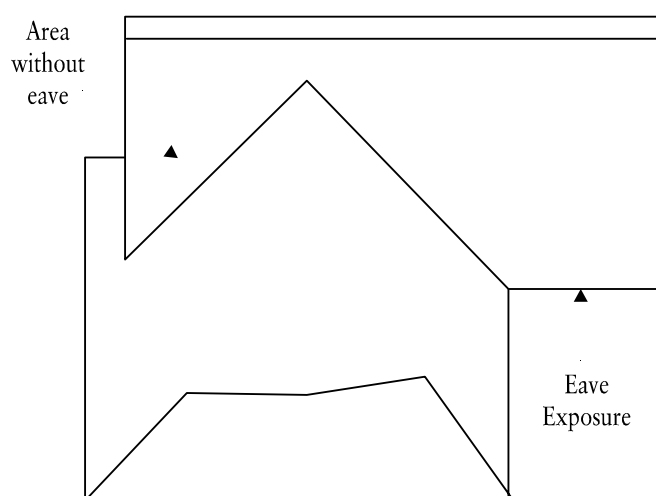
Install CM-122 slotted starter strip along this chalk line.

The top lock of the upper course should line up with the slotted starter strip on the offset section of the roof. This provides a complete locking strip for the next course of shake.

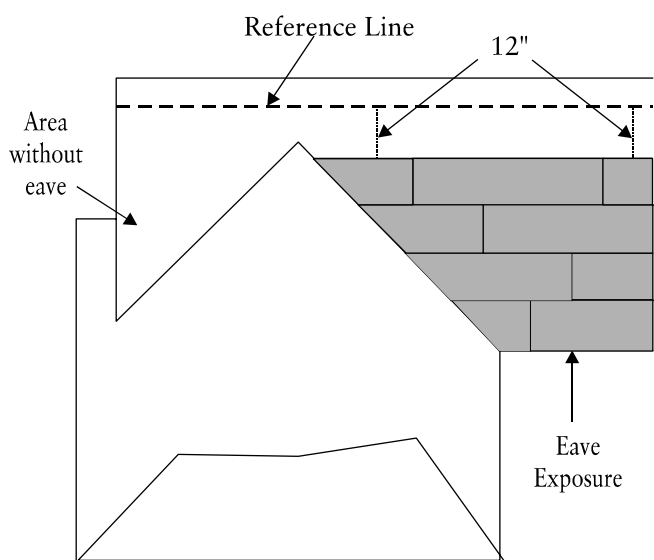


To prevent wind-blown rain from getting under the flashing, apply sealant where the flashing overlaps the panels and, following standard procedure, install the next course of panels into the top lock of the lower panels and the slotted starter strip.

MATCHED COURSES

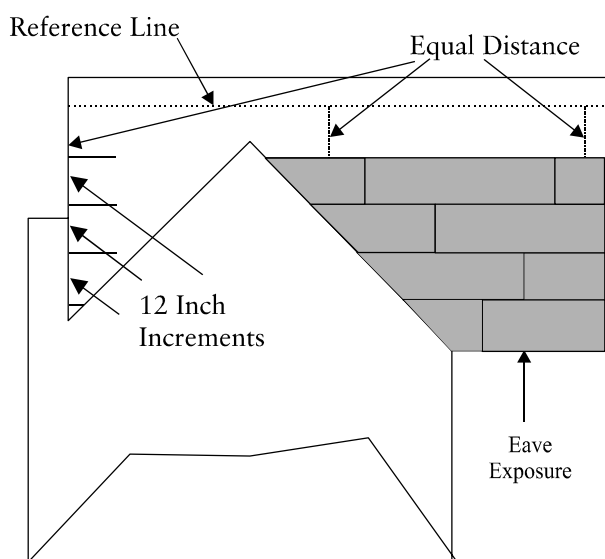


Some roof sections will have an area without an eave, or with some other obstruction that may cause mismatched courses. In this example, a valley and an area without an eave will be shown. This procedure details how to ensure the course of shingles coming from both sides of the intersecting ridge is properly aligned above the valley peak.

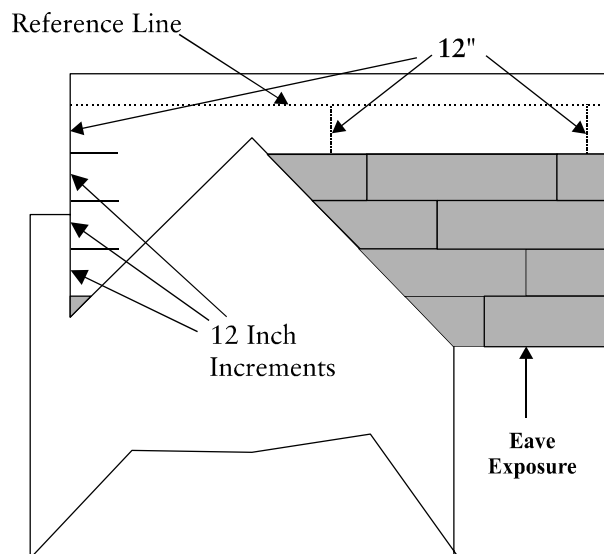


To develop a reference line, measure up 12" from the top of the installed panels. Do this in two locations.

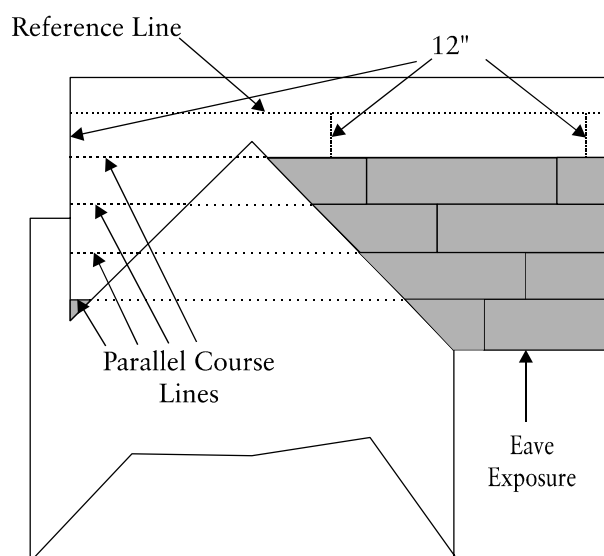
Snap a chalk line across the top of the 12" marks and extend it to the gable end to establish a reference line.



From the reference line, mark down in 12" increments (the exposure of a panel) until no more 12" increments can be marked.

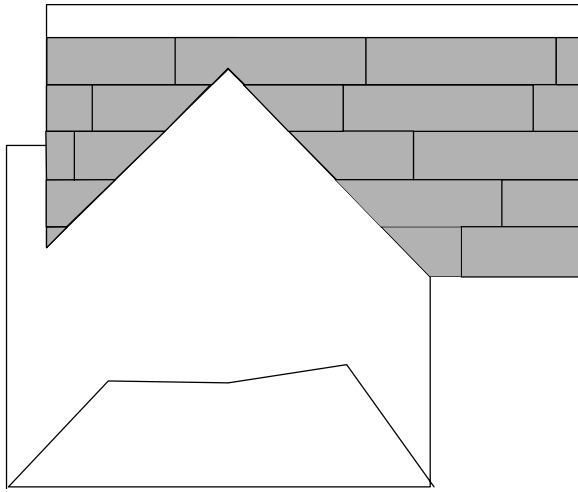


The lowest course shingle will need to be modified as necessary for the proper exposure so that successive courses meet the chalk lines. If desired, and particularly in heavy snow areas, the bottom triangle area can be fitted with coilstock instead of a modified shingle. If not already installed, install the gable edge accessory pieces. If gable caps are used, modify an end cap for this short course and modify a panel to fit into the valley.



Snap chalk lines at each 12" increment. The chalk lines will ensure the course will align with the courses on the right roof section.

Install the panels so that the panels' top locks touch the chalk lines. While applying succeeding courses, confirm panel alignment by measuring to the reference line.



Continue installing the panels left to right up to the top of the valley.

Since the panels are installed left to right, the tendency would be to start with a full panel in the left roof section and install panels to the top of the valley intersection. The reference line could be established on the right roof section instead of the left roof section. 12" increments could then be measured down until the eave is reached. The result would be a short course at the eave, involving multiple panels. For aesthetic reasons, this should always be avoided. Examine all the roof sections before laying out the roof.

REVIEW: PANEL INSTALLATION

- Accurate angle cuts are critical at valley areas.
- Install panels according to guidelines to ensure a random appearance.
- Install panels left to right.
- Install a new starter in areas with staggered starts.
- Develop a reference line to start panels in areas with no eaves.
- Carefully plan the roof in advance so as to install short courses at the ridge ONLY.

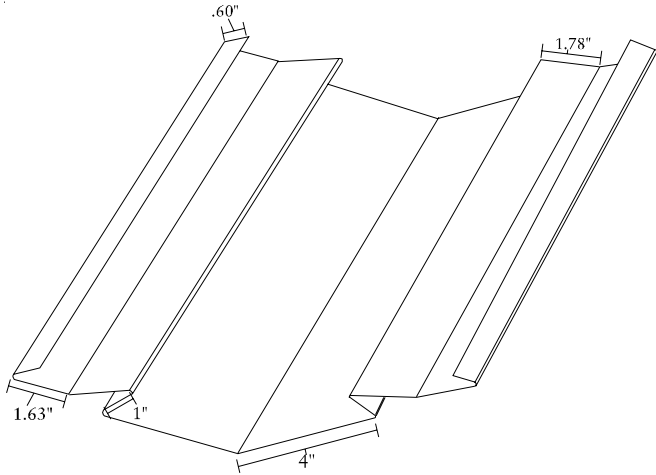
Notes, Observations, & Questions

VALLEY INSTALLATION

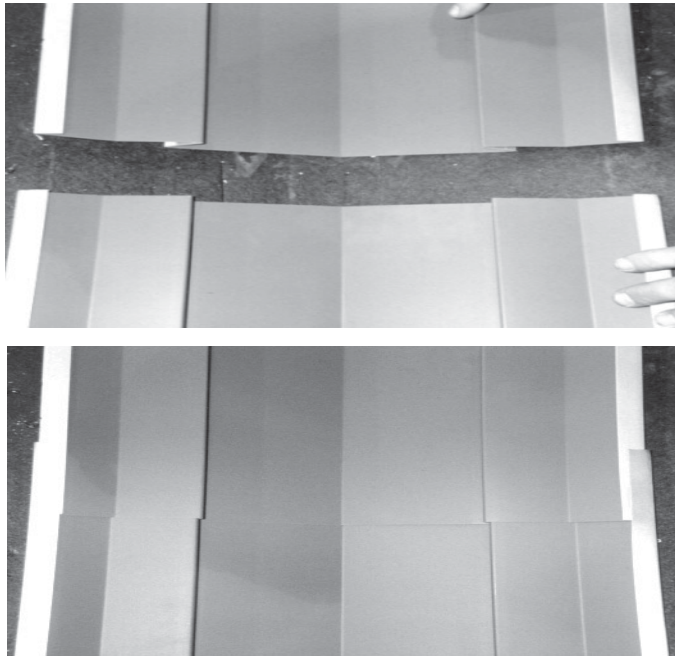
■ Simple Valley.....	4.2
■ Eave/Panel Valley.....	4.8
■ Dog Leg Valley.....	4.9
■ Gable/Panel Valley.....	4.13
■ Review.....	4.14

SIMPLE VALLEY

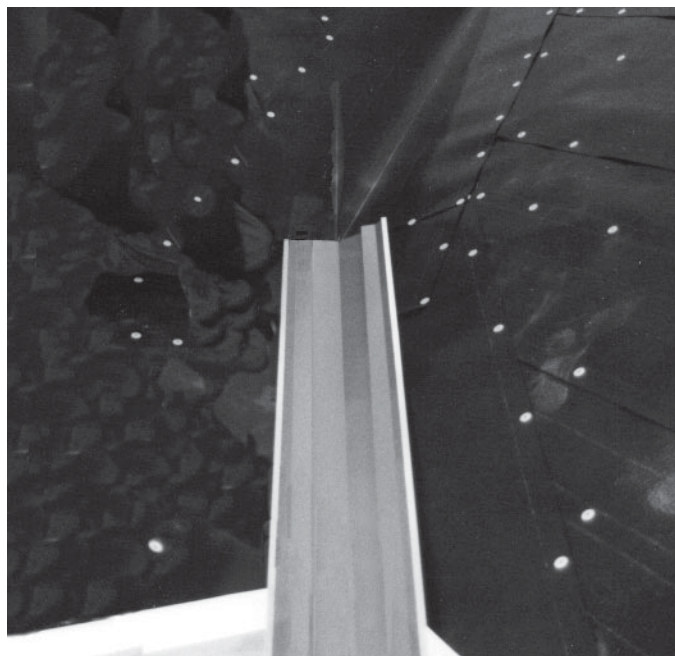
The CM-125 valley is 10' long and fabricated with an 8" opening for water drainage with 1" standing ribs bent inward at a 45° angle. It has two 3.4" wide water return channels and .6" water return legs.



The pieces are subtly tapered for lapping and the wide end is labeled "top of part" on its underside.



When installing the valley pieces, always place the wide end uphill. To add valley segments, slide the narrow end of the top piece into the wide end of the lower piece.



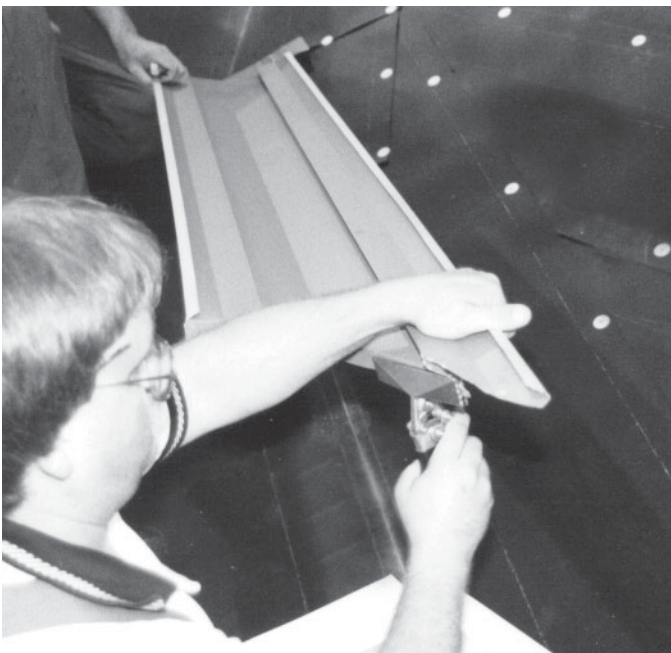
After snapping a chalk line down the center of the valley, position the top of the valley so the center of the pan aligns with the chalk line.

The water return channels on both sides of the valley should extend past the drip edge. This will ensure that water will flow past the drip edge and away from the roof.

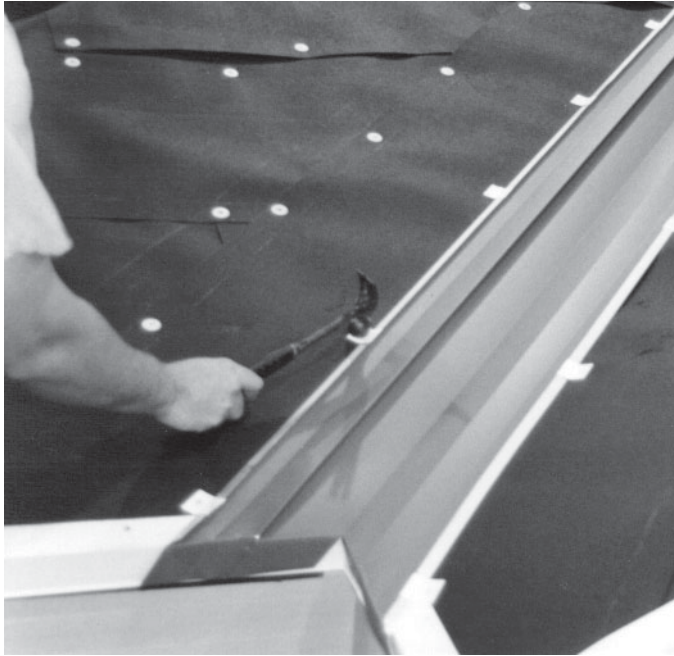


Mark the underside where it meets the drip edge. Cut $\frac{3}{4}$ " past the mark.

Remove $\frac{3}{4}$ " of material from the end of the standing ribs and return flanges.



Using hand seamer, form tabs that will rest against the face drip edge. The tab should be bent down 90°.

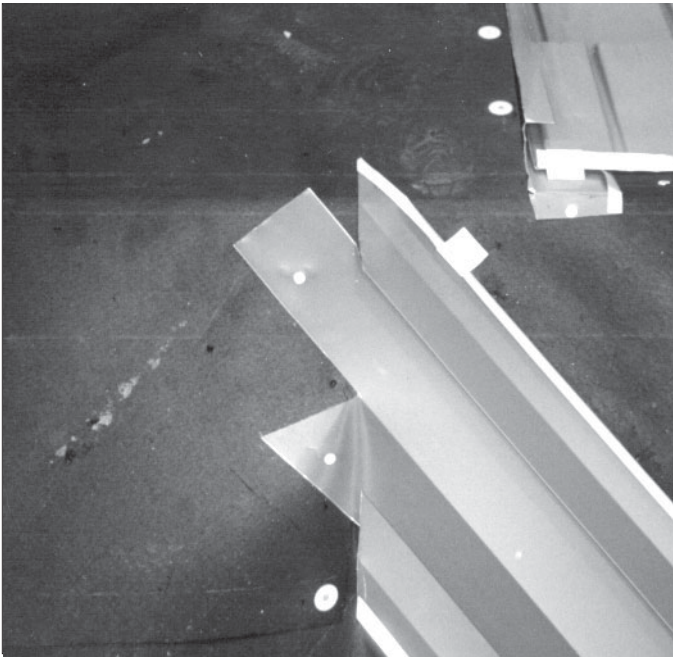


Center the valley into position and fasten it with SH-409 nail clips on both sides of the valley every 12". Secure the nail clips to the deck with aluminum screwshank nails. Drill and rivet the valley tabs to the drip edge.

Fasteners should not penetrate the valley.

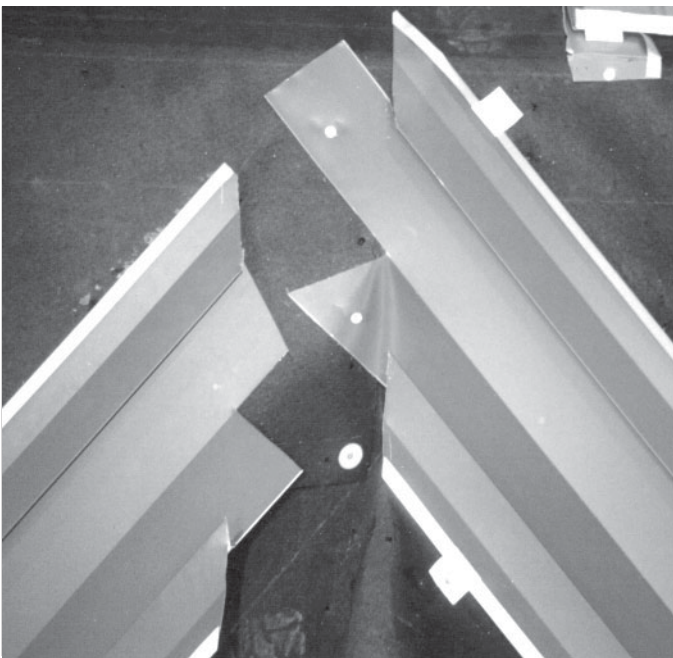


Valley pan installed properly.



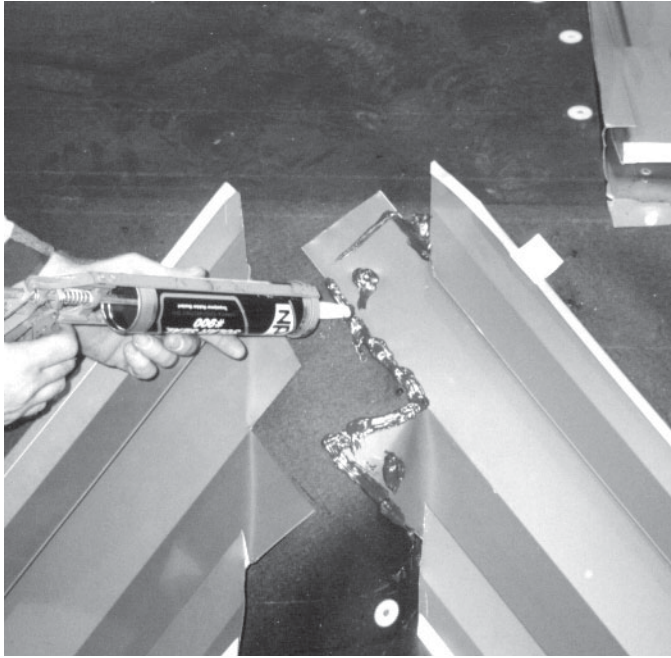
When intersecting valleys at the ridge, cut and modify the valley as shown.

The center portion of the valley should extend past the ridge line and lay flat against the roof deck. The cut ends of the water return channels should be cut flush with the ridge lines.

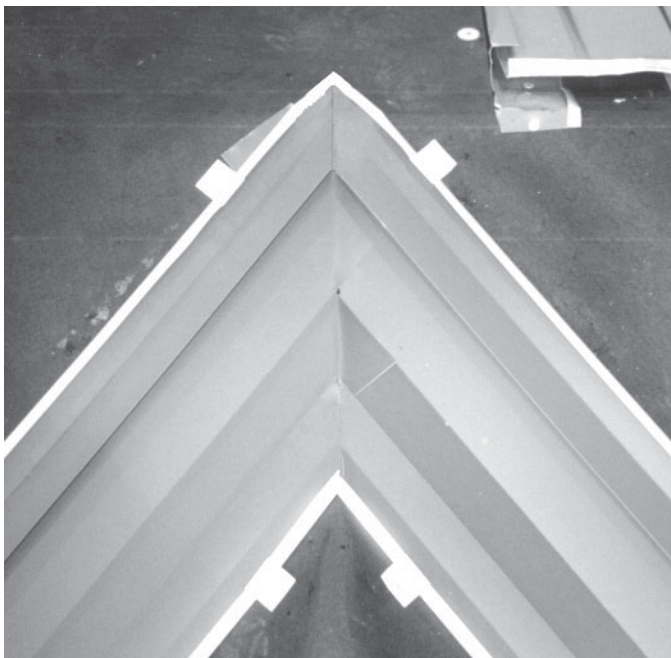


Install the adjacent valley, cutting the water return channel where it intersects the ridge line.

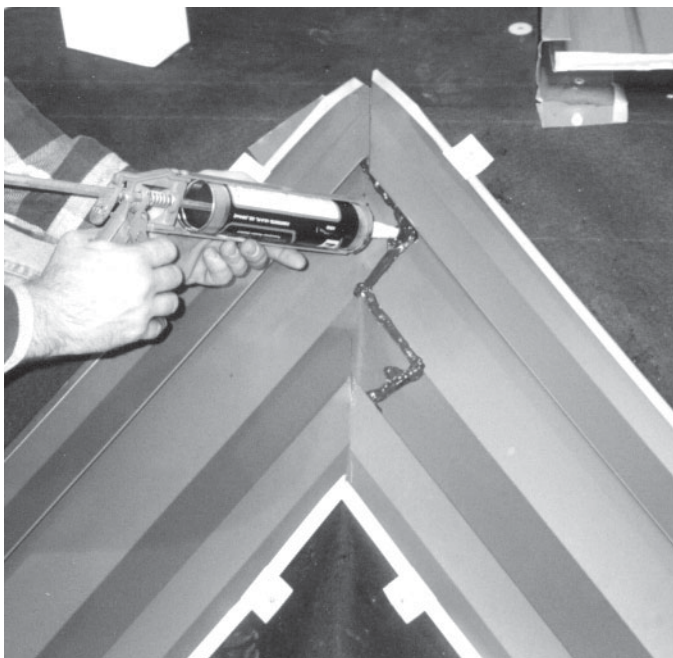
Form the center portion of the valley so it extends past the ridge line and overlaps the installed valley.



Apply sealant at overlapping areas and attach.

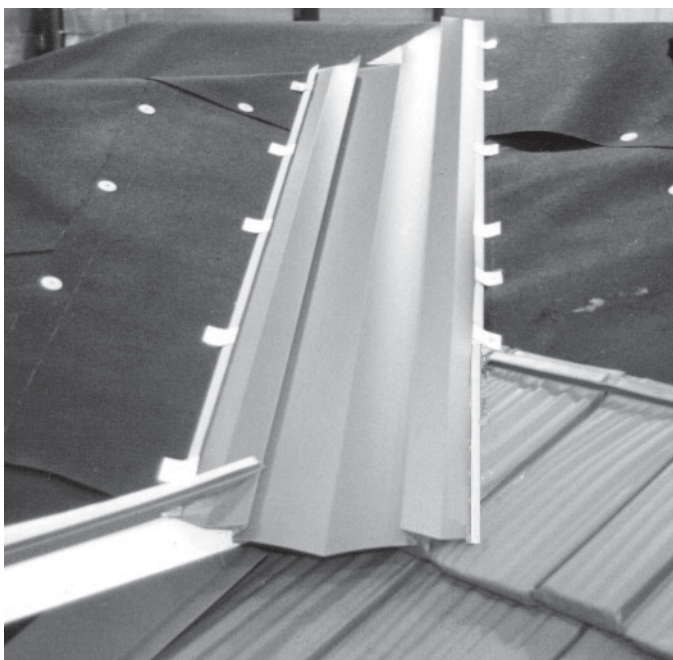


Valley pieces properly joined at the ridge.



Seal the joints.

EAVE / PANEL VALLEY

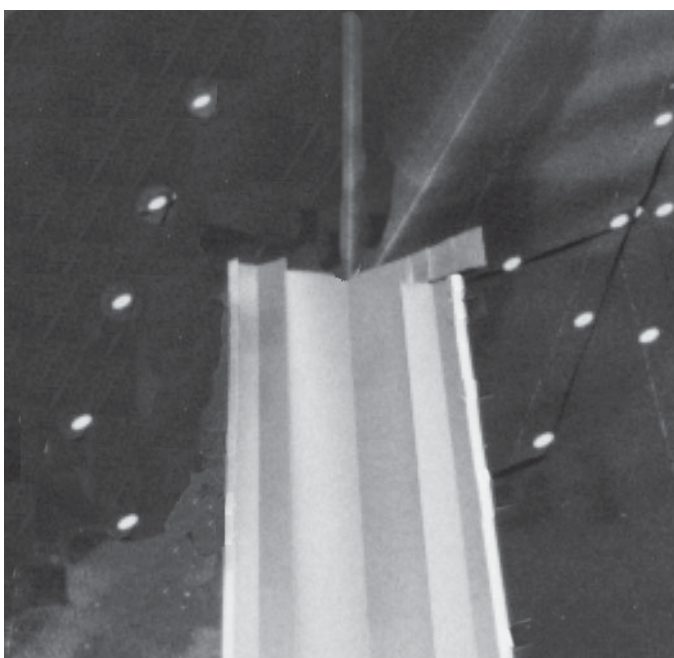


An eave / panel valley has one half of the valley draining onto a panel and the other half terminating at a roof eave.



Set the valley into place extending the water return channels over the course of panels and past the edge of the eave. Allow the valley to deliver water away from the corner. Apply sealant along the return leg area to prevent water from filtering under the valley pan.

DOG LEG VALLEY



A dog leg occurs on the roof when there is a change in slope and direction.

After snapping chalk lines down the center of each section of valley, position the top edge of the first piece of valley where the slope changes.

Center the first piece of valley flashing into position. Cut the top edge of the valley flashing so the return rib of the lower section will align with the return rib of the upper section of valley.

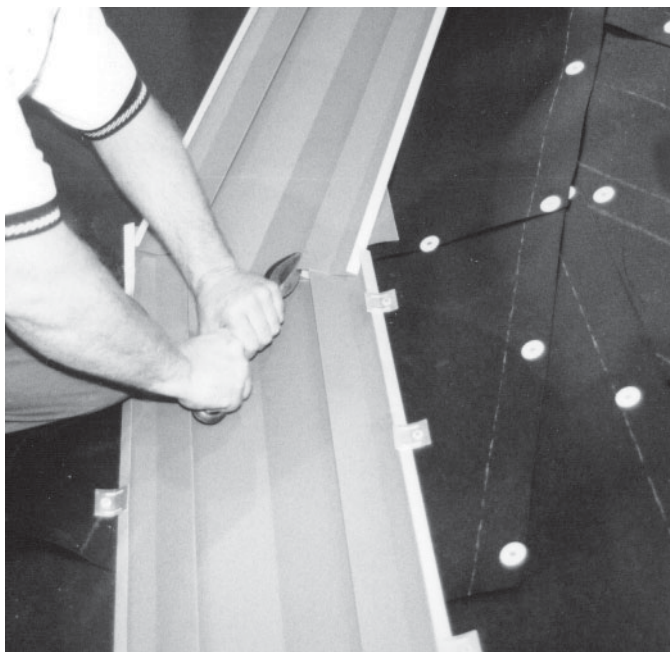
Flatten the area where the valley pieces overlap so the upper section of valley will rest flat against the deck.



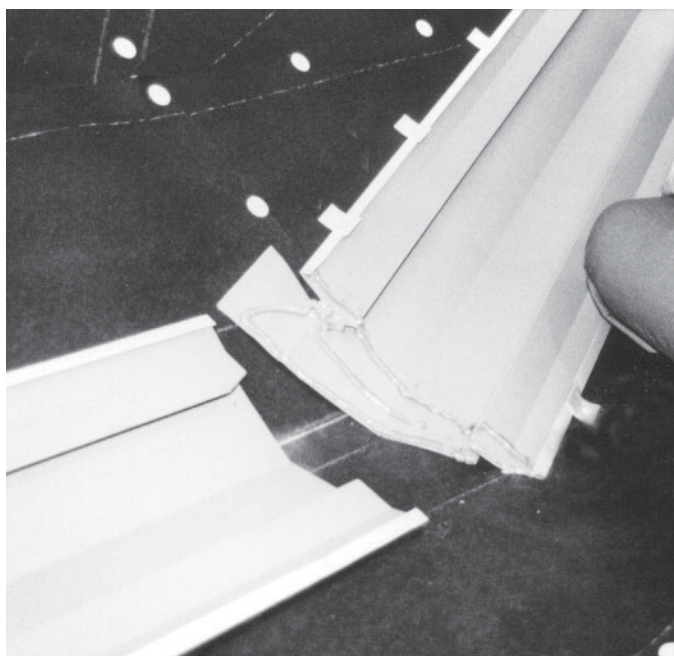
Refer to simple valley instructions (page 4.4) for the bottom end of the dog leg valley.



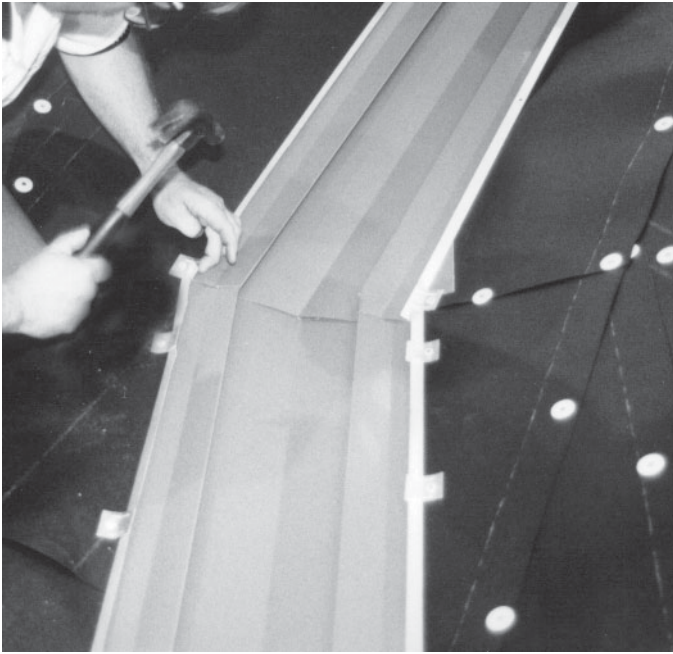
Fasten the first valley in place with SH-409 nail clips on both sides of the valley every 12".



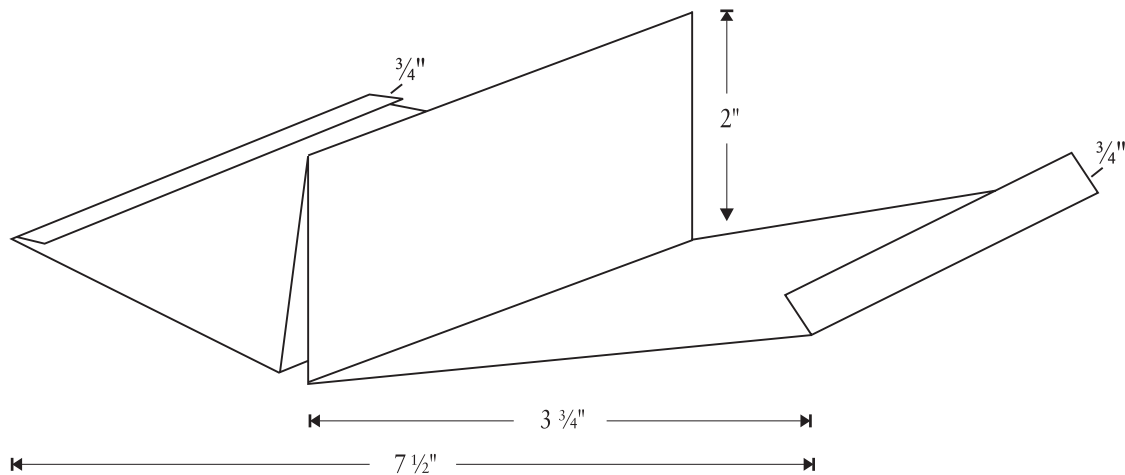
Center and position the second section of valley flashing. Where the flashings overlap, notch the corner of the standing rib to allow for the flashings to lap.



Remove top valley flashing and apply sealant.

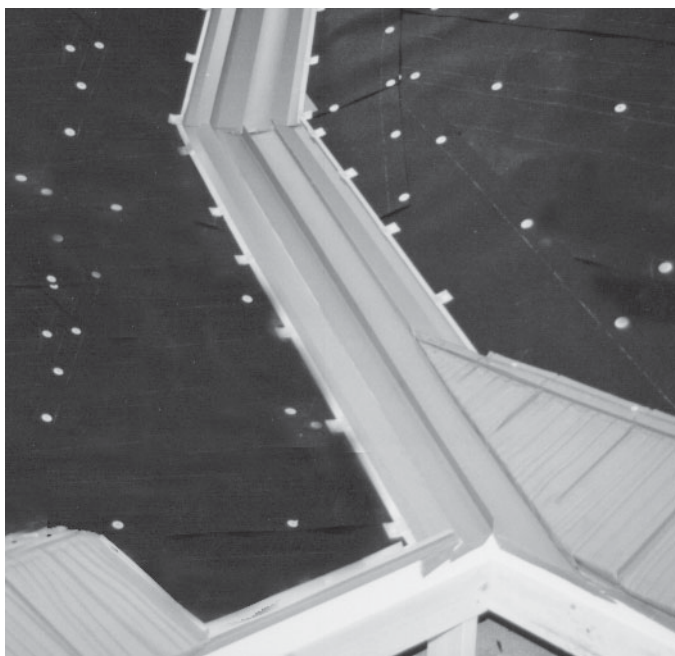


Reinstall the top valley flashing and modify as required at the top of the ridge. Use all precautions necessary in any such critical areas.



A field fabricated standing rib will help divert water away from areas that are vulnerable to washover action. The valley diverter is 7 1/2" wide with a 2" standing rib and 3/4" water return legs.

Fabricating to these dimensions will allow the diverter to be snapped into the valley profile prior to shingle panel installation.



Rivet the flashing tabs to the drip edge.

Lap the valley diverters by modifying the standing rib of the top piece.

Always install uphill sections on top of downhill sections.

Rivet where the standing ribs intersect.

This two piece valley system may be utilized in areas where roof slopes change.

GABLE / PANEL VALLEY



In this situation, half of the valley drains onto a lower shake panel and the other half runs onto a gable end.

Before installing valley, install panels under the gable.

Mark and modify valley, allowing one portion to lock onto the shake panel and the other to bend down over the drip edge.

REVIEW:

VALLEY INSTALLATION

- Properly center all valley flashings.
- Look for label on back of valley to determine top of part.
- Valleys should extend past the drip edge.
- Uphill sections always install over downhill sections.
- Valley overlaps should be properly sealed.
- Diverters should be installed in valleys where washover possibilities exist.
- Fasten the valley to the decking with nail clips.
- NEVER penetrate valley pan.

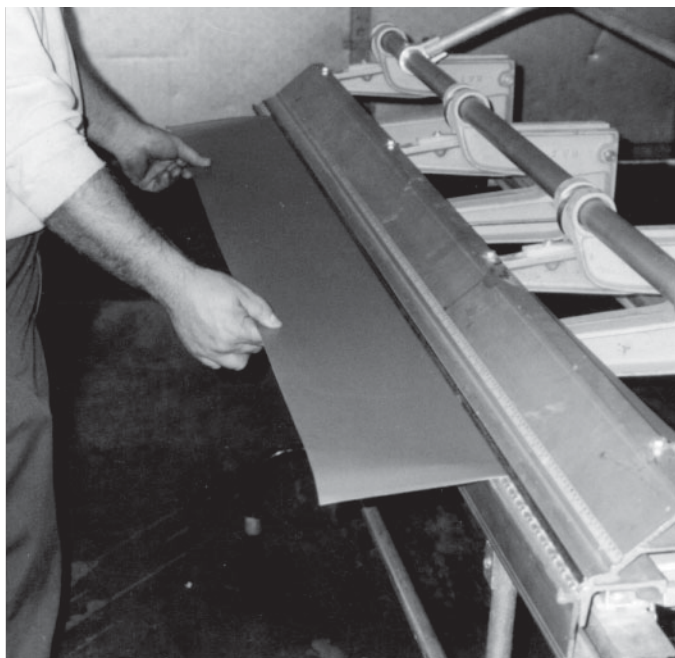
Notes, Observations, & Questions

BRAKE OPERATIONS & ROOF PROTRUSIONS

■ Portable Brake.....	6.2
■ Typical Flashing.....	6.3
■ Flashing Into Board & Batten Siding	6.5
■ Flashing Into Horizontal Siding.....	6.5
■ Pipe Flashing.....	6.6
■ Review.....	6.15

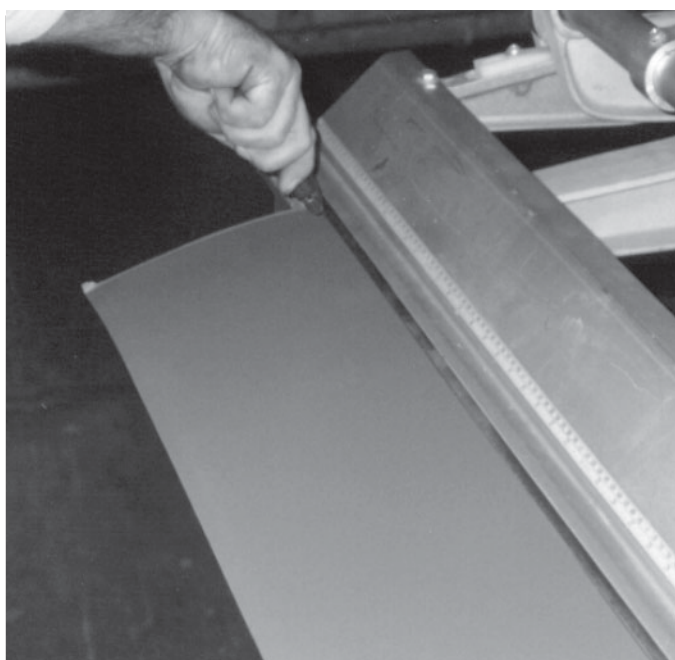
*Important: All detail work demands
meticulous consideration.*

PORTABLE BRAKE



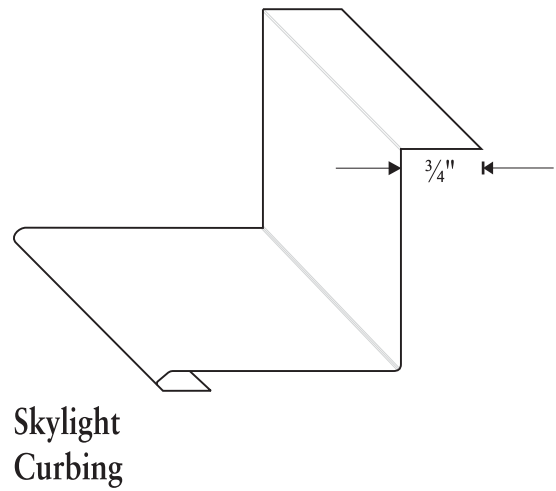
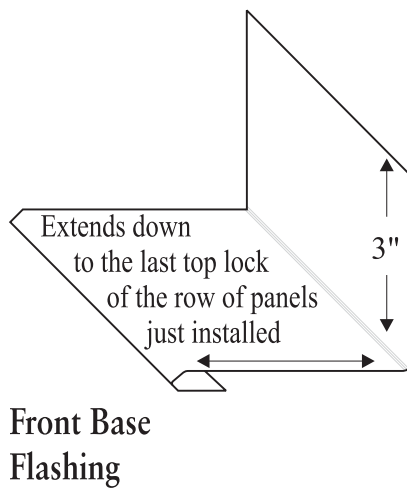
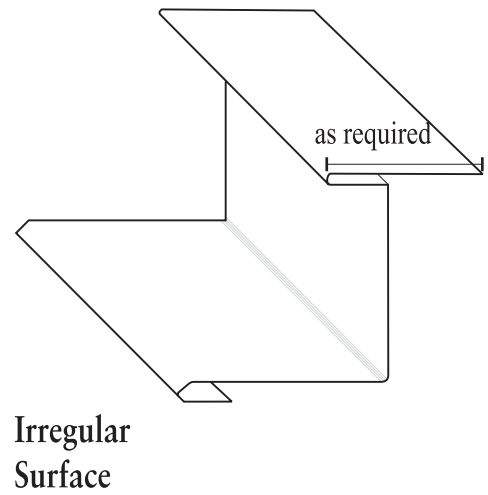
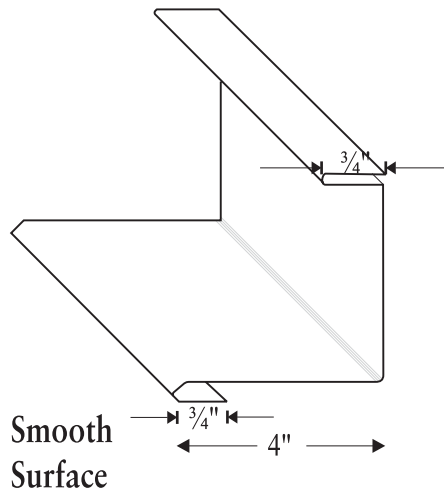
The only way to master the use of the portable brake comes from hands-on experience. Mastering this device requires trial and error.

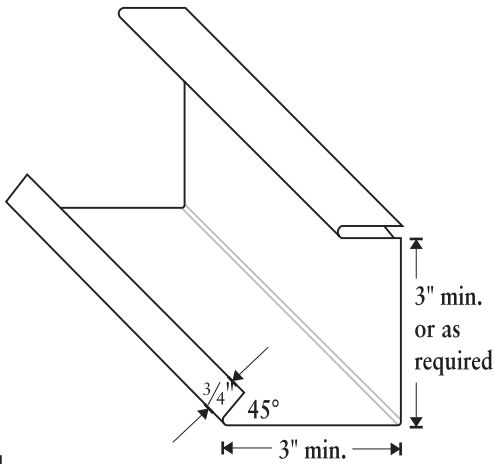
- Mark the dimensions needed on the trim sheet that will form the flashing.
- Cut the various lengths needed, using a straight edge and a utility knife.



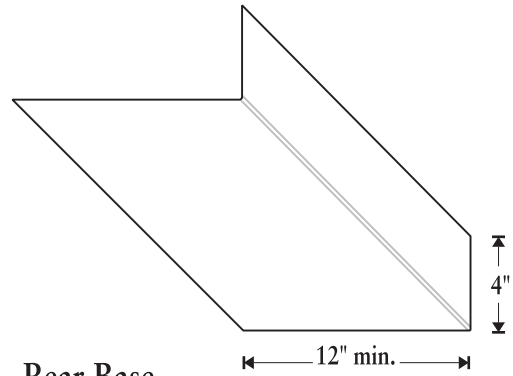
Insert the flashing into the portable brake and trim to desired width by scoring with a utility knife and breaking. Adjust to designated points and bend to the proper angles.

TYPICAL FLASHINGS

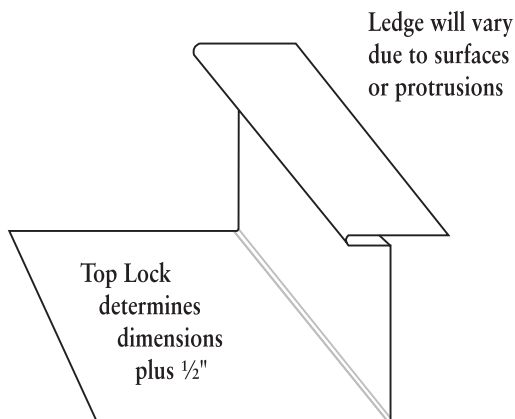




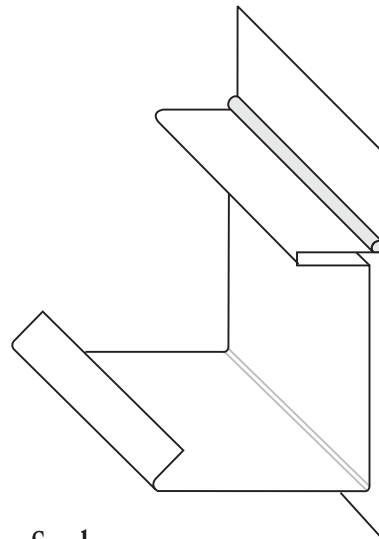
**Side
Flashing**



**Rear Base
Flashing**



**Counter
Flashing**
(Irregular Surfaces)



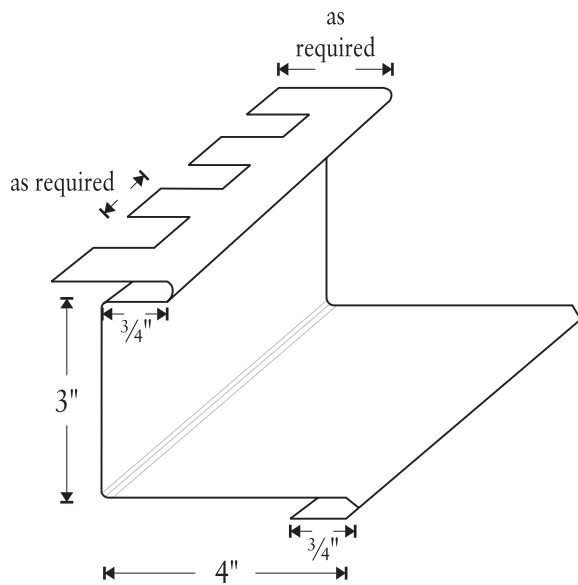
**Counter Sunk
Flashing**
(Brick & Stucco)

SIDING INTO BOARD & BATTEN SIDING

Whenever possible, use Sidewall Flashing (CM-121) and either extend it up and beyond the siding or invert it into a 1/2" deep slot cut into the siding.

If this cannot be done, notch the flashing tightly around the battens and seal.

For front wall flashings, form a flashing like the illustration at left to extend 4" out over the face of the panels with a 3/4" hem and extend up the wall approximately 3". Bend the flashing so that it lies tightly against the roof panels.



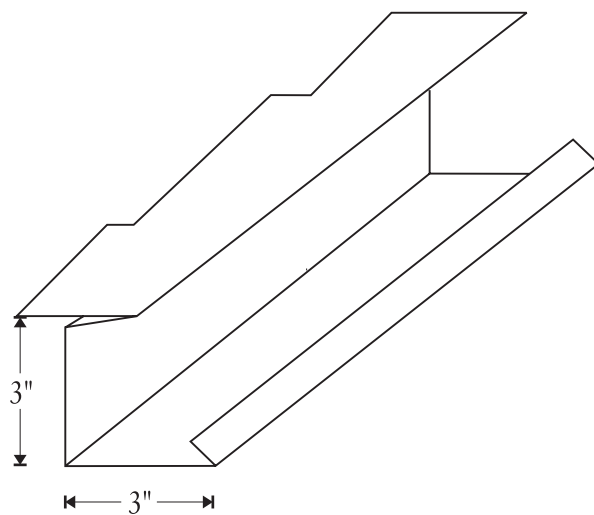
FLASHING INTO HORIZONTAL SIDING

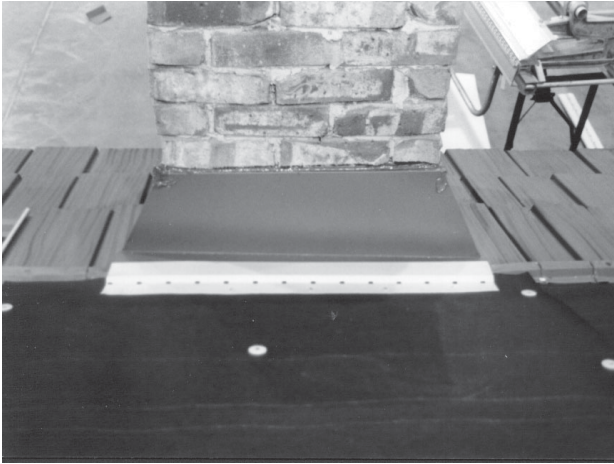
Again, when flashing can't go behind or into siding, form sidewall flashing so the width of the flashing ledge matches the butt thickness of the horizontal siding. Position, mark, and trim to fit.

Mark the location where the flashing and the butts of the siding intersect, as well as any front wall.

Cut the vertical wall flashing on a taper to match the siding profile at the marked butt areas. Modify flashing to form a dog ear.

Position flashing; interlock ledges and base, attach and seal where flashing meets siding. Install panels into sidewall flashing. When a C-channel is not utilized, panels must be sealed where they intersect sidewall flashing.





Prior to installing Sidewall Flashing (SH-421), remove the lock from the Eave Starter Strip so the Sidewall Flashing lies flat against the deck.



Set the Sidewall Flashing into place. Fasten it to the deck with Nail Clips.



Use Nail Clips to secure the Sidewall Flashing to the deck. Fasten every 12".

IMPORTANT: Do not drive nails through the water- return channel of the Sidewall Flashing.

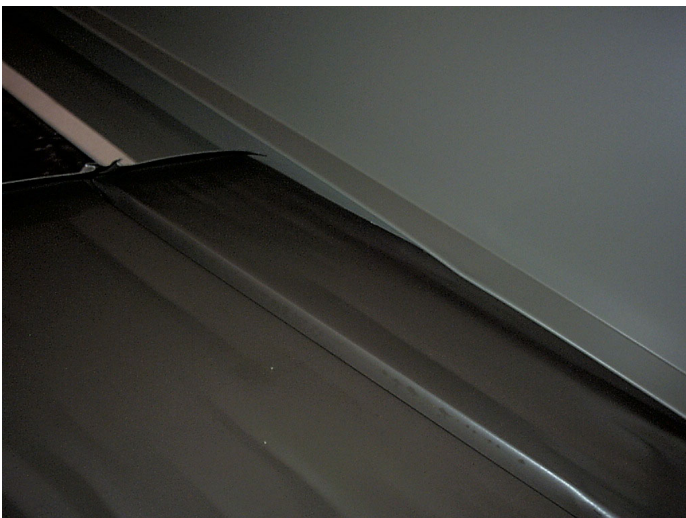


When Sidewall Flashings intersect at the ridge, cut the water return channel and wall portion of the first section so it extends a few inches past the ridge line.

The top piece of Sidewall Flashing must overlap the lower piece. Be certain a portion of the water return channel extends past the ridge and down the opposite side. Mitre cut the wall portion of the flashing to provide a neat look.



When installing panels into the Sidewall Flashing, remove a portion of the butt on the first course of panels. This will allow water which may accumulate in the water return flange of the Sidewall Flashing to drain away.

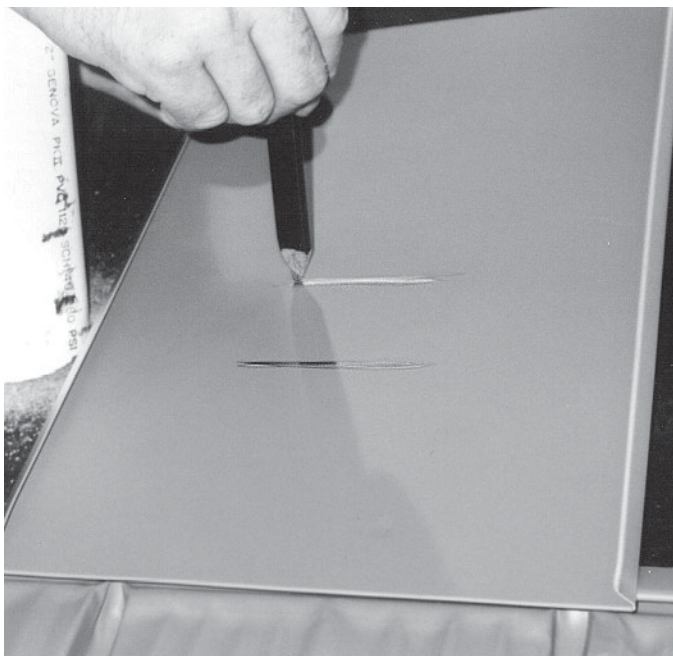


Be sure to leave no less than a 1/4" gap between the edge of the panel and the inside wall of the Sidewall Flashing.



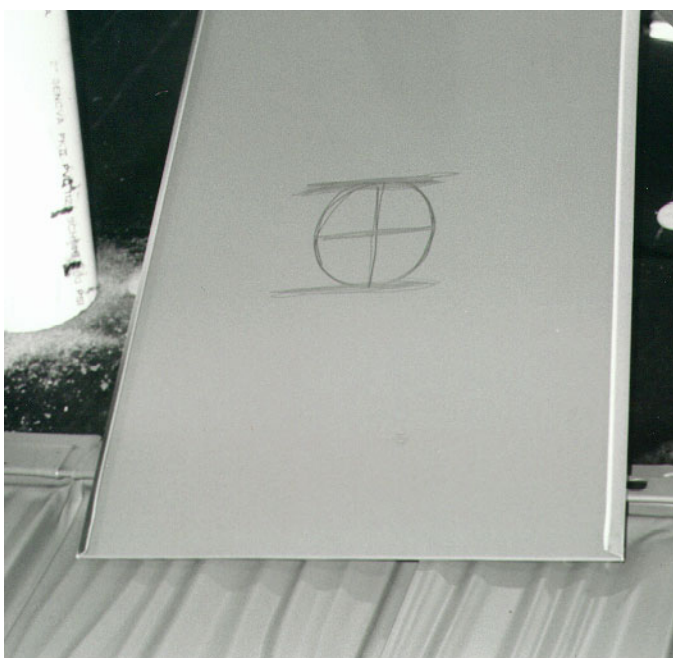
When installing panels, do not crush the water return flange of the Sidewall Flashing.

PIPE FLASHING



When flashing around pipes, plumbing vents, or similar protrusions, field form a pipe jack. The base of the jack will be formed 6" wider than the pipe, with two $\frac{3}{4}$ " return legs. Extend the base an additional 6" above the back of the pipe and around the top lock of the row of panels installed below.

Hold the flashing next to the pipe vent and transfer the top and bottom edges of the pipe to the flashing.



Trace the pipe diameter onto the base flashing.

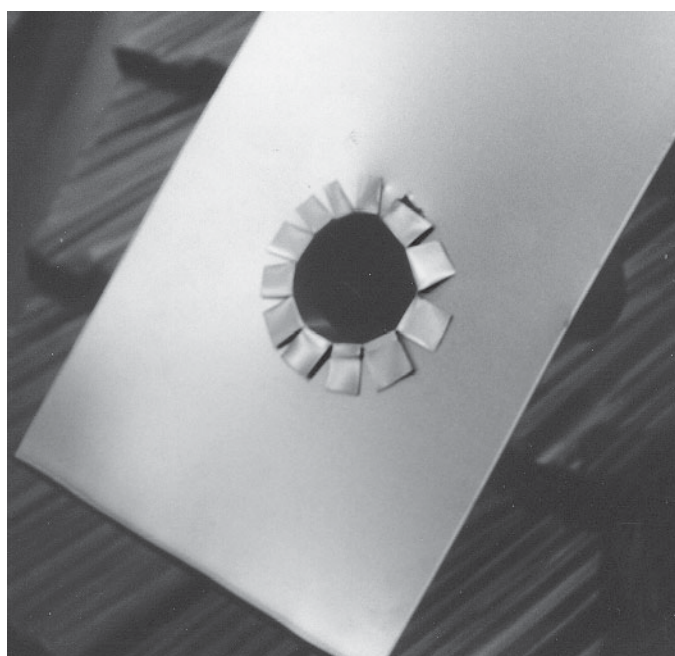
The circle that has been traced should then be trimmed out.



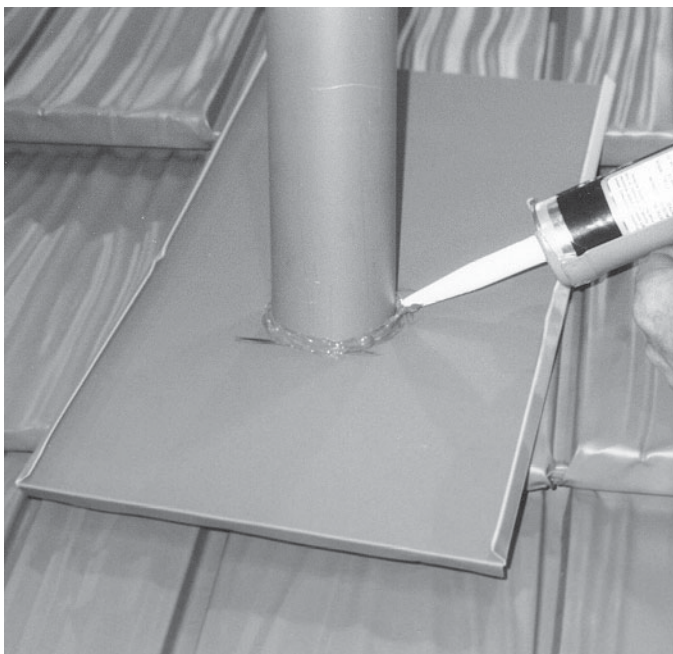
In addition to the base flashing, a pipe collar must be formed. To determine the dimension required to form the collar, multiply the pipe diameter by 3.25 and add one inch. (The additional inch is needed for pipe movement and lock formation).

Note: The height of this collar must extend at least 6" above the surface of the panels. If the existing protrusion is less than this 6", then a bonnet must be field formed and attached to the collar to prevent water infiltration.

To attach this collar to the base, it must be notched and flanged.



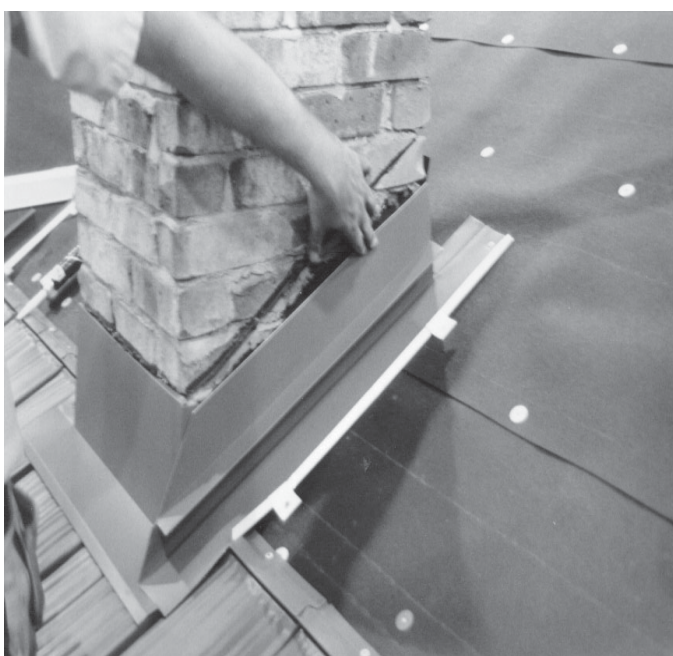
The collar is then mounted to the base, making sure that flanges are tight against the underside of the base.



Prior to installation, sealant must be applied where the collar meets the base.

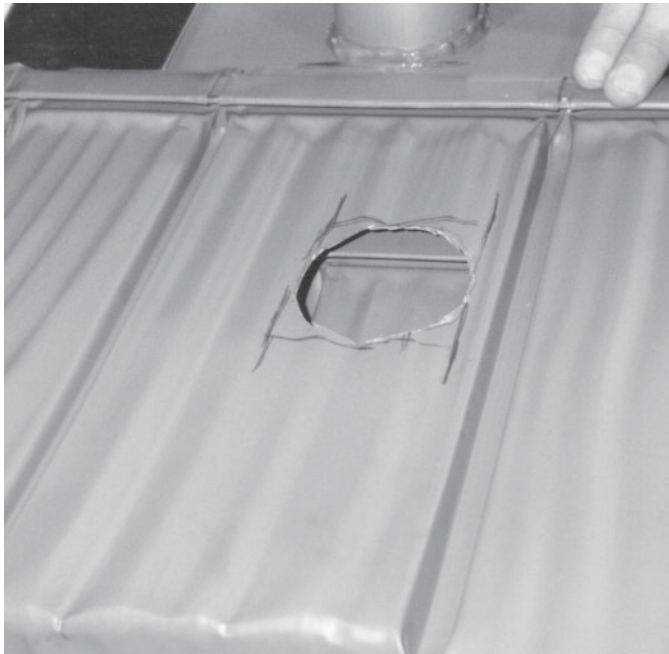
Note: All field fabricated roof jacks should be assembled and sealed well in advance of installation to insure the integrity of the sealant.

Note: Flashing in photo is resting on installed panels and is not in the area of where it will be installed.



The pipe jack can now be installed.

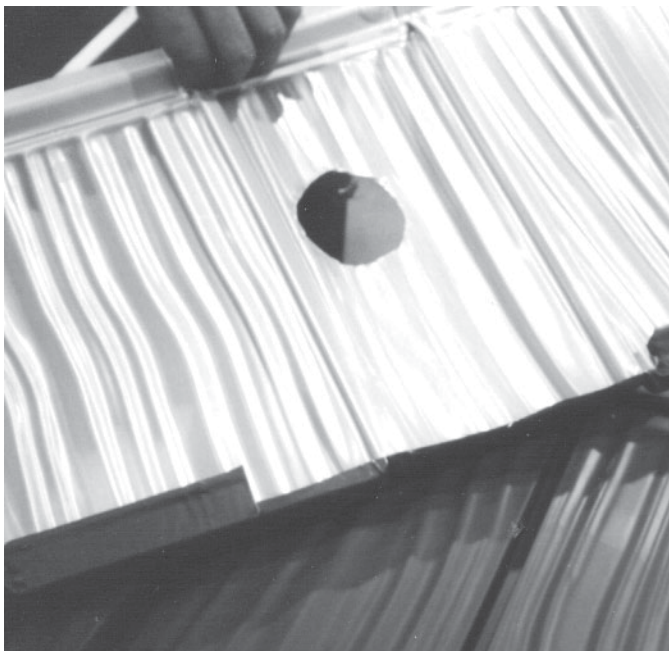
The final step is to integrate a piece of underlayment into the underlayment system so that it laps over the base of the field formed jack, and it is under the course of underlayment above.



Position a panel under the pipe into the side lock of the panel to the left. Mark lines that will indicate the sides of the pipe.

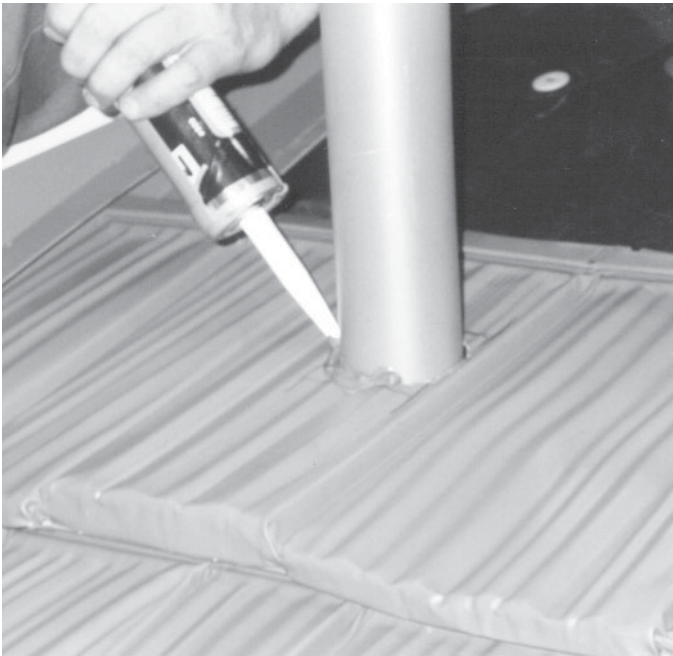
Reposition the panel to the side of the pipe, engage horizontal locks and mark top and bottom of pipe.

Cut out the opening, enlarging it just enough to allow for the movement necessary to place and lock the panel over the pipe jack.

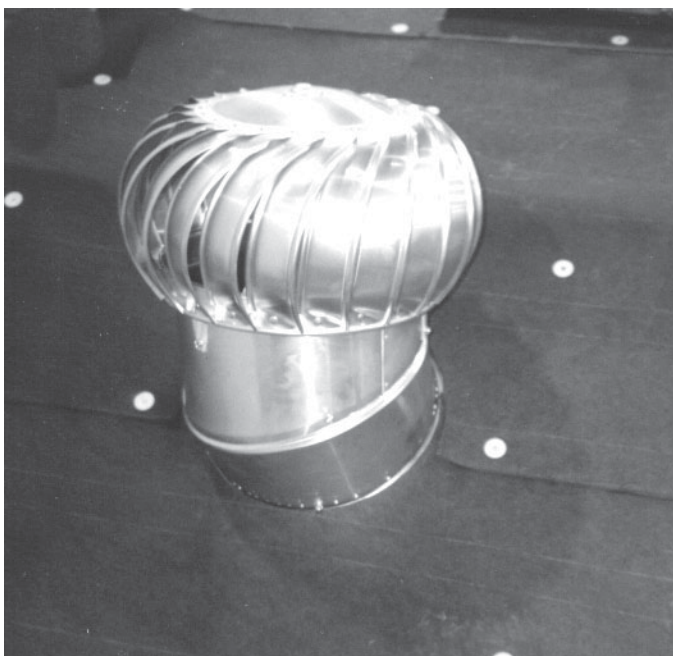


A hidden weep hole should be notched in the butt lock of the section that covers the base flashing. Place the panel over the pipe and engage the side lock. With a zip tool, pull out the bottom locks on the panel.

Once the bottom locking tabs are past the top lock of the installed panel, properly engage the locks into the toplock of the lower panel.

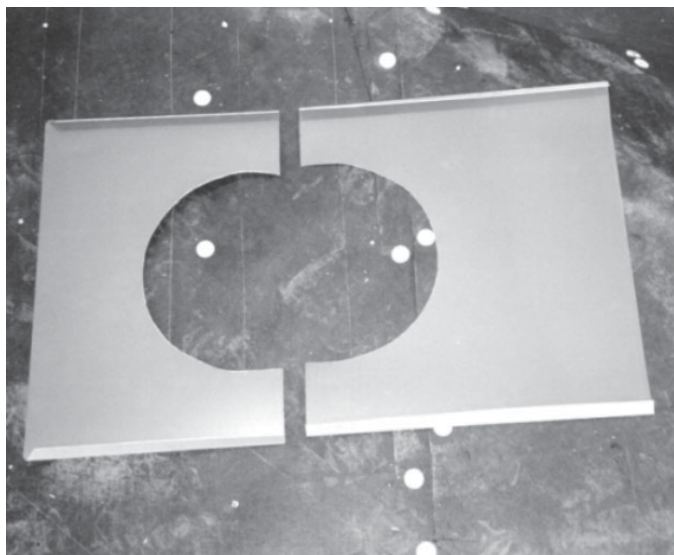


Fasten the panel in position and seal where pipe penetrates panel.



If a projection on the roof has a larger diameter at the top than at the base, the flashing must be made in two pieces and lapped to provide a tight fit. This will occur with projections such as turbines, J-vents, heat stacks, etc.

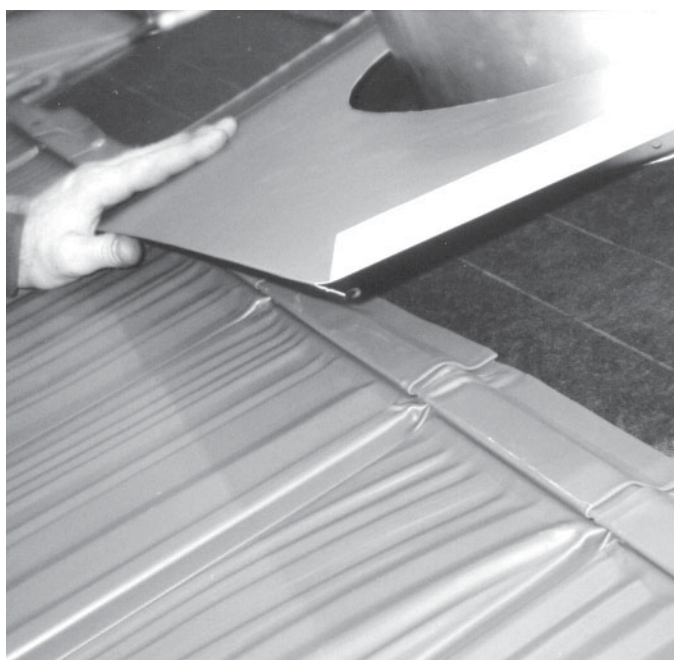
Form the base flashing with water return legs as described for pipe jacks.



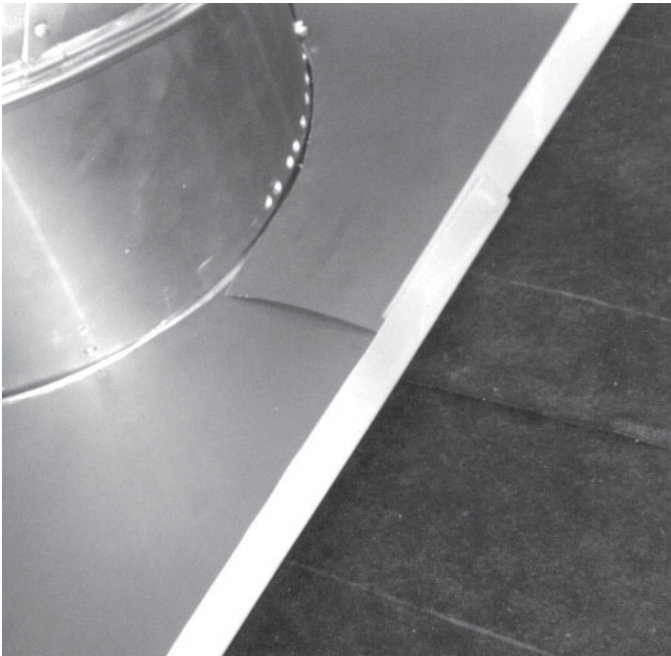
To adapt the flashing, measure the diameter of the opening and divide by two in order to find the radius, which will then be calibrated onto a compass.

Draw a semi-circle and then move the center point up 1" and draw another semi-circle above that. This extra inch allows for a flashing lap.

These two pieces will surround the base of the projection. Cut both of the semi-circles out and make a slight diagonal notch on the return edge to allow the top piece of flashing to slide over the bottom.



On the bottom flashing, form a lip to lock into the top lock of the panel below it. This will prevent water from entering beneath the flashing.



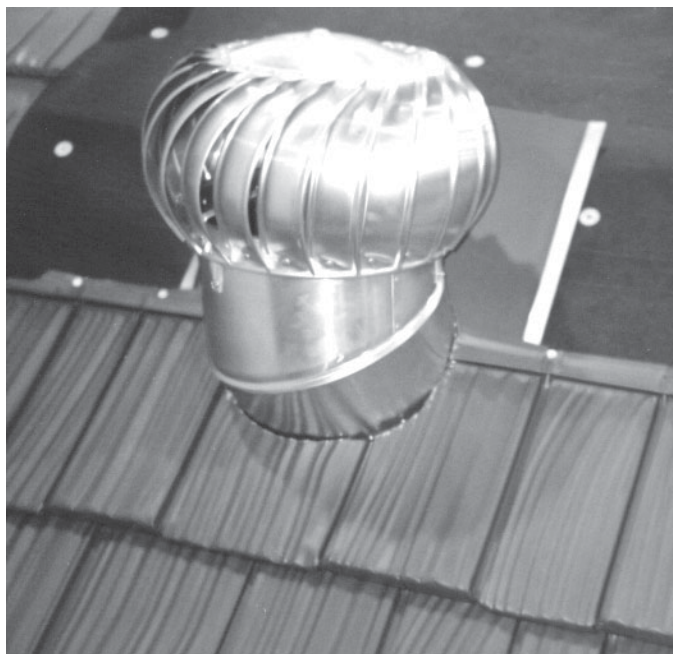
Insert the top piece, pushing both pieces together so they fit tightly around the base of the projection.



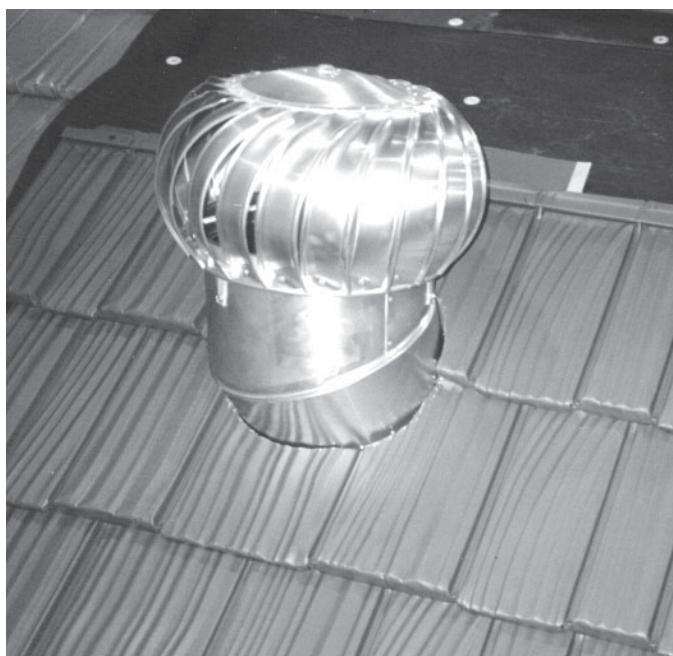
Once it is in place, nail the flashing at the overlapped areas.

Integrate a piece of underlayment into the underlayment system so that it laps over the base flashing; similar to the pipe jack installation.

Seal the perimeter of the protrusion as well as any nail heads.



A panel can be cut to fit by measuring from the closest side lock to the side of the projection. Transfer this measurement onto a panel. Measure from the bottom of the protrusion to the top lock of the course below. Subtract that dimension from 12" and measure that distance down from the top lock of the panel to be cut. This method of marking the panel is an alternative to placing the panel against the protrusion and marking the panel.



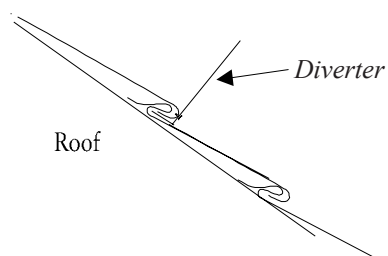
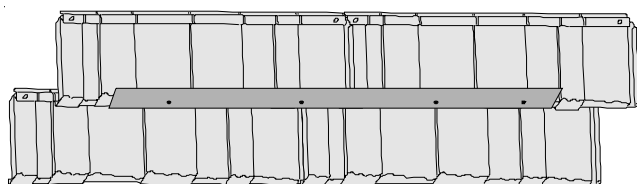
Use the compass with the preset radius or the removed portion of the base flashing to mark off the circumference and cut where needed. Remove the top nailing hem from the top of the panel at the projection to prevent the water return leg on the base flashing from being crushed. When horizontal or circular cuts are being made, the snips may cause a curvature in the panel. It will be necessary to straighten the panel back to its original configuration. Lock and nail the panel into place, making sure that it fits snugly. When more than one panel requires modification to fit around the penetration, follow the same procedure as previously discussed.



Once all panels are locked and nailed into place, carefully seal around the perimeter of the protrusion.

Pay particularly close attention to filling with sealant any grooves between the shakes that may fall on the back side of the projection. This will prevent water from lying behind the protrusion.

Note: It is critical that diverters be installed behind all protrusions 6" or larger where water could collect behind the protrusion.



REVIEW: BRAKE OPERATIONS & ROOF PROTRUSIONS

- It will take some trial and error to master the use of a brake.
- Flashings must include $\frac{3}{4}$ " water return legs.
- Field formed pipe jacks must be utilized.
- Employ diverters behind all large protrusions.

Notes, Observations, & Questions

CHIMNEY & SKYLIGHT FLASHING

■ Brick Chimney Flashing.....	7.2
■ Skylight Flashing.....	7.8
■ Stone Chimney Flashing.....	7.12
■ Review.....	7.14

*Important: All detail work demands
meticulous consideration.*

BRICK CHIMNEY FLASHING

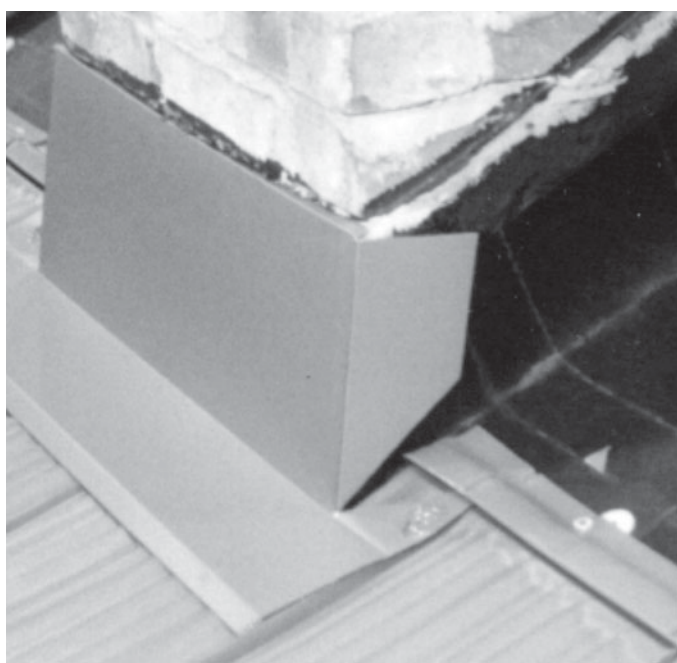
Refer to the Protrusion Flashing Chart on pages 6.3 and 6.4 for flashing details.

Old chimney flashings should be removed only if they will interfere with new flashings.

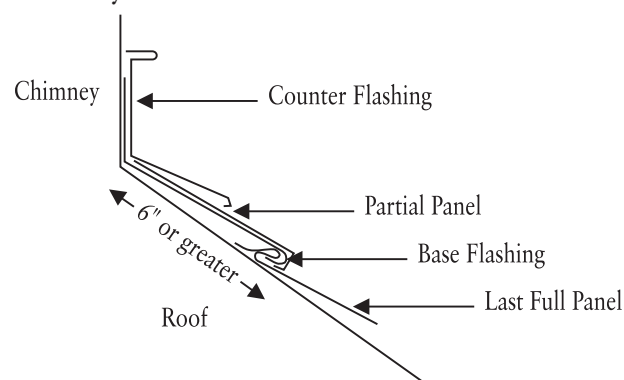
Prior to installing the new flashing, inspect the chimney to make sure there are no loose bricks or missing mortar.

Repair any cracks and crazing around the flue pipe and cap to prevent water from entering.

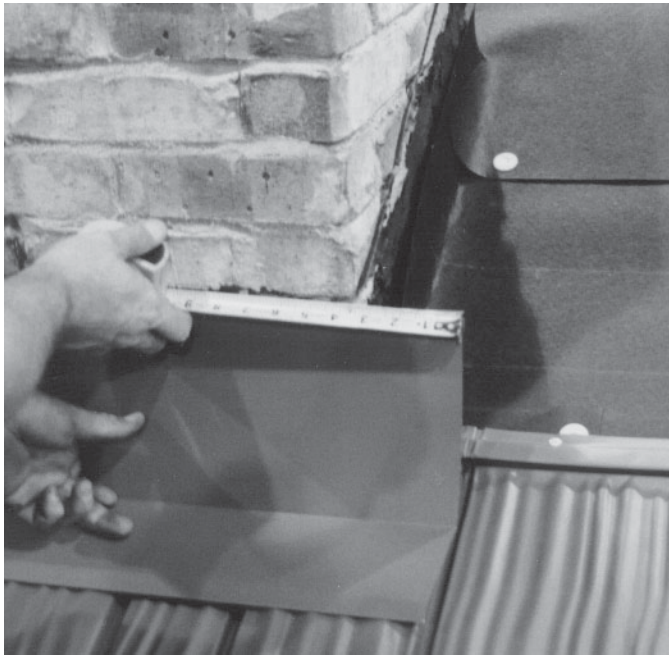
Note: If old flashing is not aluminum or stainless steel, then it must be isolated from contact with new flashing.



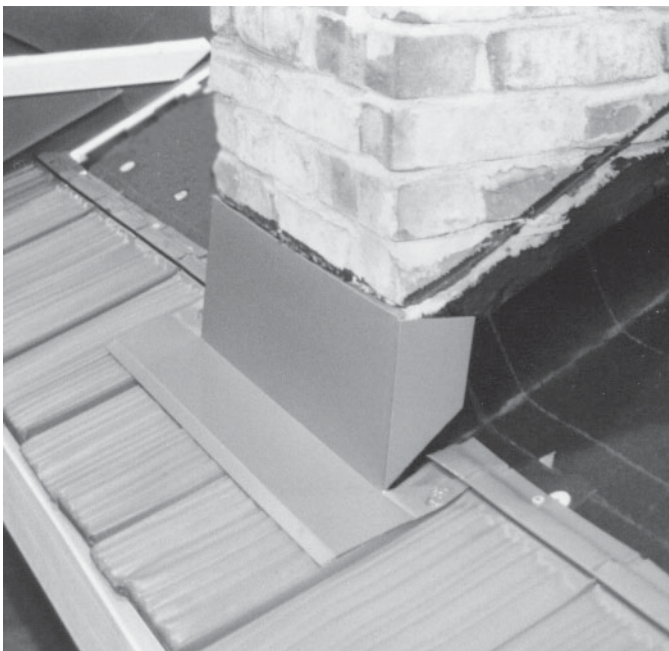
Install front counter flashing if the shake panel top lock falls less than 6" from the face of the chimney.



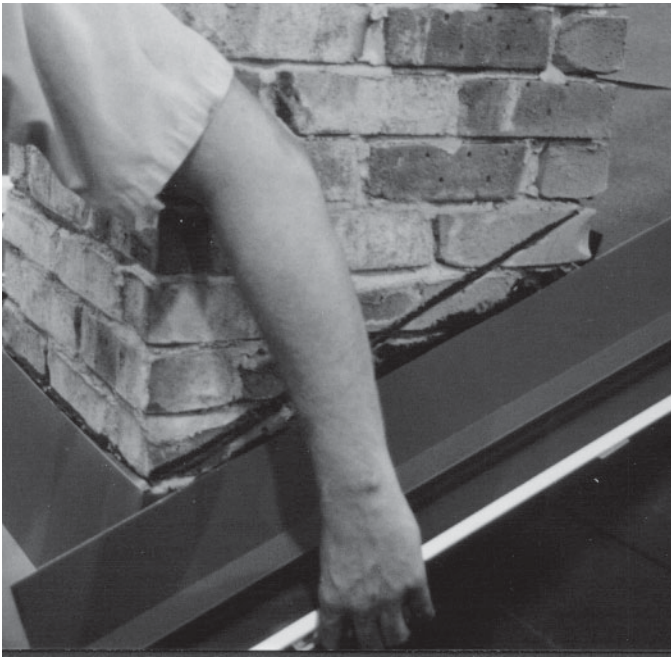
If this condition results in the top lock falling 6" or more in length from the face of any projection, install a base flashing, a cover panel, then a front counter flashing.



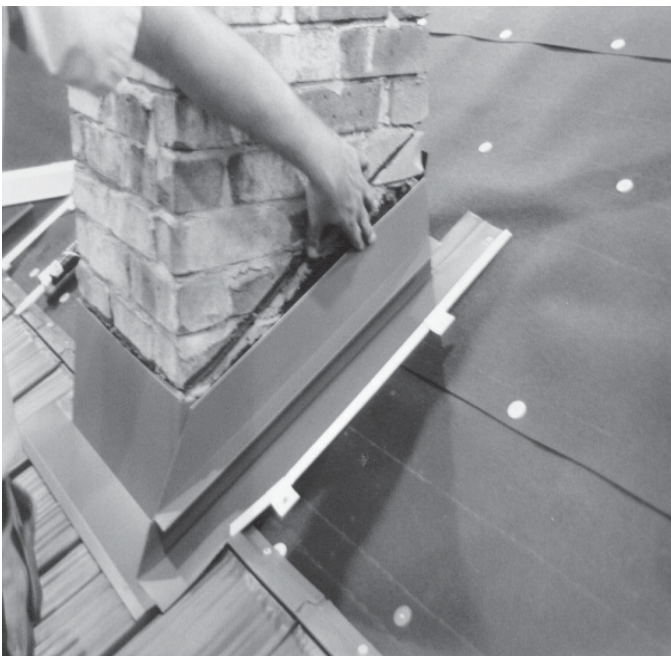
If not already present, make a 1/2" masonry cut. Form a flashing so that it both covers the top lock of the shake (plus any existing chimney flashing) and extends into the masonry cut. Form a 1/2" lip to insert into the masonry cut. Extend the flashing 3" past each side of the chimney.



Cut and remove the 1/2" lip 3" back on both sides, then cut a V-notch and bend the tabs around each side of the chimney. Set the flashing into place and fasten.



Sidewall flashing, CM-121, extends along the side of the chimney.



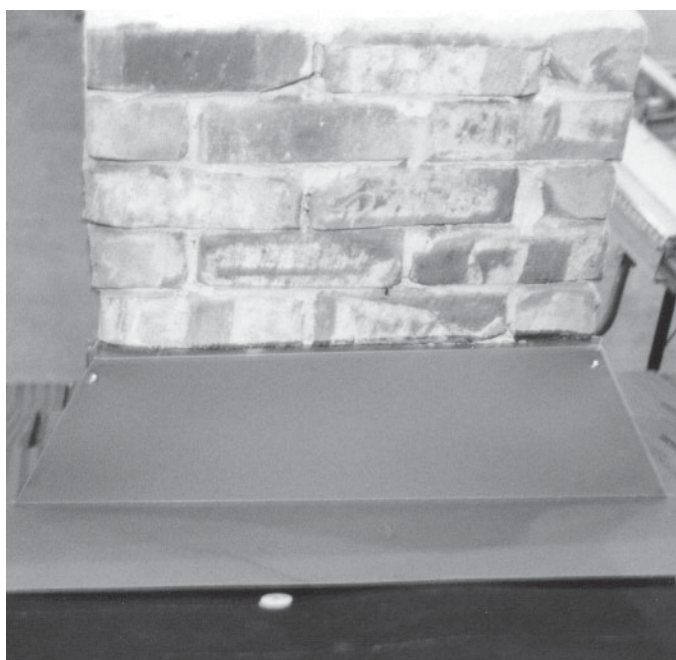
Position this flashing to extend 3" past the front wall flashing. At the point where the sidewall and front wall flashing intersect, modify the side wall flashing by forming tabs on the flashing. Fold those tabs back against themselves concealing much of the unpainted aluminum of the flashing. Scraps of painted material may need to be inserted behind these tabs to conceal all the unpainted aluminum.

Form a tab where the sidewall flashing extends past the back of the chimney and bend it around the back of the chimney to help divert water past the sides of the chimney.



A custom formed piece of sidewall flashing should be used to cover any discolored bricks or existing flashing if the CM-121 will not provide complete coverage. If there is an existing groove in the chimney used by previous flashings, form the custom flashing to fit into it.

Secure flashings to the front wall flashing with pop rivets or sheet metal screws, then cover the heads with sealant.

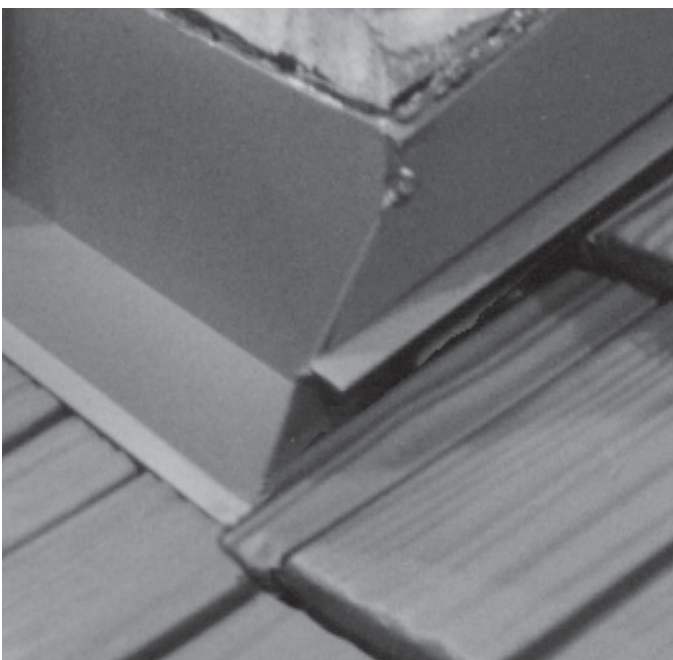


Form a back flashing, extending up the roof at least 14" and up the back side of the chimney at least 4". Always allow an additional 3" of flashing on each side of the chimney. Mark where the flashing meets the chimney. Trim and form flashing into dog ears to divert water around the chimney. Seal joints of flashing at corner of chimney.

Secure the back flashing to the back tabs of the sidewall flashing with rivets or stainless steel sheetmetal screws. Seal the fastener heads.

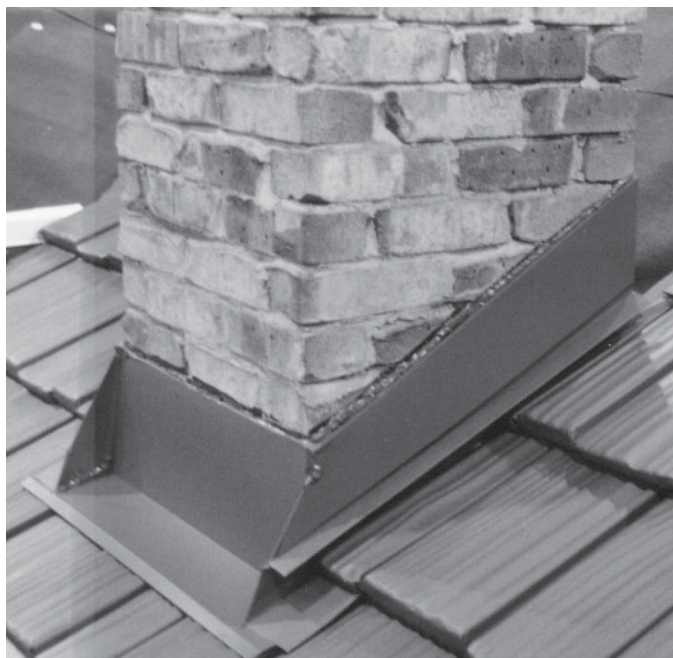


Seal around the entire perimeter of the chimney where the flashing and the brick meet to ensure a watertight joint. Be sure to use a sufficient amount of sealant to fill any voids or cavities.

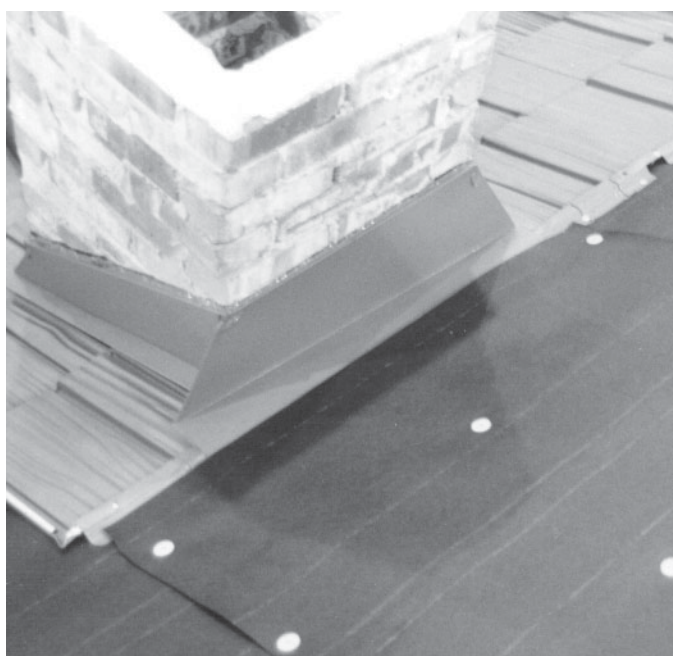


When a panel extends past a front wall exposure, add $\frac{3}{4}$ " to the side of the panel and trim off the excess at both the bottom and top lock areas. This will allow it to be bent down.

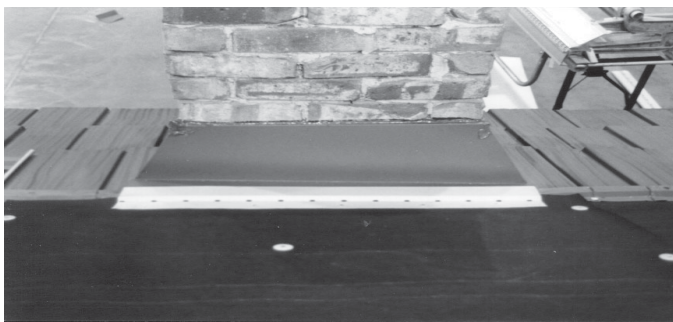
Remove 3" of the bottom lock and remove 3" from the top nailing hem of the panel to allow for proper drainage. Bend the extra $\frac{3}{4}$ " face of panel down 90°.



Continue running panels up the side of the chimney, removing the nailing hem where it covers the water-return channel of the sidewall flashing. This will allow proper water drainage.



Install a course of underlayment over the flashing and under the course of underlayment above it. This will allow water to drain over the flashing and onto the lower courses of shingles.

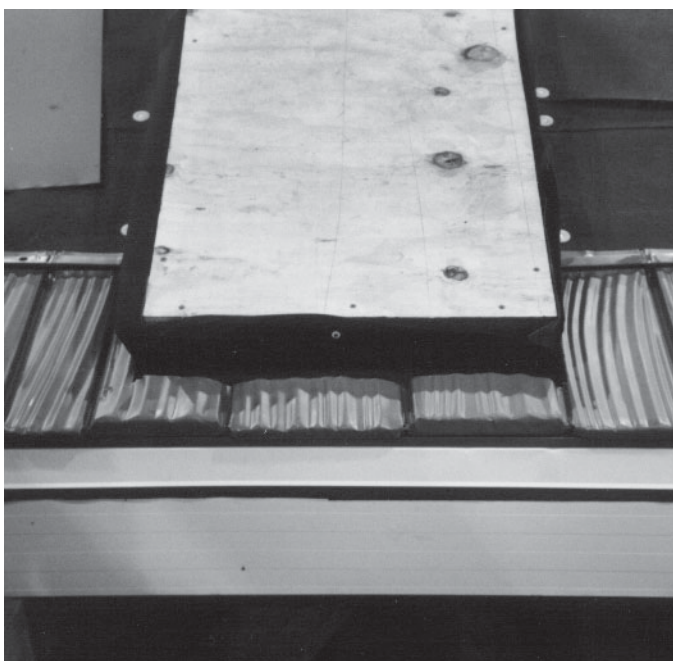


Install CM-122 Slotted Starter Strip to extend from the top locks of the courses of shingles on both sides of the chimney. This will be the lock for the full course of shingles running past the top of the chimney.



Note: It is critical that diverters, such as crickets, be installed behind all large projections. No diverter was installed in this photo.

SKYLIGHT FLASHING



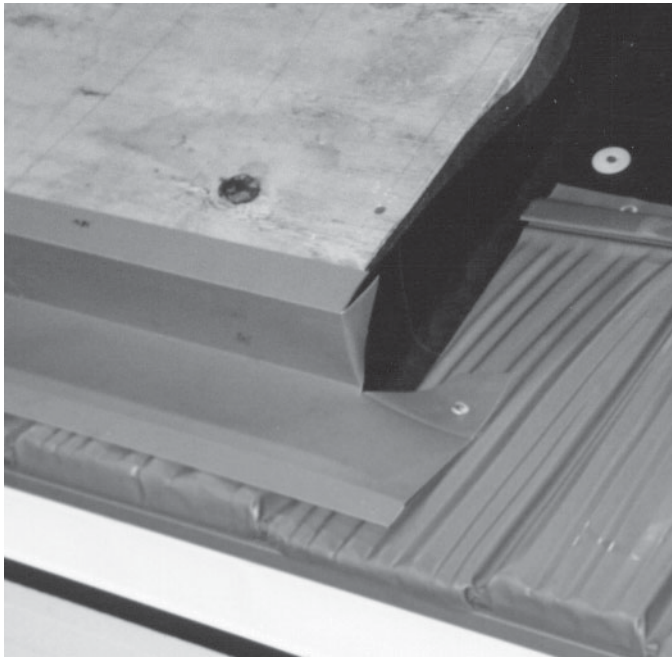
Refer to Brick Chimney Flashing (pages 7.2-7.8) for specifications concerning proper use of flashing.

Refer to Roof Preparation (Section 2) for proper underlayment guidelines.

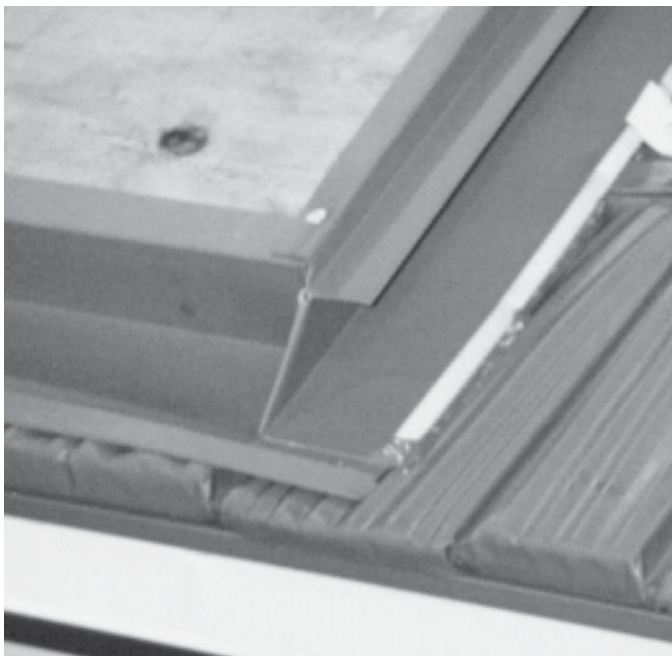
Remove the skylight dome and safely set it off to the side. Minimum curb height is the greater of 6" or local code. Curbless Skylights must not be installed with Country Manor Shake.

It is critical that the skylight be installed with adequate curbing.

Install the first course of panels by cutting as required.



Form the front flashing to extend 1" beyond the top of curb and 3" past both sides of skylight.



Install CM-121 Sidewall Flashing, (see brick chimney flashing, page 7.4) securing it with the front flashing. Sealant must be applied between side and front flashing.

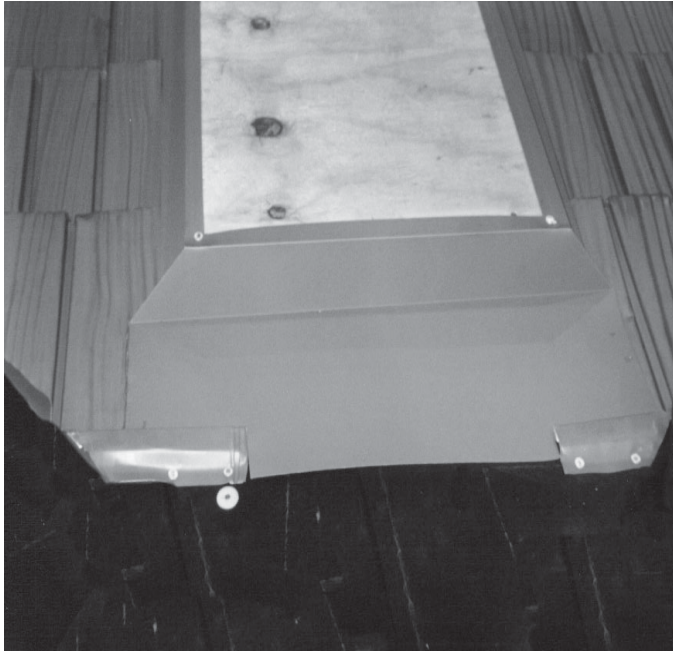


Fill any grooves in the panels that may allow water to enter under the sidewall flashing. This will divert water to the top of the panels and past the sidewall flashing. Subsequent courses of panels will be inserted into the sidewall flashing.



Extend the felt up the curb at the back of the skylight. Be sure to place the underlayment under the course of underlayment above it.

Install panels along the sides of the skylight. Make certain the courses of panels on both sides of the skylight maintain the same line to avoid any mismatched courses of panels. At the top of the skylight, install panels so 4" of the panel extend past the edge of the skylight as shown.



The back flashing must be formed to extend up the roof approximately 12" behind the skylight. This flashing should cover the skylight curb and should be extended 3" past both sides of the skylight.

Form dog ears on the side of the flashing to divert water away from the skylight.

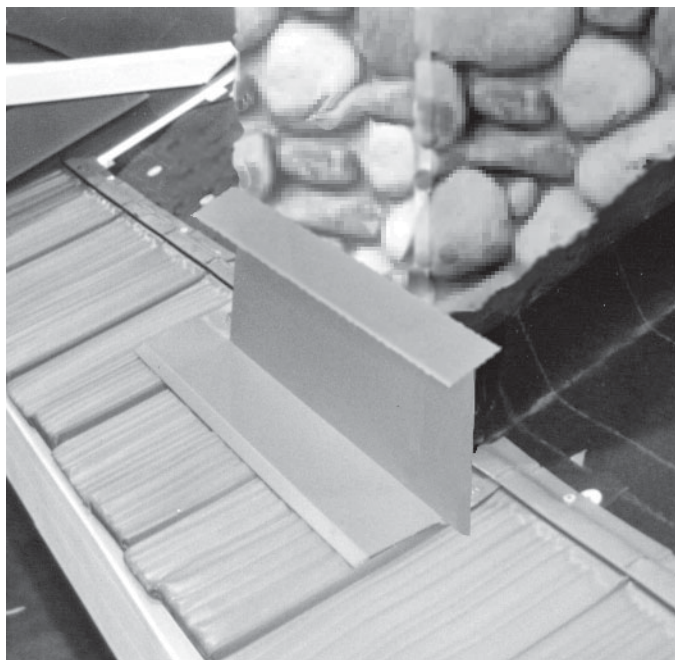
Form a 1" tab to be bent and attached to the top of the curb. Fasten flashing through tabs.

Caulk all joints where the flashings overlap.

When all flashing and sealing has been completed, fasten the skylight dome securely.

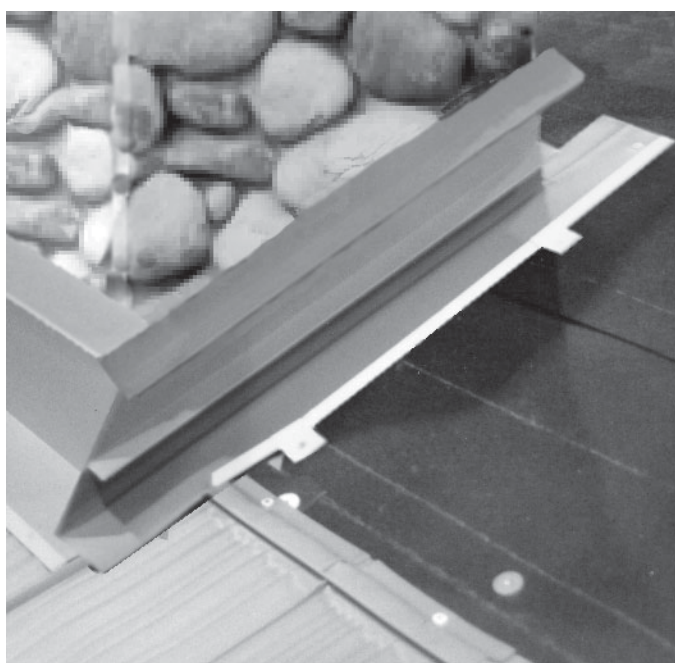
Note: It is critical that diverters be installed behind all large protrusions.

STONE CHIMNEY FLASHING



Refer to the Protrusion Flashing Chart on pages 6.3 and 6.4 for flashing guidelines.

The stone chimney presents a unique problem due to the irregularities of a stone surface. Form the front flashing so the top ledge is equal to the greatest depth of the stone. Place the flashing against the stone and with compass scribe along the top ledge of the flashing, following the irregularities of the stone. This will allow the flashing to conform with the stone surface when notched out. Remove the top locks of the panels that will be covered by the sidewall flashing. If necessary, remove the top lock of panels in front of the chimney and apply a liberal bead of sealant along the shake panel surface. Fill in the grooves between the individual shakes to prevent the possibility of moisture working its way underneath the flashing. Set the front flashing in position and fasten into place.

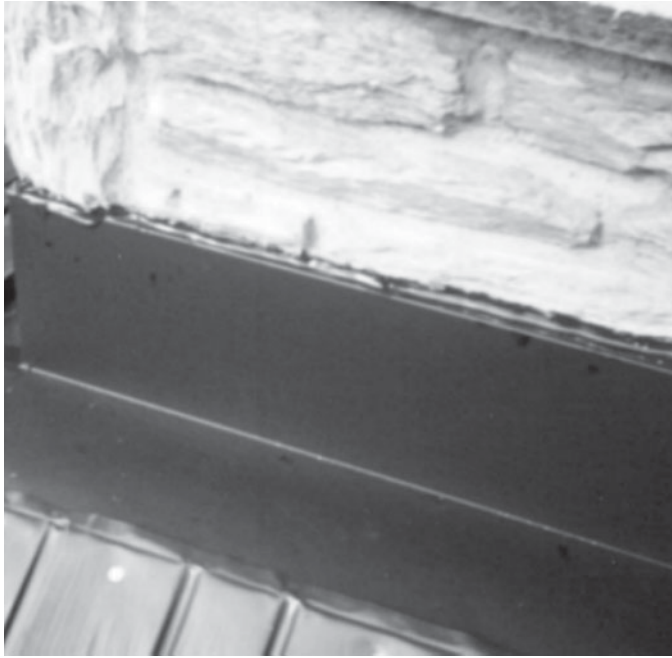


Scribe sidewall flashing and notch it in the same manner as the front flashing. Bend a tab around the back of the chimney and form a dog ear on the front of the flashing.

Place the sidewall flashing into position and secure.

Seal all flashings where they overlap.

Form a ledge on the top of the sidewall flashing, similar to the top ledge on the front flashing.



Form the base flashing for the back of the stone chimney, similar to that used with brick chimney flashing. Form a ledge at the top of the flashing where it meets the stone chimney and scribe along the stone face, trimming to match the stone profile.

Extend the flashing from the back of the chimney and under the course of underlayment behind the chimney. Trim excess material from the flashing and set it into place.

Note: This photo shows the back chimney flashing terminating at the ridge.

Bend a dog ear past the corner of the chimney to divert water. Bend the flashing around the side of the chimney. Seal the perimeter of the flashing at ledge locations and any flashing joints. Also seal along the side of the chimney where the panels fit into the side wall flashing.

Note: It is critical that diverters be installed behind all large protrusions.

REVIEW: CHIMNEY & SKYLIGHT FLASHING

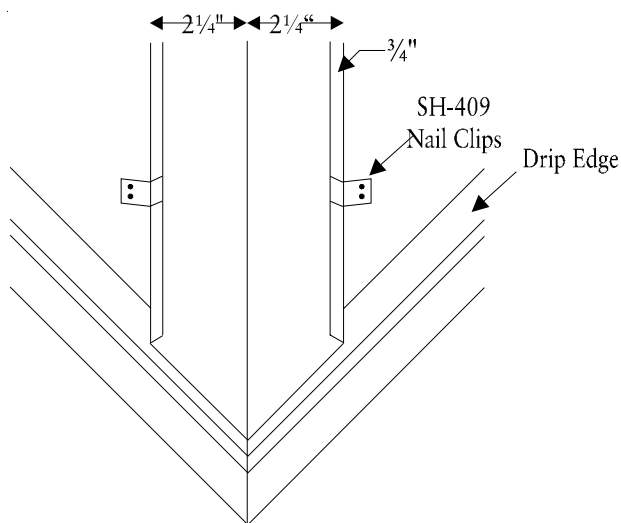
- All detail work demands meticulous consideration.
- Proper sealant applications are critical.
- Diverters are required behind all large protrusions.

Notes, Observations, & Questions

HIP TREATMENT

■ Hip Flashing.....	8.2
■ Hip Treatment (No Panel Overlap).....	8.2
■ Hip Caps With Overlapped Panels.....	8.3
■ Hip Cap Modification & Installation.....	8.4
■ Hip Caps & Mismatched Courses.....	8.8
■ Review.....	8.11

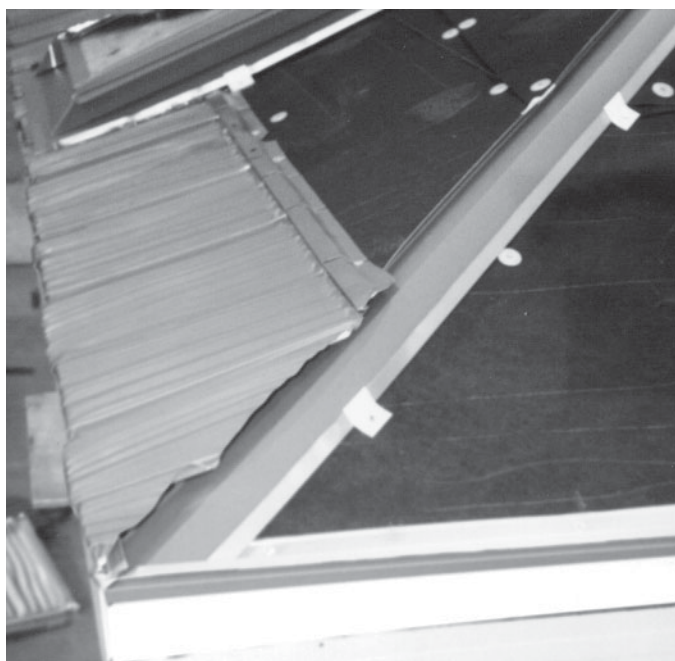
HIP FLASHING



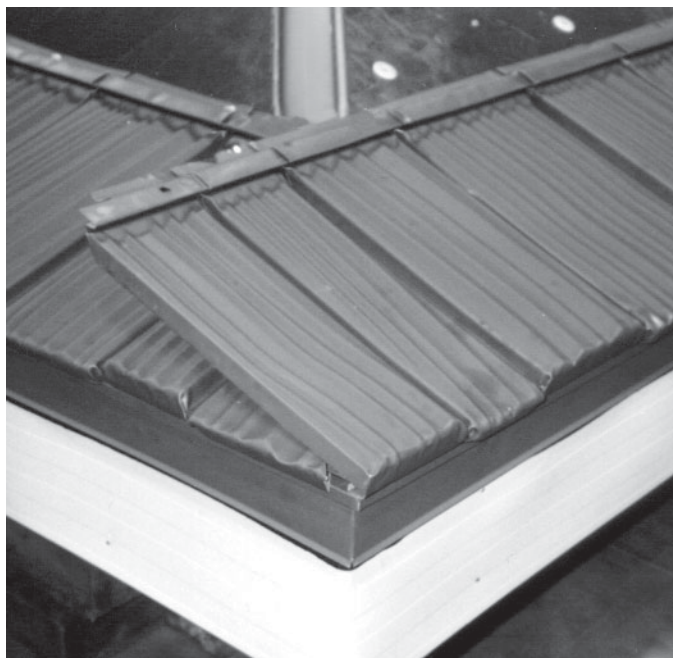
Before installing starter strip and panels, a field fabricated hip flashing must be formed. This will be used in conjunction with the application of hip caps. It is formed from a 6" wide piece of trim sheet which includes 3/4" water return legs.

The bottom of the flashing should be cut flush with the drip edge. Attach with SH-409 nail clips every 12" on both sides of the flashing.

HIP TREATMENT



Run panels in and out of the hip area. Find panel lengths by measuring from both the top and bottom of the last vertical lock of the last full panel to the center of the hip line. This will determine the cutting angle required for this hip. After cutting the panel, lock the panel in place and nail.



It is imperative to achieve a tight fitting cut at the hip so that the gap is minimal. Place a full panel on the adjacent side of the hip. Mark the top and bottom of the panel where it intersects the hip line. Cut to the hip angle and secure into place.

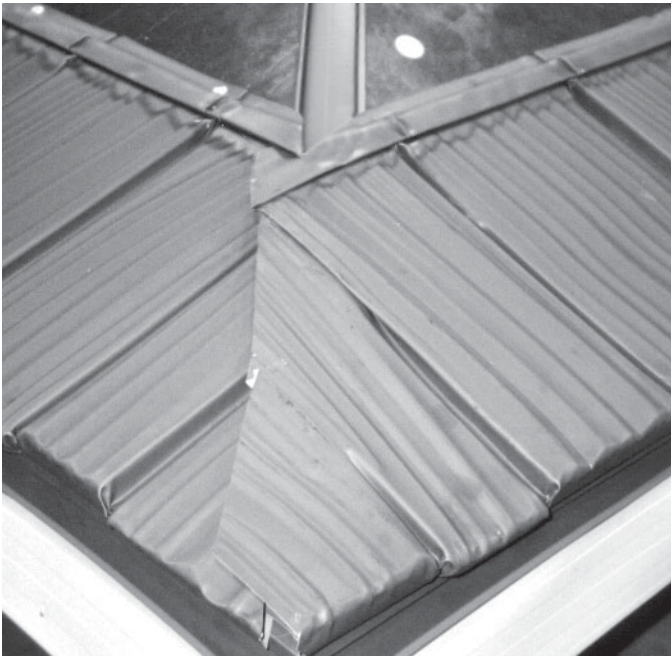
Note: When installing panels out of the hip area, remember to ensure a random appearance and stagger the courses.

HIP CAPS WITH OVERLAPPED PANELS



In areas of high wind and/or heavy snow, overlap Country Manor Shake panels at hip locations. Cut panels to hipline on one side of the hip. On adjacent side, cut the panels to the hip angle allowing a 3" overlap.

Turn panel face down and flatten grooves in overlap area approximately 2". Always flatten ribs toward the middle of the panel.



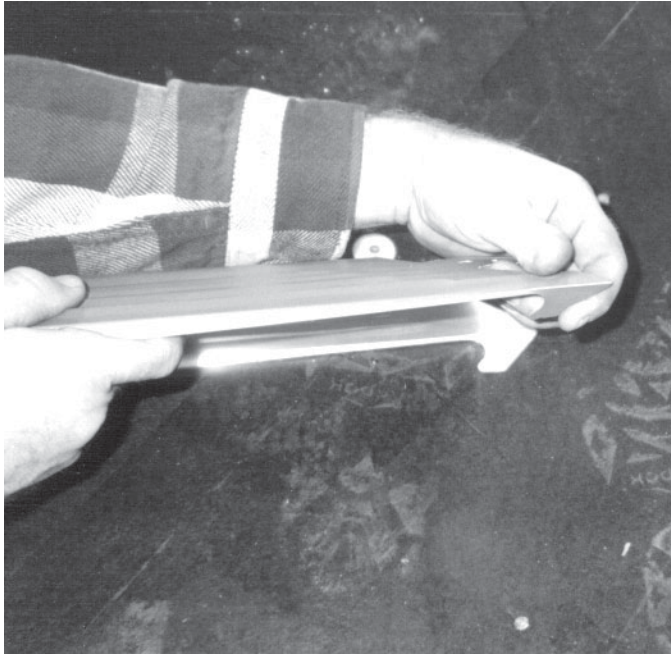
Apply a liberal bead of sealant at overlap. Make sure to fill all grooves completely.

Install panel and fasten at hip overlap. Be sure not to penetrate the hip flashing with fasteners.

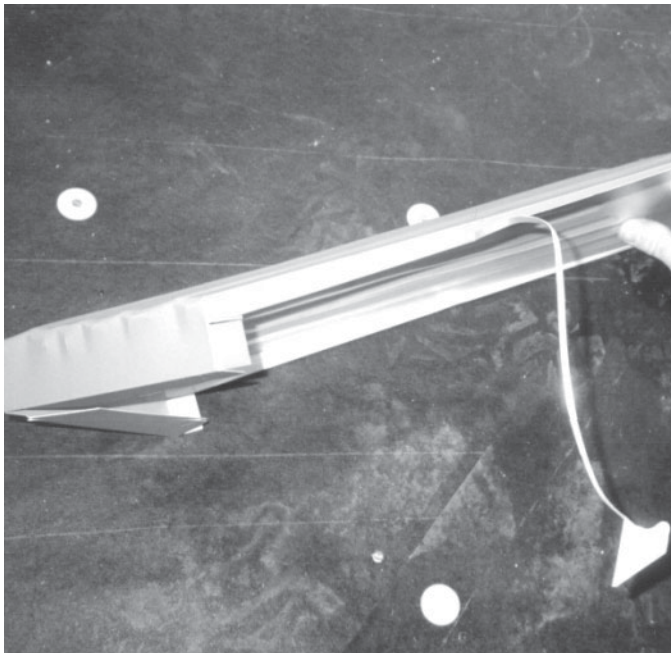
HIP CAP MODIFICATION



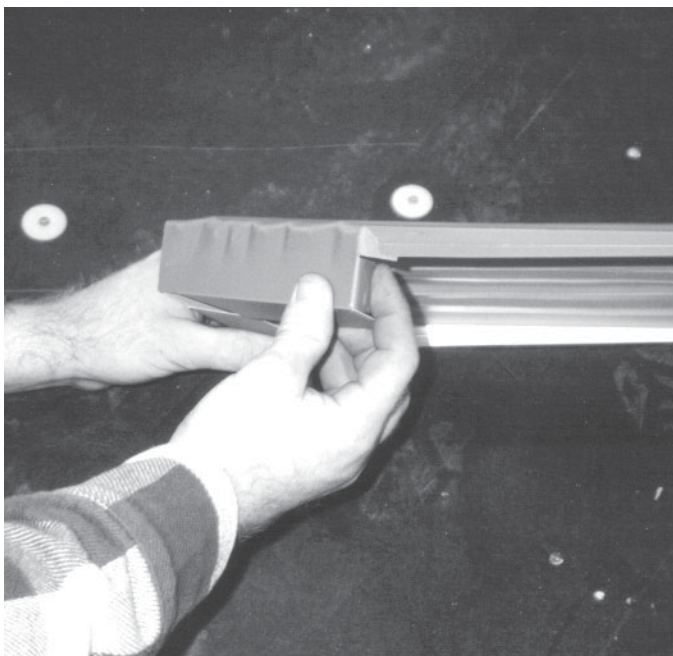
Remove fastening tabs...



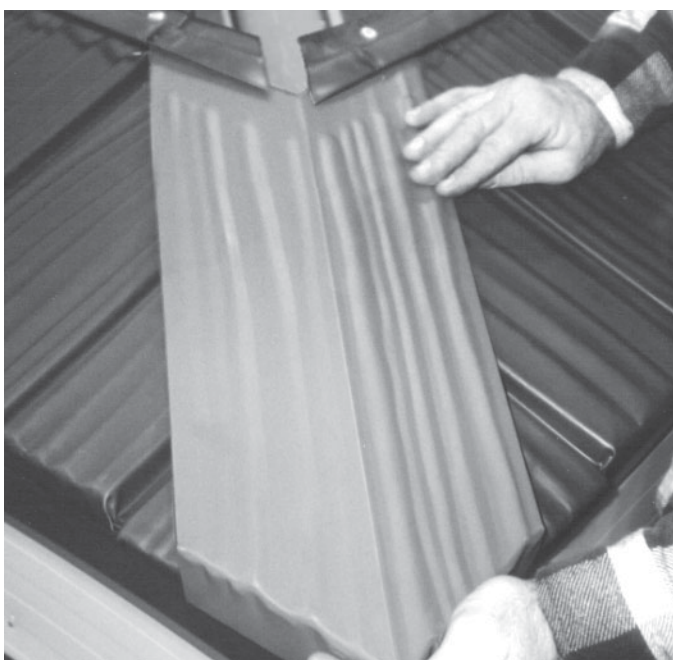
...and bend in side tabs.



If necessary, remove enough of the side tab to allow the cap to conform to the uneven areas in the panel.



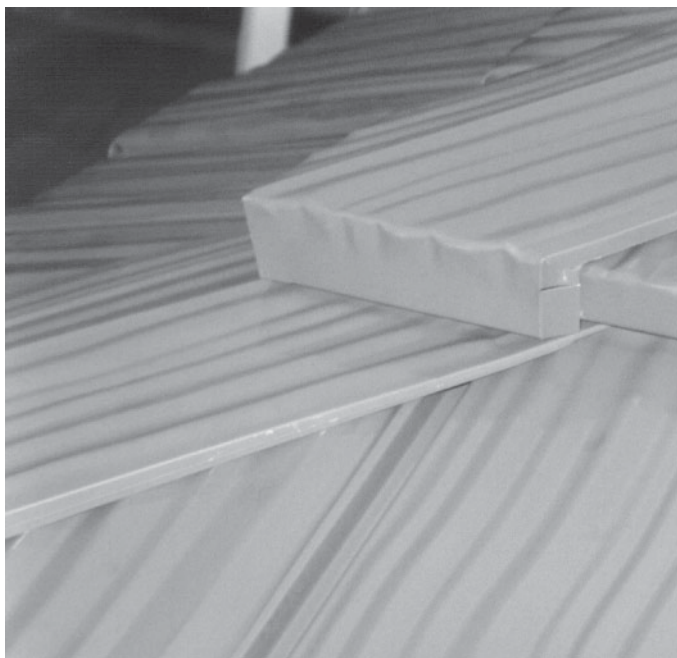
If the hip cap intersects a long shake, bend in the tab on the side of the hip cap.



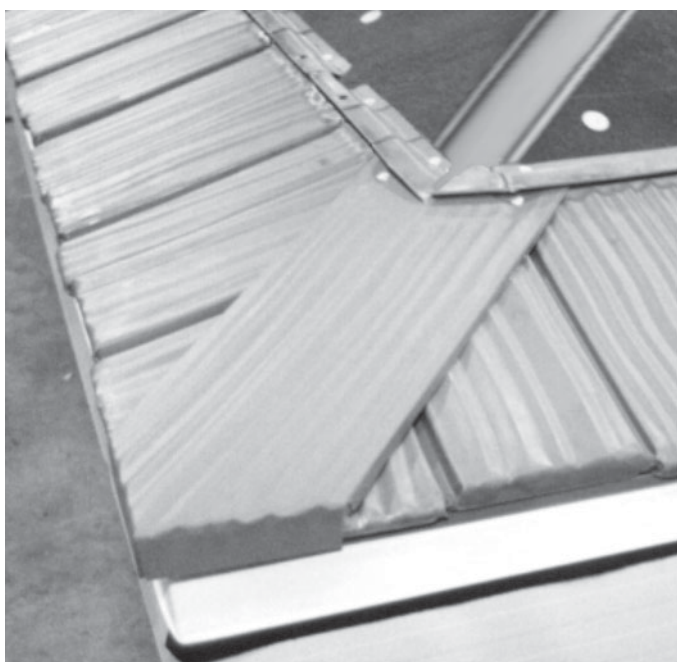
Nest hip cap over panel butts. Slide the top of the cap into the locking portion of panel's top lock and slide the bottom of the cap into the lock at the bottom of the panel.

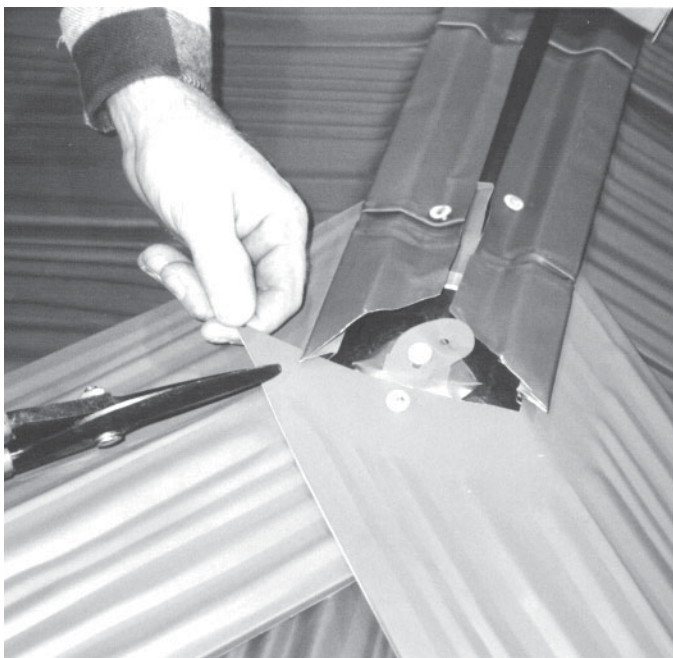
Depending on the pitch of the roof, the panels may need trimmed to fit into the panel locks.

Attach hip cap with two nails. Apply the nails as high in the cap as possible and outside of the hip flashing.



The photo at left shows the hip cap with the tabs properly modified to fit onto the panels.

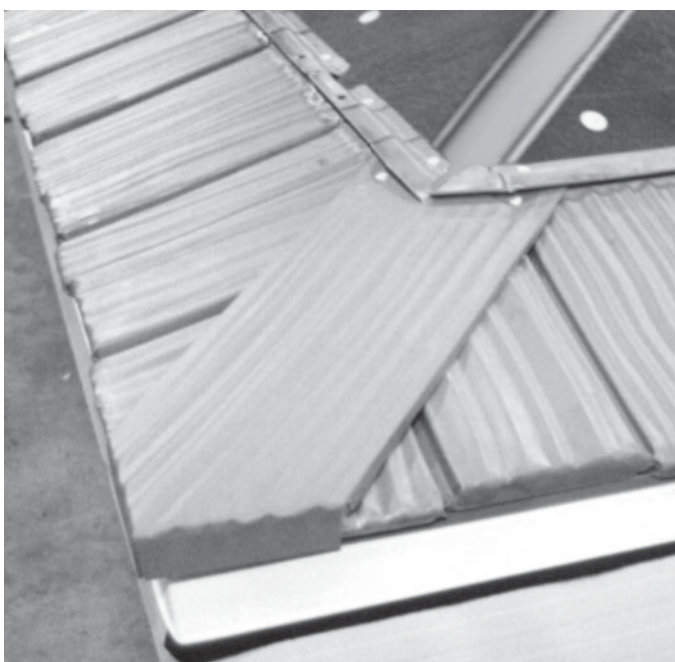




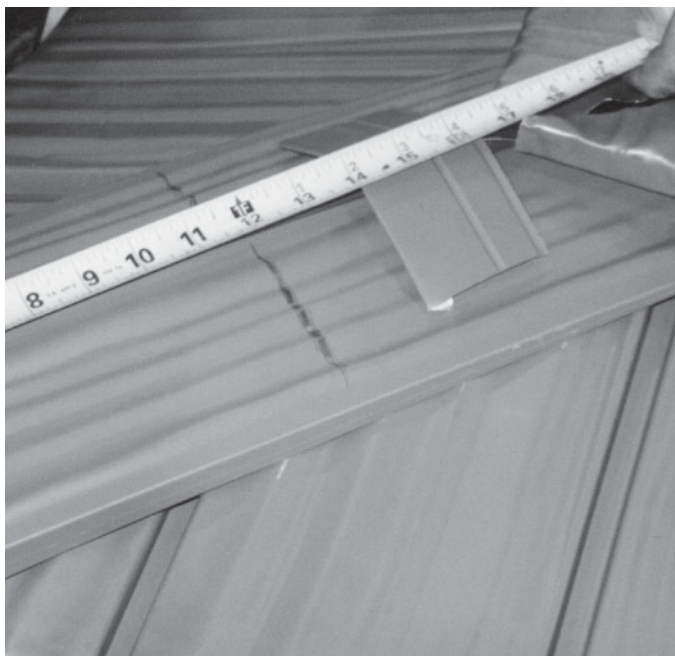
At the hip ridge intersection, trim the last cap on one side of hip to fit ridge intersection.

Place the opposing hip cap; mark where it overlaps, remove the end of the hip cap that will not be covered by the ridge cap, then securely attach.

MISMATCHED COURSES



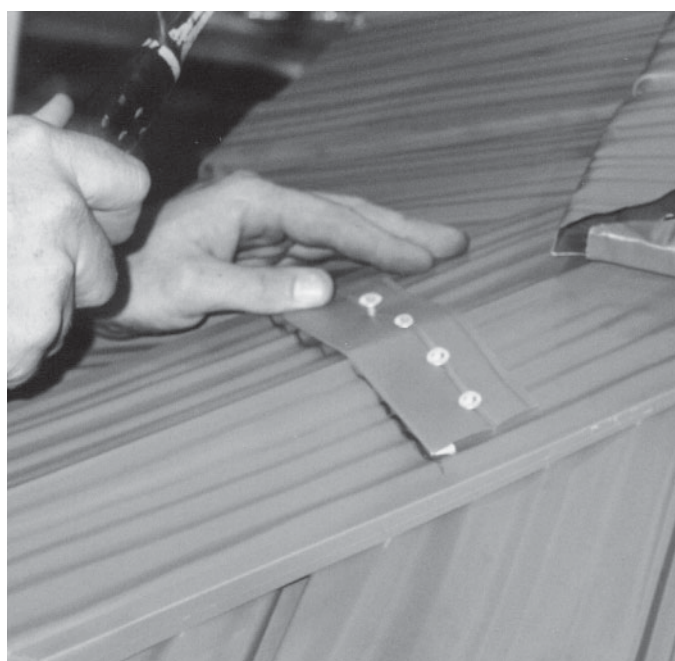
Run the panels into the hip line. On the first course, install a hip cap as previously described in this section.



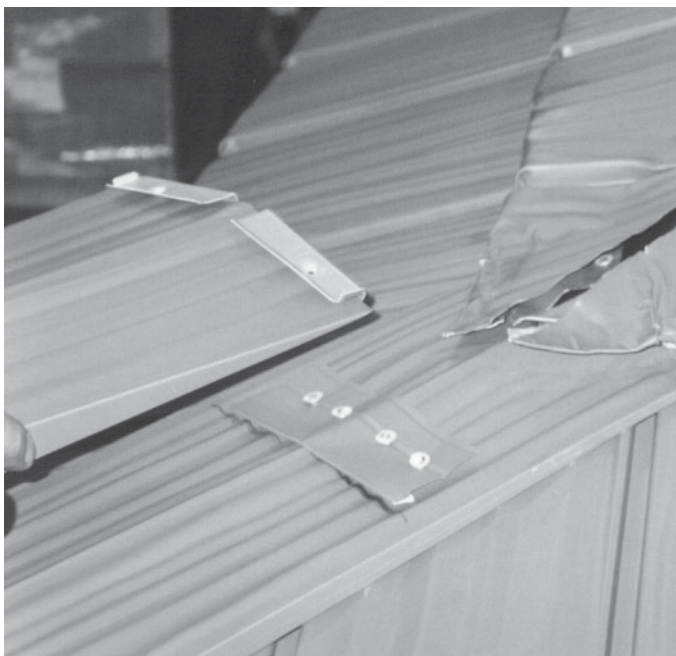
When the panel butts on the adjacent roof sections do not meet at the hip line, hip caps cannot be used for the remainder of the hip treatment. Ridge caps must be used to complete the treatment.

Measure up twelve inches on the hip cap and make a mark. This marks the location of a piece of starter strip that will be used to attach the first ridge cap.

Field form and fasten a starter piece (CM-122 can be used in place of the field formed starter).



Attach the starter strip with four fasteners.



Flatten the butt edge of the upper course of panels to create a flat area for the ridge caps to rest. Lock the ridge cap into the starter strip.



Proceed up the hip line with the ridge caps, flattening the panel butt edges and locking the ridge caps into each other.

Note: In this illustration, the courses of panels on both sides of the hip match.

REVIEW:

HIP TREATMENT

- Form a hip flashing
- Cut accurate angles at hips.
- Modify the hip caps to fit the profile of the panels.
- Nail hip caps outside of hip flashing.
- Use Ridge Caps on roofs with mismatched pitches.

Notes, Observations, & Questions

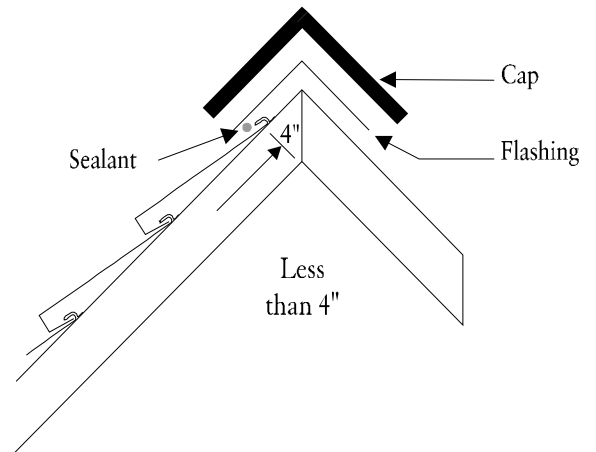
RIDGE TREATMENT

■ Panel to Ridge Treatment.....	9.2
■ Ridge Flashing.....	9.3
■ Ridge Cap Starting At The Gable End.....	9.9
■ Ridge Caps With Center Termination.....	9.9
■ Complex Hip-Ridge Situations.....	9.12
■ Review.....	9.15

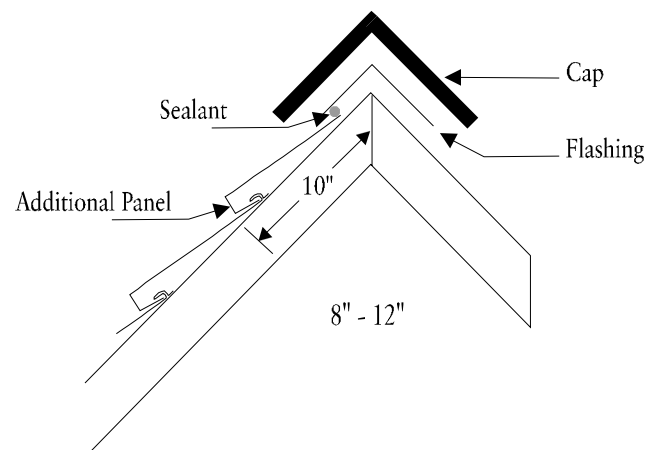
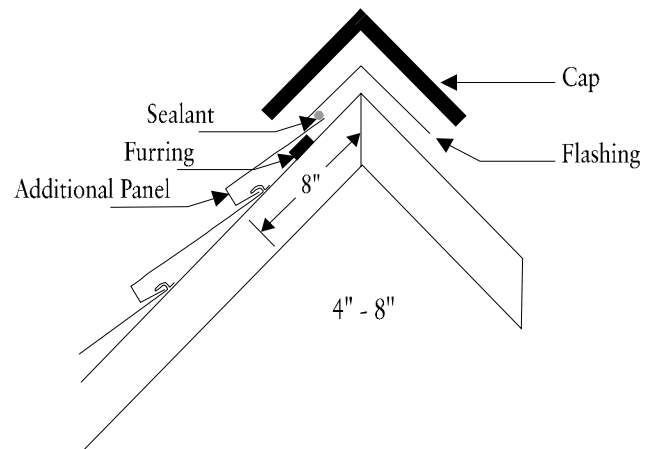
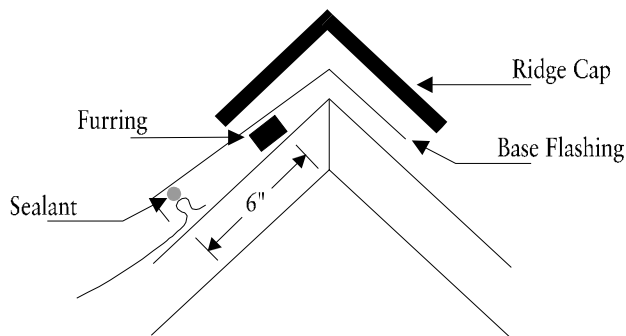
Important: All detail work demands meticulous consideration.

PANEL TO RIDGE TREATMENT

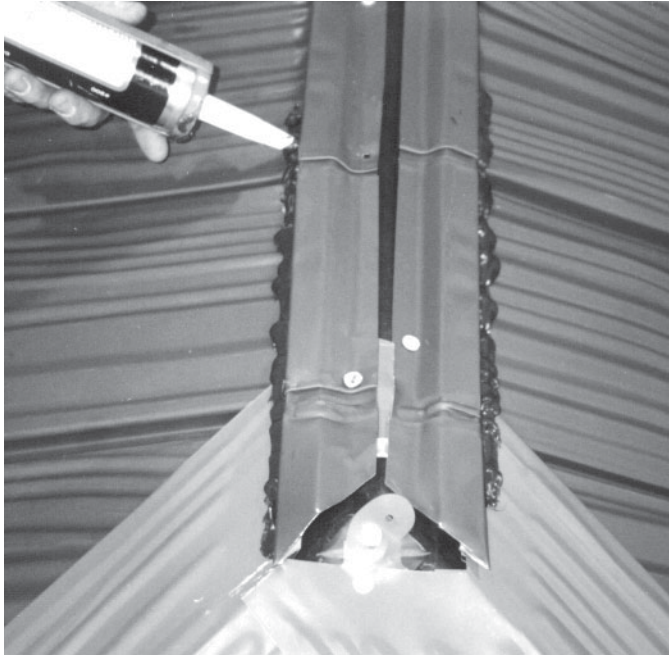
Note: Ridge flashing is required prior to ridge cap installation. Depending on the slope of the roof and the height of the panels adjoining the ridge, furring may be necessary to keep shake panels at the same pitch as the preceding courses. Off pitch shakes can result in water leakage and/or perceived color mismatch. Variations of the ridge treatments may have installation options that will comply with Perfection's approval.



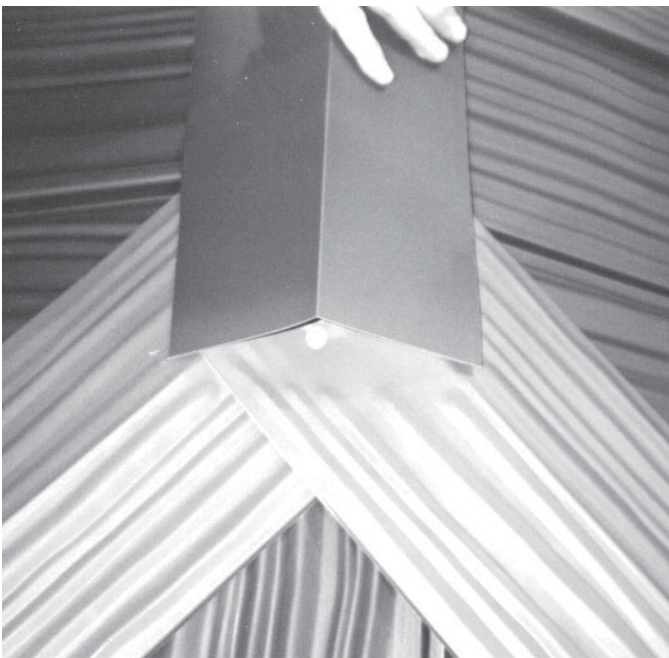
OPTIONAL



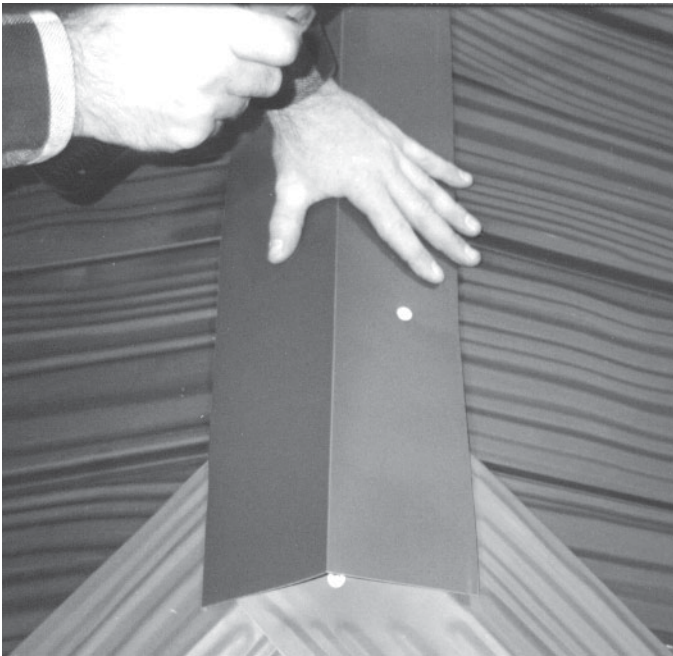
RIDGE FLASHING



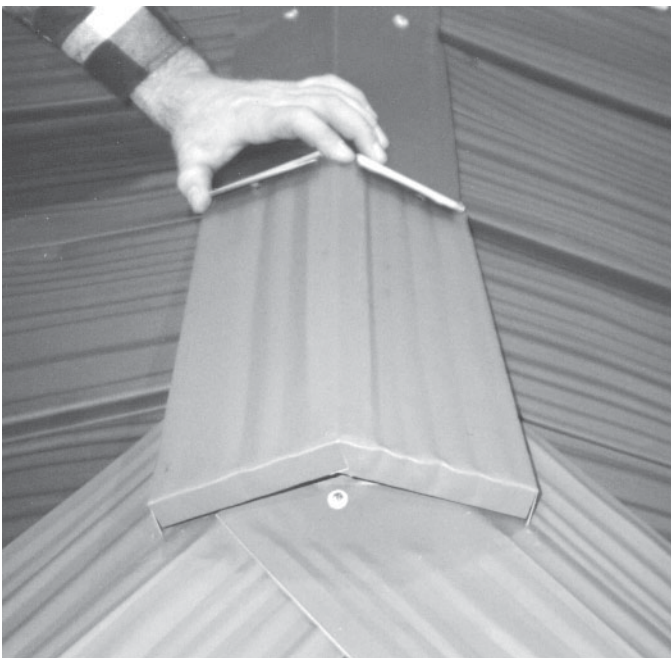
Before installing the ridge flashing, apply a liberal bead of sealant to the top course, making sure that all vertical channels are completely sealed. This will prevent water from penetrating underneath the flashing.



Field form a ridge flashing as required.



Fasten the flashing into place every 3-4 feet to hold it in position. On long ridges, overlap the flashing by at least 3". Seal at the flashing overlaps. Trim the flashing to fit valley intersecting angles.



Lock the first ridge cap securely into the end of the ridge flashing.

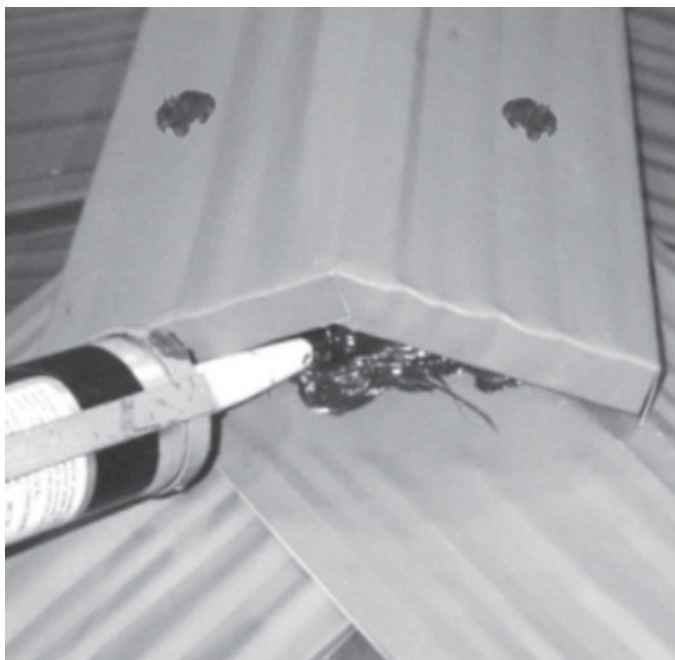


Secure the back tabs by nailing in place with two 3" aluminum nails.

Do not over-drive the nails. Over-driving causes succeeding caps to lock improperly.



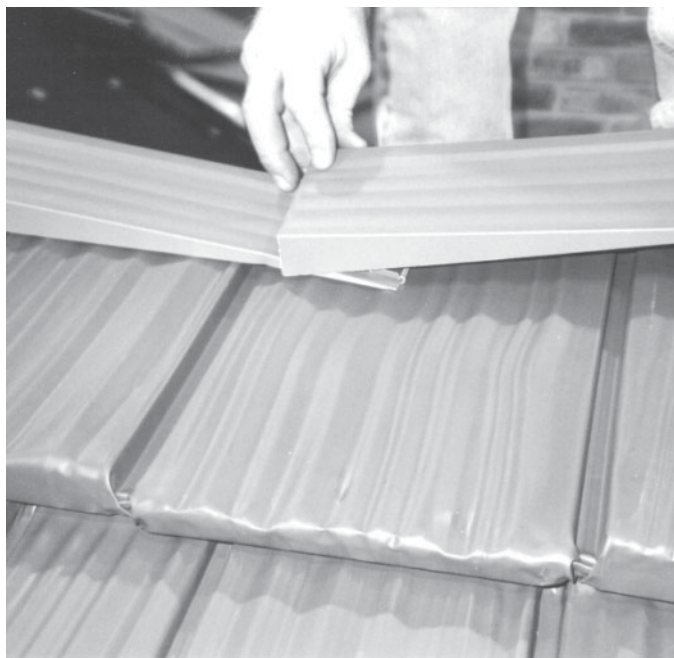
The first cap was face nailed to secure it tightly to the roof. When any accessory is face fastened, be certain to cover the exposed fasteners with matching sealant.



Apply sealant under the butt edge of the first ridge cap at the Hip-Ridge intersection.



The butt lock on the ridge cap has slots cut out that allow it to fit around the nails of the previously installed cap.



Continue installing ridge caps as needed. Secure the ridge caps by firmly engaging the locks. The actual coverage of the ridge caps is 12".



Where a ridge runs into intersecting valleys, mark the intersection on the last cap.

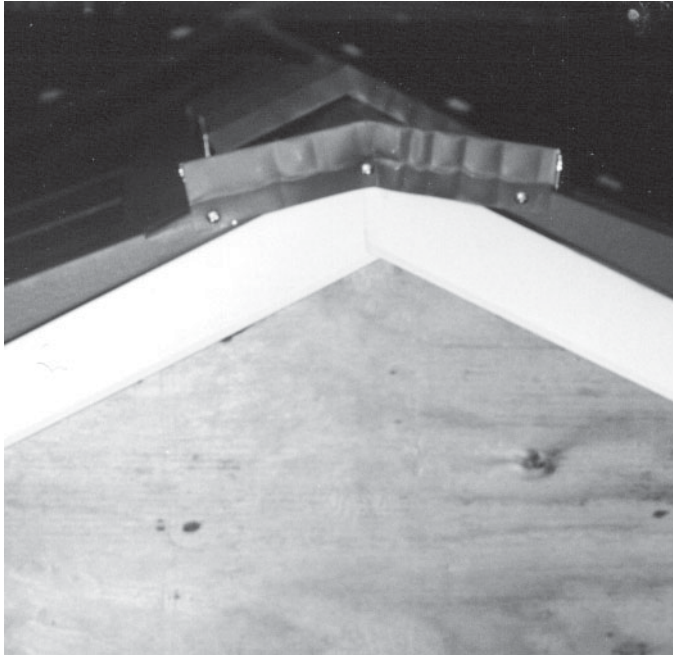


Allow for additional material on this cap to form an end lock. Trim the cap as required. Fold the end locks to conform to the valley angles. Apply sealant into the butt of the last ridge cap and the locking portion of the preceding cap to secure the butt end of the ridge cap. Set in place and fasten the cap to the edge of the adjacent panels with rivets or stainless steel screws.



Apply sealant to the exposed fasteners.

RIDGE CAP STARTING AT THE GABLE END



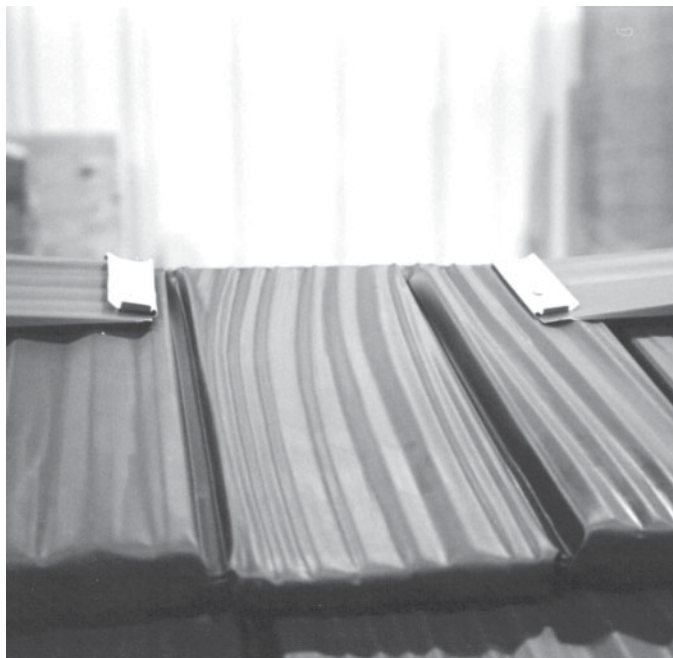
Ridge caps are always installed beginning at a gable and ending in intersecting valleys.

Make a starter cap by bending open the locking tabs on a standard ridge cap. Trim where needed and bend to the desired configuration.

Attach the cap to the gable end by riveting into either the end caps or the drip edge.

Apply sealant to the exposed fasteners.

RIDGE CAPS WITH CENTER TERMINATION



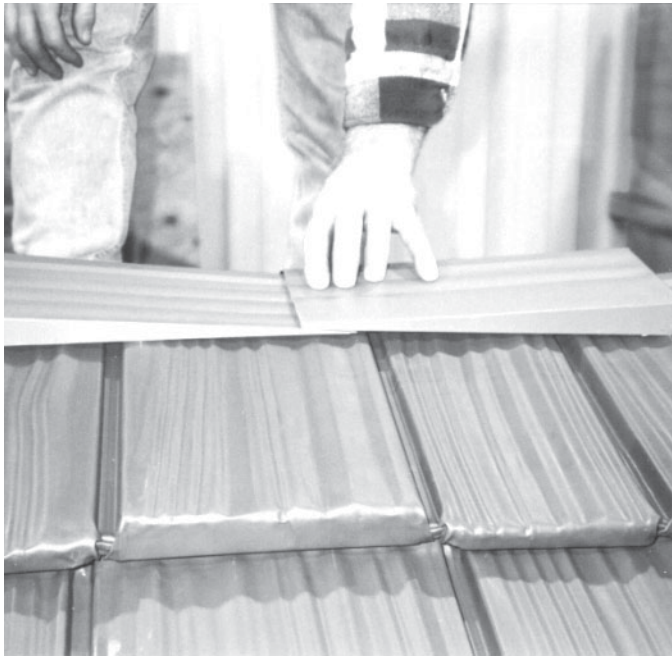
It is possible to install ridge caps starting at each end of a gable roof and working toward the center.



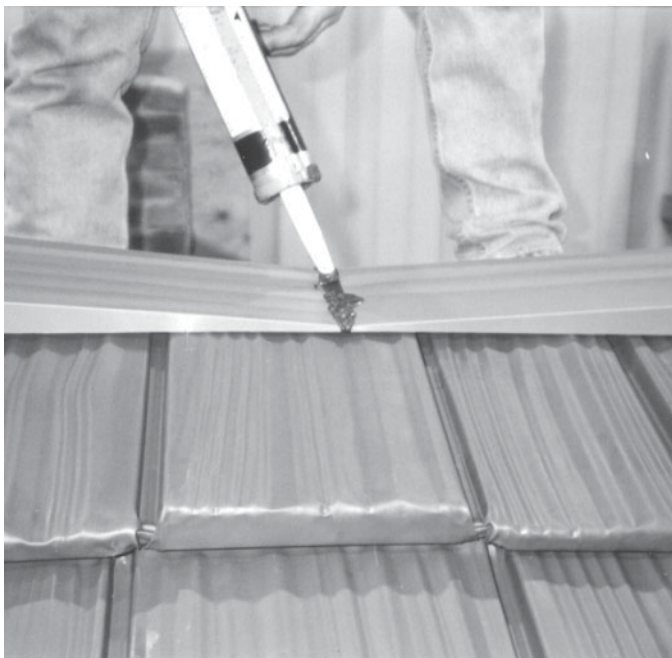
At the midpoint, the last full ridge cap should be installed. Measure the distance between the opposing ridge caps and divide in half.



Transfer the measurement onto the last cap to be installed.

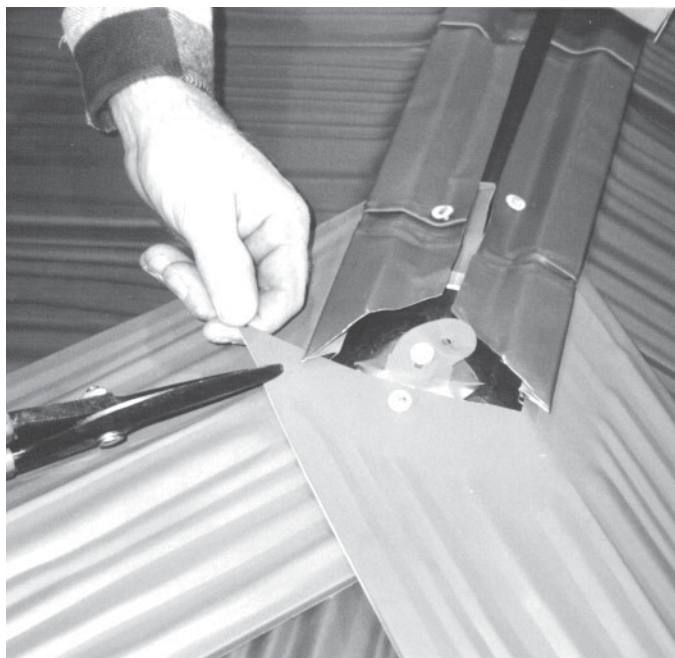


Remove the unwanted portions. Position the modified cap over the last cap installed and fasten with nails on both sides of the ridge.



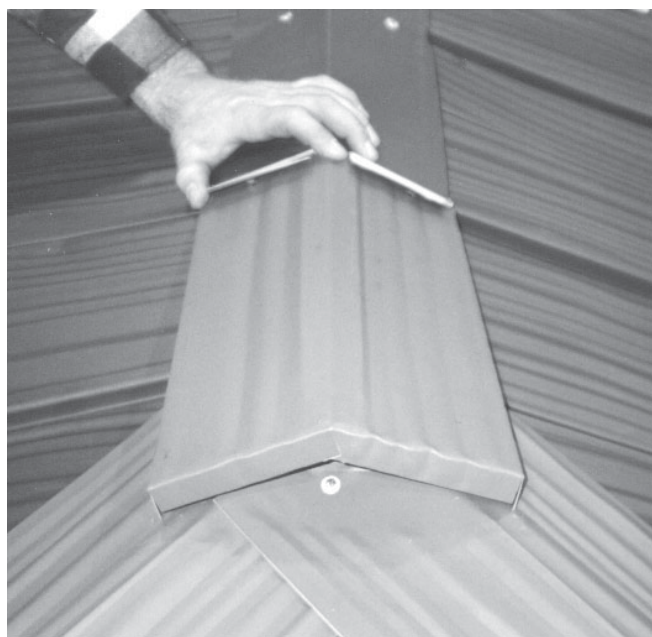
Apply sealant along the joint where the two ridge caps overlap and over the exposed nail heads. This will provide a symmetrical appearance to the ridge of the roof.

COMPLEX HIP-RIDGE SITUATIONS

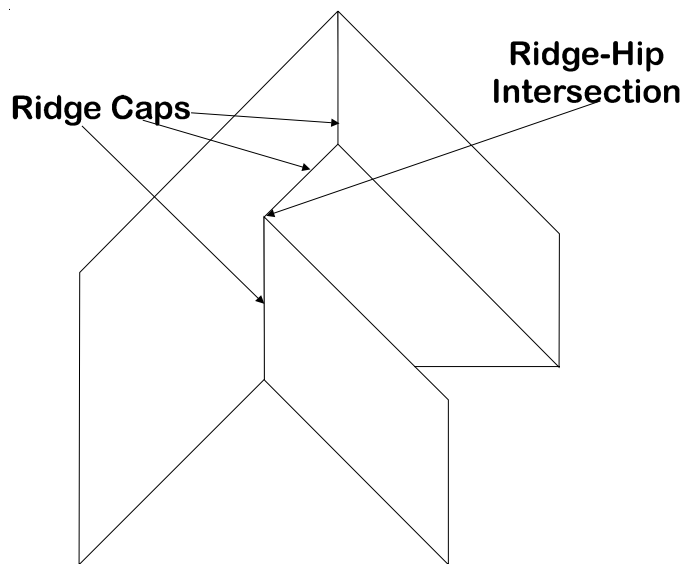


At the lower hip ridge intersection, trim the last hip cap on one side of hip to fit ridge intersection.

Place the opposing hip cap; mark where it overlaps, cut away the side of the cap, trim to fit, and securely attach.



Lock the first ridge cap into position by placing the bottom lock edge underneath the ridge flashing. Always install ridge caps in a direction away from the hips.

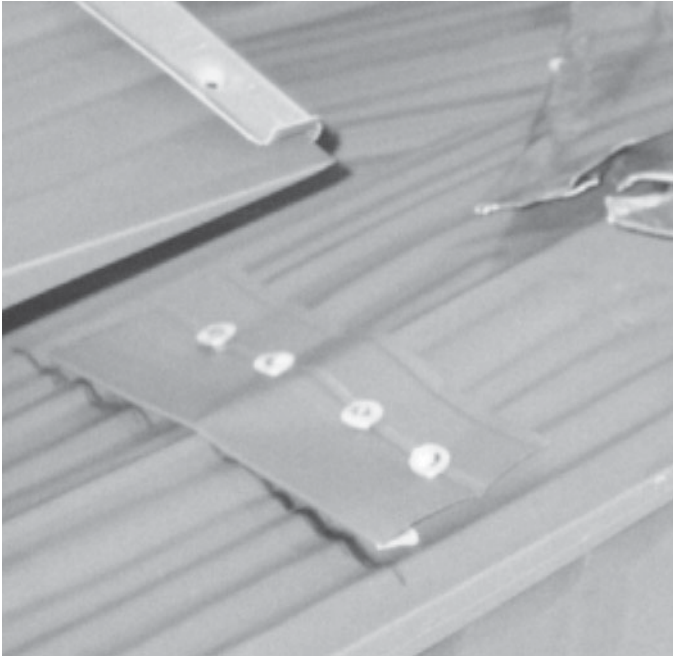


When a ridge runs into a hip, the panel butts normally will not line up where they intersect at the hip. Therefore, continue installation with flashing and ridge caps.



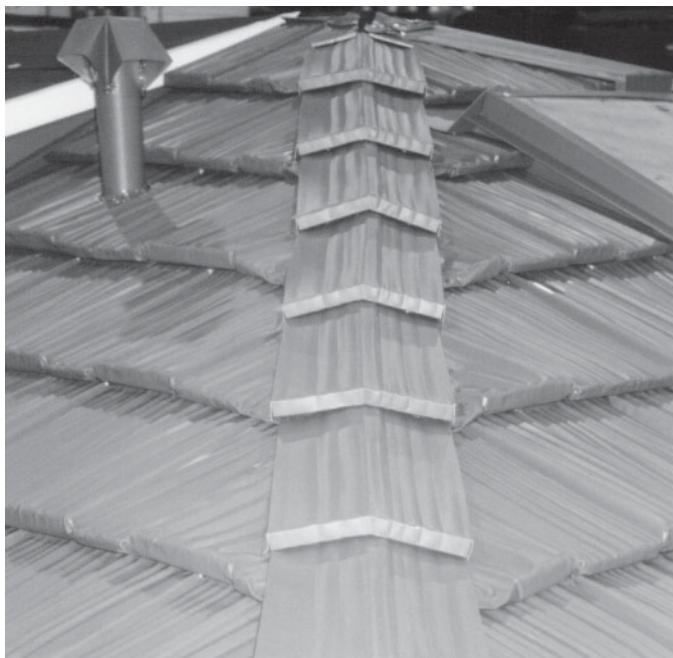
Mark the hip where the flashings intersect the butts. Flatten the butts inside the marked area.

Form a hip flashing that will cover the hip. The hip will rest on top of the panel in a manner similar to that of ridge flashing.



Set the flashing in place and fasten. Field form and fasten a starter piece (CM-122 can be used in place of the field formed starter) for the first ridge cap at the hip line.

Install succeeding caps as previously described at ridge location, making sure not to overdrive nails.



Once the ridge caps have been installed, it will be necessary to find and seal any exposed fasteners or cavities at the joints where the ridge and hip transition takes place.

REVIEW:

RIDGE TREATMENT

- Seal panels at ridge prior to flashing.
- Always install ridge flashing.
- Do not overdrive nails into ridge caps.
- Ridge caps start at gable or hip intersections and end at valleys.
- Ridge caps can be installed from gable ends and terminate in the center of a roof to create a symmetric appearance.
- Ridge caps can be used as hip treatments in complex situations

Notes, Observations, & Questions

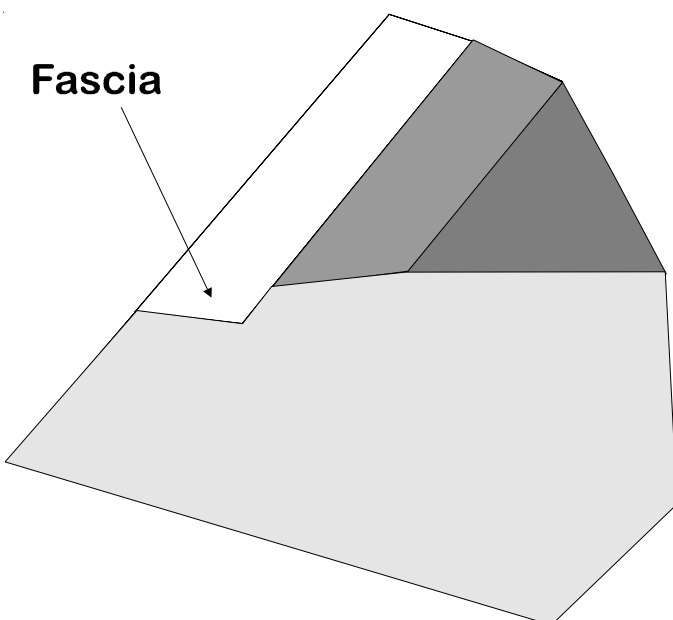
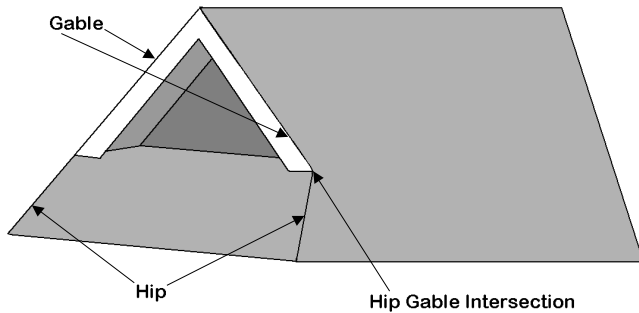
SPECIAL GABLE TREATMENTS

■ Dutch Gable.....	10.2
■ Flared Gable.....	10.5
■ Review.....	10.6

*Important: All detail work demands
meticulous consideration.*

DUTCH GABLE

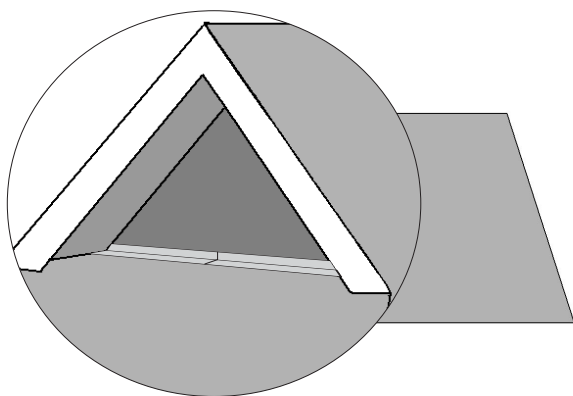
A dutch gable is defined as an area where a hip and gable intersect.



Under a dutch gable where the roof intersects a vertical wall, there may be times when the fascia board needs to be trimmed to accept the panel. The shake panel is trimmed to slide underneath the fascia board to ensure a watertight fit.

It may be necessary to follow the same procedure of panel installation whenever the panels run into a front wall exposure.

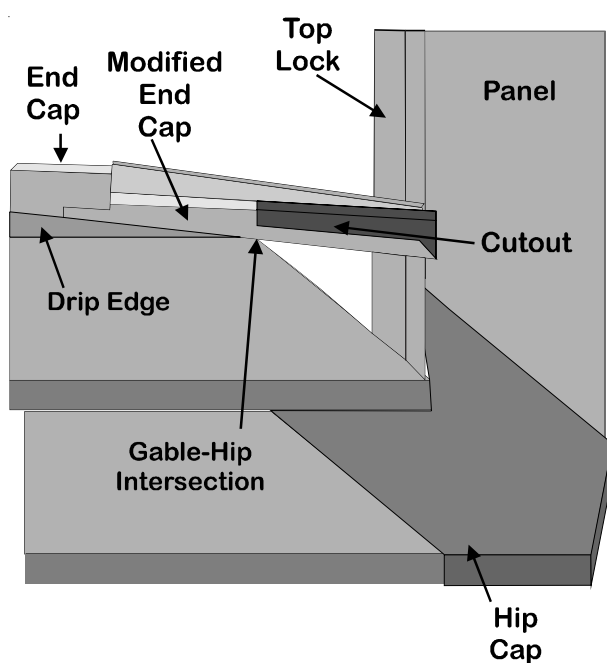
Nails should be placed in the grooves between the simulated shakes a minimum of every 24" on panels that have been cut to less than full height.



Refer to the Flashing Chart on pages 6.3 and 6.4 for flashing guidelines.

When working underneath an overhang, install the flashing in two pieces and overlap it in the center of the gable area. Apply the front wall flashing in the manner previously described. Apply a liberal amount of sealant on the face of the panels and on the flashing lap. Trim the end of the flashing so it rests underneath the overhang.

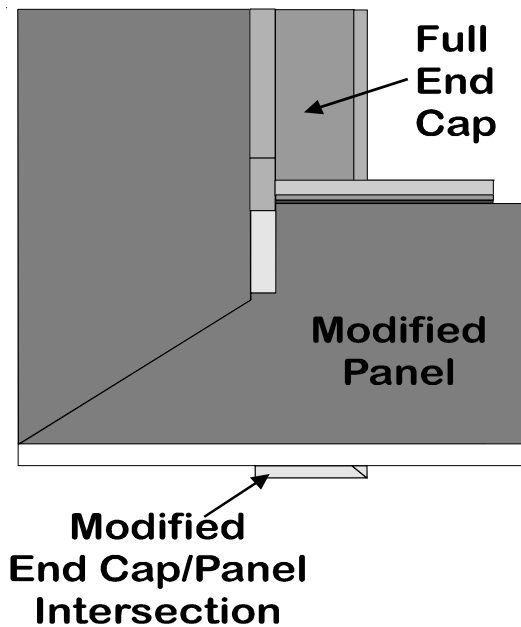
When placing the second piece of flashing into position, make sure to overlap notched sections of flashings and secure in place. If the front wall is stucco or some other material that will not hold a fastener, attach by drilling and nailing through the flashing and a section of the thick shake into the roof decking. Make sure to seal all ledges and nailheads.



On the right side of this dutch gable, the top lock of the last full course falls below the hip gable intersection.

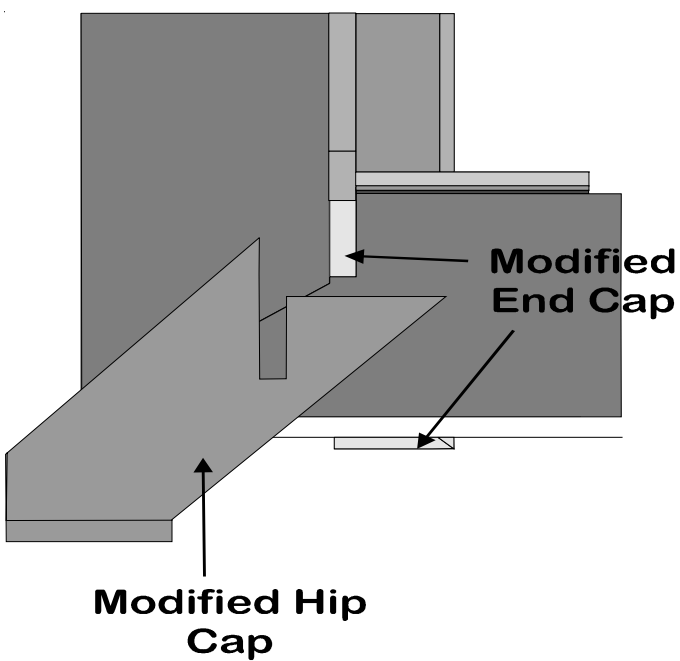
The following is an optional method to handle this situation. Before installing the next course, apply drip edge and install a gable end cap. The bottom of the end cap should line up about $\frac{3}{4}$ " below the top lock on the last course.

Modify the end cap at the hip gable intersection. Cut out the face of the end cap, leaving a channel to control the flow of water. Seal along the nailing hem and install the end cap.



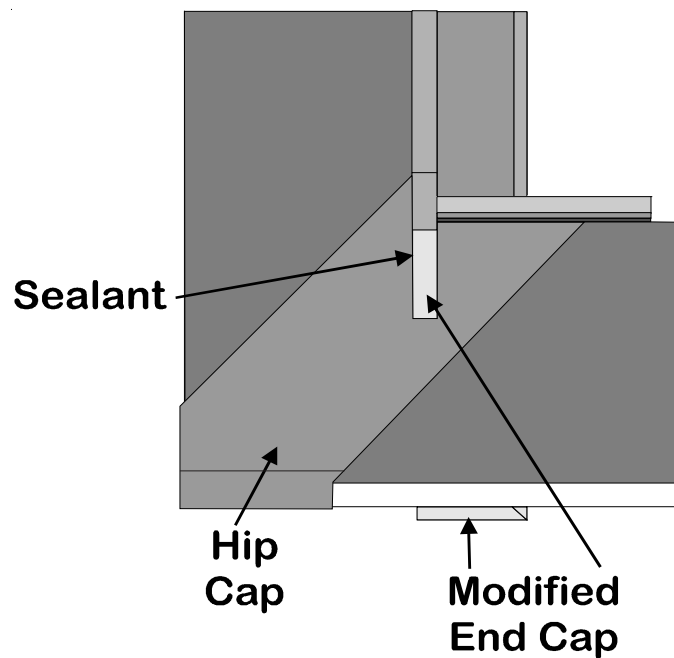
Trim a panel to conform with the gable hip intersection. Place the panel and mark the location where the end cap intersects the butt of the shake.

Install the second end cap, trim the panels at the marks, and install. Notch the panel to allow water to escape from the end caps.



Place the hip cap and mark the intersection of the end cap and the shake panel.

Trim the hip cap at the marks.



Then, install and nail it securely into place.

Apply sealant where the hip cap meets the drip edge and end cap.

FLARED GABLE

In a flared gable situation, the end caps shouldn't be fully engaged. This will allow the end cap to span slightly greater distance to compensate for the angular cut of the panel.

Install panels out of flared gable end caps, remembering to notch nailing hems to ensure proper drainage.

REVIEW: SPECIAL GABLE TREATMENTS

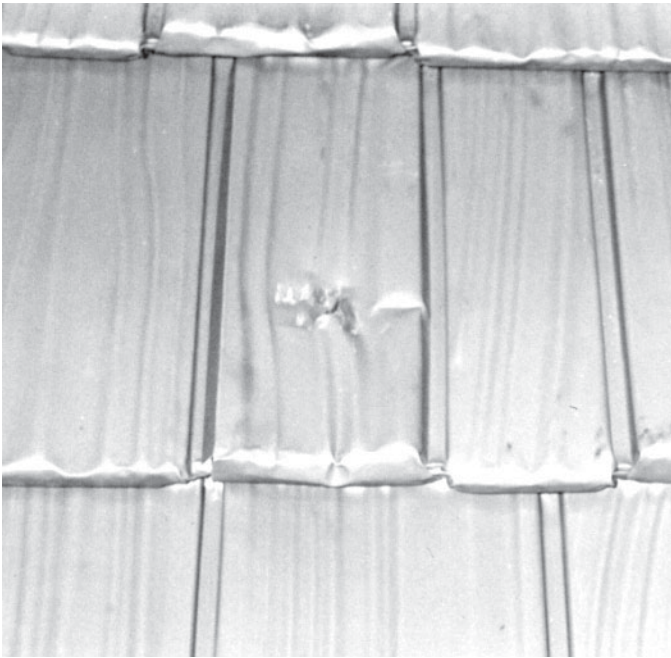
- At Dutch gables, adapt end caps to drain onto panels.
- Modify Hip Caps.
- Seal joints.
- Adjust end caps at flared gable.

Notes, Observations, & Questions

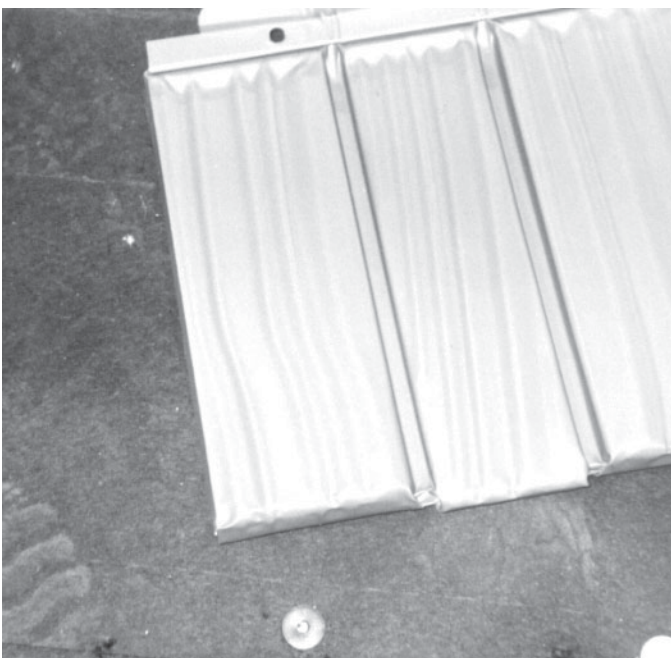
APPENDICES

■ Damaged Panel Repair.....	11.2
■ Measuring a Roof.....	11.5
■ Installation of Gravity Vents.....	11.6
■ Starting Reference Lines.....	11.8
■ Special Installation Issues.....	11.9
■ Special Nailing for UL 580.....	11.10
■ Architect Specifications.....	11.11

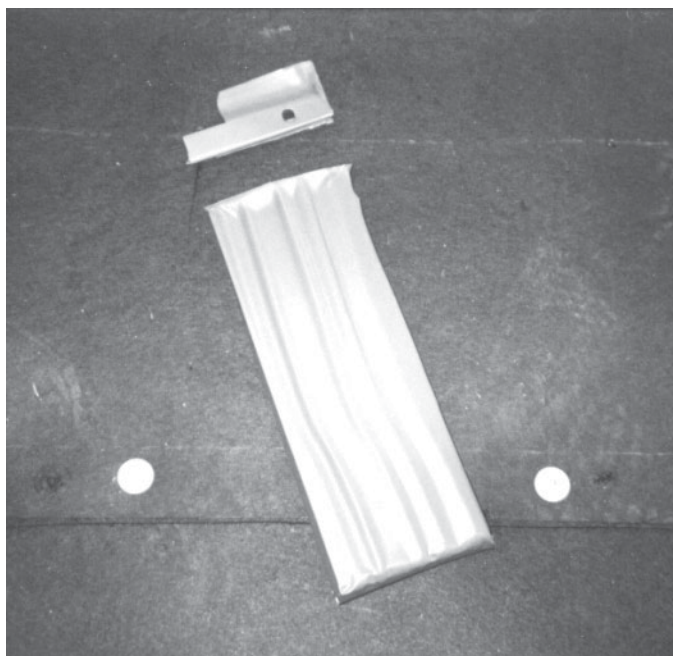
Important: All detail work demands meticulous consideration.



DAMAGED PANEL



REPAIR



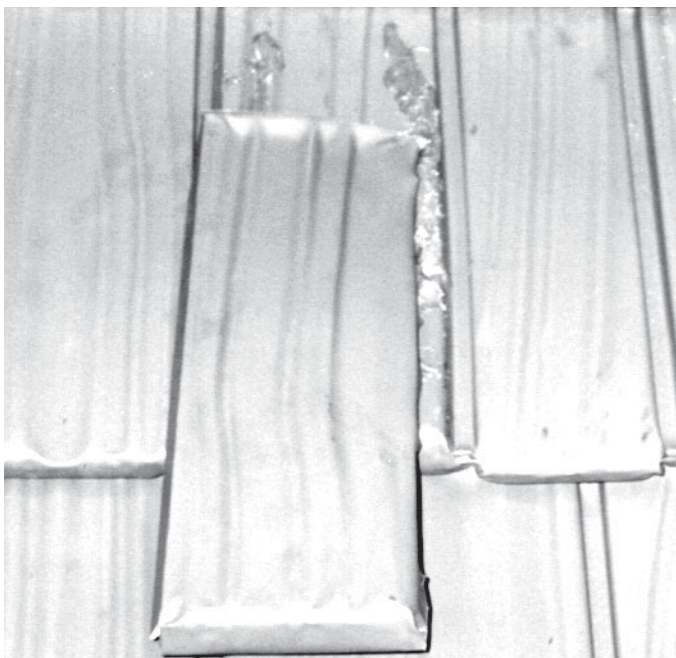
Should a panel become damaged, it can be easily repaired.

Identify the individual damaged piece of panel.

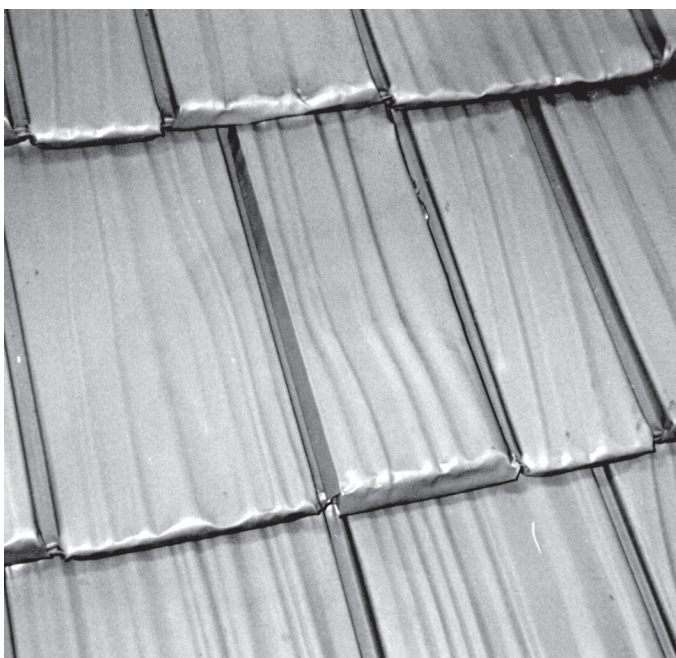
Take a new panel and score and remove the section that corresponds to the damaged portion.



Once the replacement section is removed from the rest of the panel, trim away the top nailing



hem. Eliminate any burrs that remain at the corners of the panel.



Apply a bead of sealant around the entire perimeter of the damaged section.

Slip the replacement section over the top of the damaged piece.

Make sure this panel section nests securely in place to create a permanent seal. Use face

Figure 1

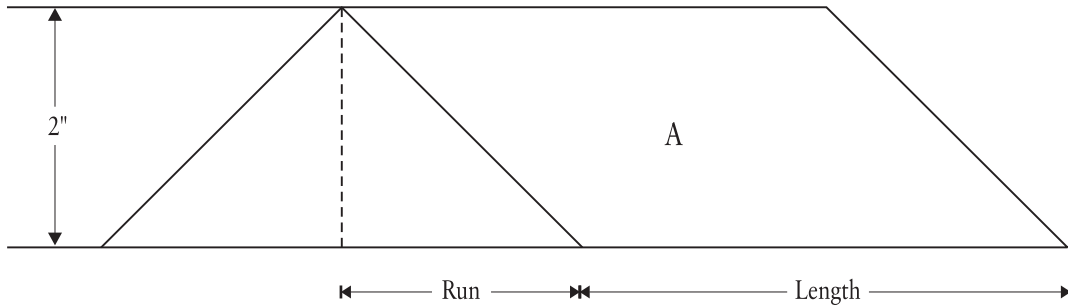
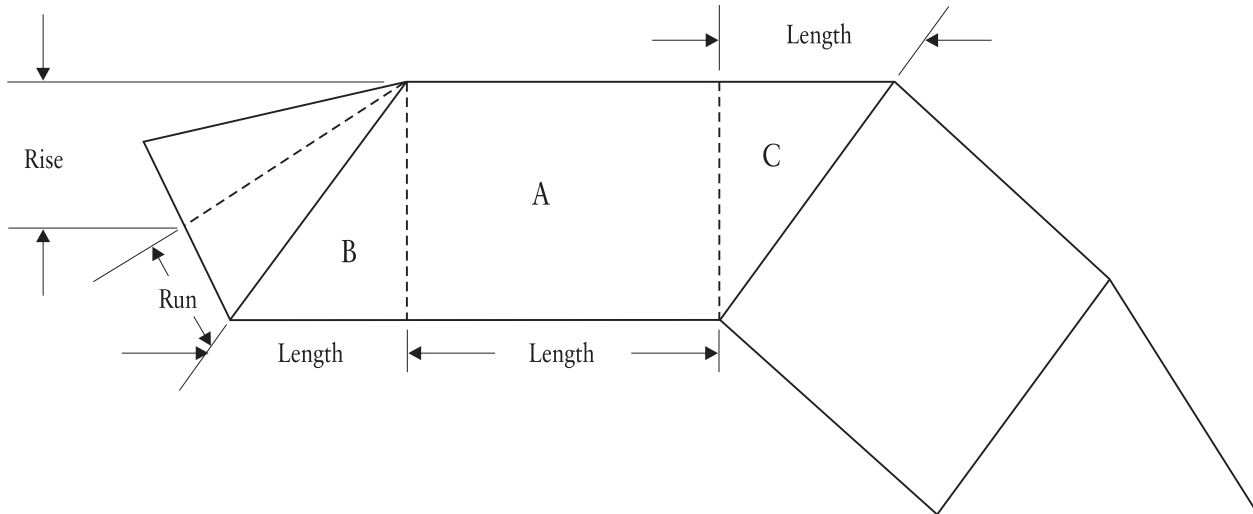
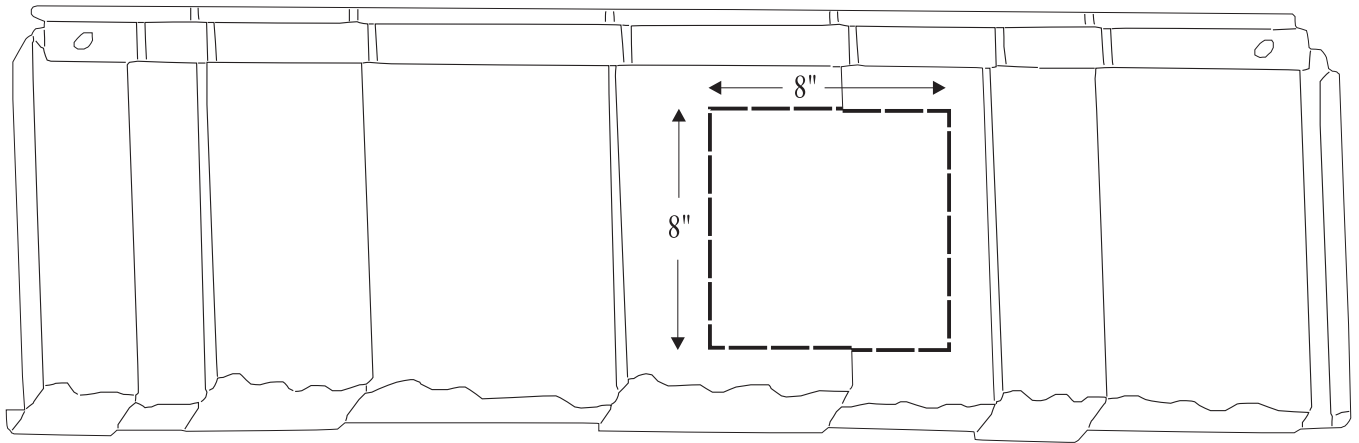


Figure 2



Roof Slope	"A" Straight Section of Roof	"B" Hip Section of Roof	"C" Valley Section of Roof
3:12	$\text{Run} \times \text{Length} \times 1.031$	$\text{Run} \times \text{Length} \times 0.515$	$\text{Run} \times \text{Length} \times 0.515$
4:12	$\text{Run} \times \text{Length} \times 1.054$	$\text{Run} \times \text{Length} \times 0.527$	$\text{Run} \times \text{Length} \times 0.527$
5:12	$\text{Run} \times \text{Length} \times 1.086$	$\text{Run} \times \text{Length} \times 0.543$	$\text{Run} \times \text{Length} \times 0.543$
6:12	$\text{Run} \times \text{Length} \times 1.118$	$\text{Run} \times \text{Length} \times 0.559$	$\text{Run} \times \text{Length} \times 0.559$
7:12	$\text{Run} \times \text{Length} \times 1.160$	$\text{Run} \times \text{Length} \times 0.580$	$\text{Run} \times \text{Length} \times 0.580$
8:12	$\text{Run} \times \text{Length} \times 1.202$	$\text{Run} \times \text{Length} \times 0.601$	$\text{Run} \times \text{Length} \times 0.601$
9:12	$\text{Run} \times \text{Length} \times 1.250$	$\text{Run} \times \text{Length} \times 0.625$	$\text{Run} \times \text{Length} \times 0.625$
10:12	$\text{Run} \times \text{Length} \times 1.302$	$\text{Run} \times \text{Length} \times 0.651$	$\text{Run} \times \text{Length} \times 0.651$
11:12	$\text{Run} \times \text{Length} \times 1.358$	$\text{Run} \times \text{Length} \times 0.679$	$\text{Run} \times \text{Length} \times 0.679$
12:12	$\text{Run} \times \text{Length} \times 1.414$	$\text{Run} \times \text{Length} \times 0.707$	$\text{Run} \times \text{Length} \times 0.707$

fasteners or rivets to hold in place if necessary, sealing all penetrations with VP-275 sealant.



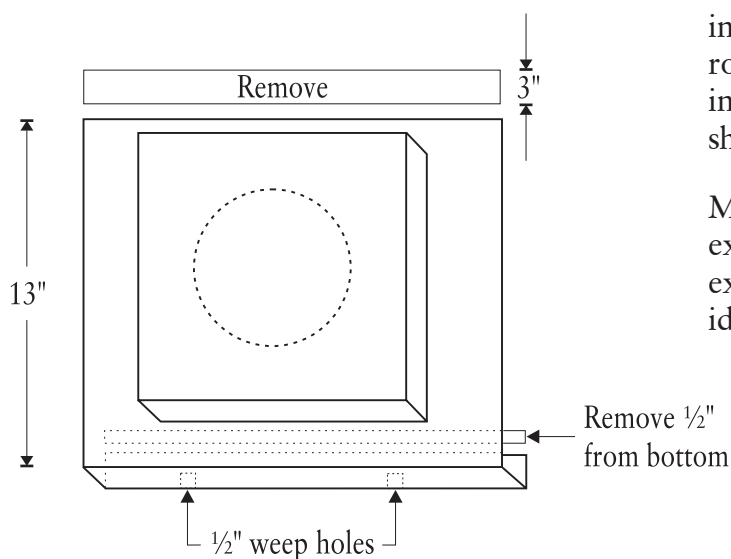
MEASURING A ROOF

INSTALLATION OF GRAVITY VENTS

Gravity vents can be utilized in conjunction with Country Manor Shake. The only recommended

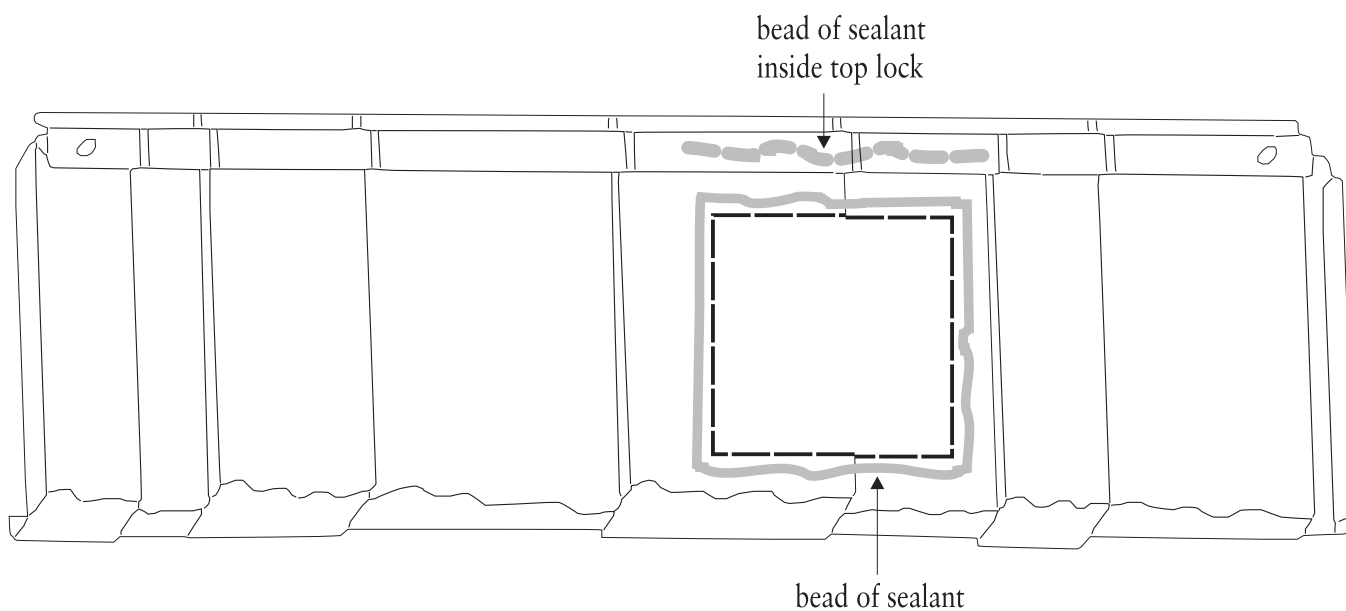
gravity vent is the Lomanco aluminum vent #600.

A vent can be installed in both new construction and roof overs. In either situation, it is important that the vent be installed only over the 5th, 6th, and 7th sections of the Country Manor Shake. In roof-overs, existing vent openings need to be filled with plywood and surface material to compensate for the opening

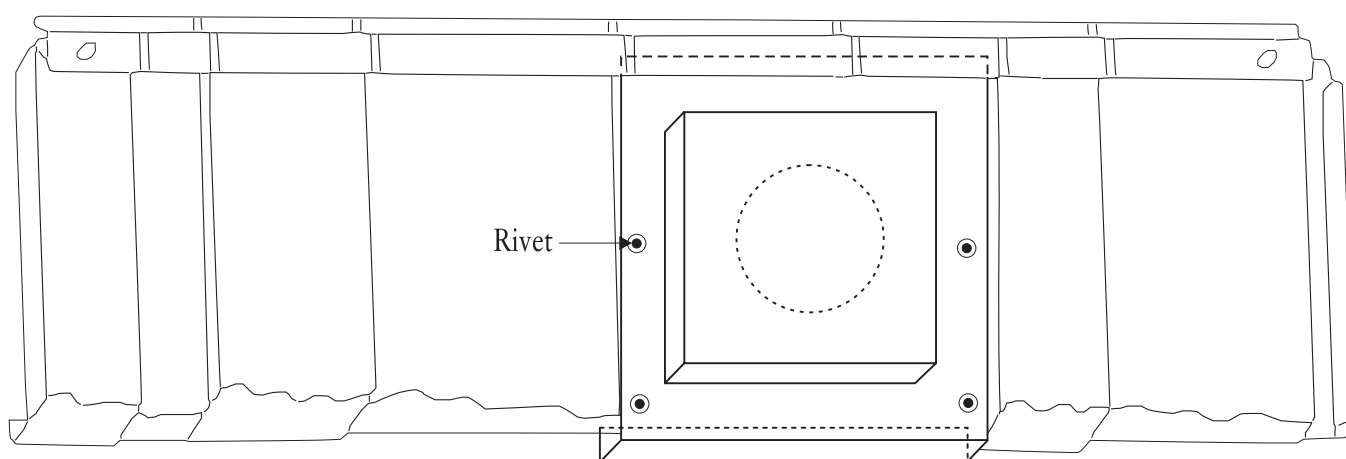


in the existing roof. In both situations, the new roof openings should be cut before the installation of the corresponding course of shakes.

Measure and cut an 8" square opening in the existing roof surface. Make sure not to cut existing roof structural members. Also, cut an identical hole in the 5th and 6th shake sections.



The gravity vent must be modified to fit the Country Manor Shake panels. Position the vent in



accordance with the section marked "TOP." Measure and remove the top 3" and the bottom 1/2" of the base. Measure down and mark from the

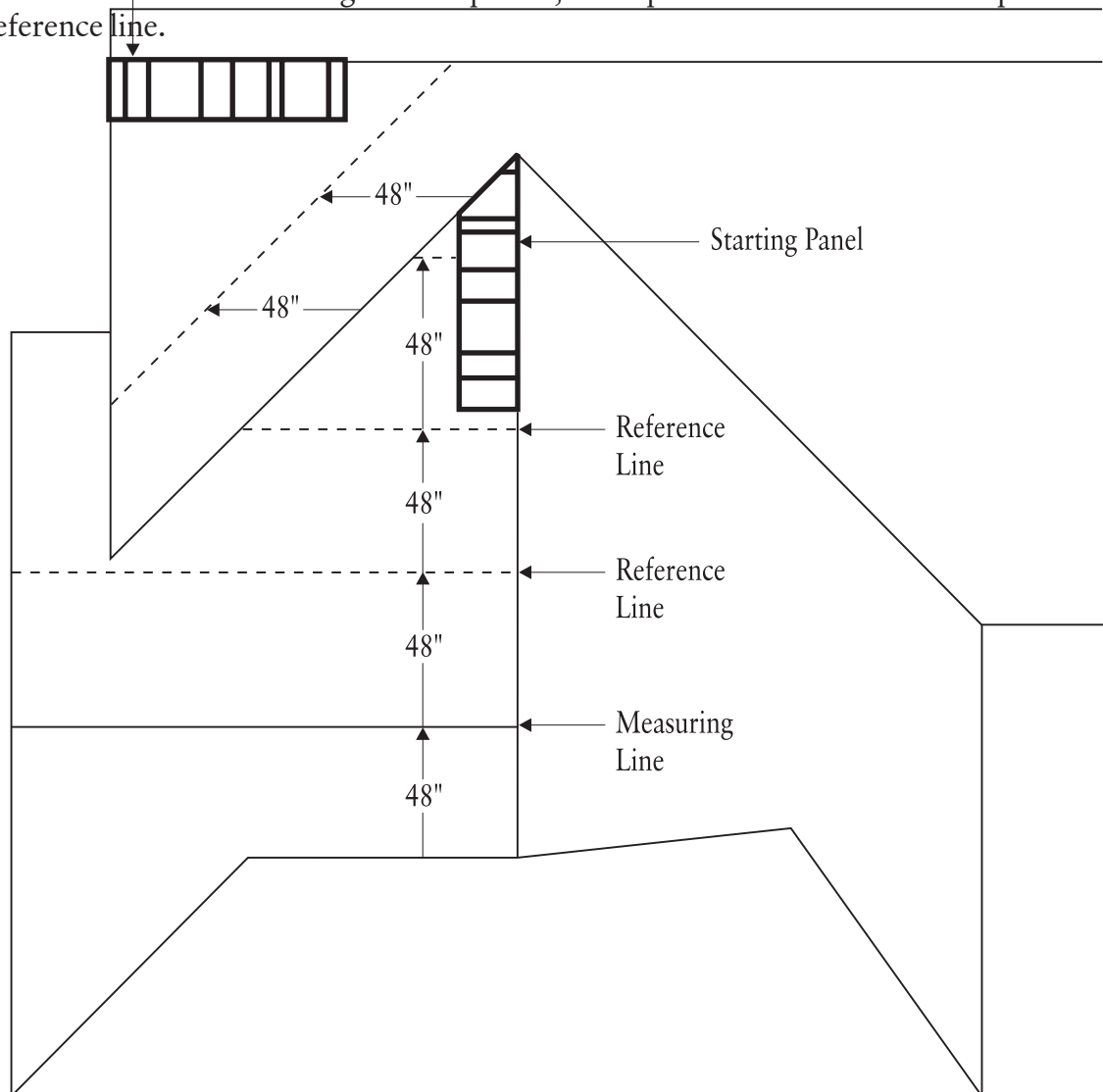
tip of the base 13" and 14 ½". Bend two 90° angles at lines marked so that the vent conforms to configuration of the panel. Cut two ½" wide weep holes in the base as shown.

Apply a liberal bead of sealant around the cut opening and into the top lock of the panel.

The modified vent can now be set into the sealant bead and positioned into the top lock of the panel.

STARTING REFERENCE LINES

To avoid ending with unmanageable sections of panels, transpose lines from such areas and valleys and gables. Since panels install from left to right, transpose reference lines from right to left. To establish the starting point, measure from the ending location back toward the starting area at increments of 48". When installing the first panels, don't position the bottom of the panels within 6" of the reference line.



SPECIAL INSTALLATION ISSUES

Before doing any installation, be sure to check the local code requirements. Some local codes may require special installation procedures to meet fire rating, wind uplift, or a number of other particular requirements. This manual provides basic installation procedures and does not attempt to describe every installation procedure for every local code requirement. Please contact the factory for technical assistance when any of these special installation requirements are encountered.

Installation over stress-skin panels

There are concerns with installing roofing over structural insulated panels or other construction methods which result in a non-vented, insulated space directly beneath the roof decking. Roofs constructed with structural insulated or stress-skin panels are the most common occurrences of a non-vented, insulated space existing beneath the roof system. Stress-skin panels are composite structured panels usually made of expanded polystyrene sandwiched between two pieces of laminated wood sheets. The wood sheets are usually oriented strand board, also known as OSB.

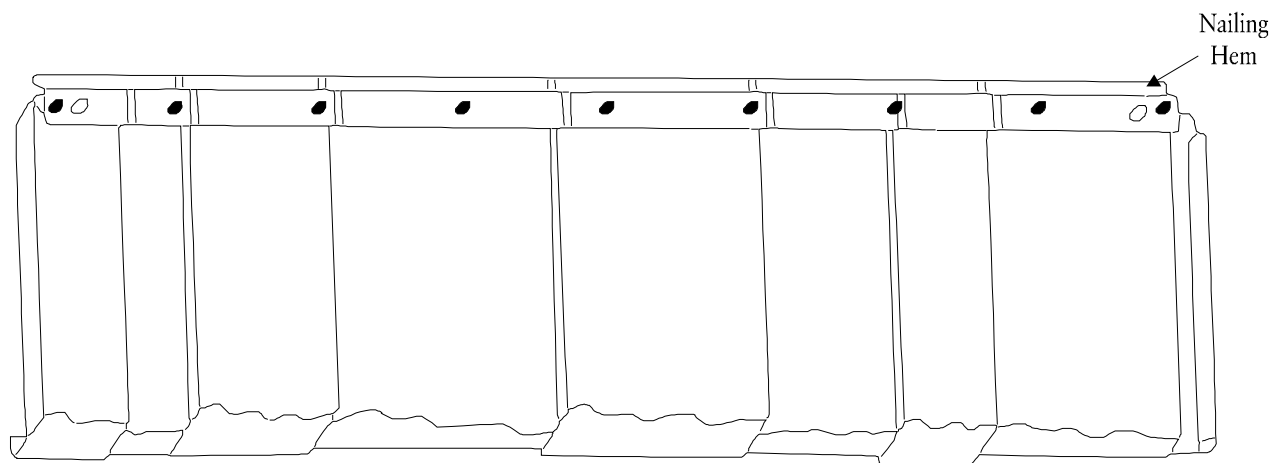
We have found moisture produced in the living space of a home travels up through the bottom layer of the panel into the polystyrene, then up into the top wood layer of the stress-skin panel. The moisture can travel no further because it is blocked by the underlayment used in the roofing system. As a result, the water becomes trapped in the top layer of the stress-skin panel's top wooden layer and causes the panel to rot.

Some stress-skin panel manufacturers have designed their products with air channels or grooves to allow outside air to circulate over the panels and help keep them dry in an attempt to prevent the wood from rotting.

Please call Perfection at 888-788-2427 if you would like more information on installation over stress-skin panels.

SPECIAL NAILING REQUIRED FOR U.L. 580

●=Aluminum Ring-Shank Nails



In order to meet the requirements for U.L. 580, special nailing instructions must be followed. Nail the panel every six inches along the back of the top lock. Do not nail through the portion of the lock where the next panel will nest. It is imperative that the next panel nest correctly into the top lock.

ARCHITECTURAL SPECIFICATIONS

I. MANUFACTURER:

Perfection: The Very Best in Building Products

PO Box 1524

8512 Industry Park Drive

Piqua, Ohio 45356

U.S.A.

Local: (937) 778-5117

Toll-free: (888) 788-2427

Fax: (937) 778-5116

II. SCOPE

Work includes all labor, materials and equipment necessary to complete installation of Country Manor Shake aluminum roofing.

III. PRODUCTION INFO.

A. Product Design — All panels are designed for use in residential and light commercial applications with elevations up to 30 feet (9114 mm). For applications of a different nature, contact Perfection.

Height: 12" (304.8 mm)

Width: 48" (1219 mm)

Wt./Sq.: 46 lb.

Each Country Manor Shake panel is formed into eight individual simulated shakes of varying height, width and butt thickness to duplicate the random overlap appearance and three-dimensional effect of real cedar shakeds. The product's authentic appearance is further enhanced with a deep-rugged-looking grain formed into each of the eight individual shakes.

B. Finish — Country Manor Shake panels and factory formed accessories are formed with a two-coat, high performance Kynar 500 or Hylar 5000 coating, which includes a protective primer and baked-on high-performance topcoat that resists chalking, fading and deterioration.

C. Alloy and Temper — All aluminum panels and accessories are made of 3105-H25 aluminum sheet (minimum tensile strength 26,000 psi; minimum yield strength 22,000 psi) or equivalent.

D. Thickness — All panels have a nominal thickness of 0.019" (.483 mm).

IV. INSTALLATION

A. Fastening — Country Manor Shake panels are applied over minimum ½" plywood decking or equivalent. The system may also be applied over existing composition shingles (single or multi-layered), wood shingles or wood shakes with ¾" maximum butt thickness. In any case, the entire roof must be covered with a minimum of one layer of 30-lb. felt underlayment.

Country Manor Shake panels have a continuous nailing flange to provide for easy application. Panels are installed from left to right with left-hand end cuts as required to stagger the vertical joints between successive courses, enhancing the random appearance. Country Manor Shake panels should be attached with ring or screw shank aluminum nails that have a minimum shank diameter of 0.090" and a minimum head diameter of 0.215". Nails should provide a minimum of ¾" penetration, excluding point, into a solid nailing surface.

Minimum Acceptable Roof Pitch: 4:12 (101.6:304.8 mm) or, in non-snow areas, 3:12 (76.2:304.8 mm).

For weather protection and to imitate a joint between individual shakes, panels are locked together by engaging a formed lip on the left side of panels with a modified U-shaped water stop on the right side of the preceding panel. The concealed vertical lock hides the vertical joint, making it practically impossible to discern the interlock between full panels, no matter what the angle of sight. The top lock provides a continuous hooking lip for engagement with the bottom of each panel of succeeding courses. This type of snap-lock allows the panels to be installed like siding panels.

B. Dissimilar Materials — Aluminum materials should not be installed in contact with dissimilar metals, concrete, stucco, asbestos siding, masonry or other corrosive nonmetallic materials that might be wet continually. To prevent problems with wood, use treatments such as creosote or zinc naphthanate pentachlorophenol (5% concentration).

To prevent chemical reactions from soil contaminants, do not install Country Manor Shake panels fewer than six inches above the soil line. Dissimilar materials should be painted or otherwise protected when they are in contact with aluminum or when drainage from them passes over aluminum. Do not permit water from copper flashing to drain over aluminum products.

V. CODE INFORMATION

Country Manor Shake aluminum roofing is listed with the following evaluation services:

- A. Underwriters Laboratories, Inc. listing as an approved fire-rated roof covering as Class A, B or C when applied using the specified underlayments and decking R5100(N).
- B. International Conference of Building Officials (I.C.B.O.) Report No. ER-5322
- C. Southern Building Code Congress International Report No. 9721
- D. Building Officials Code Administration (B.O.C.A.) Research File No. 96-51.
- E. Miami-Dade County Approved

Additional listings are pending with the following evaluation services:

Canadian Construction Materials Centre (CCMC)

City of Los Angeles