

KasselWood Shingle

Kassel & Irons

Installation Instructions

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KasselWood Shingle **Table of Contents**

Suggested Tools 3

General Installation Instructions 4

Deck and Substructure Preparation 6

Eave Starter Strip 8

Gable Edge Trim 9

Gable Channel 10

Lapping Gable Lineals 11

Panels into Gable Channel 12

Simple Valley 13

Intersecting Valleys 14

Shingles into Valleys 15

Forming Short Shingles/Joining Non-tapered Valleys 17

Sidewall and Gable Trim Intersection 18

Pitch Change Transition 19

Shingle Installation 20

Staggered Starts 21

Roof Jacks/Snow Guards 22

Damaged Panel Repair 23

Hips 24

Corner Hip Caps 25

Hip Lineals 26

Joining Hip Lineals to a Ridge Vent 28

Chimney, Skylight, and Dormer Flashing 29

Crickets 32

Vent Pipes 33

Ridges 34

PermaVent 36

Chalk Line Table 37

Core Values 38

25 You Tube Detailed KW Installation Videos:

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Suggested Tools

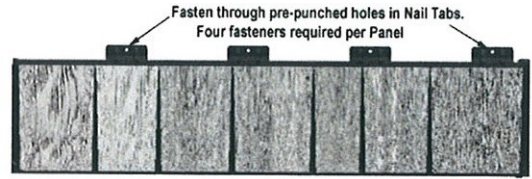
Below are some of the tools pictured that may be necessary or helpful for the installation of a Classic Metal Roofing Systems or Kassel and Irons metal roof.

- | | | |
|--------------------------|--------------------------|---------------------|
| ⇒ Tool bag | ⇒ Caulking gun | ⇒ Circular saw |
| ⇒ Tool belt | ⇒ Protective caps | ⇒ Extension cord |
| ⇒ Soft brush | ⇒ Chalk lines | ⇒ Roof jacks |
| ⇒ Framing square | ⇒ Sliding T bevel | ⇒ Safety glasses |
| ⇒ Appropriate fasteners | ⇒ Utility knife | ⇒ Gloves |
| ⇒ Plastic cap nails | ⇒ Rivet gun and rivets | ⇒ 2' portable brake |
| ⇒ Nailing clips | ⇒ Tape measure | ⇒ 8 or 10' brake |
| ⇒ Hammer with rubber end | ⇒ Tin snips | ⇒ Ladders |
| ⇒ Wonder bar | ⇒ Aviation snips | ⇒ Scaffolding |
| ⇒ Nail puller | ⇒ Cordless drill | ⇒ Fall protection |
| ⇒ Zip tool | ⇒ Drill bits | |
| ⇒ Combination square | ⇒ Assorted hand flangers | |
| ⇒ Screw drivers | ⇒ Assorted markers | |

Always use cardboard or a soft surface when working on painted pieces.
Additional tools will be needed to tear off of an existing roof.

General Installation Instructions

Use only **galvanized or stainless steel ringshank nails or screws**. Fasteners should be long enough to fully penetrate sheathing or at least 1" into solid lumber. KasselWood shingles have 4 integrated tabs for attachment and interlock on all four sides.



When installing lineal pieces other than the Starter Strip, fasten a clip every 12" O.C. on the return flange. Do not penetrate the water return channels of any of the lineals except for one fastener at the upslope end to prevent slippage during and after installation. Do not flatten water return flanges.

Uphill flashings should nest inside or overlap downhill flashings by 3" and be sealed with color-matching or clear sealant (**Fig.2**).

Use only the accessories designed for use with the panel. Do not install accessories of dissimilar metal with this system. To protect against moisture problems and/or decay, insulate the product from contact with existing masonry or dissimilar metal by coating with bituminous paint or mastic, or by separating with roofing underlayment.

Take care not to scratch the panel's surface. Touch up paint should be neatly applied to exposed steel to prevent rust. Do not walk on the panel's bottom or side locks. Work from above the panels whenever possible.

Roof Layout: Before beginning panel application, lay out work to minimize cutting and waste. This can be especially useful in avoiding bending or cutting small, difficult pieces, such as when approaching or leaving a valley or hip. Chalk lines parallel to the ridge to ensure that courses remain straight and meet at the top of protrusions such as dormers (**Figs.3 & 4**).

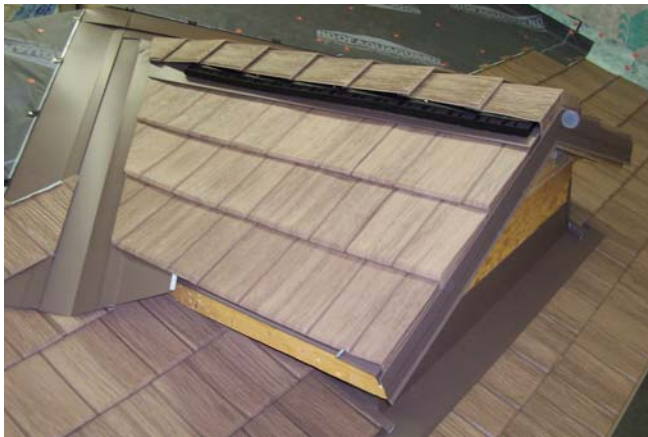


Fig. 1



Fig. 2



Fig. 3

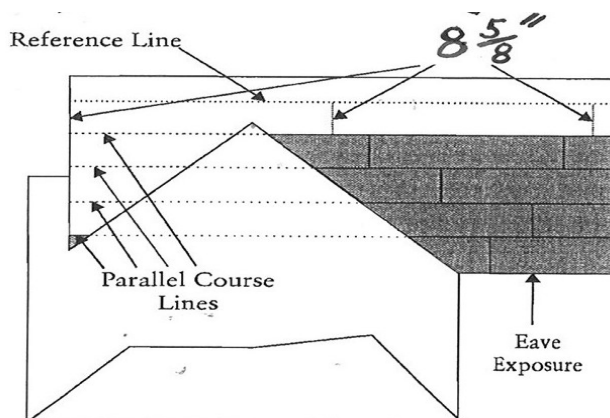


Fig. 4

General Installation cont.

Regular Installation Sequence:

1. Prepare deck and apply underlayment
2. Eave Starter Strip
3. Gable Channel
4. Valley Flashing
5. Sidewall Flashing
6. Shingles
7. Hip
8. Chimney Flashing
9. Vent Pipe Flashing
10. Ridge

Safety Considerations: Caution must be exercised when using ladders. Position the ladder to extend at least 36" above the point of support, with the base 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 flashings, electrical wiring, nails, stabilizing wires, and extension cords. Look for moss growth or dampness that might make the roof slippery.

Power saws, especially on cutbacks, must be handled with extreme caution, and should be used only by experienced installers. Wear shatterproof safety glasses with side protection when using cutting tools. Power saws should not be used to cut steel panels or lineals because the heat generated in cutting will promote the formation of rust. Cut the shingles with snips, a guillotine shear or power shear.

Always be aware of your position on the roof relative to your surroundings. Take note of the locations of roof openings, roof edges, equipment, tie-off ropes, co-workers, and other potential hazards. Check with local building codes and other authorities for further safety requirements.



Fig. 1



Fig. 2



Fig. 3



Fig. 4

Deck and Substructure Preparation

Study the diagram in **Fig.1** to be familiar with standard nomenclature for common roof features. KasselWood shingles require a **minimum pitch of 3:12** for proper installation. Half-inch plywood or 15/32" OSB deck substrate is recommended for best performance. Inspect and replace any damaged decking. Adequate ventilation from eave to ridge is necessary with any type of roofing to facilitate maximum cooling in the summer and prevention of ice damming in cold winter climates.

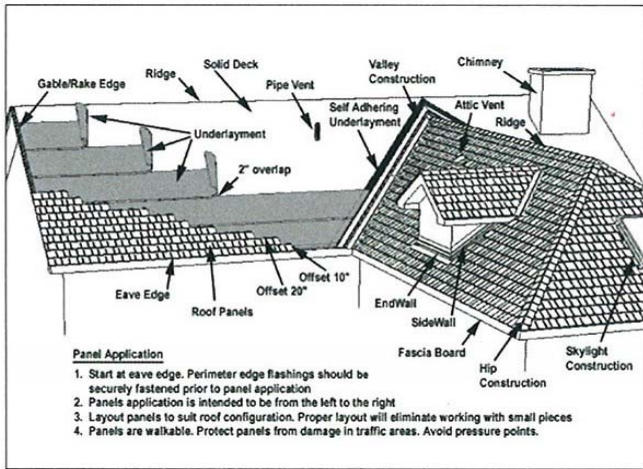


Fig. 1

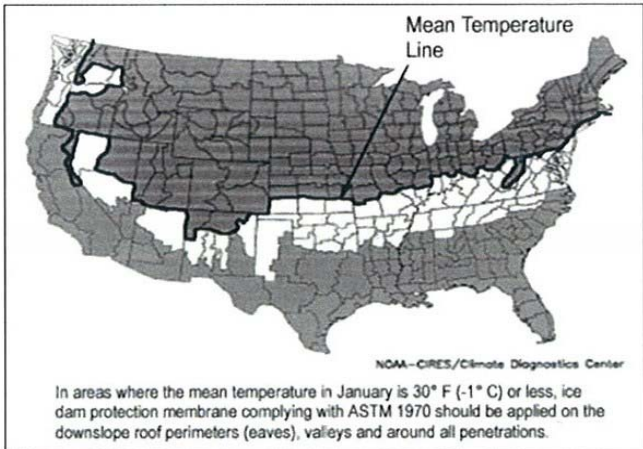


Fig. 2

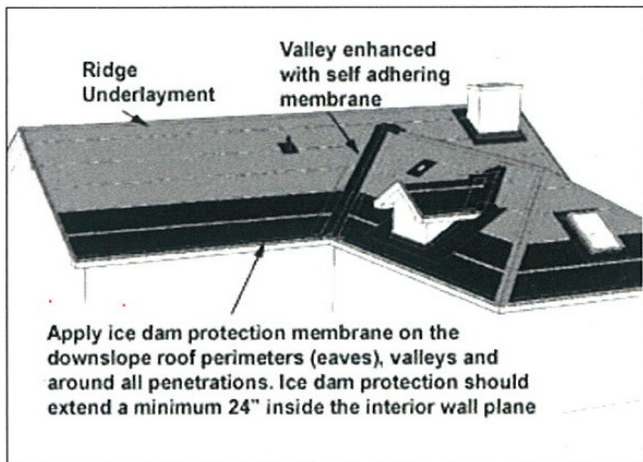


Fig. 3



Fig. 4

Application over an existing asphalt roof is acceptable, if permitted by local building code. All asphalt should be trimmed flush to the eaves and gables prior to application of new edge flashings. Removal of old metal edge flashings is required. Buckled or curled shingles should be flattened to provide a level surface for shingling.

Fig.2 shows areas in the continental U.S. where the average January temperature is less than 30 degrees Fahrenheit. These areas, shaded darkest on the map, require the application of **ice and water shield** on the downslope perimeters (eaves), valleys, and around all penetrations (**Fig.3 & 4**). Be sure to check with local building codes for specific requirements. Read manufacturer's instructions for more application specifics.

Class A Fire Rating: To comply with the Florida building code Class A fire rated roof assembly, apply under the roof panels and over the underlayment, a minimum 1/2" water resistant core gypsum sheathing complying with ASTM C79, 1/4" Georgia-Pacific Dens-Deck™, Elk's VersaShield®, or other code-specified underlayment.

Underlayment: A minimum of one layer of synthetic Roof Aqua Guard UDLX (or equivalent) or one layer of ASTM 30-pound asphalt-saturated felt is required over all roof decking not covered by ice and water shield. Secure the underlayment with 1" plastic-top nails 12" O.C. vertically and 16" O.C. horizontally. End laps must be a minimum of 6" and side laps 4". Be sure to lap each top courses of underlayment over the course below. **All perimeter edges of the roof should be overlapped by 1" onto the fascia.** Gutters should be installed **behind** the overhanging underlayment and Starter Strip.

Deck Preparation cont.

Apply ice and water shield the full lengths of valleys, overlapping where valleys meet. Relief cuts should be covered with a patch (**Fig.1**). At a valley location, run the synthetic underlayment completely across so that the courses of underlayment are woven together and lap at least 8" across the center of the valley. Install this underlayment loosely in the valley to allow for a small amount of controlled shrinkage.

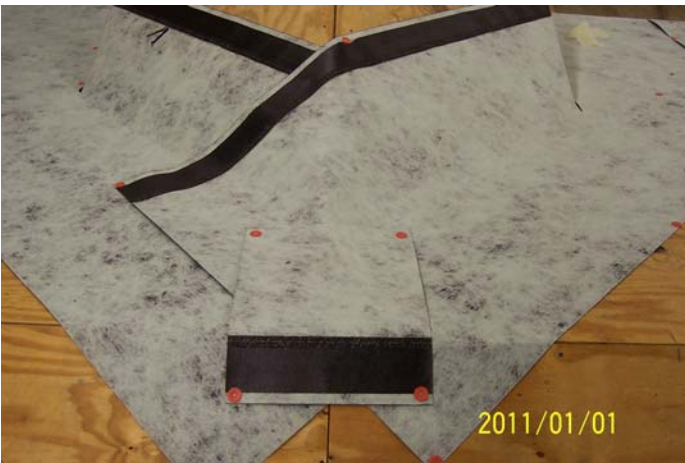


Fig. 1



Fig. 2

Corners that require a relief cut should be patched and/or sealed (**Fig.2 & inset**).



Fig. 3

Fig. 3 shows a chimney with ice and water shield properly wrapped around the sides of the chimney from above.



Fig. 4

Run underlayment up the sides of all protrusions and seal appropriately (**Fig.4**).

On walls, underlayment should extend 4" up the side. Lap underlayment over all ridges and cut appropriate openings for all vents when ready to cover each opening (**Fig.5**).



Fig. 5

Eave Starter Strip

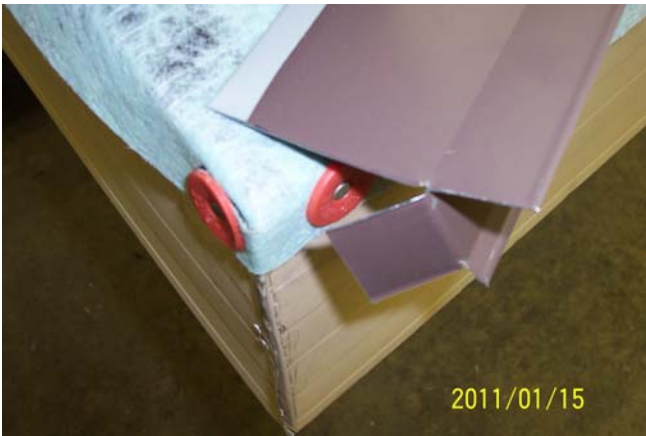


Fig. 1

When installing Starter Strip (5102) at the eaves, fold down and/or fasten 1" of overhanging underlayment, keeping it under the Eave Starter Strip. Form a 1" tab to wrap around the corner of eave/gable intersections (**Fig.1**).

Chalk a line to ensure that the Strip remains straight and parallel to the ridge. Secure Eave Starter Strip by nailing it to the deck every 12" on centers.

Nail into rafters when the underside of the deck is exposed to view; otherwise nails may penetrate deck and be seen from below.



Fig. 2

When joining overlapping pieces of Starter Strip, notch back 1" of the drip hem (**Fig.2 bottom arrow**). Also taper 1" of the leading edge (**middle arrow**) and bend back the water stop top hem to allow the pieces to nest together (**top arrow**).



Fig.3

Butt pieces together and nail through the overlap (**Fig.3**). Make sure that the Starter Strip remains straight and snug against the fascia but do **not** face nail.

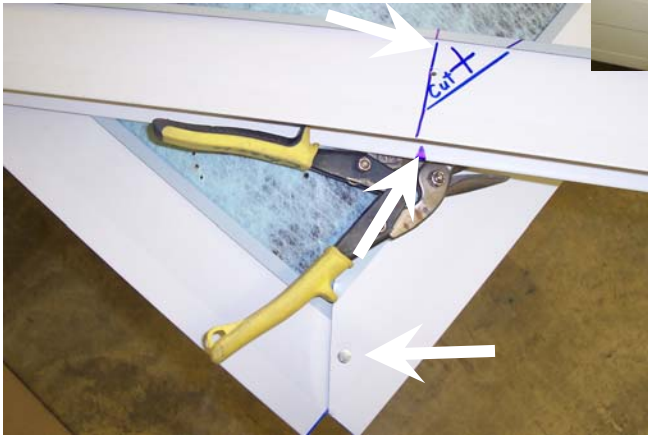


Fig. 4

At a hip line, mark the point 1" back from the leading edge of the Starter Strip where it will bend around the fascia. Notch the kick out on the drip hem (**Fig.4 middle arrow**) and cut a triangular piece out of the top of the Starter Strip (**top arrow**). Nail through the overlap (**bottom arrow**).



Fig. 5

At inside corners, notch a 90 degree triangle out of the leading edge of the Starter Strip and a lesser angle out of the drip hem. Make a straight cut along the valley line of the nailing flange (**Fig.5 arrows**).

Gable Edge Trim

There are **two options** for gable treatments in the KasselWood system. The **Gable Edge Trim** (5117), shown in **Fig. 1**, offers a clean look and fast, easy shingle installation. The **Gable Channel** (5127) option, seen on **page 10**, securely anchors the edges of the shingles, avoids the entrapment of debris and highlights the tapered profile of the shingle.

Gable Edge Trim: Position the Gable Edge Trim so that it extends 1/2" beyond the Starter Strip (**Fig. 1 arrows**). This will be necessary for proper water drainage through the butt of the shingle.

Fig. 2 shows the appropriate cut lines to be made at the peak of the first piece of Gable Edge Trim. Let the piece run 1/2" past the centerline on its side face to lap under the second piece of trim (**bottom arrow**). Also make a tapered tab on the upper face to insert into the upper face of the second trim piece (**top arrow**). Bend this tab down at the peak corresponding to the roof pitch.

Allow the water return channel to run 2" past the ridge. Make a relief cut in the hem of the water return channel at the peak and fold the channel over the ridge. Secure the Gable Edge Trim to the deck and tight against the fascia of the gable with one nail through the channel close to the ridge (**Fig. 3 top arrow**). Put a dab of sealant over the nail head.

Plumb cut the second piece of Gable Edge Trim but leave a 2" tab to lap over the ridge. Bring the two pieces together at the ridge while inserting the tab from the first into the top face of the second. (Open this face up a little to receive the tab.)

Trim the second lineal to extend over the Starter Strip by 1/2" and then nail its tab to the deck at the peak nested inside of the hem of the first lineal. Seal the nail head. Attach both lineals with nailing clips every 12" on the hem of the water return channel.

Fig. 4 shows the intersection of a Gable Edge Trim with a piece of Starter Strip. Notice that the upper face of the gable trim needs to be notched back far enough to allow shingles to continue to be installed to the right (**arrow**). (This technique will be subsequently discussed on p. 13)



Fig. 1



Fig. 2



Fig. 3



Fig. 4

Gable Channel

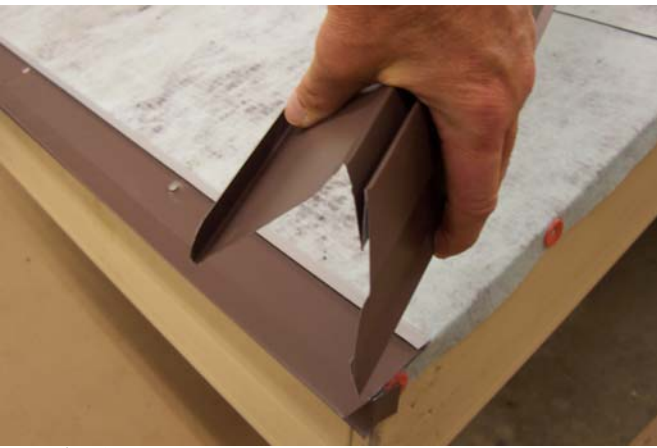


Fig. 1

Install Gable Channel up the length of the gable. Attach with nail clips every 12" on center. Uphill pieces should always nest inside and on top of downhill pieces. The overlap should be at least 2". Open up and wrap bottom hem of the top piece over the bottom piece. for a finished appearance.

Over-bending the length of the Gable Channel before installation can help the lineal to hug the gable fascia better (**Fig.1**). **Note: The Gable Channel is the lineal that must be used for a "flying" gable.**



Fig. 2

Position the Gable Channel so that a plumb cut can be made on the gable face of the lineal while leaving a 1/2" extension of the water return channel past the Starter Strip (**Fig.2 lower arrow**). A sliding T bevel (**upper arrow**) can be useful in setting and duplicating the appropriate angle for a plumb cut .

With the lower end of the Gable Channel extending 1/2" past the Starter Strip, mark a plumb line on the face of the lineal at the peak (**Fig.3 right arrow**). Cut the lineal, leaving 1/2" of material past the plumb line on the face and 2" past the ridge.

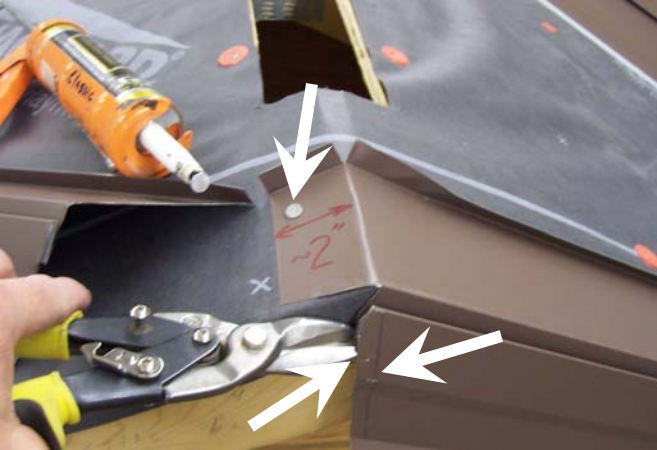


Fig. 3

Make a relief cut in the water return hem at the peak and fold the 2" tab over the ridge. Secure the lineal with one nail through the tab and seal the nail head with sealant (**top arrow**).

A cut must be made in the bottom of the receiving channel in order to nest the second lineal in from the opposite side (**left bottom arrow**).

Cut the profile as seen in **Fig.2** at the Starter Strip end of the second Gable Channel , leaving 1/2" of the water return channel extending beyond the Starter Strip. Make a plumb cut at the ridge in the face of the lineal (**Fig.4 top arrow**) and allow 2" of material on top to lap over the ridge. Nest the two channels and drip hems together (**bottom arrow**) and nail the folded-over tab to the deck near the ridge. Seal the nail head.



Fig. 4

Secure both lineals to the deck with nail clips every 12" O.C.

Lapping Gable Lineals



Fig. 1



Fig. 2



Fig. 3

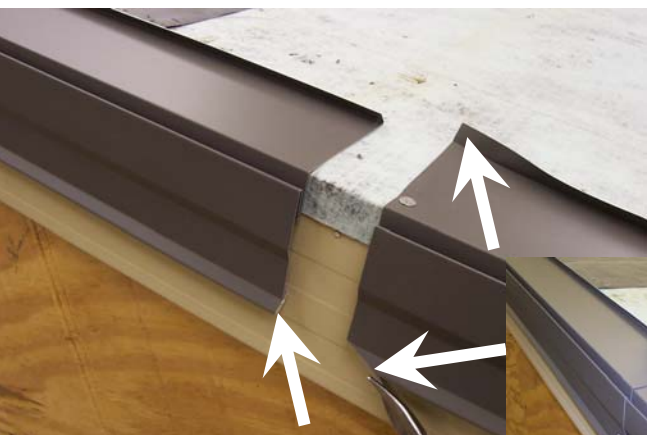


Fig. 4

On gable runs longer than the lineal, two or more lineals will need to be joined. Water return channels need to be lapped a minimum of 1-1/2" with the **upper** water return channel always **on top of** the lower channel.

The gable face and drip leg portions can be lapped either direction. **Figs. 1 and 2** show the procedure for lapping the upper gable face over the lower which will match the lapping inside the lineals.

Nail the lower lineal to the roof deck 1" from its uphill edge. Open up the outer hem of the lower channel's water return hem to be wrapped around the upper lineal's hem (**Fig.1 right arrow**). Taper cut both sides of the upper and side surfaces of the bottom lineal 1-1/2" back to form tabs which will be inserted into the upper lineal. Cut the top tab back about 1/2" so that both tabs will not need to be inserted at the same time.

Open the top leg of the top lineal with a screwdriver or utility knife (**middle arrow**). Also open the bottom hem of the same lineal to facilitate nesting (**left arrow**). Apply a bead of sealant 1" from the top of the bottom lineal and join the two lineals together with an overlap of at least 1-1/2" (**Fig.2**). Secure with nailing clips every 12" O.C.

An alternate lapping method is shown in **Fig.3** in which the cuts are made on the **upper** lineal instead of the lower, which allows the bottom lineal gable face to lap **on top** of the lower lineal while still having the proper lapping (**upper over lower**) on the inside. This will provide for a more seamless look from the ground. The homeowner should be consulted about using this method as it may be wrongly assumed that the inside of the lineals are lapped in the wrong direction.

Lapping 5027 Gable Channels (**Fig.4**) simply involves opening the nailing hem of the bottom lineal (**top arrow**) and making a taper cut on the bottom hem (**bottom arrow**) back 1-1/2". Open the bottom hem of the top lineal (**left arrow**) to allow the taper cut to nest inside of it.

Apply a bead of sealant 1" from the top of the lower lineal and nest the upper lineal on top. A trim nail can facilitate a tight fit to the gable (**inset**).

Panels into Gable Channel

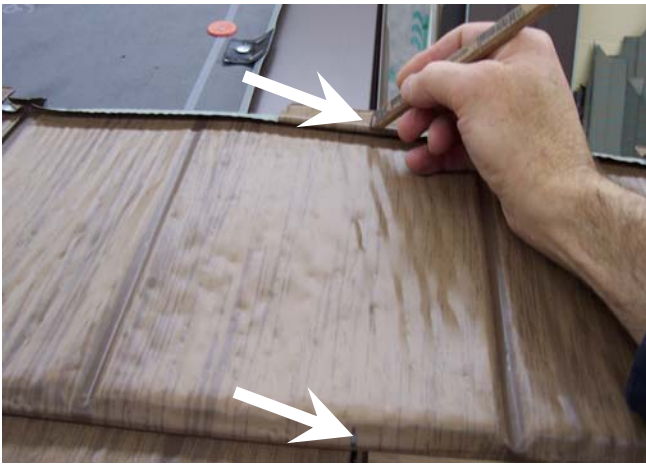


Fig. 1



Fig. 2



Fig. 3

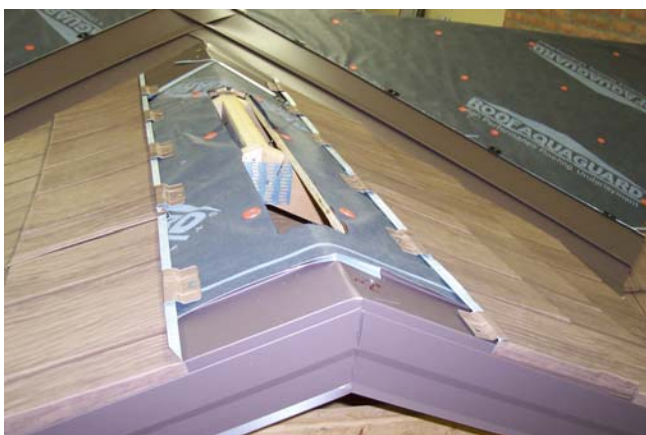


Fig. 34

When installing KasselWood shingles into the 5127 Gable Channel, mark the shingle at the butt and at the top lock where the shingle crosses over the Gable Channel (**Fig.1 arrows & Illus.1**). This will be the bend line.

Also mark the shingle 1 3/4" past the channel at the butt and 1 1/4" at the top lock. This will be the cut line (**Fig.2**).

Cut the bottom and top locks and bend them open as seen in **Fig.2 and Illus.2**. Cut off these tabs leaving 1/8" of material past the bottom and top locks of the shingle. Cut the shingle along the taper line seen in Fig.32.

With a brake or wide hand flangers, bend the shingle down 90 degrees to form a side lock. (**Illus.3**). Engage the side lock into the groove of the Gable Channel as the shingle is locked into place (**Illus.4**).

The hem on the water return channel may be depressed slightly to enable the shingle to sit flat but do **not** flatten completely (**Fig.3**).

A 1/4" high drain will need to be cut in the first course shingle only for the water return channel to protrude 1/2" past the Starter Strip (**see p. 9**).

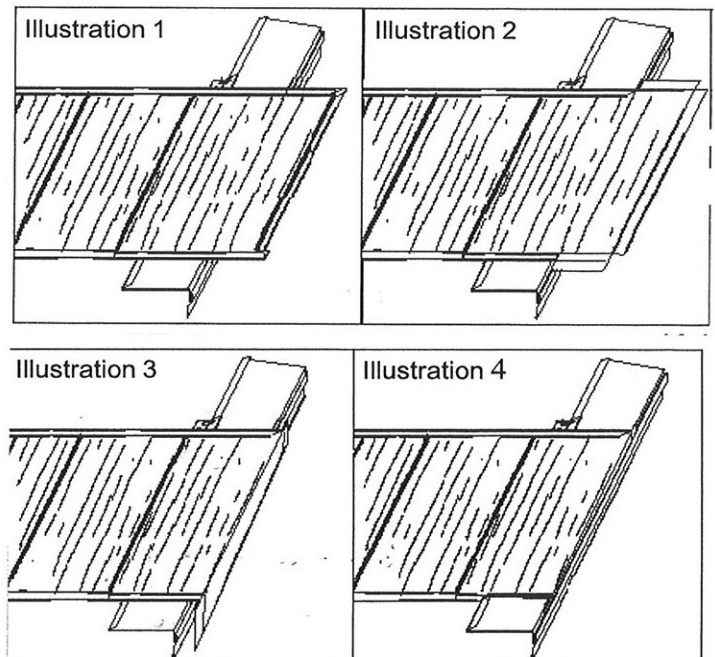




Fig. 1

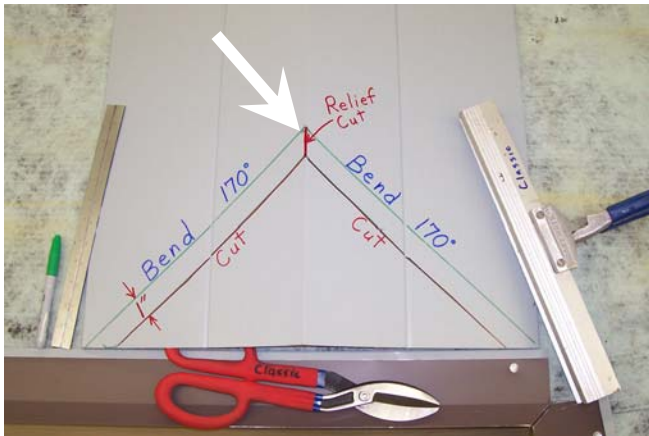


Fig. 2



Fig. 3



Fig. 4

Simple Valley

KasselWood Valleys (5125) have a subtle taper to facilitate nesting pieces on long valleys. Make sure that the wide end is upslope so that the upper Valley piece can nest inside the lower piece.

After snapping a chalk line down the center of the Valley Underlayment, align the center of the Valley with this chalk line. The corners on both sides of the Valley should be even with the edge of the Starter.

Mark the underside of the Valley the full length where it runs along the Starter Strip (**Fig.1 arrows**).

Carefully turn the Valley over and cut the Valley along a parallel line, 1" further toward the end. Make a relief cut from the cut line to the bend line (**Fig.2 arrow**).

Using hand flangers, bend the locking tabs back about 170 degrees (**Fig.3**). These tabs will lock under the Starter Strip.

Turn the Valley back over, center it on the chalk line, and push it up, fully engaging it on to the Starter Strip. Secure it to the deck with nail clips spaced every 12" O.C. (**Fig.4**).

Two nails can be driven through the **top outside edges only** of the water return channel right next to the upturned, outside hem to prevent slippage. Seal these nail heads. If the Valley piece extends to the ridge, cut it 2" past the ridge and drive two nails through this fold-over and seal.

If more than one Valley length is required, the uphill section must overlap the lower section by at least 3" with sealant applied in between.

Intersecting Valleys

When two Valleys intersect as at the top of a dormer, care must be exercised to make sure the two Valley pieces are “woven” together properly and sealed.

When finished, each KasselWood Valley piece should be positioned so that the water return channels extend past the drip edge of the eave and over the course of shingles perpendicular to the dormer. The butts of the shingles over the water return channels must be cut to allow these channels to drain (**Fig.1 arrows**).

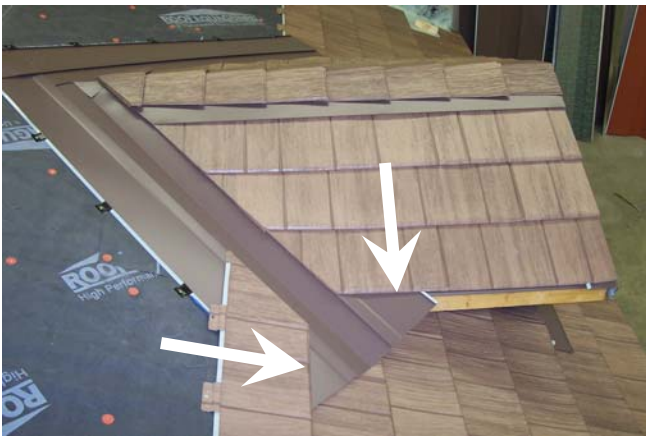


Fig. 1

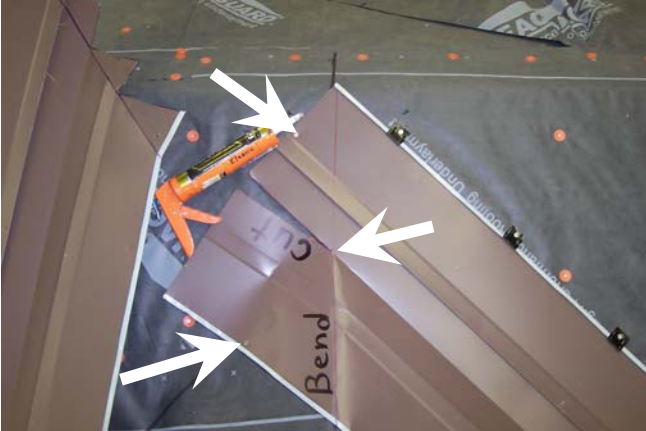


Fig. 2

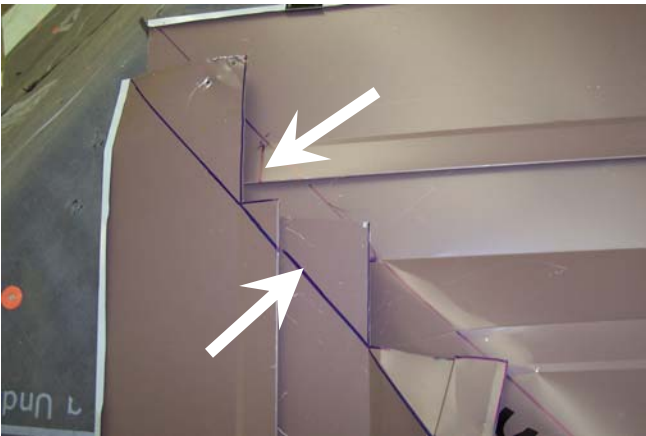


Fig. 3

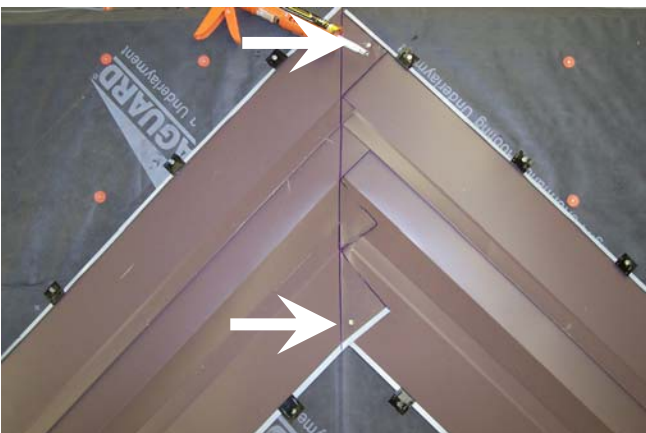


Fig. 4

Determine the point where the center of the first valley piece crosses the ridge line (**middle arrow, Fig.2**) and make a relief cut to that point. (**Note:** To make the seam between the two valleys less visible, install the first valley on the dormer side away from view most often.) Bend one side of the valley over the ridge. Fasten valley with two nails (outer arrows) and seal. Install nail clips 12” O.C. on both sides of the valley

Position the second valley piece at the eave as seen in **Fig.3** and mark a line diagonally across the piece extending from the ridge of the dormer (**lower arrow**). Using a framing square or similar tool, mark and cut a stair step pattern in the second valley piece as seen in **Figs.3 &4** to allow triangular tabs to extend across the ridge line.

Make a cut in the hem of the first valley at the top of valley center (**Fig 3, top arrow**) to allow the second valley to slid all the way into the first valley.

Using hand flangers, slightly over-bend the two tabs that will lap over the ridge. Center the Valley and secure with two nails at the outer edges of the water return channels and seal (**Fig.4 arrows**)

Trim the second Valley if necessary to nest inside of the first as it laps over the extended ridge line. Apply sealant **under** the overlap area before installing.

Slightly over-bend the tabs that lap over the ridge and secure the piece with two nails near the outer hems (**Fig.4 arrows**). Seal both the nails as well as all cut edges and overlaps with sealant.

Shingles into Valleys

When installing shingles into Valleys, snap chalk lines across the roof section every two or three courses to ensure that courses remain parallel to the ridge.

An edge taper should be bent into the valley side of the shingle tapering from 1/2" at the butt to 1/8" at the top (**Fig.1 right arrows**). A drain slot will need to be cut corresponding to the width of the valley water return channel (**left arrows**).



Fig. 1

Securely lock the panel in place and mark where it crosses the receiving hem in the Valley (**Fig.2 arrows**). Remove the panel and rough cut it about 1-1/2" past these marks.

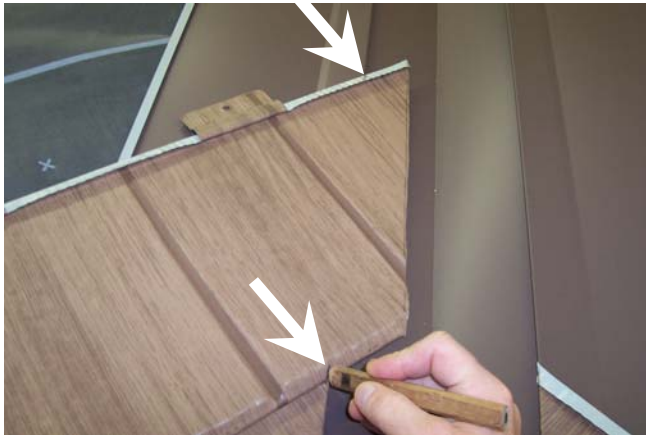


Fig. 2

Cut and fold open the top and bottom locks at the marks just made (**Fig.3**). Make a fold line connecting the marks (**dashed blue line nearest to the body of the shingle**). Cut the locks perpendicular to the **inner** fold line leaving about 1/8" extra material (**Fig.3 outer arrows**).

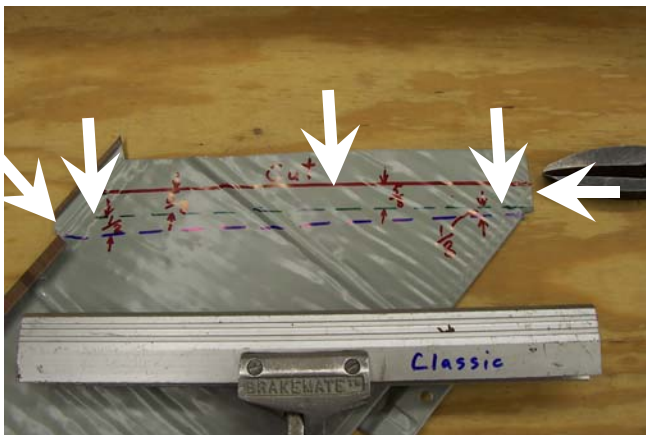


Fig. 3

Make another fold line that is 1/2" out from the butt (or 5/8" for a more pronounced effect) and 1/8" out at the top of the shingle representing the shingle taper (**outer dashed blue line, inner arrows**).

Draw a third line another 5/8" out from the taper line. This will be the cut line for the side lock that will fit back into the Valley Receiving channel (**center arrow on red line**).

With a portable brake, bend the shingle 90 degrees on the **outer** fold line. Straighten the shingle back out and repeat the same fold a couple times to produce a "memory" in the steel that will allow hand bending this fold after the other fold is bent.

With the shingle nearly straight, bend the shingle 90 degrees on the **inner** fold line (**Fig.4 and inset**). Remove the shingle and hand curl the side lock 180 degrees under. Remove the shingle and fit it into the Valley Receiving channel as seen in **Fig.1**.



Fig. 4



Ridge Brake Table

Using a hand brake is necessary to form crisp edge tapers for aesthetically pleasing valleys. It is very desirable to be able to form these bends up on the roof instead of marking the shingles over the valley hem and then having to bend them on the ground. A simple solution is to mount a small 2' brake at the ridge of the roof near the valley.

Isaiah Industries offers a 2' **Van Mark® Brake** that has a base that measures 16-3/4" x 24". The following table is designed to securely hold this brake.

Figure 1 shows the legs and table top and their dimensions. The legs are 24" along the longest edge and are mitered at 45 degrees. The table top should be made out of plywood or OSB at least 1/2" thick and cut to 17" x 24". An additional cross brace seen in **Fig.3** needs to be cut from a 2x4 and should fit snugly between the outer legs and thus be about 21" long.

Mark all four legs 12" from one end, which corresponds to the center point where two legs will intersect. Lap the legs at a 90 degree angle using a framing square as shown in **Fig.2** and fasten together with three 3" **exterior screws**. Lap the second pair in the opposite order so that both outer legs will be on the same side of the table (**Fig.5 top arrows**).

Center and screw the 17 x 24 table top into the top of the mitered legs as seen in **Fig.3 (top arrows)**. Friction fit a cross brace between the outer legs and fasten with screws through all four legs as indicated by the **bottom arrows**. Center and drill a 3/16" pilot hole at a steep angle near the bottom point of each of the four legs to receive four anchor screws as seen in **Fig.5 (bottom arrows)**. Drill four 3/16 screw holes in the aluminum tubes on the brake that will receive mounting screws as seen in **Fig.4 (arrows)**.

Once the table is leveled and secured with screws over the ridge line, center the 2' brake on the table as seen in **Fig.4** and fasten to the table with four 3" screws.

It may be desirable to make this table out of treated or painted wood for long-lasting weather resistance.

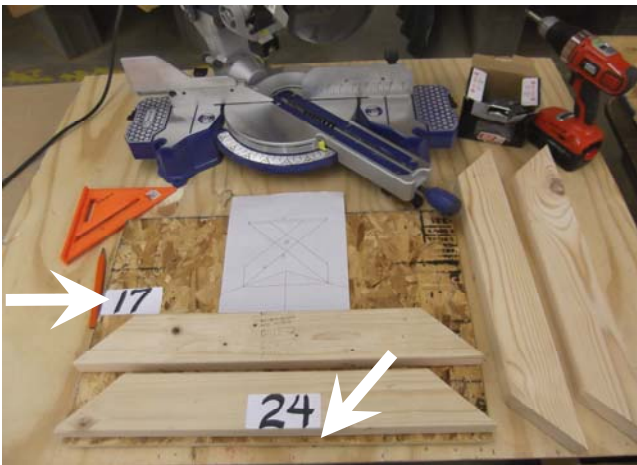


Fig. 1

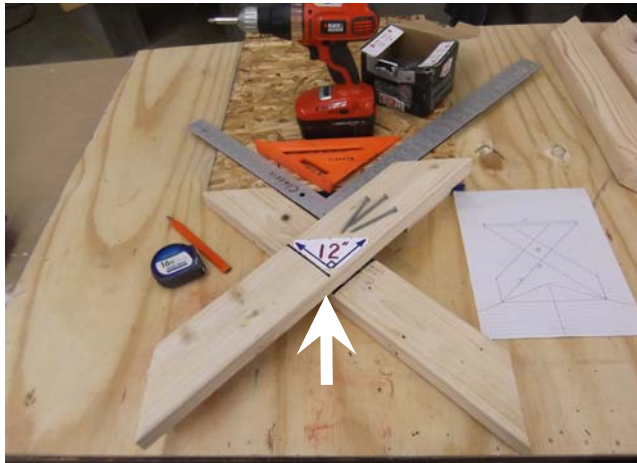


Fig. 2

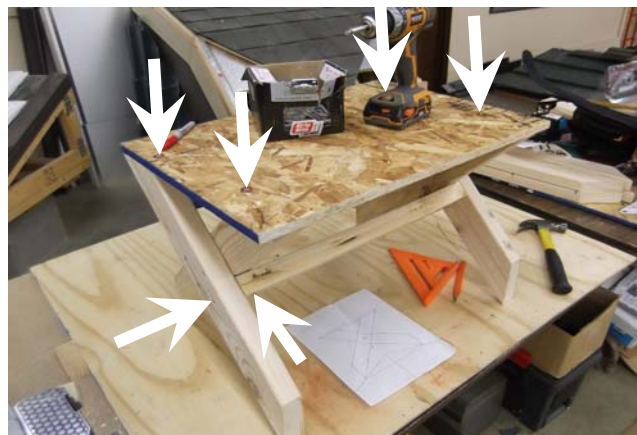


Fig. 3



Fig. 4



Forming Short Shingles

When approaching a valley or hip it may be desirable to insert a short panel before the panel that will cross the valley hem or hip line. This will allow the diagonal cut and fold to be made on a single panel, instead of crossing the side locks between two panels.

This procedure will also be helpful for utilizing scrap shingles that have the left side lock already cut off.

To form a new left lock on the panel, cut the panel 1/2" to the left of the appropriate rain groove (**Fig.1 middle arrow**). Snip the upper and lower locks in line with the rain groove (**outer arrows**). Use hand flangers to flatten the 1/2" lip so that it inserts easily into the receiving lock.

Leaving the rain groove next to the lock will encourage water to drain downward and not sideways into the lock. **Figure 2** shows the new side lock being inserted into a panel to the left.

Joining Non-tapered Valleys

If the valley pieces being installed are not tapered to nest together, it will be necessary to make four taper cuts to accomplish this nesting.

Flip what will be the **upper** valley piece and taper cut the last 2" of the "Z" fold (**Fig.3 top right arrow**).

Taper cut the last 2" of the "Z" fold on the top side of what will be the **bottom** valley piece (**Fig.3 bottom left arrow**).

Run a bead of sealant 1" from the top end of the lower valley piece. Open the outer hems of the lower valley pan and nest the upper valley piece **over** the lower piece to overlap by 2" minimum.

Wrap the hems of the lower valley piece around the upper valley (**Fig.4 arrows**). Secure both valley pieces with nail clips on both sides every 12" O.C.



Fig. 1



Fig. 2



Fig. 3

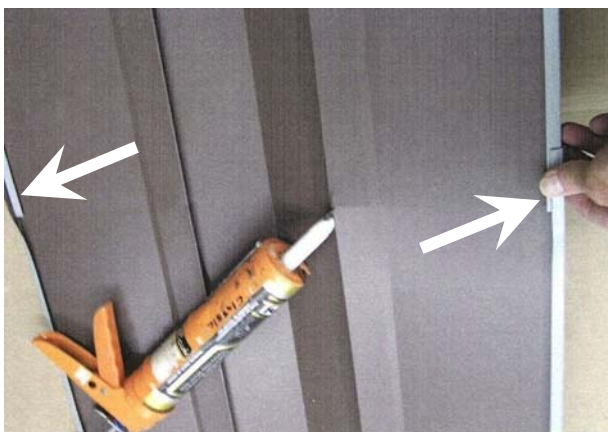


Fig. 4

Sidewall and Gable Trim Intersection

A Sidewall and Gable will intersect when a shed dormer without an overhang meets the main roof of a house. Care must be given to not allowing water infiltration at this intersection.

Position the Sidewall to trace the necessary bend and tabs (**Fig.1**). Make sure the sidewall water return channel extends 1/2" past the Starter Strip. Leave a tab to wrap under the exposed, unpainted part of the "F" channel (**arrow**).



Fig. 1

Install the Sidewall Channel as seen in **Fig.2**. Extend the bottom of the channel 1/2" below the starter strip and nail to the deck 1" from the top of the lineal. Nail clips need to be fastened every 12" O.C.



Fig. 2

The top of the shingle receiving channel needs to be terminated 1/2" before the point where the top lock of the course of shingles coming in from the left in **Fig.2** will meet (**left arrow**). This will allow panels to be installed across the top of the channel. Measure up from the Starter Strip in increments of 8-5/8" to find this point or temporarily stack panels up to this point (**see p.20, Fig.1**).

Position the Gable Edge Trim so that the water return channel extends 1/2" beyond the Starter Strip. The drip leg of the Gable Edge Trim coming into the intersection will need to be tapered and bent out (**Fig.2 right arrow**) to rest upon the top of the shingle receiving channel of the Sidewall Flashing. Do **not** cut this bend-out off so that water infiltration between the pieces will be prevented.



Fig. 3

The end and side of the drip hem near the end should be bent to wrap out around the top of the Sidewall Flashing (**Fig.3 arrows**).

Position the Gable Edge Trim over the Sidewall Flashing, hook into place, and secure with one nail at the top of channel (**Fig.4 top arrow**). Apply sealant liberally to the top space between the two pieces (**bottom arrow**). Seal the nail head as well.

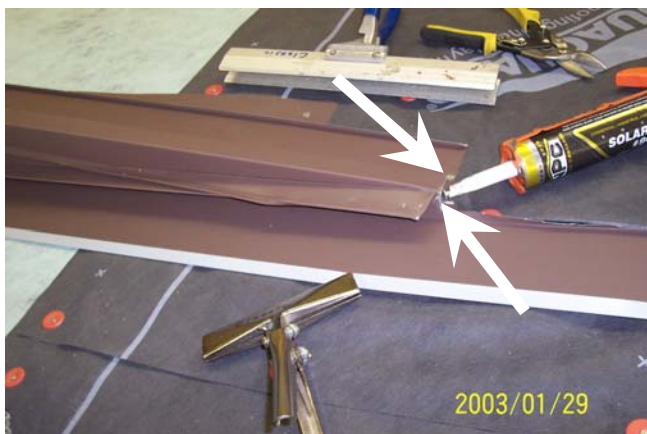


Fig.4

A further water infiltration prevention measure (a tab) will be incorporated into the transition flashing dealt with in the next section.

Pitch Change Transition

With the roof sections shingled as shown in **Fig.1**, field form a piece of trim coil to be installed at the pitch change.

In the situation seen in **Fig.1**, the transition piece extends to the outside edges of the Sidewall Channel marked by the **outer arrows**. Tabs are then cut back to allow the piece to nest inside of the Gable Edge Trim (**inner arrows**). These tabs will need to be folded over the exposed ends of the Gable and Sidewall Channels to divert water (**Fig.3**).

The transition flashing should have a 5/8" under-turned hem to lock into the top lock of the last course of shingles below it (**Fig.1 middle arrow**). The flashing should be bent to mirror the pitch change and then extend a minimum of 4" up the roof.

Underlayment should be woven under the underlayment course above the transition and brought down over the transition flashing to 1" above the pitch change bend (**Fig.2**).

Snap a line between the top locks of the top course of panels on the sides of the dormer. Fasten an anchor strip between these two top locks (and over the underlayment) to provide one continuous lock for the next course of panels (**Fig.3 arrows**).

Fig.4 shows the trimmed tab folded over the two channels and secured with a 1/2" stainless steel sheet metal screw. Extra sealant should be put under the tab and over the screw. Note the alignment of the top lock of the shingle and the anchor strip.

Follow standard installation procedure and install the next course of panels across the top of the transition (**Fig.5**).

Transitioning from a **high to low pitch**, such as on a gambrel barn roof, is done in a similar manner but with the coil flashing being bent in the opposite direction mirroring the pitch change (**Fig.6**).



Fig. 1



Fig. 3



Fig. 4



Fig. 5

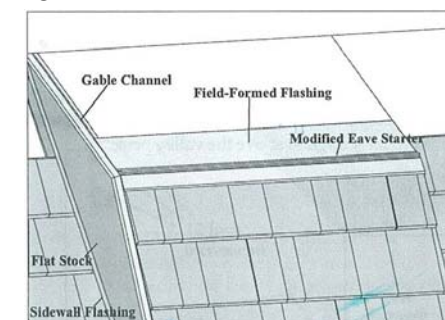


Fig. 6

Shingle Installation

Before panel application, lay out work to minimize cutting and waste (e.g. shifting the whole four course stagger pattern to the right or left to avoid crossing a side lock at a valley bend.)

KasselWood shingles (5101) are installed left to right, eave to ridge. Make sure all clippings and abrasive materials are swept from the material immediately to prevent scratching.

The bottom edge of the first course of panels hooks on to the Starter Strip. Subsequent panel courses interlock into place vertically by sliding the under-turned flange of the top course panel into the up-turned flange at the top of the panel below. **It is imperative that shingles be fully locked together.** Tapping the butt firmly with the rubber end of a hammer and using a block of wood on the side of the panel is highly recommended (**Fig.1 & inset**). Attach each panel with four galvanized or stainless steel nails through the integrated nail tabs.

Each panel course will have a vertical exposure of 8-5/8". Snapping horizontal lines is necessary to ensure proper panel position and **is critical in making sure panels align at the top of protrusions such as dormers**. Refer to the last page of this manual for a table listing the proper placement of chalk lines.

Fig.2 shows the standard KasselWood stagger pattern. (**Note: Panels to the right are removed for illustration.**) The first course begins at the left edge of the roof with a full panel. The second course begins with a three quarters, the third with a quarter, and the fourth course with one-half panel. The fifth course begins the pattern repeat with a full course.

Fig.3 shows the cut positions corresponding to 1/4, 1/2, and 3/4 of a panel. These cuts correspond to taking 30, 20, and 10 inches off the left side of the panel, leaving the right side with its lock to be used in starting the 2nd, 3rd, and 4th courses. Note that these cut positions, conveniently, are each 1/4" to the right of each corresponding tab (see arrows).

Drain slots must be cut in the first course shingles where they cross a water return channel. Flip the panel to place the cut (**Fig.4**) and remove 1/4" of the butt above the water return channel (inset).



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Staggered Starts

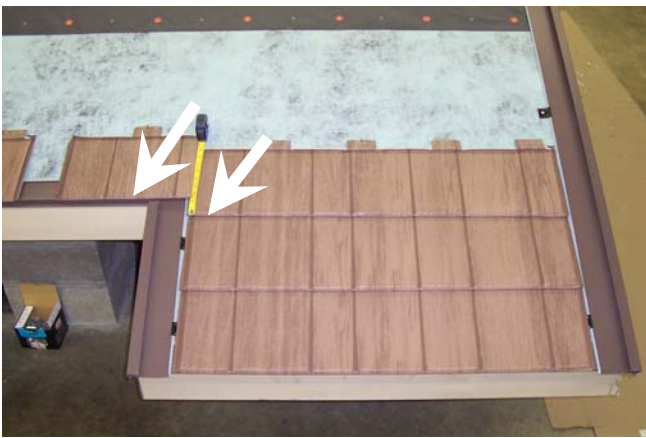


Fig. 1



Fig. 2



Fig. 3

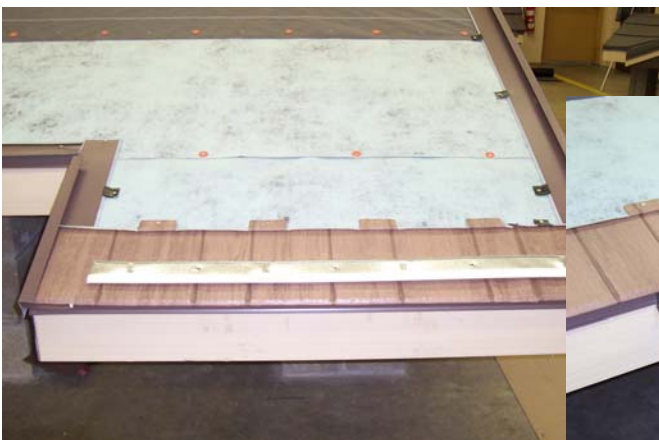


Fig. 4



Fig.5

Fig.1 shows a bump out or a staggered start situation that would cause the top locks of the two roof sections to not align (**arrows**). The amount of course offset in this picture about two or three inches.

There are two methods shown on this page for making up this offset. Both make up the difference at the eave. It is critical that the **precise** distance to be made up is known. Temporarily setting shingles in place from the lower eave can enable this measurement to be determined (**Fig.1**). Avoid short courses in the middle of a field.

The first method entails using coil stock to make up the difference at the eave. The coil should run a minimum of 3" upslope beyond the difference to be made up. An additional 1" is needed for an under-turned hem to lock around the Starter Strip. The coil stock will extend horizontally into the gable treatment and needs to have a drain slot cut for each water return channel (**Fig.2 arrows**)

Fasten a piece of anchor strip between the water return channels at the exact distance needed parallel to the edge of the Starter Strip. Nail every 12" O.C.

Fig.3 shows this coil stock method with shingles installed and may look best when there is less than 5" or so to make up.

A second method is to install the first course of shingles and fasten the anchor strip through the shingles at the appropriate distance upslope (**Fig.4**). This method of applying in a short course at the eave may look the best when there is more that half a shingle's height to be made up.

Fig.5 shows this short course method with shingles installed.

Roof Jacks



Fig. 1

Roof jacks with toe boards are very useful for working on roofs with a steep pitch. Wrap the jacks with cardboard and tape to keep from scratching the surface of the panels. Position the jacks every 4 to 6 feet. If more than two jacks are being used for a length of board, attach the outer two and position the walkboard before positioning the center jack(s).

It is imperative that each jack be attached to a rafter and not just through the decking. To accomplish this, use a stud finder adjusted to deep mode or drill two locator holes next to the rafter from inside the attic. Seal these holes from the roof deck.

Snip the top lock of the shingle about 3/8" wider than the jack and fold this tab against the deck. This tab **must be fully flattened against the deck and secured with two nails** to prevent it catching the jack when trying to remove it (**Fig.1 arrows**).

Attach the bracket to the deck far enough up so that the bottom of the jack does not crush the shingle butt. Foam inserts place behind the supporting shingles can keep them from being flattened. Nail all three slots with 16 penny nails or heavy deck screws. Do not over drive the fasteners to the point of not being able to hammer the jack loose but also do not under drive, making the jack too loose.

Fig.2 shows the removal of a roof jack. The jack needs to be hammered or pushed up and to the right to be dislodged and then pulled down and out. Clear sealant may be used to fill the space left in the lock.

Snow Guards

Snow guards can be installed in areas where falling snow is undesirable such as over doors, walkways, landscaping or lower roofs. A basic installation pattern is two parallel rows one course apart with guards 36" O.C., but staggered 18" O.C. in a "W" pattern. Additional snow guards may be desired based on roof design and snow load.

Fig.3 shows Isaiah Industries' Cast Aluminum Snow-guard (SH-555) and **Fig.4**, our Polycarbonate Snow-guard (SH-556) for use only on an existing roof. A 2X4 block can be used to space the Snow guards 1-1/2" down from the shingle butt.



Fig. 3



Fig. 4

Damaged Panel Repair

Should a panel become damaged, in most cases the individual sections can be easily capped over.

Identify the section of panel damaged and use sealant to fill any penetrations. Find the corresponding section of panel from a scrap piece of panel if possible.

Score the middle of the rain grooves on each side of the section several times (**Fig.1**).



Fig. 1

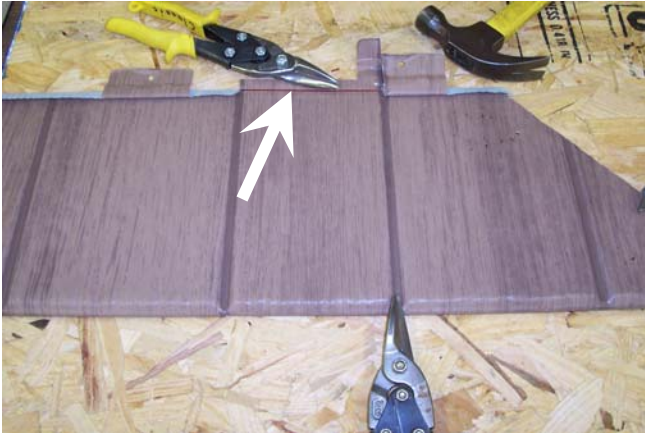


Fig. 2

Cut the top and bottom locks in line with scores lines just made (**Fig.2**). Open up the top lock and cut off the upturned portion at the crease (**arrow**).

Bend the shingle back and forth along the scored lines to separate the section from the shingle.

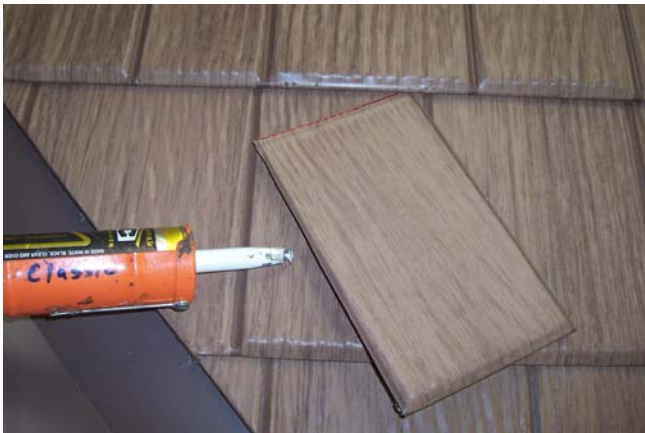


Fig. 3

Apply a liberal bead of sealant around the entire perimeter of the damaged section (**Fig.3**).



Fig. 4

Slip the replacement section over the top of the damaged section. Using the rubber end of a hammer or similar tool, firmly engage the section in place (**Fig.4**).

Make sure the section is fully inserted under the bottom lock of the shingle above and locked around the bottom lock of the shingle being capped over.

Hip Caps

KasselWood shingles have two hip treatments using either Hip Caps (5107, **Fig.4**) or Hip Lineals (5170, **p.25**). The following procedures are for the installation of Hip Caps.

Chalk a line along the hip from eave to ridge. Cut all shingles coming to the hip from the left even with the ridge line (**Fig.1 arrows**).

Shingles on the right side of the hip line will lap over the hip line 2" to the left of the line. For extra protection, sealant can be applied about 1-1/2" to the left of the hip line as each shingle is installed. This is indicated by the line drawn in **Fig.2 (arrows)**.

As mentioned above, lap the shingles on the right side of the hip 2" over the hip line to the left and on top of a bead of sealant. Fasten the ends of each shingle with two or three nails to cause the shingle to rest flat against the shingle on the other side (**Fig.3 arrows**).

The forming of the first corner cap is discussed on the next page. Fold each Hip/Ridge Cap along its center line as required to fit the specific hip or ridge pitch. Chalk a line along the hip line over the lapped shingles to keep Hip Caps straight as they are being installed. The **butts of the shingles** under each of the caps **must be flattened with a hammer before attachment of the caps** to ensure that the cap edges sit **flat** against the shingles to resist water infiltration. (**inset arrows**)



Using only nails or screws of a length long enough to fully penetrate the substrate, fasten the Hip/Ridge Cap through the two pre-punched holes in the anchor portion of the cap. Make sure each subsequent cap is fully engaged before nailing. Each cap should have an 8" vertical exposure (**Fig.4**).

At the intersection of two hips and a ridge, lap the last Hip Caps, through-fasten, and seal.



Fig. 1



Fig. 2

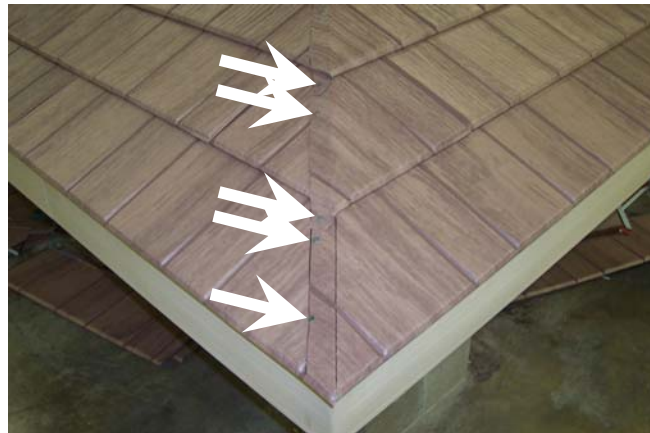


Fig. 3

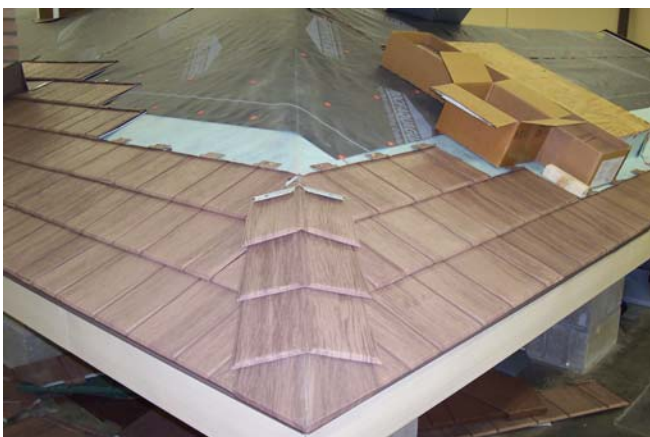


Fig. 4

Corner Hip Caps



Fig. 1

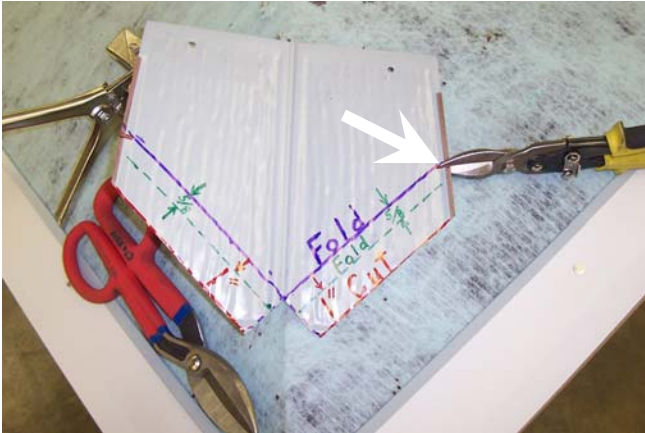


Fig. 2



Fig. 3

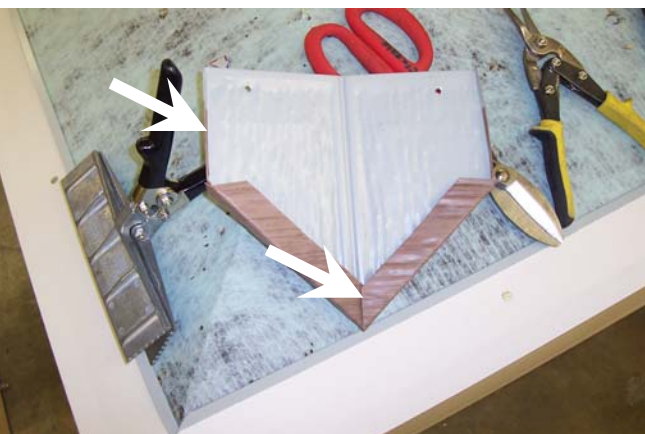


Fig. 4

The first Hip/Ridge Cap at each hip will need to be modified to hook over the first course shingles as they meet at the corner of the eave. The end of the cap will need to conform to the corner of the roof.

After opening up the bottom lock of the first Hip Cap, center the cap on the hip line far enough down to fully mark the corner roof angle (**Fig.1**).

Turn the cap over and check to see that the two fold lines that were just traced (**purple in Fig.2**) meet in the center of the cap and are equal distances down from the top corner.

Mark a second set of fold lines parallel to and 5/8" down from the first set of fold lines (**green**). Mark two **cut** lines another 1" down from and parallel to the second fold lines (**red**). Notch the side of the cap about 3/8" (**Fig. 2 arrow**) so that the flattened sides can be re-bent into position after the butt is formed. Cut out the Cap as seen in **Fig.2**.

In a brake or with hand flangers, bend the cap as seen in **Fig.3** to form a new butt and under-turned lock. Bend the outer folds first and then flatten so that the inner folds can be bent on both sides. Refold the under-turned lock by hand or with hand flangers.

Fig.4 shows a properly formed corner Hip Cap. Note the miter cut at the **bottom arrow** and the down-turned sides (**top arrow**).

Fasten the corner Hip Cap into position centered on the hip line through the pre-punched holes in the anchor portion of the cap. Install Hip Caps the entire length of the hip. Make sure that each cap is fully engaged into the next cap and centered on the hip line (**p.23, Fig.4**).

Hip Lineals



Fig. 1



Fig. 2

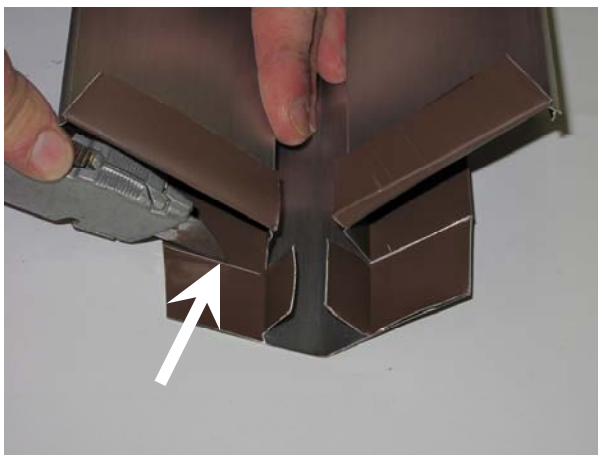


Fig. 3



Fig. 4

Center a square 7"x 7" piece of cardboard on a hip line with one edge just over the Starter Strip. Trace the angle and cut the cardboard to make a **template** for cutting the hip lineals. Fold on the center line. Using a pencil, transfer this angle to the hip lineal at the end and also 1" in from the end (**Fig. 1**). Cut the front edge with snips.

Cut the outside nailing flanges back to the 1" mark and angle back slightly for a neat appearance (**Fig. 2 left arrow**). Cut the bottom inside of the water return channel 1" back to allow for a tab to be folded under. Using hand flangers, bend tabs 7/8" back. These tabs will fit into the Starter Strip.

Slightly taper cut the outside edges of the "T" top of the hip lineal back to the 1" mark (**Fig. 2 right arrow**).

Score the underside of the "T" top 1" in and parallel to the end of the lineal (**Fig. 3 arrow**). Remove this material in order to be able to make a crisp bend for a down-turned tab.

Cut a narrow "V" centered on the top of the "T" to allow the down turned tabs to fit neatly together. Be careful not to trim too much.

Using hand flangers or uniform pressure from three fingertips, bend top tabs approximately 80 degrees down (**Fig. 4**). Trim center "V" cut as necessary and insert tabs into eave starter.

Secure hip lineal with clips on both sides 12" O.C. Cut and insert shingles remembering to maintain the stagger pattern and to cut a drain in the first course (**Fig. 5 arrow**).



Fig. 5



Fig. 1



Fig. 2



Fig. 3



Fig. 4

Joining Hip Lineals

(For hip lengths over 10' or pitch changes)

The bottoms of the hip lineals should be formed and check fitted into the Eave Starter.

The procedure for joining two lineals is as follows:

Mark both sides of **lower** lineal "T" top at 3".

Slightly taper cut both sides to the 3" mark (**Fig.1**).

With a utility knife or snips, score or cut the top of the inside wall of the lower lineal back 3" and lift top (**Fig.2**).

Open both nail flanges of the lower lineal enough to receive the bottom 3" of the Top lineal. The lower flanges (coming from the left in **Fig.3**) will be wrapped around the upper flanges (**arrow**).

Apply two parallel lines of butyl sealant in the 3" overlap section of the water return channel of the bottom hip lineal.

Slide upper lineal over the taper in lower lineal (on the right in **Fig.4**) to the 3' mark.

Wrap lower flanges around upper flanges.

Secure lineals every 12" O.C. with nailing clips and galvanized or stainless steel ring shank nails on both sides of lineal.



Fig.69

Joining Hip Lineals to a Ridge Vent

When joining hip lineals to a ridge vent it is important to make sure that all components are centered on the appropriate hip or ridge lines. Snapping chalk lines may be useful for this purpose.

Mark and cut a 45 degree angle on one of the hip lineals. Notice that the cut does **not** come to the center of the lineal but to the back edge of the shingle-receiving channel (**Fig.1 left arrow**). Flatten the hem on the same lineal to allow the other lineal to sit flat on top of it as they nest together (**middle arrow**).

Make a cleat for starting the ridge caps by cutting off the top of a ridge cap 3/4" down from the anchor tabs (**right arrow**). Using hand flangers, bend this extra 3/4" under to form a finished edge.

Open the angled cut on the T top of the one lineal to receive the corner of the T top of the other lineal. Join the lineals (**Fig.2 center arrow**) and center them on their respective hip lines. Fasten each lineal to the roof deck at its upper corner (**top arrows**) and then with nail clips opposite each other every 12" O.C. Shingle on all three sides up to the ridge.

After the appropriate ridge vent opening has been cut, center the plastic vent **under** the T tops of the two hip lineals (**Fig.3 arrows**). Secure the Ridge Vent according to the manufacturer's recommendations making sure the vent sits flat against the shingles but is not buckled by the attachment screws.

Attach the Ridge Cap Cleat through the provided holes centered just outside of the two T tops. Use two 2" screws to penetrate the roof deck.

Hook the first Ridge Cap on to the cleat making sure that it is centered on the Ridge Vent. Attach the Cap using 2" screws (**Fig.4**). Install Ridge Caps the remaining length of the ridge making sure that the butt of each cap is **fully engaged** on each cleat and centered before screwing it in place.

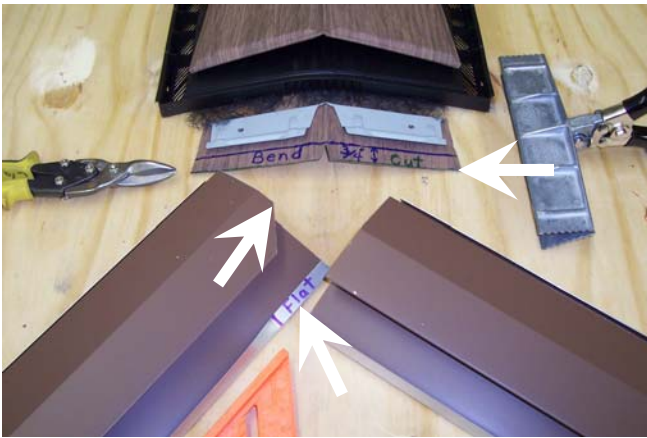


Fig. 1

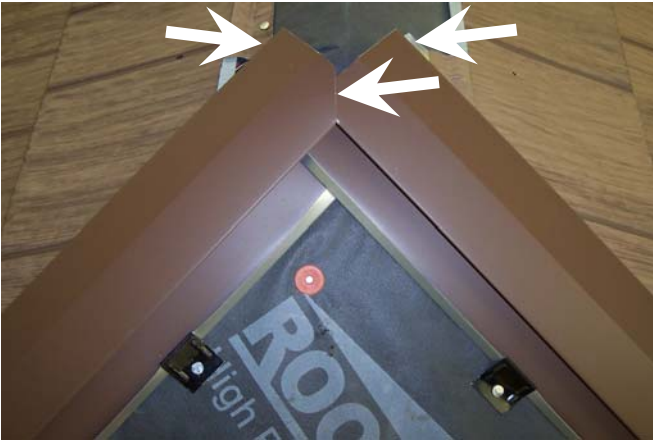


Fig. 2

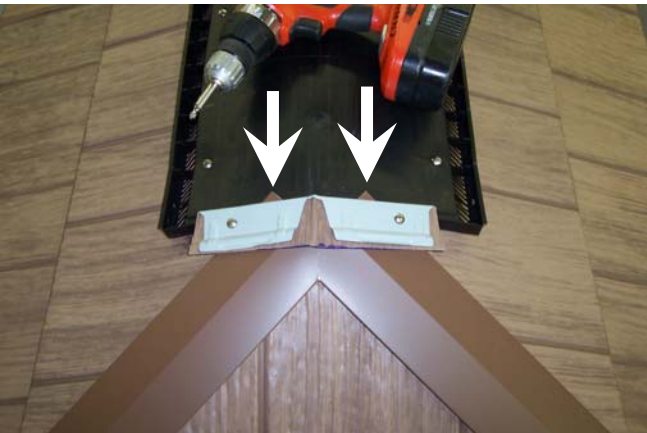


Fig. 3



Fig. 4

Chimney, Skylight, and Dormer Flashing

The pictures in this section show recommended flashings around a **chimney**. **Curb mounted skylight** flashings will be identical with the exception of the top of each flashing which will need to be formed to fit the specific counter-flashing that comes with the skylight. (**Note:** the skylight manufacturer may require the use of their flashing kit to validate their warranty.) The techniques and pieces for the front and sides of a **dormer** will be the same as for a chimney.

Inspect the chimney and its flashings to see if any repairs need to be made before proceeding. Remove old chimney flashings **only** if they interfere with new flashings. Make sure that underlayment has been run at least 4" up the sides of the chimney as described at the beginning of this manual.

A 1/2" deep masonry cut (called a kerf or riglet) must be made at a uniform height (at least 5") parallel to the deck all the way around the chimney. The cut should be above existing flashings. It may be helpful to use a 2x6 or 2x4 as a guide to make this cut on the sides and front (**Fig.1**). If not, use a chalked line as a guide. Ideally, 1/2" of height of the sidewall flashing should be left to bend 90 degrees and insert into the kerf. If the kerf needs to be higher than the sidewall height, counter-flashing will need to be formed to lap down to the J channel over the shingles.

Fig.2 shows the profile of the front, field-formed apron flashing. The flashing must extend down to the roof deck and 4" on top of the shingles below and be **10" wider** than the chimney (**5" on each side**) so that the 4" wide sidewall water return channel completely empties on to it. A bend and a 1/2" under-turned hem will add a finished appearance and additional strength. Depending on where the course below the chimney falls, it may be possible to hook this into a top lock. Notice in **Fig.3** that the shingle below the chimney was not cut off but rather bent up the chimney to function as a water stop (**arrow**).

Fig.3 displays the cut and folds that need to be made to wrap the apron flashing around the sides of the chimney and to nail a tab (**Fig.4 arrow**) to the deck. Sealant should be placed into the kerf **before** the insertion of the flashings (**Fig.4**). A second bead of sealant can then be applied after the flashing is in place.



Fig. 1



Fig. 2



Fig. 3



Fig. 4

Chimney Sidewall and Upslope Flashings

Install 5121 Sidewall Flashing along the two angled sides of the chimney. Each piece must be long enough to extend 1" past the bottom corner of the chimney **and** at least 1/2" through the butt of the first shingle to be inserted into the channel. The Sidewall Flashing should extend at least 3" uphill of the chimney and be attached with a sealed nail at the very top and nail clips every 12" O.C.

Hold the sidewall piece against the chimney to mark the front and back fold lines shown by the dotted lines in **Fig.1 (inner arrows)**. Draw lines for 1" tabs to wrap around the chimney. Notice that another tab is left to be wrapped down around the J channel that will be exposed over the front apron (**left arrow**).

Cut a drain slot in the bottom lock of the first shingle to be installed into the Sidewall Flashing (**Fig.2 top arrow**). Apply clear or color matching sealant to all joints and openings (**side arrows**).

Using a brake, form a flashing for the back of the chimney that extends at least 12" up the roof and 5" up the back of the chimney with a 1/2" lip to insert into the previously made saw kerf (**Fig.3 top arrow**).

The flashing should be 9" wider than the chimney to form "dog ears" on both sides that will divert water around the chimney. The dog ears should be 2" wide at their base. The extra material should be used for a 2" fold-back to cover the unpainted metal and 1" tabs to extend down the sidewall flashing (**bottom arrow**).

Form 1/2" upturned water return flanges on the sides of the back flashing (**Fig.4 arrow**).

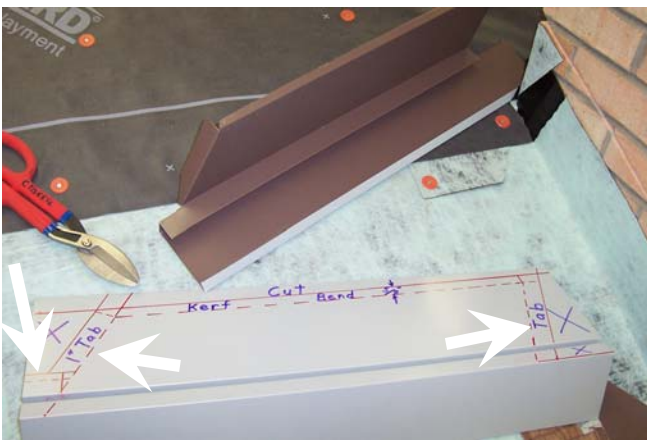


Fig. 1



Fig. 2

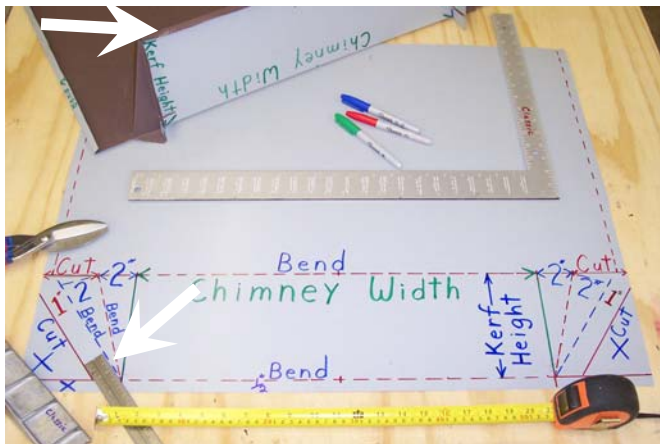


Fig. 3

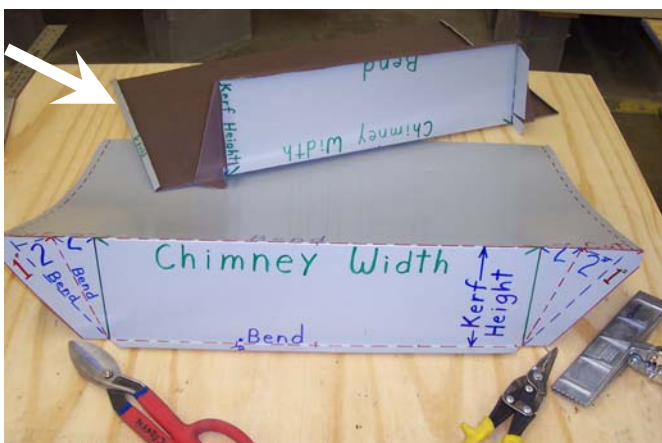


Fig. 4

Chimney Upslope Flashing

Install shingles up the side of the chimney inserting them fully into the sidewall channel.

The top shingle should extend above the corner of the chimney and should have a 3/8" upturned hem bent into it to prevent sideways migration of wind-driven water under the upslope flashing (**Fig.1 arrow**). Notice that a nail clip was used at the top corner of the shingle to secure it to the deck.



Fig. 1

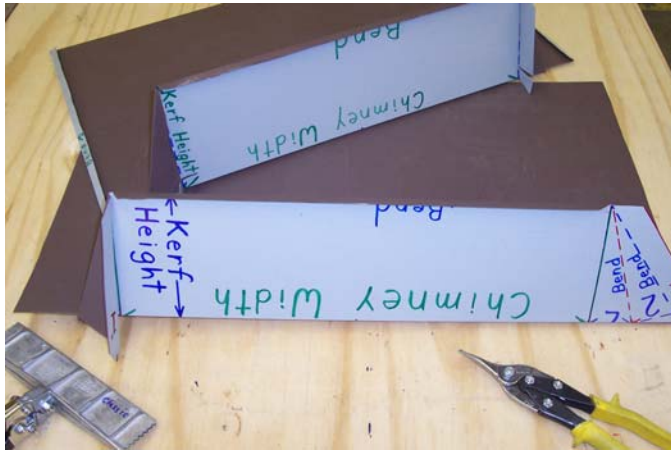


Fig. 2

Fig.2 displays two upslope flashings with the bottom one having only one side already bent with a dog ear and tab.

Fig.3 shows two tabs folded at the **bottom** of the dog ear and side tab that will further prevent water infiltration where the corner of the chimney meets the deck (**bottom arrow**).

A slot cut at the appropriate height will then need to be made to go around the ledge on the sidewall channel (**top arrow**).

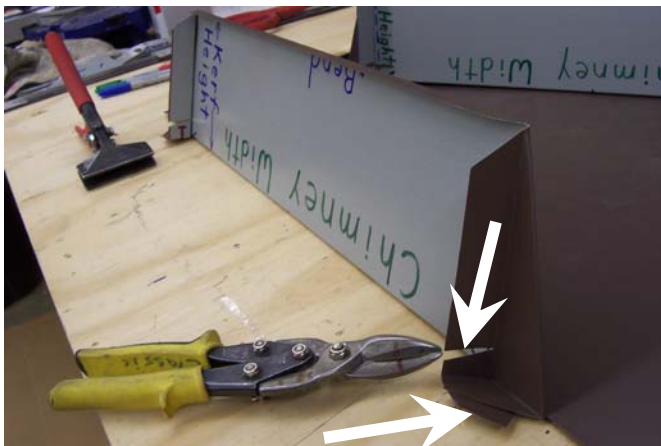


Fig. 3

After making sure the upslope flashing fits securely around the chimney, remove it and put a bead of sealant in the saw kerf and where the tabs will cover the sidewall corners (**Fig.4 top arrows**).

Put the flashing in place with the lip into the kerf and put a second bead of sealant over the kerf. Seal the joint at the top of the sidewall ledge as seen in **Fig.4 (bottom arrow)**.



Fig. 4

Chimney Upslope Flashing and Crickets

Cut a piece of anchor strip 1" less than the width of the back-flashing to fit between the top locks of the courses of shingles on both sides. This will be the lock for the full course of shingles running past the top of the chimney. Weave a piece of underlayment the width of the pan under the underlayment above the pan and down to the anchor strip holes. Put a dab of sealant at the spots on the pan where the nail will penetrate the pan **before** setting the anchor strip in place and driving the nails (**Fig.1**).

Fig.2 pictures the first full course of shingles running past the back of the chimney.

If the chimney is located at the bottom of a long run near the eave, a diverter may be installed one course up from the chimney. **Fig.3** shows the pattern for such a diverter. Note that the bends that wrap around the bottom lock of the shingle must fit snugly. A liberal bead of sealant must be applied between the bottom lock and the diverter to prevent water from flooding the lock.

For larger chimneys, especially near the eave, a cricket or saddle should be installed on the backside of the chimney. **Fig.4** illustrates the cut and bend pattern to be employed using coil stock.

If the chimney is quite large, valley pieces can be used such as detailed in the previous section on "intersecting valleys". The sides of the cricket can then be covered with coil stock or shingled and capped like a dormer.

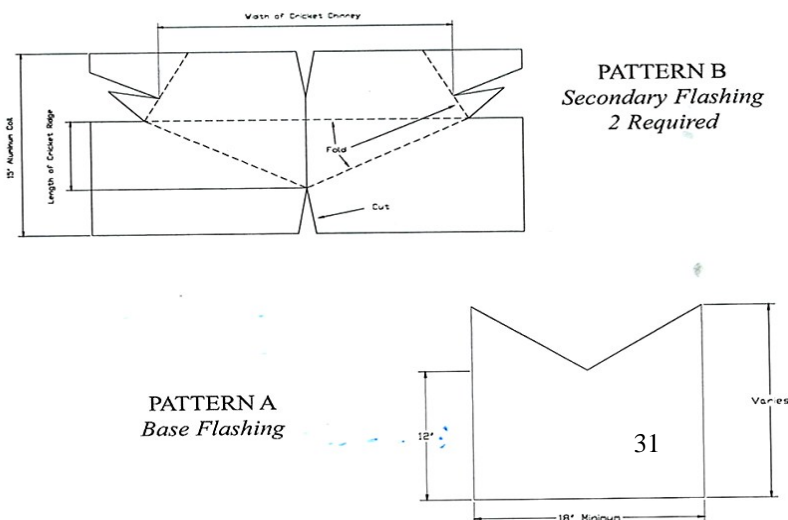


Fig. 1



Fig. 2



Fig. 3

Cricket flashing at Backside of Chimney

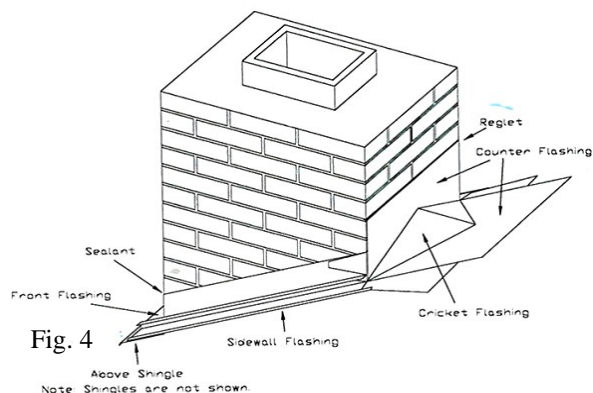
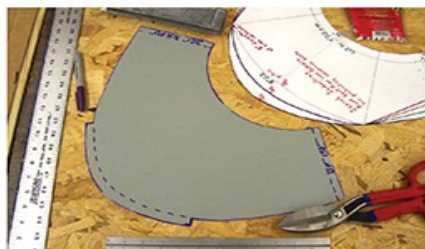


Fig. 4

Vent Pipes - Use the pattern included in the coil stock box from Isaiah Industries to cover all neoprene pipe flashings.

PATTERN INSTRUCTIONS

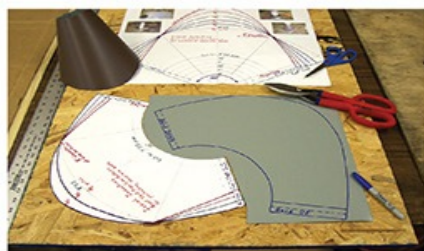
*Sidenote 1-A



If the cone will straddle two courses, it may be preferable to leave extra material to step down over the butt and rest flat on the pan below.



Sealant should **NOT** be applied to the lowest point in order to allow any moisture to drain.



1. Cut, lay out, and trace the cone pattern onto coil stock, corresponding to the pipe size and desired roof pitch.

NOTE: Shingles with a significant taper will lessen the slope accordingly.

Position multiple tracings to minimize scrap.

*See sidenote 1-A.



2. Install vent pipe flashing over the pipe and on top of the course below. Cut and install a shingle over the top of the flashing pan and pipe.

Bend 170°, ½" upturned and under-turned tabs on the sides of the cone to lock together. Roll cone gently back and forth to produce cone curvature without creases. Hook tabs together and check opening size for a snug fit. Trim if necessary.



3. With the cone fit over the pipe and against the installed shingles, mark the circumference of the pipe at the top of the cone. Lift up the cone and apply a thick bead of sealant all the way around the pipe just above the mark.



4. Push the cone down over the sealant and against the shingles. Apply sealant to the uphill ¾ of the cone-shingle joint.



5. Form a sleeve to fit over the exposed portion of the pipe. The width of the coil stock used should be about 1" wider than the circumference of the pipe plus another 1" for the two ½" tabs. For steel and thicker aluminum, bends should be made with a break every 1" to neatly form a cylinder.



6. Slide sleeve over pipe. Apply a full bead of sealant between the top of the pipe and the sleeve for the complete circumference.



PROTECTIVE VENT PIPE CONE TEMPLATE

- Protects from harmful UV breakdown of typical pipe flashings.
- Indefinitely extends the lifetime of vulnerable neoprene boots.
- Ensures ongoing protection against water infiltration into the home.
- Adds color coordinated appeal to common roof protrusions.



Ridges

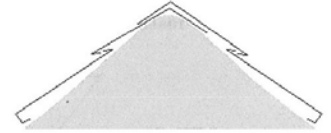
A ridge must be watertight before Ridge Caps (5107) are installed. There are three methods for accomplishing this:

1) Bend shingles over the ridge from both sides and attach (**illustrated below left**).

Make Ridge Watertight Before
Installing Ridge Caps



Bend Shingles Over Ridge



Field-Form a Two-Piece Flashing
(Can Be One-Piece with Precise Measuring)

2) Form a one piece flashing with 1/2" under-turned hems that snap into the top locks of the shingles on both sides (**Fig.1**). Nails through the Ridge Caps will secure the flashing in place. A bead of sealant can be run in the locks after the caps are installed if desired.

3) Form two flashings with 1/2" under-turned hems that extend over the ridge by 2" and then are nailed (**Fig.2 arrow**). Notice how the flashing is bent to fit into the Gable Channel and around a vent opening. On long ridges, overlap flashings by 2" and seal.

Ridge Cap installation occurs over the sealed ridge or on top of certain ridge vents. Fold each cap along its center line to mirror the roof pitch. **Fig.3** shows the first Ridge Cap inserted into the "C" channel of the Gable Edge Trim and then nailed through the anchor portion of the cap. Each subsequent cap is then firmly engaged and nailed into place. Snap a chalk line on the ridge to keep the caps in line.

Caps may be started at both ends of a ridge with one of the two middle two caps cut and lapped over the other to split the length between bottom locks and give a symmetrical "bow tie" appearance. The lapped cap is then face-nailed and sealed.

Fig.4 shows a cap that has been field-formed to hook into a valley. These locking tabs will need to be opened up for the cap to be locked into the anchor tab of the previous cap. The field-formed lock will then be hand curled back into place to hook into the valley and sealed.

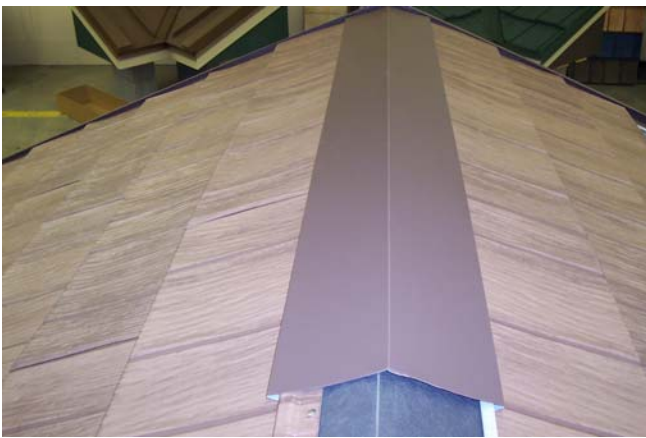


Fig. 1

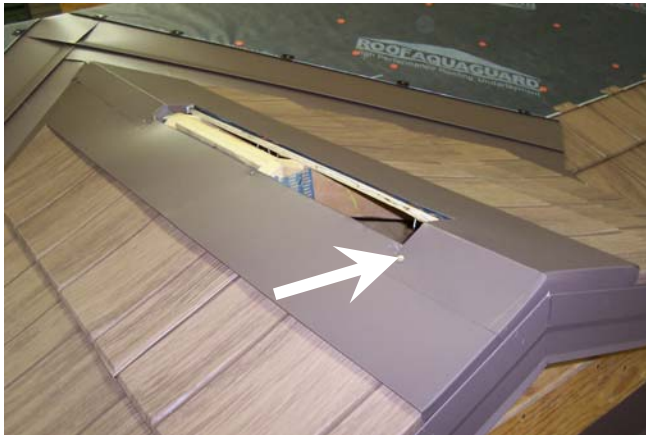


Fig. 2



Fig. 3



Fig. 4

Ridges cont.



Fig. 5

Fig.5 displays a completed dormer roof. Note the exposure of the color-coordinated coil stock. If this look is not desired, an extra course of shingles can be installed on both sides of the ridge before applying the Ridge Caps.



Fig.6

For the application of a **Ridge Vent** a ridge opening size specified by the manufacturer will need to be cut with a circular saw. A 2x4 nailed parallel to the ridge can provide a handy guide for cutting (**Fig.6**). Underlayment should be run right up to the opening before installing ridge vents.

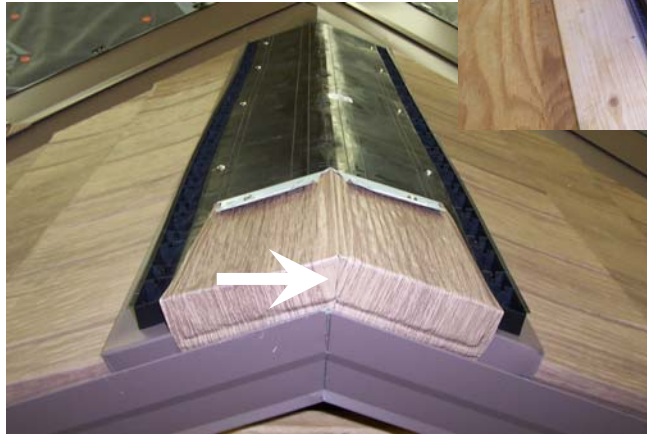


Fig. 7

Plastic Ridge Vents commonly available should extend to the gable even though the ridge opening would not normally be cut to the gable. This will avoid having to step up the Ridge Caps to the height of the vent. If the plastic vent is substantially wider than the Ridge Caps, the exposed plastic can be covered with coil for protection and aesthetic appeal.

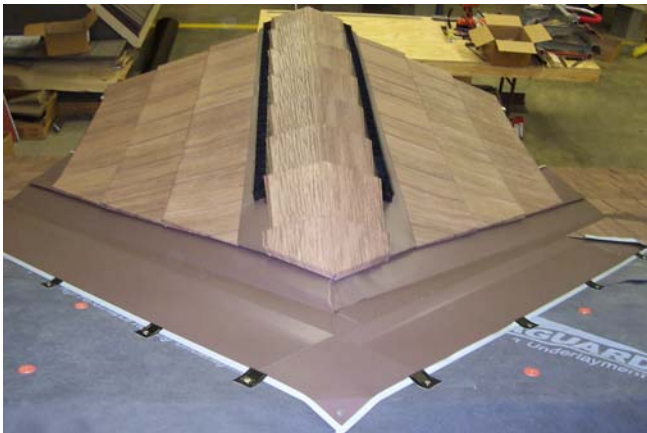


Fig. 8

Fig.7 shows a Ridge Cap formed to fit into a 5127 Gable Channel. In this case, the bottom lock of the cap needs to be opened up and then re-bent to allow enough material to cover the end of the vent and extend 3/4" down into the channel.

Plumb cut one of the tabs to lap on top of the other for a finished appearance (**arrow**). Two trim nails can be faced nailed through the Gable Channel and Ridge Cap tabs and into the gable to secure the Ridge Cap. Cover the exposed heads with sealant or touch up paint.

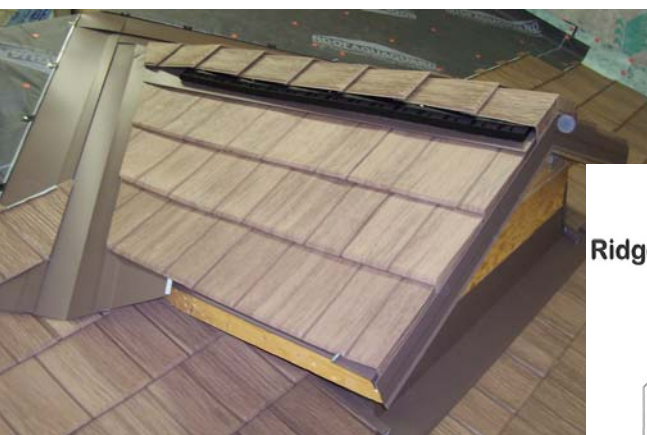
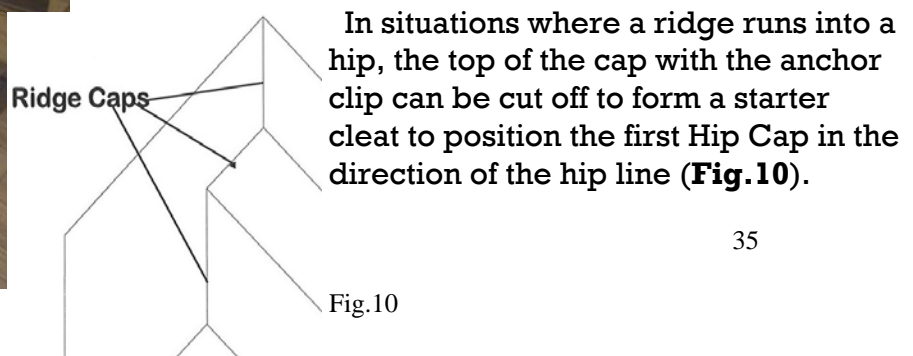


Fig. 9

Figs.8 & 9 capture the top-down and profile views of a dormer with a typical plastic ridge vent. Notice the step down that is necessary if the venting is terminated before the valley is reached.



In situations where a ridge runs into a hip, the top of the cap with the anchor clip can be cut off to form a starter cleat to position the first Hip Cap in the direction of the hip line (**Fig.10**).

Perma-Vent



Fig. 1

Illustration 2

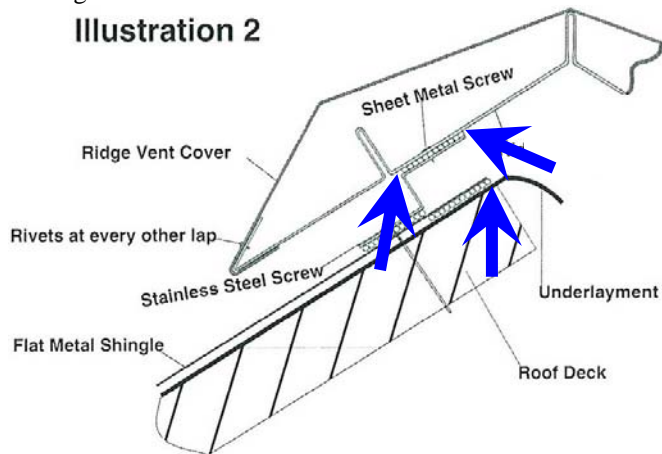


Fig. 2



Fig. 3

Fasten the Z Cleat to the roof using stainless steel screws of adequate length to penetrate the roof decking every 12" O.C.

Apply sealant to the top leg of the Z Cleat and then place the Ridge Vent base squarely over the Z Cleats and attach with 1/2" stainless steel screws 12" O.C. (**Fig. 3 arrows**).

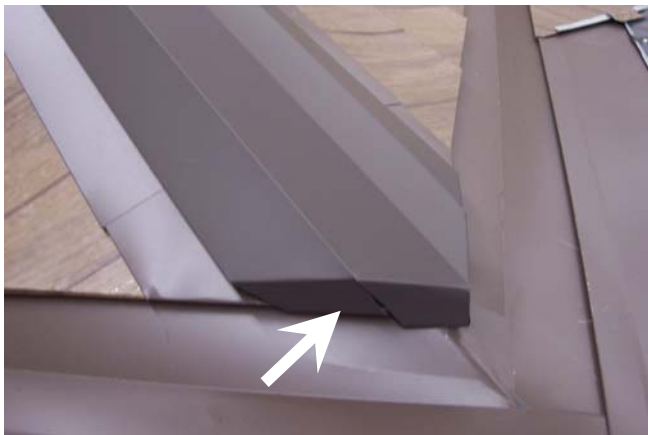


Fig. 4

Install subsequent pieces of Z Cleat and Ridge Vent base prior to installing the Ridge Vent Cover. Ridge Vent base pieces should be lapped 3" by removing all three ribs and the outside returns from the upper pieces. Fasten together with 1/2" S.S. screws.

The Ridge Vent Cover (461) is installed by snapping it over the Base, making sure that it is firmly locked on both sides. Subsequent pieces of Ridge Vent Cover should be lapped by 3". Seal between the overlapped pieces. Secure the overlapped pieces at every joint to each other and to the base with 1/2" S.S. screws.



Fig. 5

Ends of the assembly can be closed with a field-formed cap made from matching coil stock or with down turned tabs extending from the cover (**Figs. 4 & 5 arrows**). If forming a cap, cut it to fill the opening, allowing an extra 3/4" of metal on all sides to be bent 90 degrees toward the middle of the roof. Insert these tabs **under** the Ridge Vent Cover and secure with 1/2" S.S. screws. Seal or paint all exposed fastener heads.

KASSELWOOD - TOP OF COURSE CHALK LINES

1st course top up 9-3/8" from nose of drip edge; subsequent courses, add 8-5/8" each

| COURSE | FROM EDGE | COURSE | FROM EDGE | COURSE | FROM EDGE | COURSE | FROM EDGE |
|--------|-----------|--------|---------------|--------|---------------|--------|---------------|
| 1 | 9-3/8" | 11 | 95-5/8" | 21 | 15' - 1 7/8" | 31 | 22' - 4-1/8" |
| 2 | 18" | 12 | 8' - 8-1/4" | 22 | 15' - 10 1/2" | 32 | 23' - 0-3/4" |
| 3 | 26-5/8" | 13 | 9' - 4-7/8" | 23 | 16' - 7 1/8" | 33 | 23' - 9-3/8" |
| 4 | 35-1/4" | 14 | 10' - 1-1/2" | 24 | 17' - 3 3/4" | 34 | 24' - 6" |
| 5 | 43-7/8" | 15 | 10' - 10-1/8" | 25 | 18' - 0-3/8" | 35 | 25' - 2-5/8" |
| 6 | 52-1/2" | 16 | 11' - 6-3/4" | 26 | 18' - 9" | 36 | 25' - 11-1/4" |
| 7 | 61-1/8" | 17 | 12' - 3-3/8" | 27 | 19' - 5-5/8" | 37 | 26' - 7-7/8" |
| 8 | 69-3/4" | 18 | 13' | 28 | 20' - 2-1/4" | 38 | 27' - 4-1/2" |
| 9 | 78-3/8" | 19 | 13' - 8-5/8" | 29 | 20' - 10-7/8" | 39 | 28' - 1-1/8" |
| 10 | 87" | 20 | 14' - 5-1/4" | 30 | 21' - 7-1/2" | 40 | 28' - 9-3/4" |
| | | | | | | | |

KASSELWOOD - TOP OF COURSE CHALK LINES

1st course top up 9-3/8" from nose of drip edge; subsequent courses, add 8-5/8" each

| COURSE | FROM EDGE | COURSE | FROM EDGE | COURSE | FROM EDGE | COURSE | FROM EDGE |
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KASSELWOOD - TOP OF COURSE CHALK LINES

1st course top up 9-3/8" from nose of drip edge; subsequent courses, add 8-5/8" each

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| 10 | 87" | 20 | 14' - 5-1/4" | 30 | 21' - 7-1/2" | 40 | 28' - 9-3/4" |



Core Values

*At Isaiah Industries, Inc., we are on a journey to become a "Kingdom Business."
Our Corporate Mission is to live into the unique role and opportunity that God gives us to be a world-changer through our daily activity in the marketplace. In so doing, we submit to the need for "banks for the river" which guide our actions and decisions; these are our Core Values.*

Honor God

OUR ACTIONS WILL CONSISTENTLY HONOR GOD AND SUPPORT THE GROWTH OF HIS KINGDOM.

Positive Impact

WE WILL LIVE OUT THE TEACHINGS OF JESUS CHRIST BY FOCUSING ON WHAT WE CAN GIVE IN EVERY RELATIONSHIP, NOT ON WHAT WE CAN RECEIVE.

Honesty, Fairness, Relationships, and Value

THESE CORE ATTRIBUTES IN ALL DEALINGS WITH EVERYONE WE ENCOUNTER ARE INSEPARABLE FROM WHO AND WHAT WE ARE – THEY ARE OUR "CHARACTER" THAT WE MUST EMBODY AT ALL TIMES.

Economic Development

BY ENSURING THAT OUR PRODUCTS CARRY POSITIVE ECONOMIC IMPACT WHEREVER THEY GO, WE PLAY A ROLE IN BRINGING GOD'S HOPE TO THE WORLD.

Customer Satisfaction

WE ACHIEVE GROWTH THROUGH QUALITY PRODUCTS, PERSONABLE NEEDS-DRIVEN SERVICE, AND WILLINGNESS TO ALWAYS GO THE EXTRA MILE.

Team Members

WE HONOR OUR TEAM MEMBERS BY:
ALLOWING THEM TO SHARE IN THE COMPANY'S GROWTH AND SUCCESS.
EVALUATING PERFORMANCE BASED UPON QUANTIFIABLE GOALS AND OBJECTIVES.
PROVIDING A PLEASANT AND SAFE WORKPLACE.
ENCOURAGING GROWTH THROUGH ONGOING COACHING AND TRAINING.

Collaboration

WE DO NOT EXIST AS AN ISLAND. OUR CORPORATE MISSION IS ACHIEVED THROUGH MAXIMIZING RELATIONSHIPS WITH OTHERS INCLUDING VENDORS, CUSTOMERS, COMPETITORS, AND NON-PROFIT ORGANIZATIONS.

Environmental Consciousness

THROUGH ECOLOGICALLY SOUND OPERATIONS AND PRODUCTS, WE ARE COMMITTED TO BEING GOOD STEWARDS OF THE WORLD GOD CREATED, PASSING IT LOVINGLY ON TO FUTURE GENERATIONS OF HIS PEOPLE.

Continual Improvement

WE ARE DEDICATED TO CONTINUAL IMPROVEMENT THROUGH RELATIONSHIPS THAT ENCOURAGE AND ACT UPON INPUT FROM CUSTOMERS AND TEAM MEMBERS.

Leadership

THROUGH STABILITY, LONGEVITY, CARE FOR OTHERS, PRODUCT INNOVATION, AND TECHNOLOGICAL ADVANCEMENT, WE PRESERVE OUR RECOGNITION AS AN INDUSTRY AND COMMUNITY LEADER.

