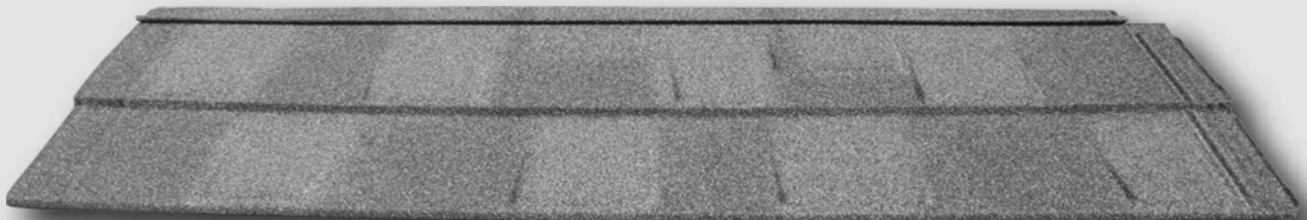




**STONESHIELD**

*TM*

# Installation Manual





## **Important Notice**

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**This manual contains suggestions and guidelines on how to install the subject Union Corrugating products. The contents of this manual include the guidelines that were in effect at the time this publication was originally printed. In an effort to keep pace with the ever-changing code environment, Union Corrugating retains the right to change specifications and/or designs at any time without incurring any obligations. Application and design details are for illustrative purposes only and may not be appropriate for all environmental conditions, codes, and / or building designs. Projects should be engineered and installed to conform to applicable building codes, regulations, and accepted industry practices.**

**Union Corrugating assumes no liability for either incorrect installation of its products or personal injury that may occur as a result of installing such products. The installation methods demonstrated in these materials are not the only ways to install Union Corrugating products, but have been developed as a reference guide using acceptable, tested and proven methods for the standard installation of Union Corrugating products. Contractors and installers should at all times use their professional judgment, and modify and tailor such methods where appropriate or necessary to suit each specific installation or any applicable local building codes or ordinances. Due to the fact that Union Corrugating has no control over the actual installation techniques used, no warranty is expressed or implied relating to installation of the product. Union Corrugating's liability with respect to Union Corrugating products is limited exclusively to its standard written warranty.**

**Please Note: It is the responsibility of the installer to adhere to local building codes.**



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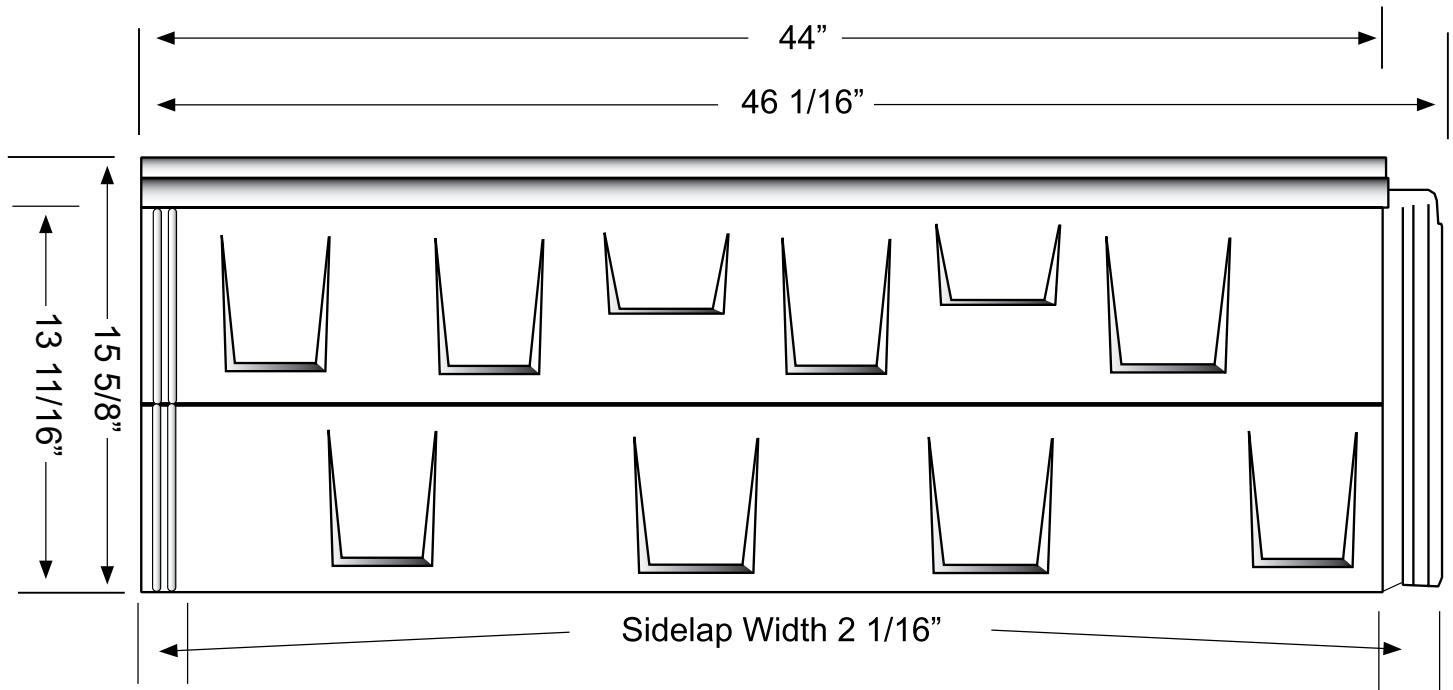
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## StoneShield Shingle Description

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**Actual Dimensions**

**Exposure**

**Coverage**

**Average weight per shingle**

**Average weight per square**

**46-1/6" x 15-5/8"**



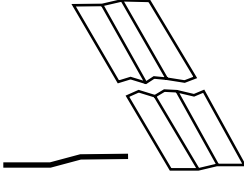
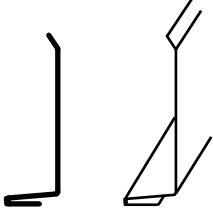

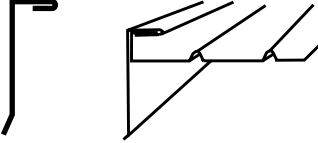
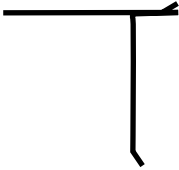
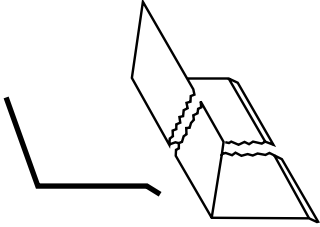
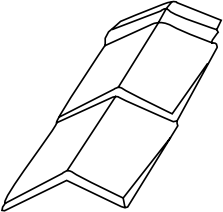
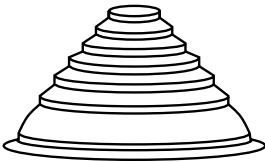
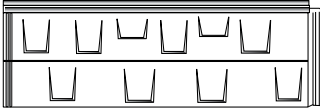




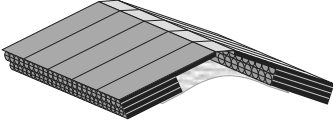
**44" x 13-11/16"**

**24 shingles per square**

**5 lbs**

**120 lbs**

## Part and Accessories

<p><b>Valley Cap</b> Stone Coated 120" Length Item # - 62089c04</p> 	<p><b>Valley</b> Non-Stone Coated 120" Length Item # - 62000012</p> 	<p><b>Riglet</b> Non-Stone Coated 120" Length Item # - 62000010</p> 	<p><b>Z-Bar Attachment</b> Stone Coated 120" Length Item # - 62089c14</p> 
<p><b>Rake / Roof to Wall</b> Non-Stone Coated 120" Length Item # - 62000011</p> 	<p><b>Rake Cover</b> Stone Coated 120" Length Item # - 62089c07</p> 	<p><b>Starter Strip</b> Stone Coated 120" Length Item # - 62089c16</p> 	<p><b>110° Head Metal</b> Stone Coated 120" Length Item # - 62089c18</p> 
<p><b>Hip and Ridge Cap</b> Stone Coated 14" Length Item # - 62089c02</p> 	<p><b>Pipe Boot</b> Item # - MF3 (Various sized, heat treated &amp; retro fit also available)</p> 	<p><b>StoneShield Shingle</b> Item # - 62089c01</p> 	<p><b>Union REPEL Synthetic Underlayment</b> (or 30# Felt) Item # - REPEL48X250SRU</p> 
<p><b>Black Wood Screw</b> #10 x 1-½" Item # - BKWSNW150</p> 	<p><b>Black Stitch Screw</b> #8 x ½" Item # - BKSMSNW8050</p> 	<p><b>Sealant</b> NP1 or Better Item # - TUBESEALANT</p> 	<p><b>Ridge Vent</b> Item # - 62000013</p> 



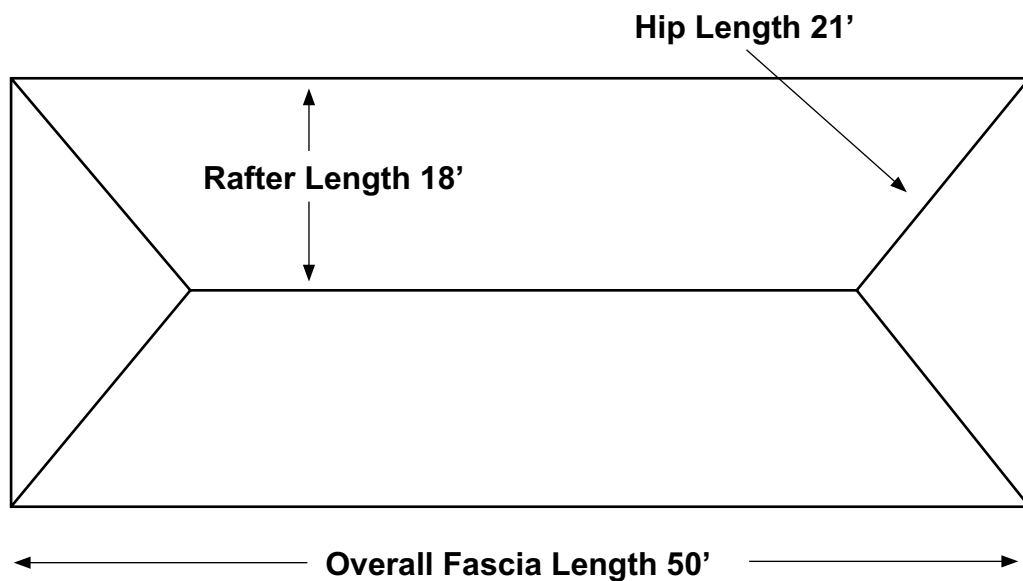
## Estimating

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### How to Determine How Much Material You Will Need

Quick Step Method  
(approximate)

1. Determine roof square feet without waste.
2. Add linear feet of hips and valleys. Multiply by 2.
3. Add totals from steps 1 and 2.
4. Multiply total by 1.03. This yields roof square feet including waste.
5. Divide total from step 4 by 100. This yields roof squares. StoneShield Shingle is 24 shingles per square.



- 1)  $50 \times 36 = 1800$  s/f w/o waste
- 2)  $\text{Hip} \times 4 = 84 \times 2 = 168$  linear feet
- 3)  $168 + 1800 = 1968$
- 4)  $1968 \times 1.03 = 2027$
- 5)  $2027 \div 100 = 20.27$  sqs

## Roof Preparation

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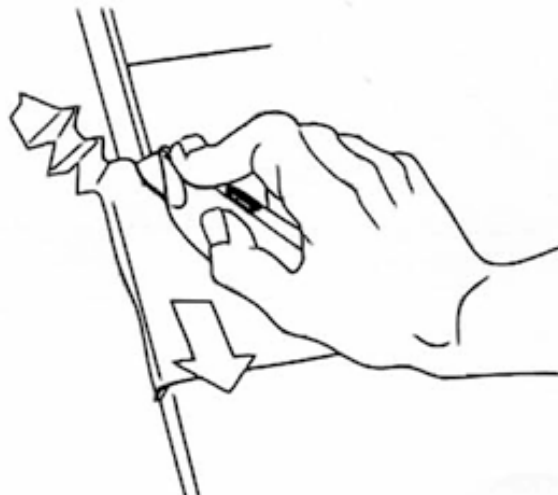
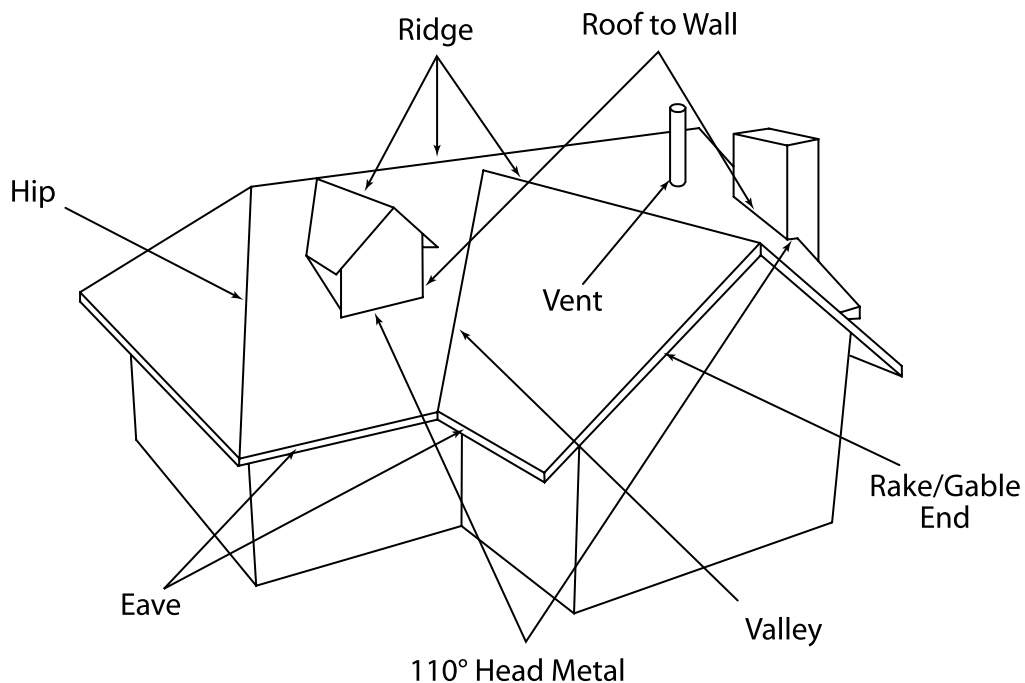
StoneShield Shingles should not be installed on roofs with less than 4:12 slope.

### **Re-roof:**

StoneShield can be installed over low profile asphalt shingles. A synthetic underlayment such as Union's REPEL should be installed over the existing shingles prior to installation. Cut back existing shingles flush with the perimeter of the roof and remove existing drip edge, hip, and ridge cap.

### **New Construction:**

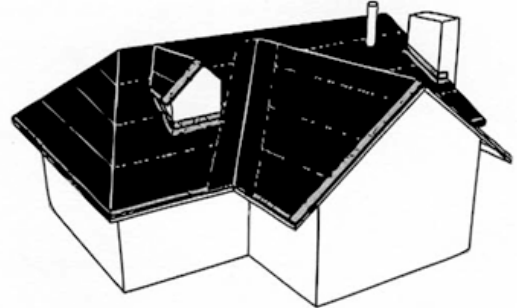
StoneShield should be installed over solid plywood decking with a minimum thickness of 15/32". A synthetic underlayment such as Union's REPEL should be used over the decking.



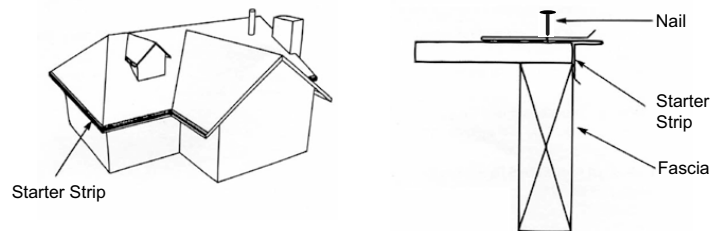
Cut back existing shingles

# **REPEL Synthetic Underlayment, Starter Strip and Rake/Roof to Wall**

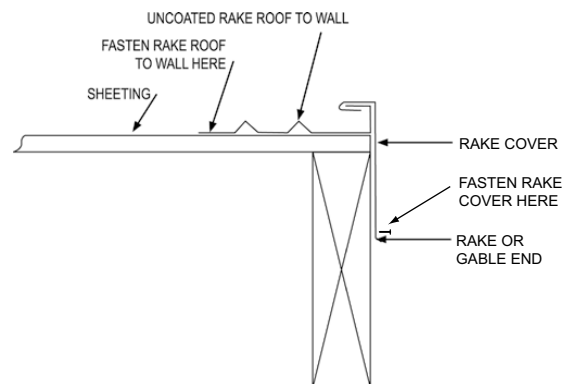
1. A layer of underlayment is required prior to installing StoneShield shingles in both re-roof and new construction applications. The minimum requirement is 30# felt, although a synthetic underlayment designed specifically for metal roofing such as Union's REPEL will offer the best protections. In areas where ice damming can occur, a type of peel and stick Ice and Water Shield should be installed in the valleys and along the eave line. Lay one layer of REPEL up the valley. Cover the entire roof with REPEL. At the valleys weave the opposing courses of REPEL.



2. Install the starter strip along the eave using wood screws long enough to penetrate the deck a minimum of 1/2". Screws should be placed every 16". Use a chalk line to establish the proper location of the starter strip. Do not depend on the roof edge to be straight or square.



3. Install the uncoated rake/roof to wall up the gable or rake, fastening as shown 16" on center. It is sometimes easier to assemble the rake cover on to the rake roof to wall before installing. When done this way, shorten the first (bottom piece) of rake cover in order to prevent all the ends from lining up. Head lap is necessary for the rake roof to wall (approx 3"). The rake cover should be notched at the top flange in order to achieve a side lap of 1 to 1-1/2".

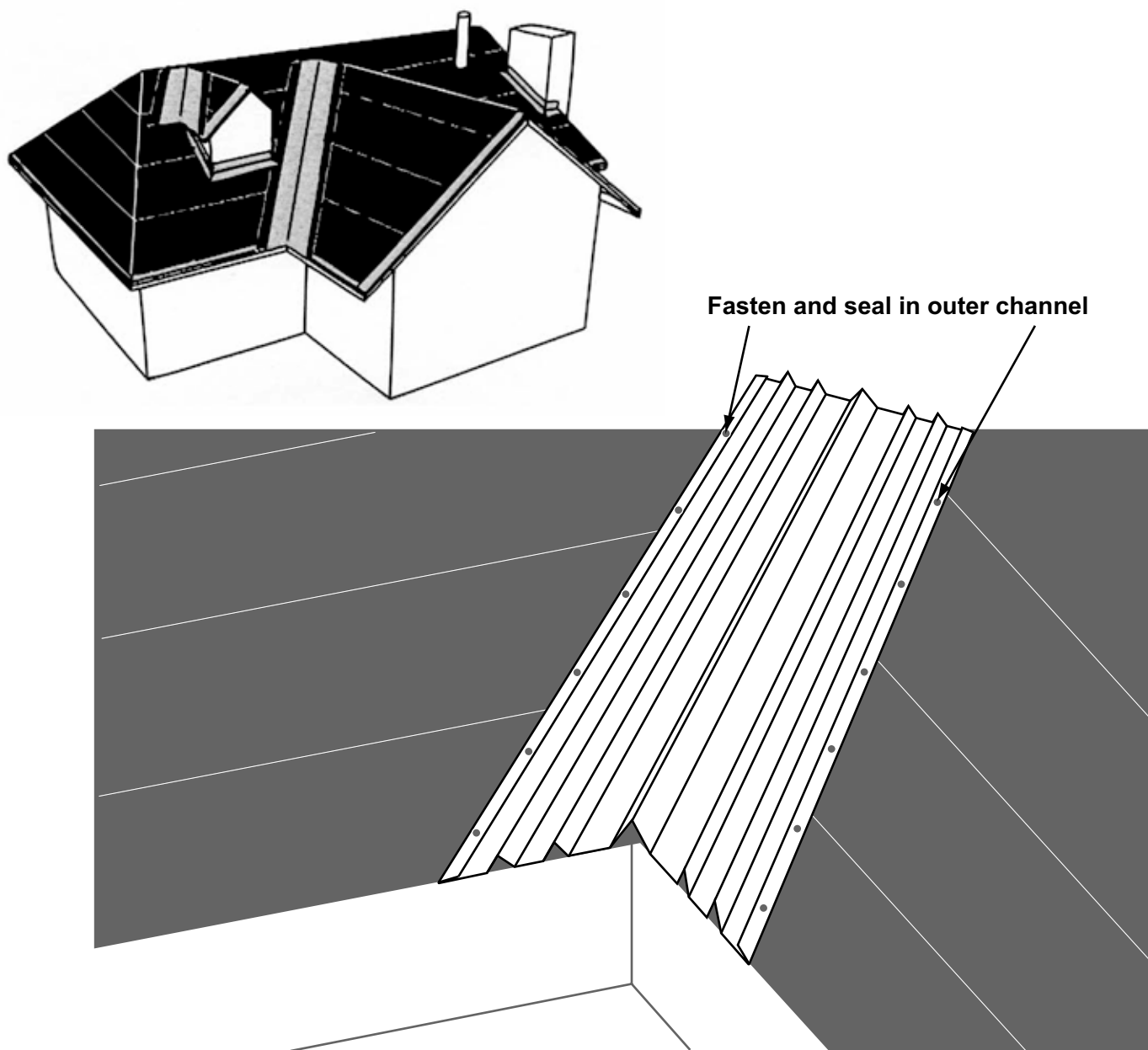


4. Ensure that the bottom end of the rake/roof to wall overlaps the top of the starter and extends just beyond the eave. Sealant should be placed between the starter strip and the rake/roof to wall.

## Valley

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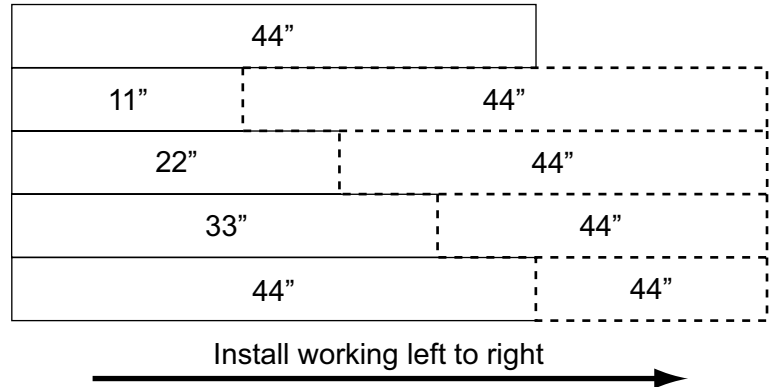
1. The uncoated valley must be positioned in each of the valley areas of the roof. The bottom edge of the valley should be positioned so that the entire width of the valley extends just beyond the eave. Sealant should be placed between the starter strip and the valley. Valley overhang may be cut back to accommodate rain gutter systems. Fasten the valley through the outer channel using wood screws every 16 inches.



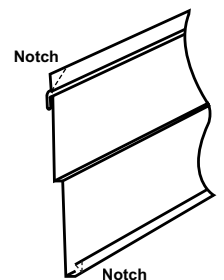
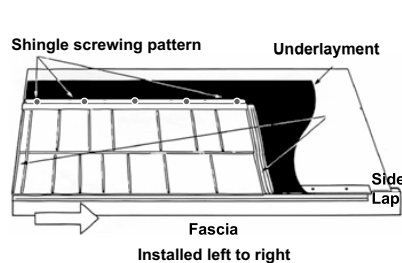
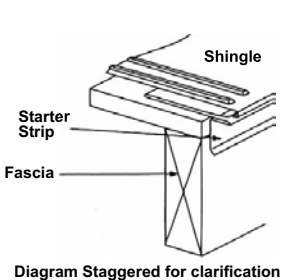
# Shingle Installation

## Install Pattern:

1. Always work from left to right following the course recommendation.
2. 1st course - Full shingle 44"
3. 2nd course - cut shingle to 33"
4. 3rd course - cut shingle to 22"
5. 4th course - cut shingle to 11"
6. Repeat process starting with a full shingle.

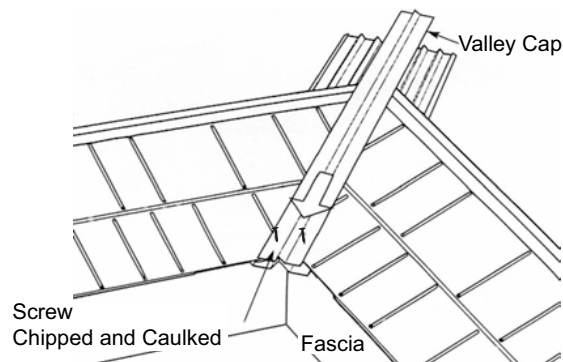
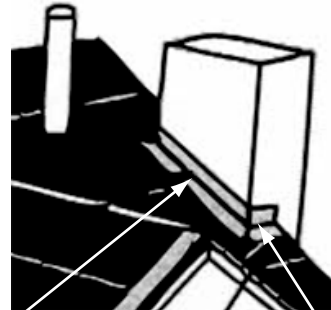
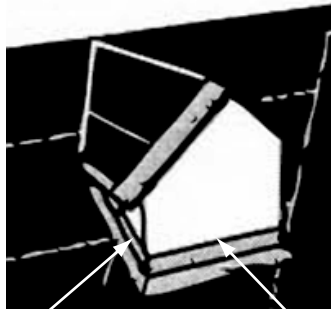
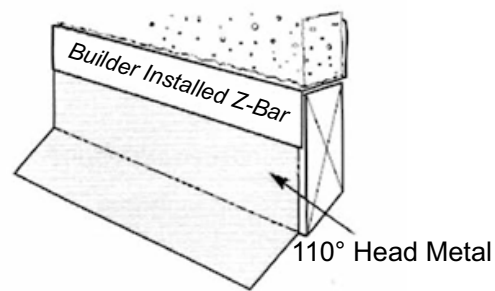
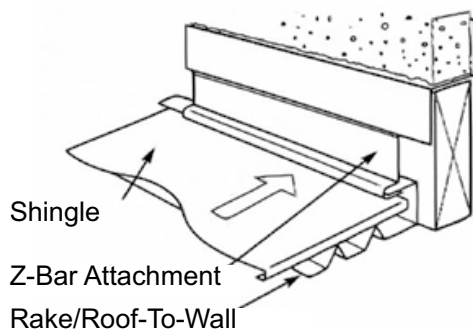


1. Shingles should be installed starting at the eave and going from left to right. The nose end of the shingle must interlock with the starter strip. Screw the first course, using 5 screws per shingle, along the nailing strip at the top of the shingle.
2. The eave shingle at the bottom of the rake/roof to wall or valley metal must have the nose cut and folded under to allow for drainage. The shingle cut must just be wide enough to reveal the full width of the rake/roof to wall or valley metal.
3. When installing any panel except for the first one in each course, position the panel and make sure the Pittsburgh lock is completely secure. Then, place your hand on the left side of the panel just below the center step, and with the other hand pull up the top left side of the same panel, bending it up across the center step area to at least 45° (see picture). Then push the panel back down and make certain the side lap is tight. If the side lap is not tight, lift the panel and hand work the left side until it is tight. Double-check the Pittsburgh lock and fasten the panel with the 5 screws at the back apron.
4. On all gable, roof to wall, and valley panels, snip off the top corner of the nail strip to 45° (gable panels would be snipped on the gable side and valley and roof to wall panels snipped on the cut side). At the bottom of these same shingles, make a "v" shaped notch at the nose. (see drawing)
5. It is recommended to leave the valley cuts ½" short of the center flute of the valley.
6. For installations with an off-set eave, use the riglet. The riglet is an extension of the starter strip. Riglet must be set in sealant and fastened through the top of the under panel every six inches. (see drawing)
7. If you have difficulty closing some side laps, the following procedure can be used: Apply a 1-½" corrosion resistant screw directly beneath the mid shelf of the top shingle and approximately 3" to the right of the side lap. This screw is to be of sufficient length to pass completely through the roof sheathing. Do not stitch the side lap together. Do not over tighten the fastener. (see drawing on page 15)



## Sidewall/Endwall, Headwall and Valley Cap Details

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1. Rake/roof to wall is placed at the sidewall and fastened at 16" on center. Make certain the rake/roof to wall drains on top of a field shingle or just beyond the starter strip.
2. After shingles are installed, interlock the Z-Bar attachment to the rake/roof to wall.
3. Select the proper corrosion resistant fastener and attach the Z-Bar Attachment to the wall and seal. Fasteners not to exceed 16" on center.
4. After a shingle has been cut to fit the headwall, attach the 110° head metal over the cut shingle and attach to the roof penetration. 110° head metal must be set in sealant. Select the proper corrosion resistant fastener and attach the 110° head metal to the wall and seal. Fasteners not to exceed 16" on center.
5. Valley cap is placed over the valley concealing the mitered valley cuts and screwed every 12" along the length of the valley to the shingles with 1/2" #8 screws, taking care not to penetrate the valley. Foam closure is provided with the valley cap. Wooded areas along with low roof slope and long valley runs can allow debris to pass under the valley cap and into the valley below. The debris can cause a blockage and force the valley to overflow. The foam closure allows water but not debris to enter the valley.

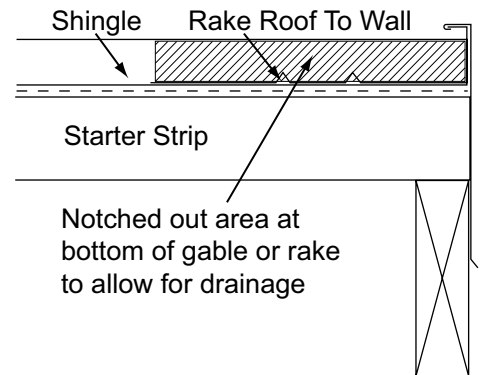
## Rake Roof to Wall and Hip and Ridge Details

1. The shingles above the eave course are installed by interlocking the nose end of the shingle with the back end (Pittsburgh lock) of the shingle of the preceding course concealing the nailing strip.
2. At the rake or gable end cut the shingles to fit and insert the cut edge into the rake/roof to wall.
3. Place a strip of 5" - 6" wide peel-and-stick material over the cut shingles along the hip and ridge and cover with hip and ridge cap.
4. Secure the first hip and ridge cap with corrosion resistant screws. Continue installing the caps fastening them at the top nailing strip. (see drawing)

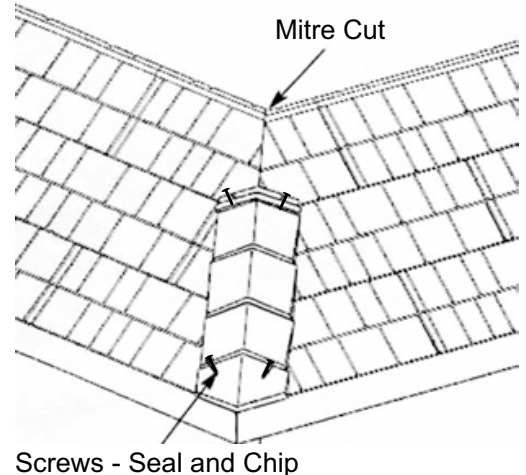
### **Vented Ridge Detail (optional):**

1. Remove 4" of decking at the ridge ( 2" from both sides).
2. Install Repel underlayment, making sure to cut out the vent strip.
3. Starting at the eave and working up, install the Stoneshield shingles to the edge of the ridge vent cut out and fasten using #9 wood screws at the top of the edge of the panel.
4. Install Ridge Roll to the center of the ridge making sure it's straight. Fasten to the decking using 1-1/4" galvanized roofing nails at one end of the roll. Stretch the roll tight and secure. (Fasten to the roof with the mesh material facing down.)
5. Working left to right, install the Stoneshield ridge cap on top of the ridge roll and fasten through the fastening flange located at the back edge of the cap. (Ensure the ridge roll material is completely covered.)
6. Install all preceding caps by locking into the Pittsburgh lock and installing #9 screws into the fastening flange.
7. Note: both the Ridge Roll material and the ridge cap material should be butted tightly to the channel of the Rake/Roof-to-Wall trim piece. Install the supplied black zip screw into the last cap by screwing through Rake/Roof-to-Wall trim into the ridge cap. (Nailing flange should not be left exposed.)

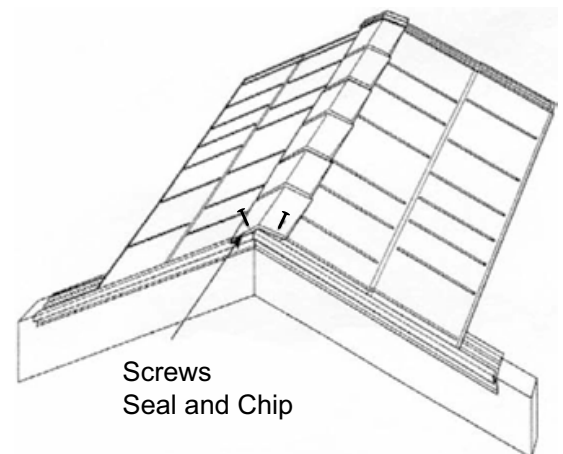
### **Rake/Roof to Wall Accessory Metal**



### **Hip Cap**

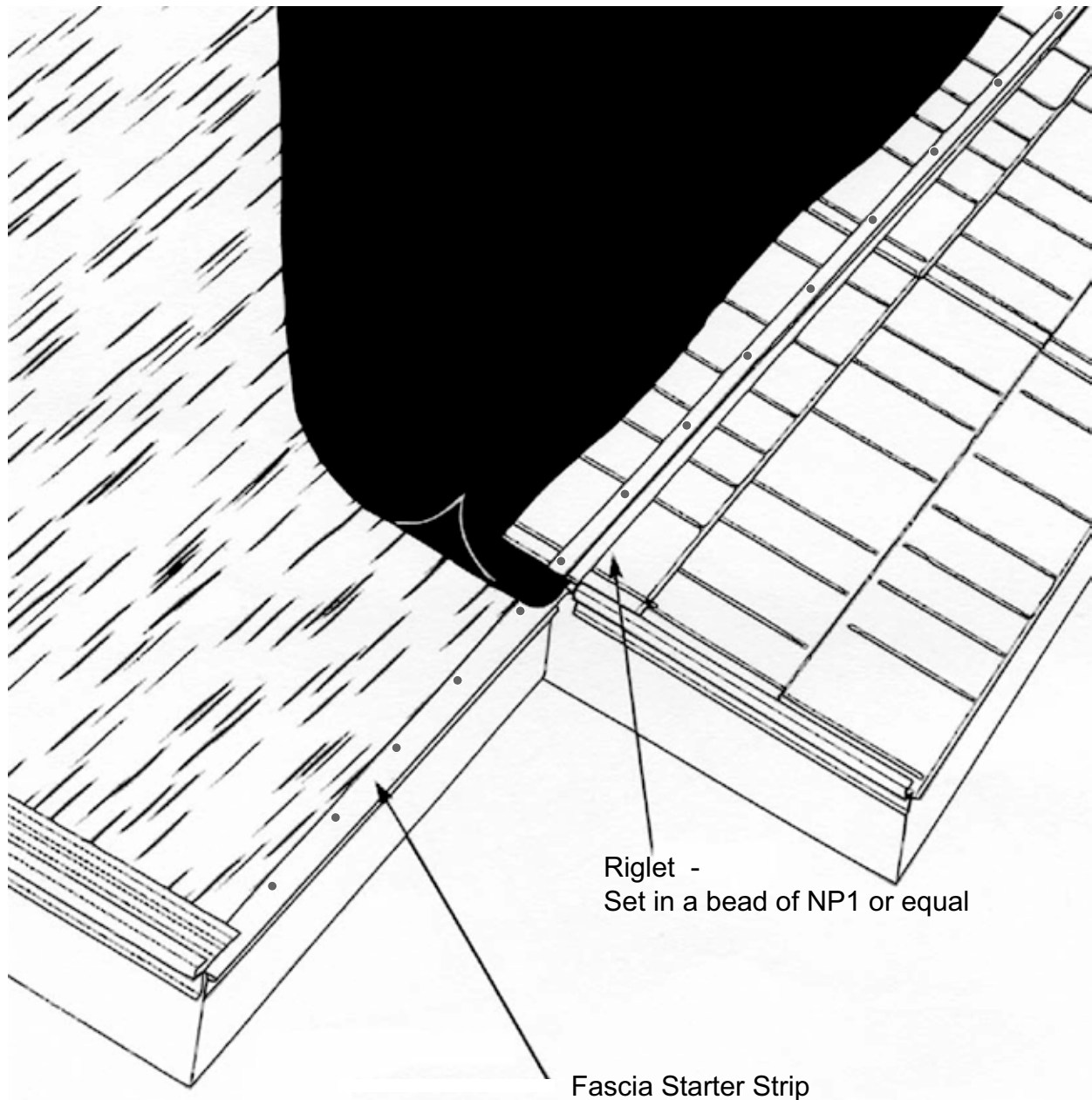


### **Ridge Cap**



## Riglet Installation

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1. The StoneShield Riglet is available for use with installations involving an offset at the eave. The Riglet is aligned with the offset and nailed on the back apron every six inches. The shingles are then installed on the main roof interlocking with the nose end of the riglet and laying over the top of the shingle below.

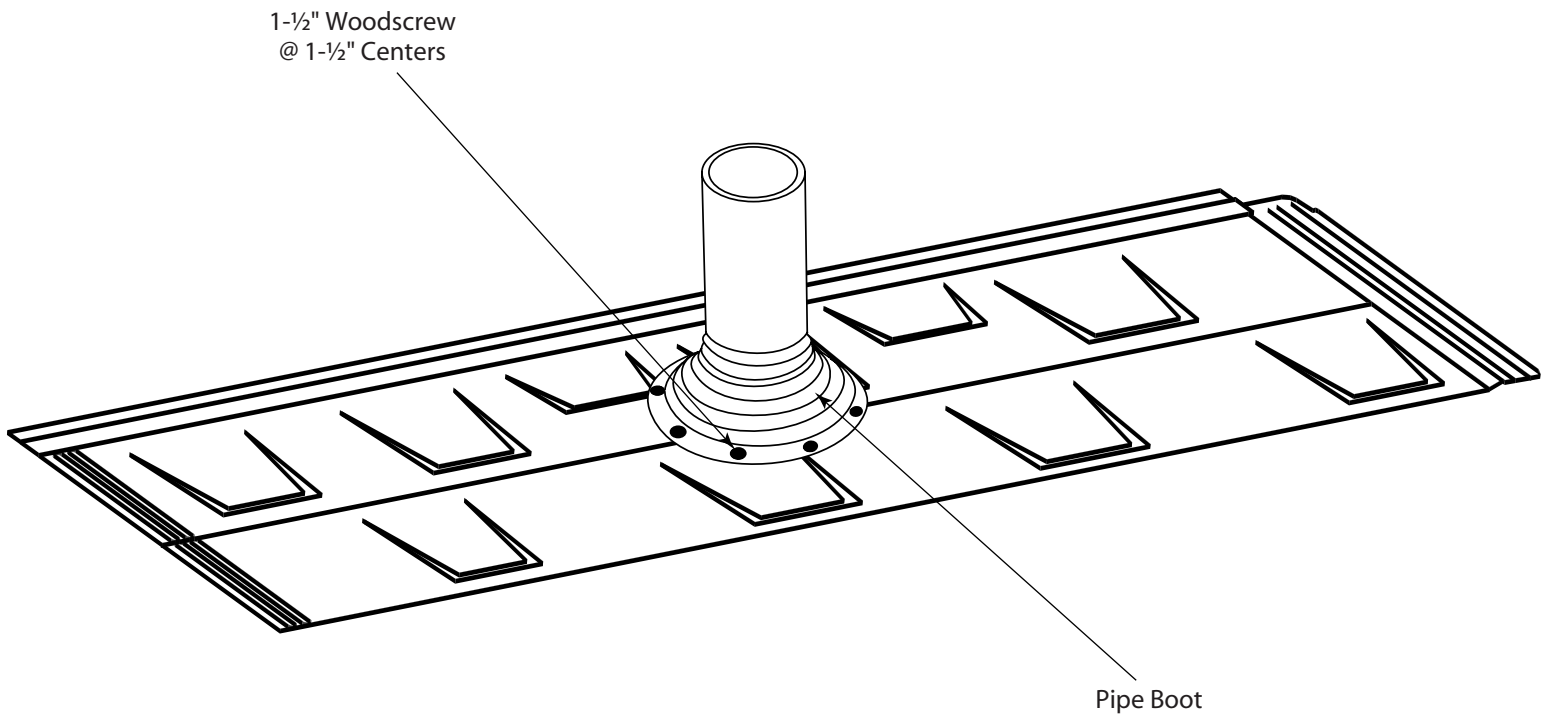
If you have difficulty closing some side laps, the following procedure is acceptable:  
Apply a 1-1/2", corrosion resistant hex head screw directly beneath the mid shelf of the shingle and approximately 3" to the right of the left side of the shingle. This screw is to be of sufficient length to pass completely through the roof sheathing. Do not over tighten or penetrate the overlapped shingle. Make absolutely certain you have followed the procedure outlined on page 8.



## Pipe Penetration Details

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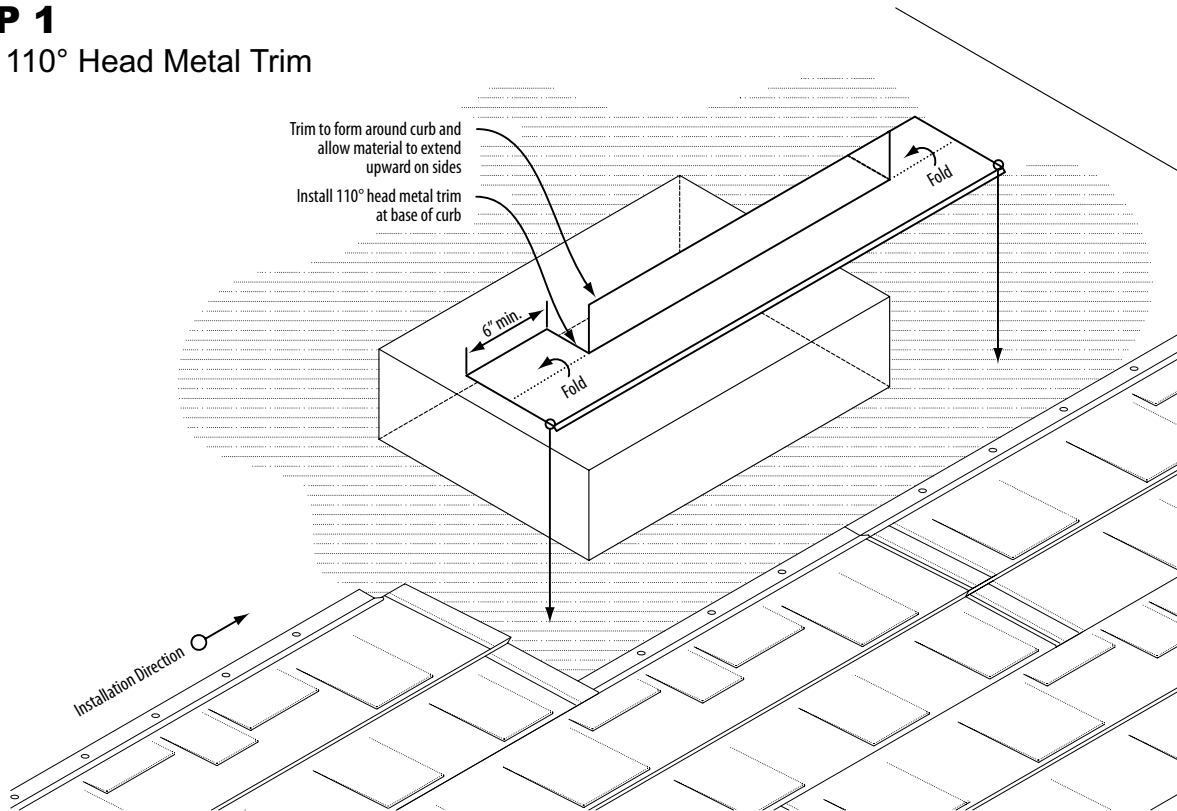
1. Apply field shingles until you come to a pipe penetration. At this point, cut an opening in the shingle and slip it over the pipe.
2. Cut Pipe Boot at appropriate pipe diameter and slide the Pipe Boot down over the pipe using water to lubricate it if necessary. Form the base to fit the profile of the shingle. Seal between the base and the shingle with tube sealant. Fasten the Pipe Boot with 1-½" woodscrews at 1-½" centers to complete the seal.



# Chimney / Curb Flashing Details

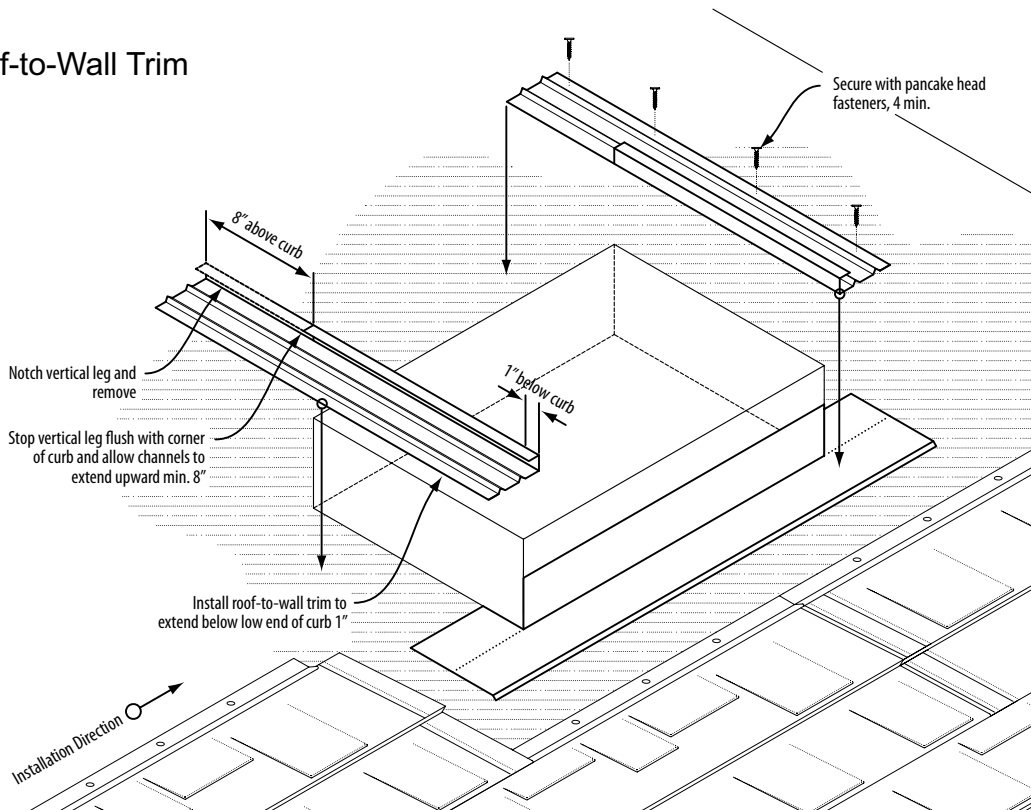
## **STEP 1**

Install 110° Head Metal Trim



## **STEP 2**

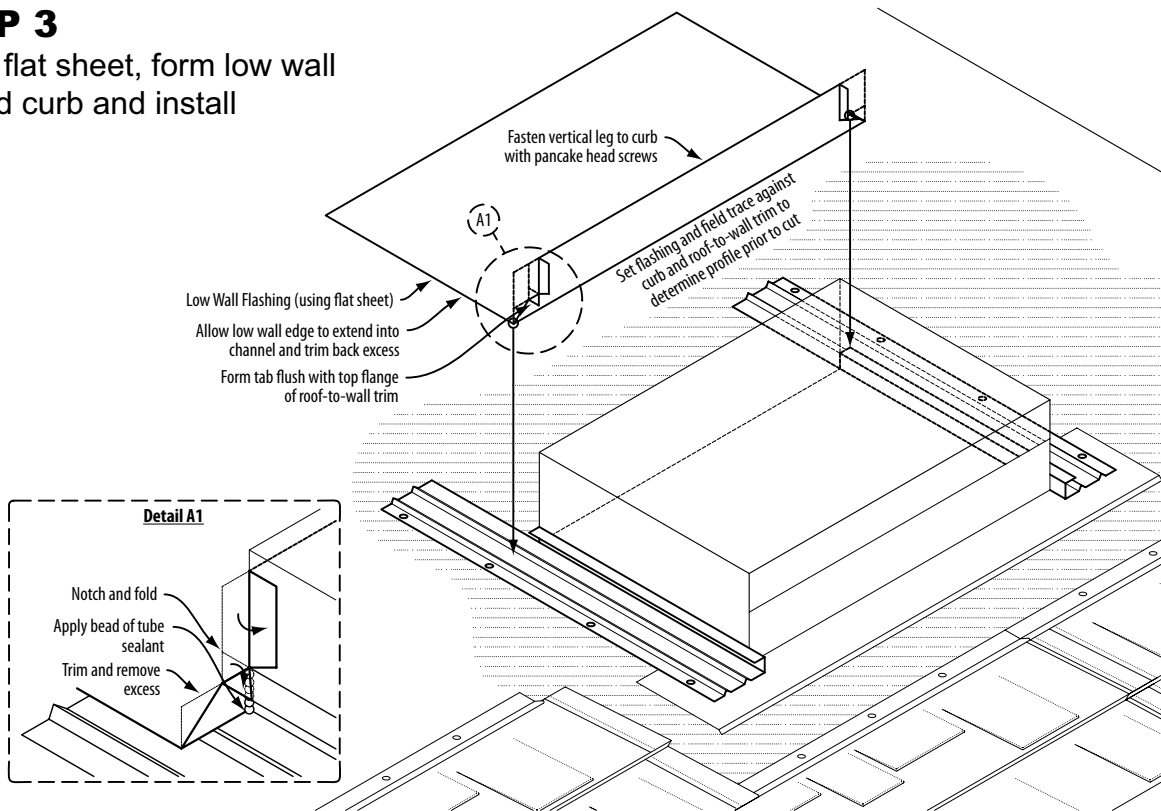
Install Roof-to-Wall Trim



## Chimney / Curb Flashing Details

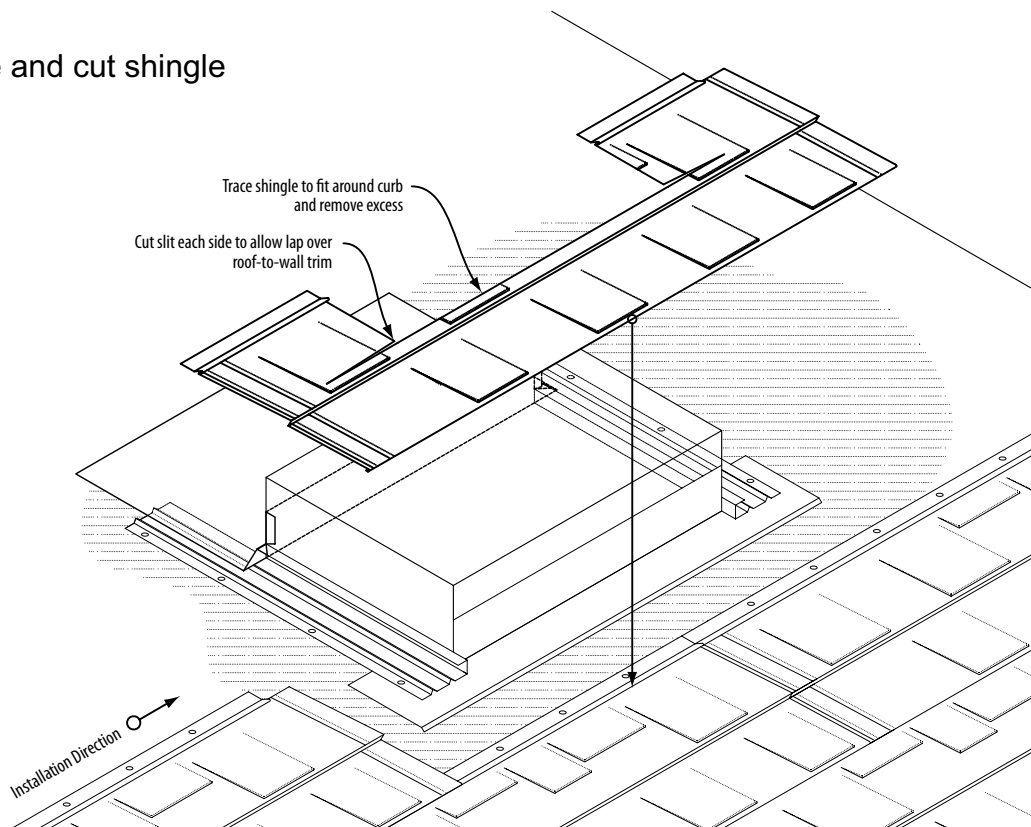
### **STEP 3**

Using flat sheet, form low wall around curb and install



### **STEP 4**

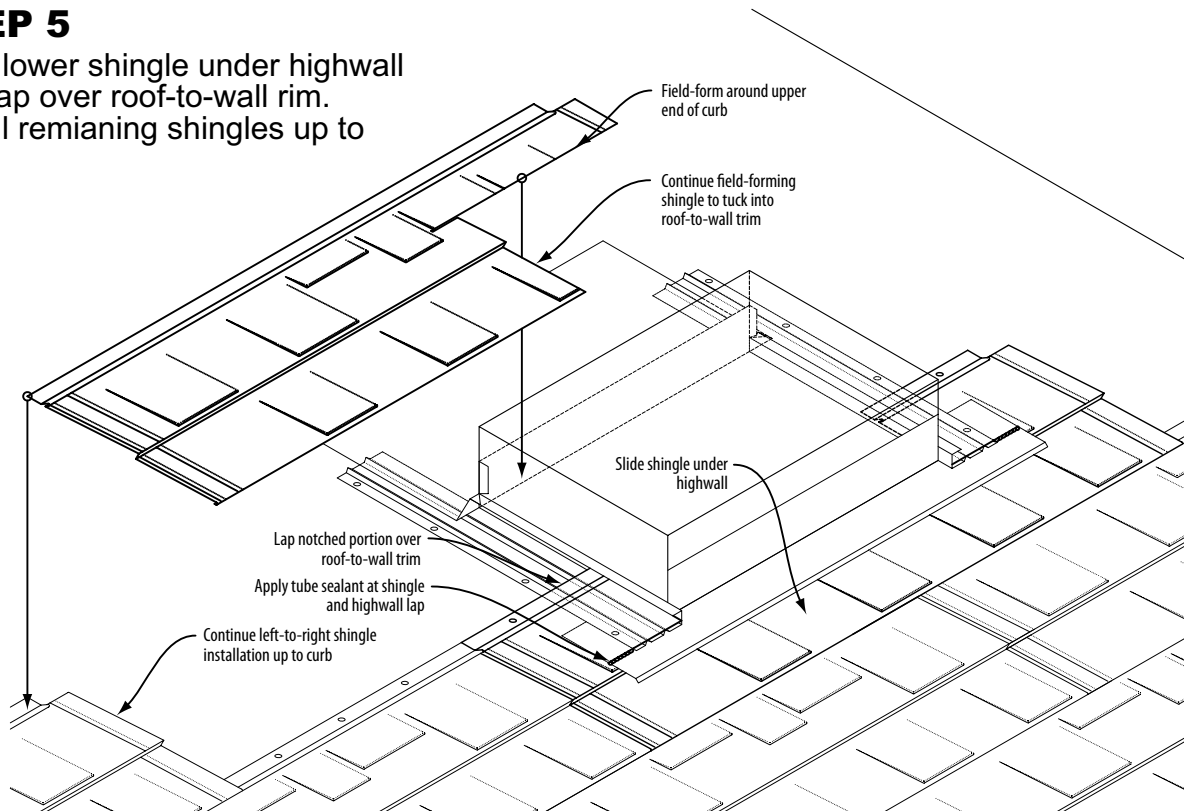
Field trace and cut shingle



## Chimney / Curb Flashing Details

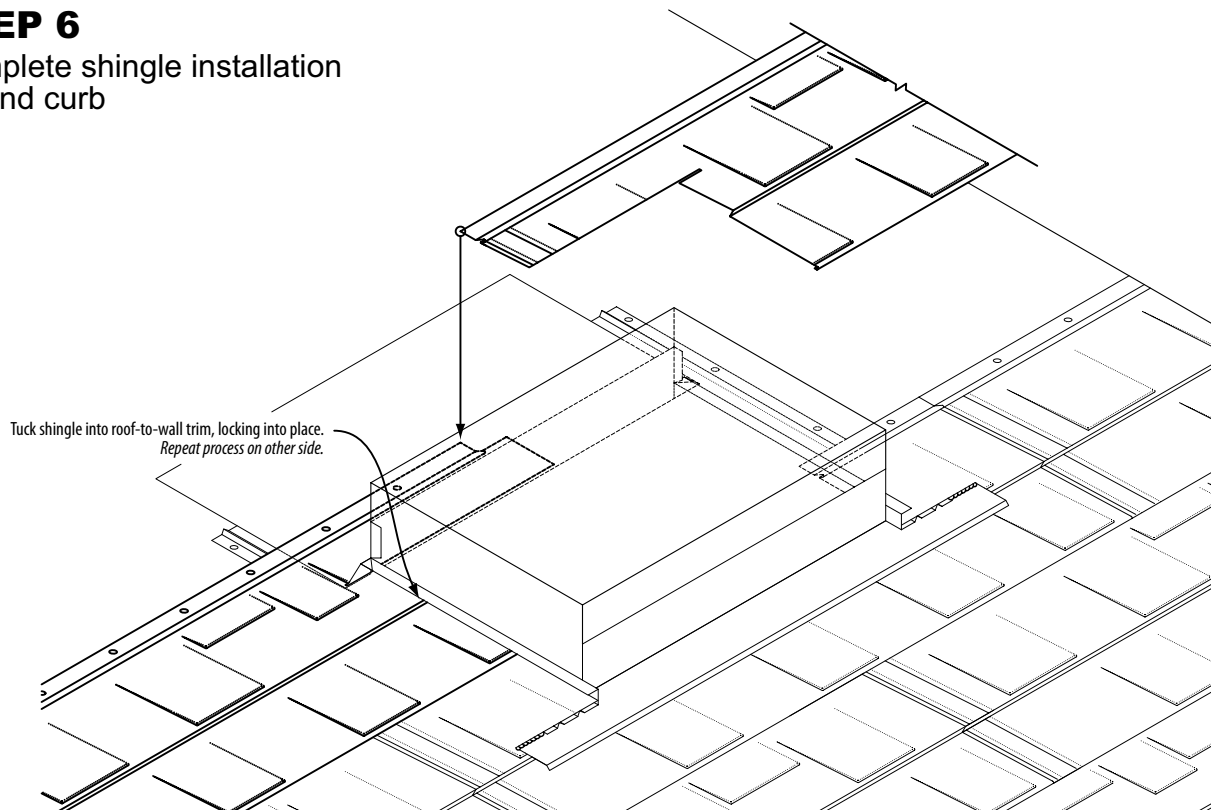
### **STEP 5**

Tuck lower shingle under highwall and lap over roof-to-wall rim.  
Install remaining shingles up to curb.



### **STEP 6**

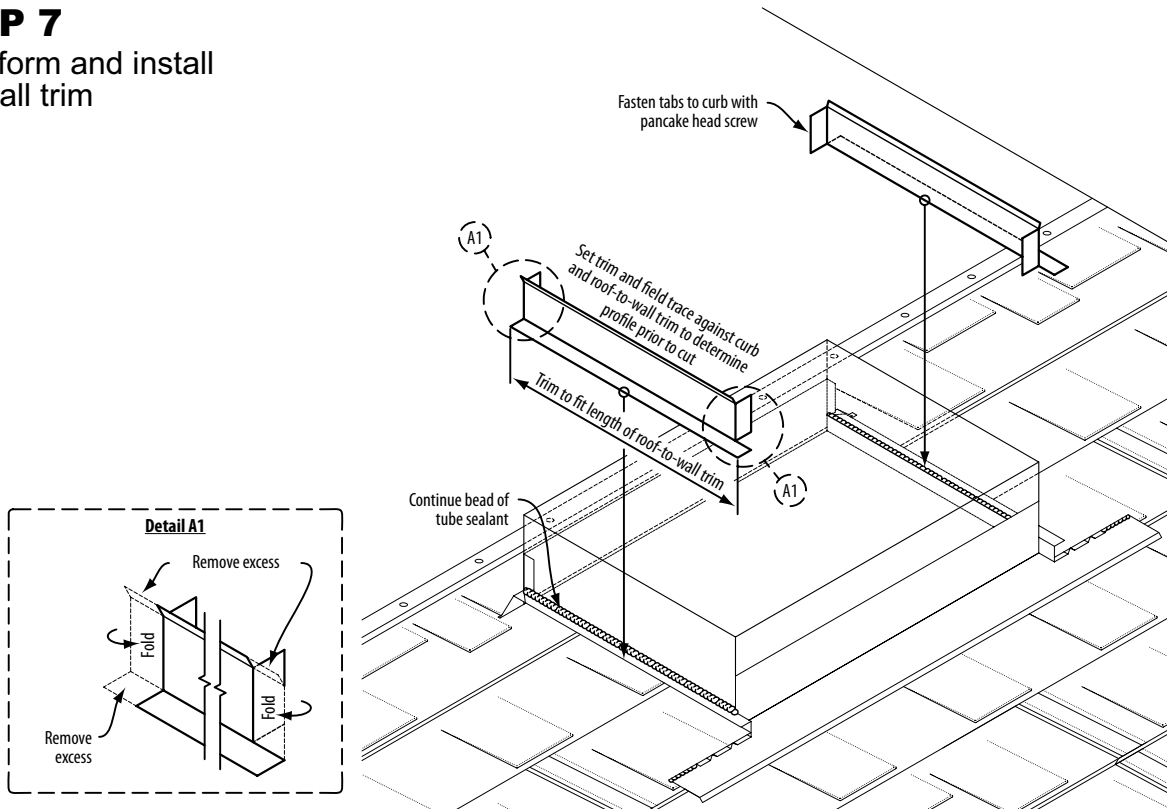
Complete shingle installation around curb



## Chimney / Curb Flashing Details

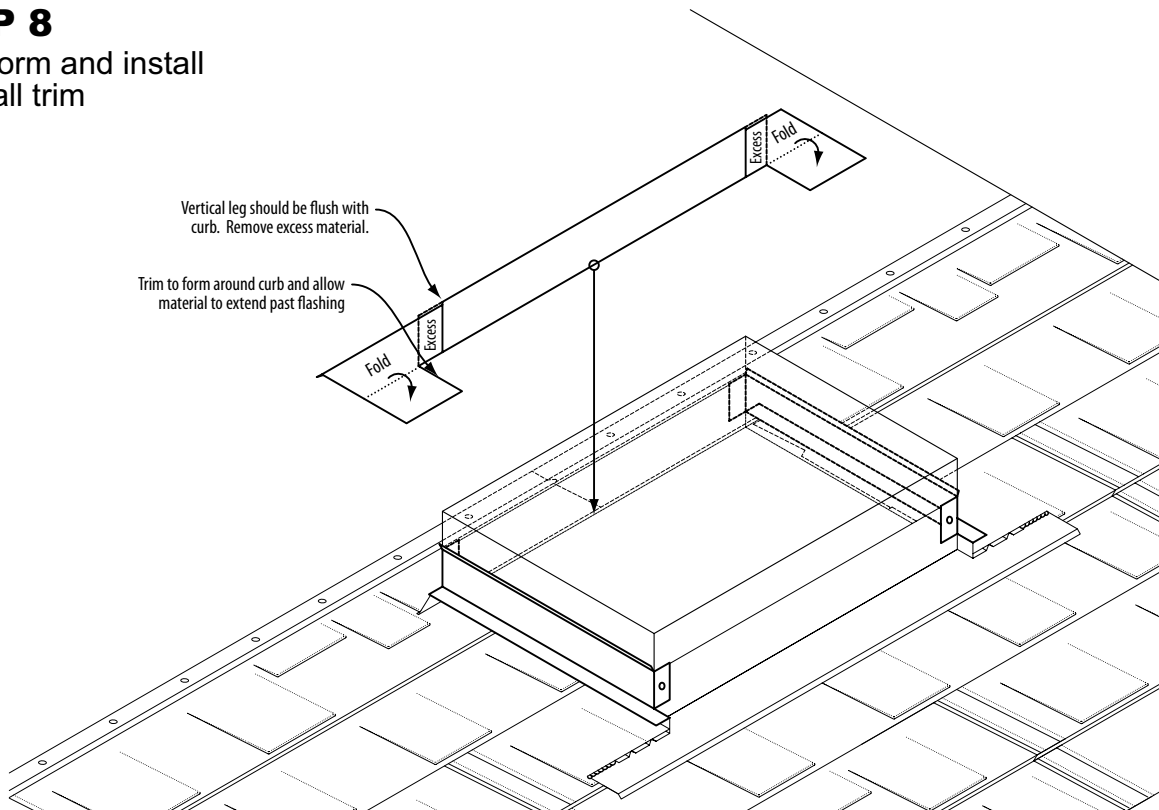
### **STEP 7**

Field-form and install  
sidewall trim



### **STEP 8**

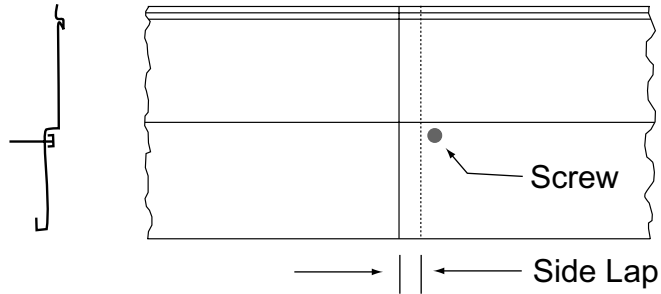
Field-form and install  
highwall trim



## Acceptable Sidelap Repair Option

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### 1. Alternate Procedure for Difficult Sidelaps



Corrosion Resistant Screw  
Minimum 1-½" #8

Apply small bead of sealant between panels at side lap and draw panels together.  
Do not over-tighten the screw fastener





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