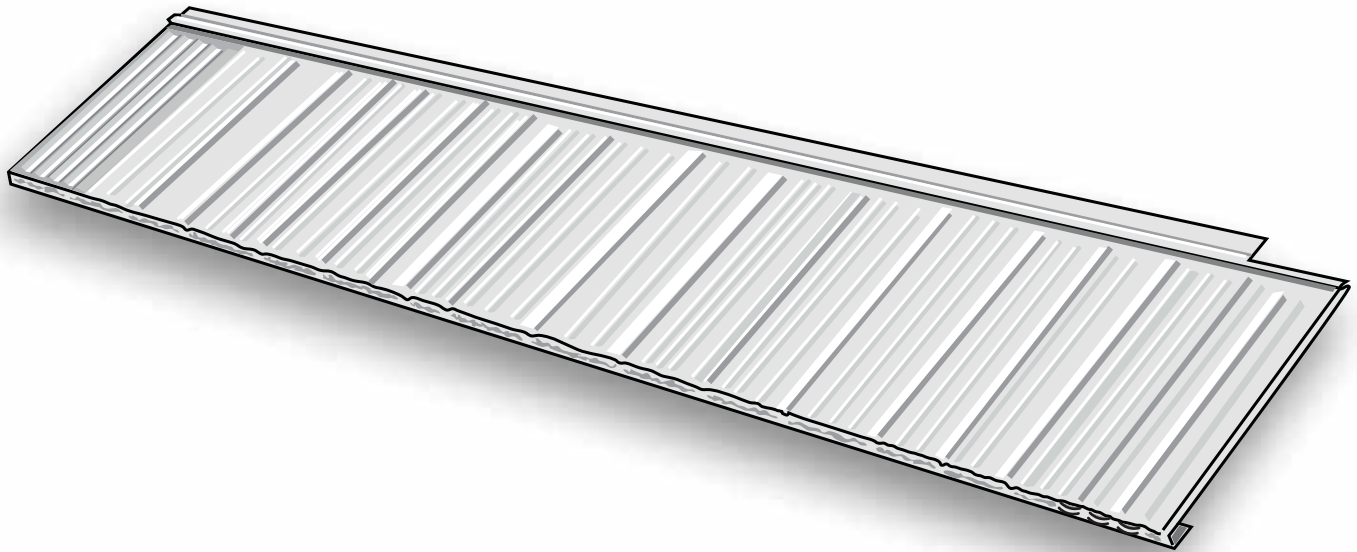




# MetroSHINGLE®

## Installation Details



Issued December 29, 2005 | Revised July 5, 2013

### INSTALLATION WARNING!

These install details are provided to demonstrate a recommended installation method for Metro Roof panels and accessories.

The Details and information in this document reflect current roofing practices used in the United States. Installers of Metro roof panels and accessories should have knowledge of roof structures, an understanding of how to work with stone-coated steel panels and accessories, and be experienced at working on sloped roof environments.

Metro recommends installers of MetroSHINGLE® products use a Metro Cutter, and have completed a 'SMART-Start On Site installer Training Orientation Program' (located at <http://www.metroroofs.com/SmartStartTraining.cfm>) for each profile installed. Metro does not consider its products to be "do-it-yourself" (D.I.Y) mainly due to specialized cutting & bending tools used during installation.



### INTRODUCTION

#### Installation Tools:

- Metro Installation Kit
  - 1-Cutter, 1-Foot Bender\*
  - 1-Full Panel Bender attachment\*
  - 12-V Impact Driver
  - Red & Green Snips
  - 3" Hand Seamers
  - Safety Gloves & Safety Glasses
  - \* Optional

#### Other Tools:

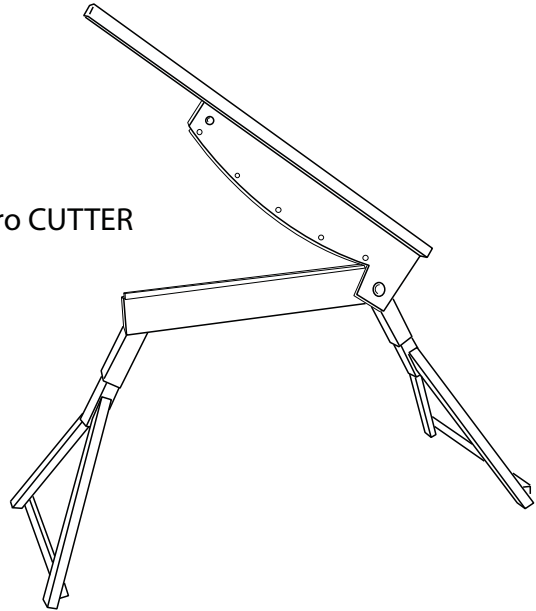
- Nail Gun
- Hammer
- Tape Measure
- Caulking Gun
- String-Line

#### General:

These installation details are designed to be used in conjunction with Metro's SMART-Start On-Site Installer Training Program.

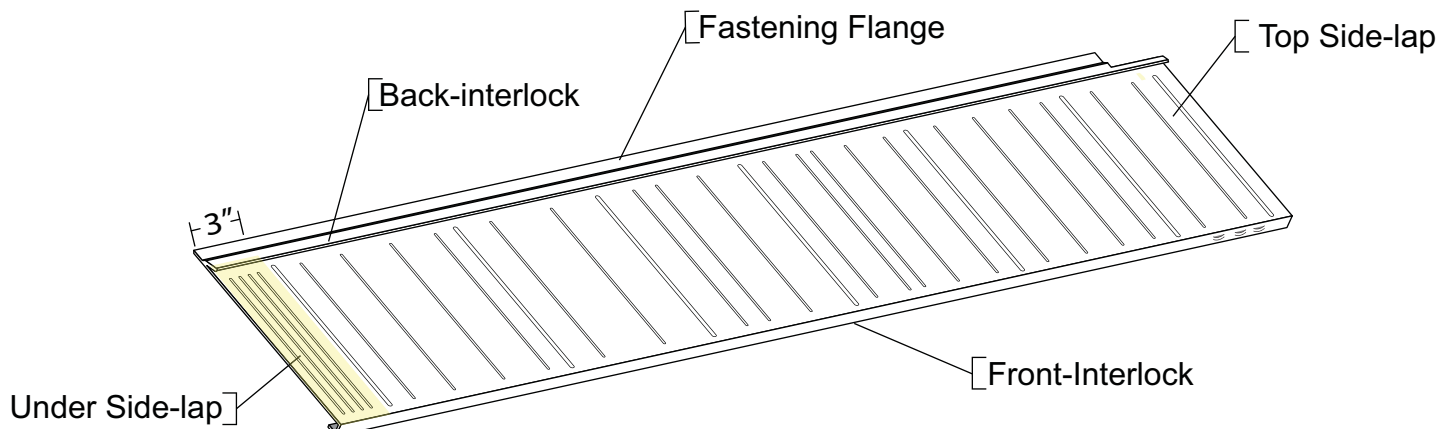
A MetroSHINGLE® roof starts with perimeter metal & valley flashings, followed by field panels; installed from right to left, one course at a time, across the roof and up towards the ridge. Panels are measured and cut to fit areas around the perimeter of the roof; i.e. rakes, ridges, hips, & valleys. Trim caps are then installed, followed by an overall quality review of the roof.

Metro CUTTER



*In cold climate zones with Cathedral Ceilings a Counter-Battten and Batten grid system is recommended to help prevent Ice-Damming.*





### CONCEALED Fastened:

MetroSHINGLE® panels are CONCEALED fastened. They incorporate a rear fastening flange. Panels interlock from top to bottom at the "Pittsburg-Lock" formed sections on the panels. The interlocking sections create a weather barrier. The dimensions of this panel are as follows:

Overall Length Range:	52" (1321mm)
Pitch (Course Cover):	9-1/4" (235mm)
Side-Lap:	3" (76mm)
Front Downturn Nose:	3/8" (9.52mm)
Back Up stand:	3/8" (9.52mm)
Back Horizontal Flange:	3/4" (20mm)

### Materials:

Metro panels are produced from Aluminum-zinc alloy coated steel complying with ASTM A792.

### Packing and Storage:

A pallet of MetroSHINGLE® contains approximately 16 squares. Care should be taken to store panels in an area free from moisture. Refer to pallet storage warning information for more details.

### Fasteners:

All fasteners (Nails or Screws) used on a Metro roof for panels, trim caps and accessory items shall meet or exceed the corrosion resistant standard as defined in ASTM B-117, (1,000-hr minimum Salt Spray Corrosion Resistance).

For HVHZ (High Velocity Hurricane Zone) areas refer to local code requirements and/or Metro website ([www.metroroofs.com](http://www.metroroofs.com)) for details.

### Sealant/Caulking

Only exterior grade urethane or (non-acidic) caulking should be used for sealant.

### Testing:

Metro panels have been tested in accordance with local, national & international building codes. Testing has been conducted to evaluate fire, wind, penetration, water infiltration, and durability resistance. Information regarding specific tests and approvals can be obtained from Metro Roof Products.

### Ventilation:

Ensure proper attic ventilation as prescribed per local codes. Either Smart Vents or Ridge venting can be installed to achieve adequate ventilation.

### Warranty:

Metro panels carry a limited warranty for fifty years. This limited warranty is transferable and does not cover damage due to improper handling or installation.

### Dissimilar Metals:



*To avoid adverse corrosion effects caused by dissimilar metals, COPPER and LEAD flashings should not be used with Metro roof products and accessories. (refer to Metro SMARTbrief #02004)*

### Finish coating:

Minor scuffing of the Metro stone-coated finish can be repaired with a Metro Touch-Up Kit. Use the Metro base-coat acrylic supplied in the kit (not caulking) for repairs. Unfinished flashing material can be painted with durable acrylic aerosol paints. Colored aerosol paints should never be used as 'touch-up' on stone-coated products.

### Roofing felt

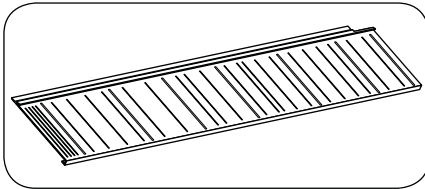
Unless local conditions require otherwise, either one layer of type 30, or two layers of Type 15 lb. roofing felt or equivalent should be used with Metro panels.



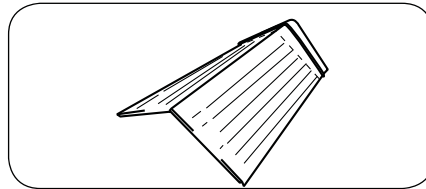
*Colored areosol paints should never be sprayed on stone-coated panels & accessories.*



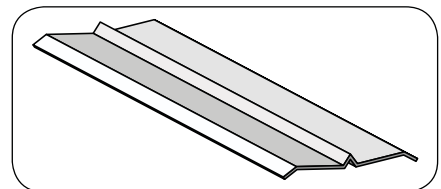
### Stone-Coated Items



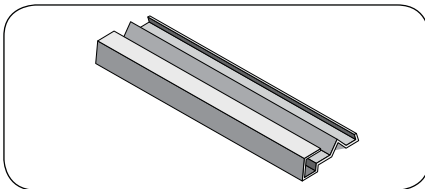
**MetroSHINGLE®**  
52" X 10-1/2" (1321 X 267mm)  
3.6 lbs. (1.63 Kg)



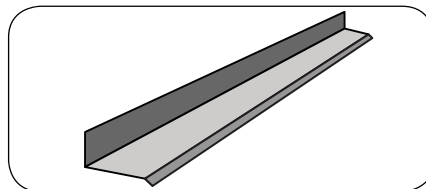
**Shingle Trim Cap (Hip & Ridge)**  
10-1/2" X 8" (267 X 203mm)  
.57 lbs (.26 Kg)



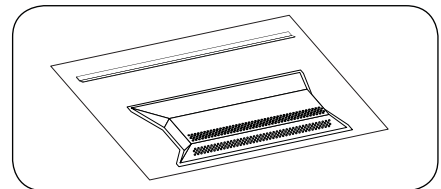
**Valley Center Cover**  
79" X 4" (2006 X 100mm)  
3.5 lbs. (1.59 Kg)



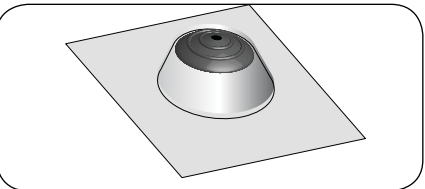
**Shingle Rake Channel**  
79" X 1" X 2" (2006 X 25 X 50mm)  
3.00 lbs (1.36 Kg)



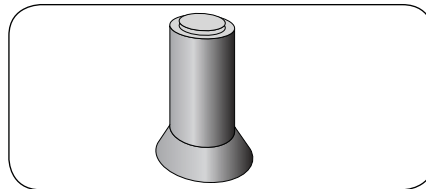
**Head Wall Flashing**  
79" X 2-1/4" X 3-1/4"  
(2006 X 57 X 83mm) 3.30 lbs (1.5kg)



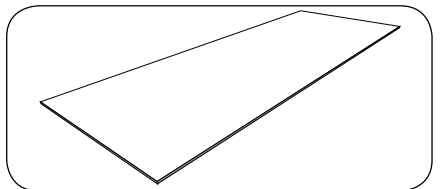
**MetroSHINGLE® SMARTvent**  
59" X 3-1/2" X 16-3/4"  
(1499 X 89 X 426mm) 10.5 lbs  
(4.77 Kg)



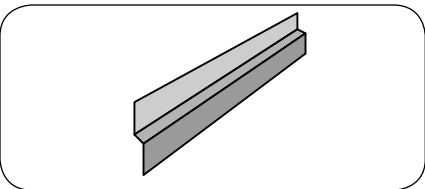
**SMART-jack (Small Base)**  
12" X 16" (300 X 407mm) 1.00 lbs  
(.45 Kg)



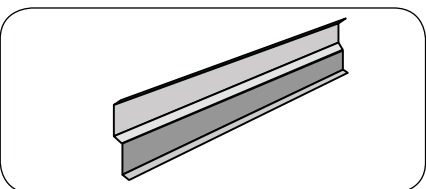
**SMART-Sleeve Universal  
Pipe Cover**  
16" X 4" (407 X 100mm) 1.65 lbs  
(.75 Kg)



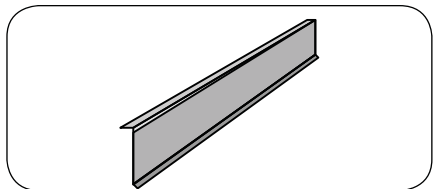
**Flat-Stock**  
52" X 18" (1321 X 457mm)  
5.7 lbs (2.59 Kg)



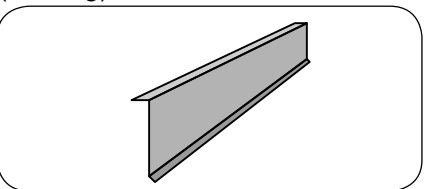
**Z-BAR (Large)**  
79" X 2-1/4" X 1" X 2-1/4"  
(2006 X 57 X 25 X 57mm) 2.5 lbs  
(1.14 Kg)



**Z-BAR (Small)**  
79" X 1-3/8" X 1/2" X 1-3/8"  
(2006 X 35 X 13 X 35mm) 2.0 lbs  
(.90 Kg)



**Fascia - Counter Flashing**  
79" X 3-1/2" X 3/4"  
(2006 X 89 X 19mm) 2.50 lbs  
(1.14 Kg)

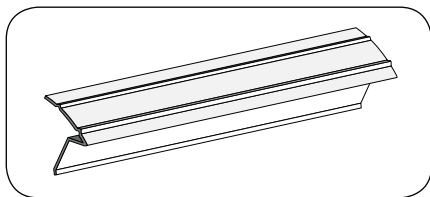


**Fascia - Counter Flashing**  
79" X 5" X 3/4" (2006 X 127 X 19mm)  
3.75 Lbs (1.70 Kg)



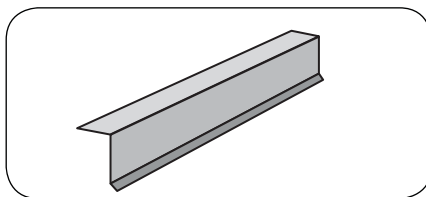


### PAINTED ACCESSORIES



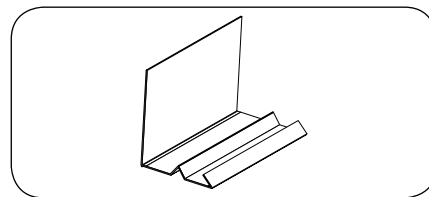
#### Shingle Fascia Starter

120" X 3" X 1-1/2"  
(3048 X 76 X 38mm) 2.50 Lbs  
(1.14 Kg)



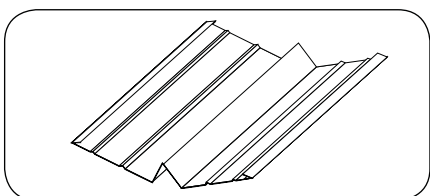
#### FL Drip Edge

120" X 1-1/2" X 1-1/2"  
(3048 X 38 X 38mm) 1.60 Lbs.  
(.73 Kg)



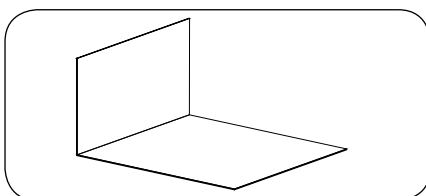
#### Side-Wall Under-pan metal

120" X 4" X 3" (3048 X 100 X 76mm)  
5.0 Lbs. (2.27 Kg)



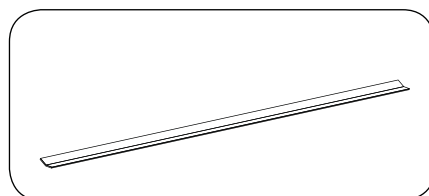
#### Double 'V' Valley Metal

120" X 20" (3048 X 508mm)  
12.50 Lbs. (5.68 Kg)



#### Chimney Saddle

60" X 18" X 4"  
(1524 X 457 X 100mm) 6.75 Lbs.  
(3.07 Kg)

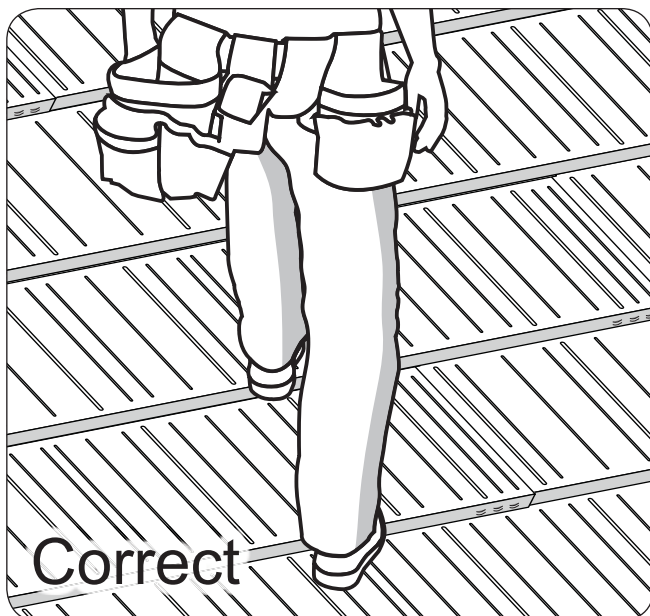


#### Short Course Cleat

120" X 2" X 1/4" X 1"  
(3048 X 50 X 7 X 25mm) 1.50 Lbs.  
(.68 Kg)



## WALKING ON YOUR METRO SHINGLE ROOF

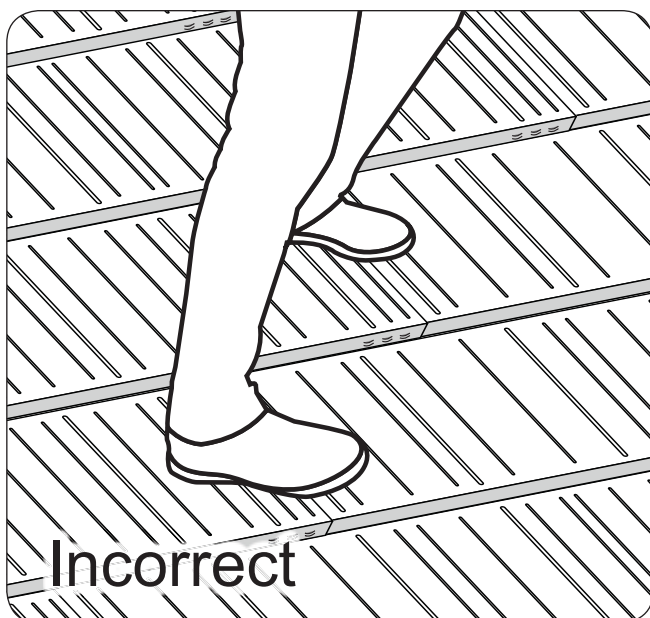


### General Information

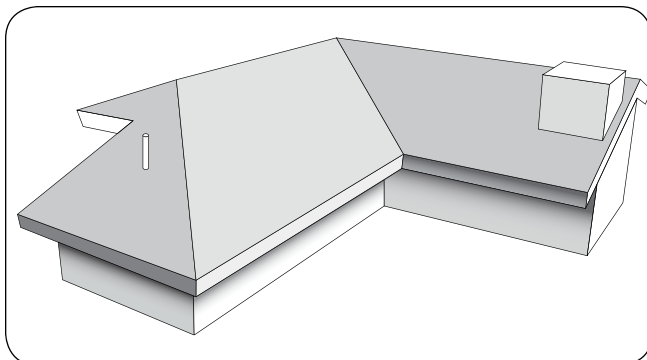
These details are provided to demonstrate a recommended installation method for Metro roof panels and accessories. The details and information in this document reflect current roofing practices used in the United States. Installers of Metro roof panels and accessories should have knowledge of roof structures, an understanding of how to work with stone-coated steel panels and accessories, and be experienced at working on sloped roofs. Metro recommends installers of Metro products use a Metro Cutter and have completed a 'SMART-Start On Site Installer Training Orientation Program for each profile installed. Metro does not consider its products to be "Do-it-yourself" (D.I.Y.) mainly due to the specialized cutting & bending tools used during installation.

### MetroSHINGLE®

When walking on a MetroSHINGLE® roof place your feet close to the nose of the front edge of the panel and wear lightweight soft soled shoes for good grip and feel. Avoid walking on or near the panel side-lap.

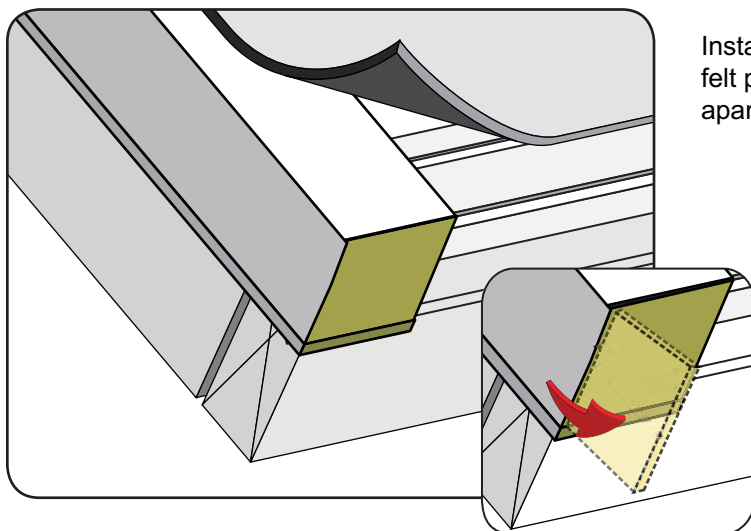


### UNDERLAYMENT



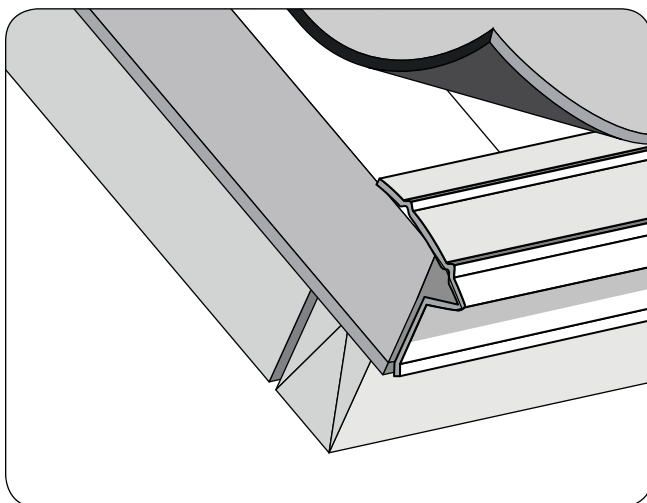
MetroSHINGLES® are installed on new or existing roofs pitched from at least 3:12 and above. Installation begins with roofing edge metals followed by the installation of roofing felt being conventionally applied. Ice-& Water shield underlay should be installed per local code and product application instructions in areas where icing may occur. For re-roofing applications, the existing shingles are to be cut back flush with the perimeter of the roof. Consult local codes for specific requirements.

### DRIP EDGE

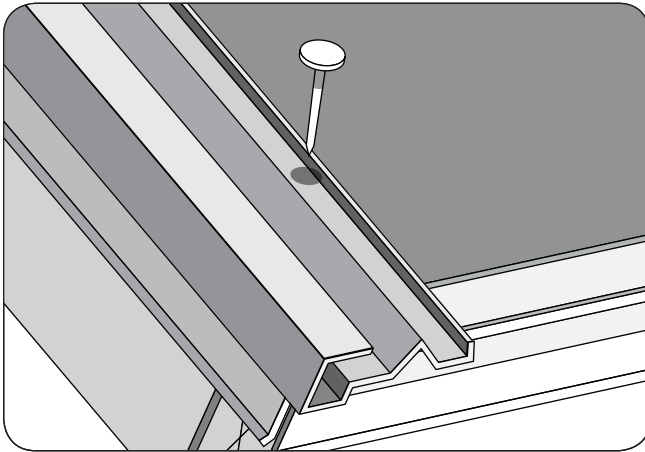


Install Drip Edge, then Starter Strip metal under the felt paper. Secure with fasteners spaced 12" (300mm) apart. For high wind areas contact Metro.

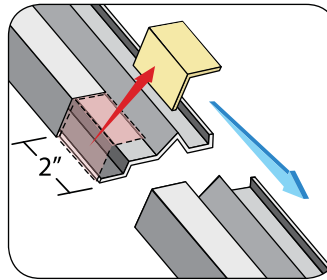
### STARTER-STRIP



### RAKE METAL

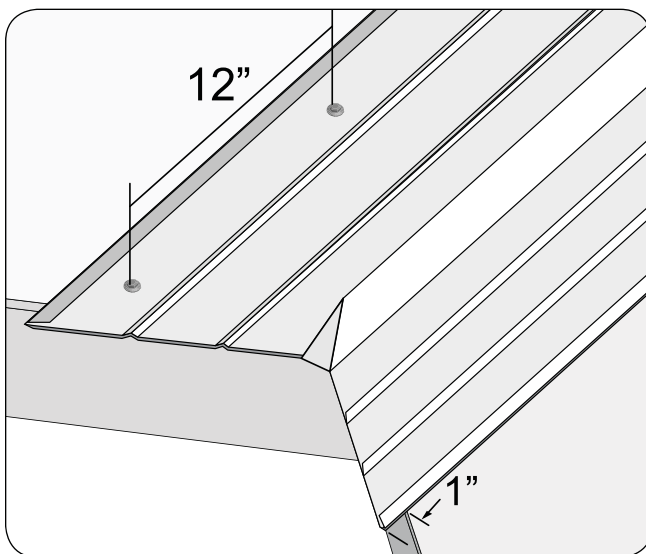


Install Rake Metal over Drip-edge metal with fasteners placed in the outside channel as shown. Rake Metal is notched to lap at joints leaving a minimum 2" overlap in water channels.

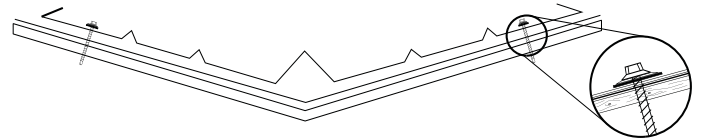


Lap 2" minimum to prevent leakage through seams.

### DOUBLE 'V' VALLEY METAL

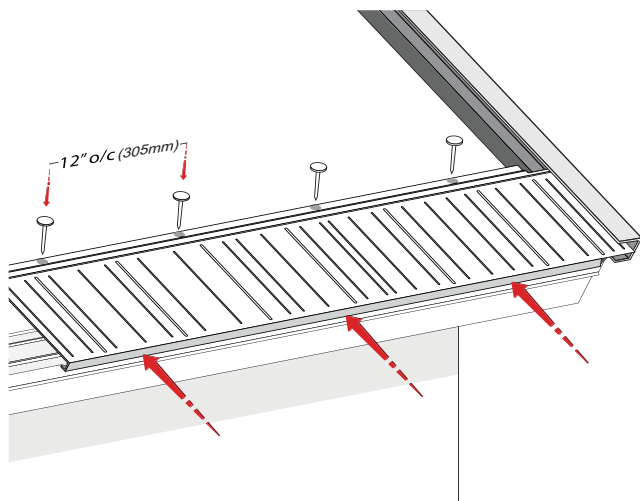


Install 20" Double 'V' Valley metal overlapping a min. of 4". Attach valleys as shown below..



*If fastening through the valley metal as shown, fasteners must have a rubber washer covered by metal cap to ensure a seal around the fastener location.*

### PANEL PLACEMENT

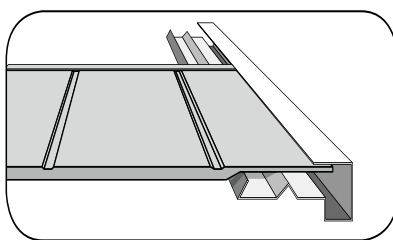
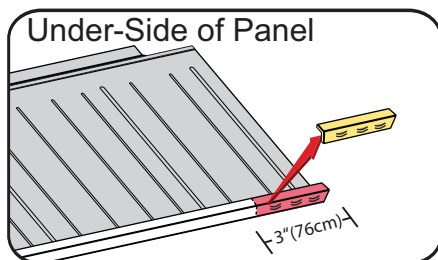


The first course of MetroSHINGLE® panels hook onto the Starter Strip Metal. Subsequent courses of panels hook onto the rear of the panel beneath. **Metro Shingles lay from the right side of the roof to the left.**

The rear of the MetroSHINGLE® panels are fastened to the roof deck with a minimum of four (4) fasteners.

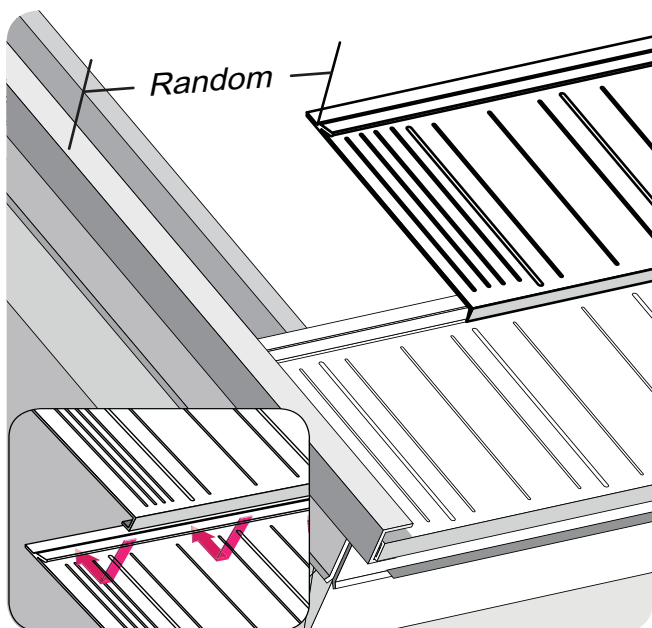


*Notch each shingle course at the nailing flange and front underlap where panels intersect with Rake Channel as shown.*

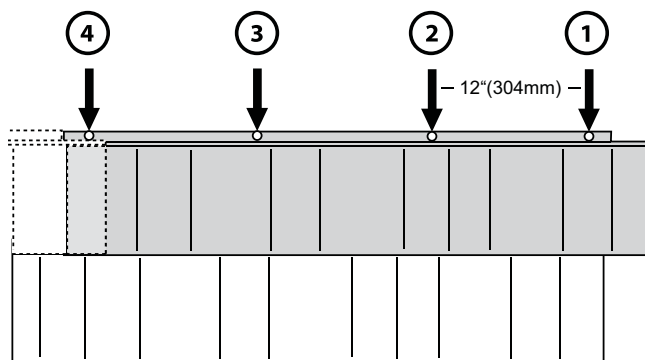


*For HVHZ (High Velocity Hurricane Zone) areas, refer to local code requirements and/or Metro website ([www.metroroofs.com](http://www.metroroofs.com)) for details.*

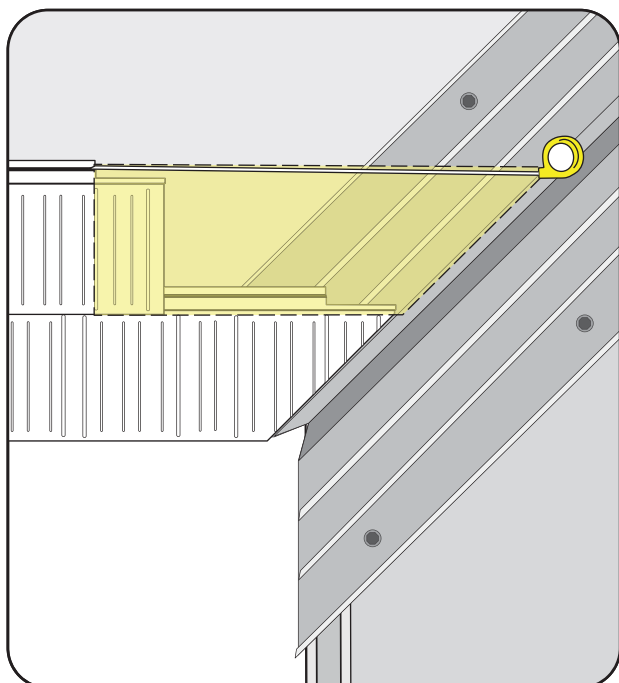
### PANEL LAYOUT



After installing the first course, subsequent rows of panels are staggered to offset side-laps and prevent a stack bonded pattern. A stagger pattern can be created by using the off cut from the previous row to begin the next row. At valley junctions, measure and cut panels to fit against the valley center rib.



### VALLEY PANELS



#### VALLEY CUT PANELS

Panels are installed with either a closed or open valley detail.

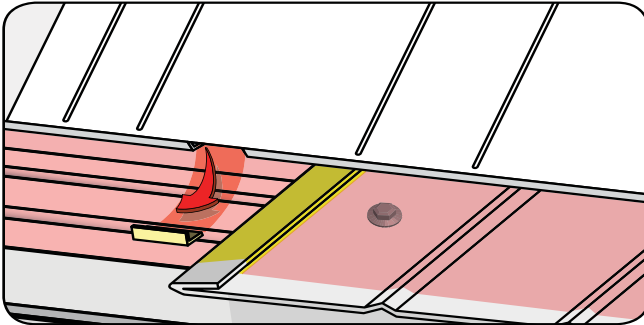
#### CLOSED VALLEY (Shown)

Measure, mark & cut the panel to follow the center line of the valley flashing.

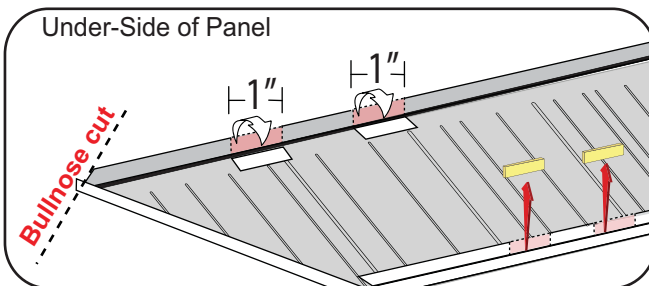
#### OPEN VALLEY

Measure, mark & cut the panel to conform to the inside small valley ribs to create an open valley. If this option is used, the cut edge of the valley panel must be folded down 3/8" (9.52mm) to form a hem.

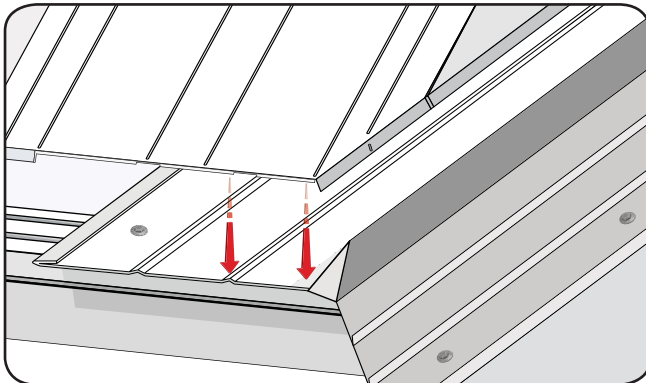
### MITER , NOTCH & FOLD



*All MetroSHINGLE® panels intersecting the valley, shall be notched at both the top (Nailing Flange) and the bottom (Front Interlock) of each panel to prevent water migration under the panel. Failure to follow this step may result in leaks around the valley.*



MetroSHINGLE® panels intersecting the valley are notched at the nose and the return lip is removed. The back flange is then notched and flattened as shown.

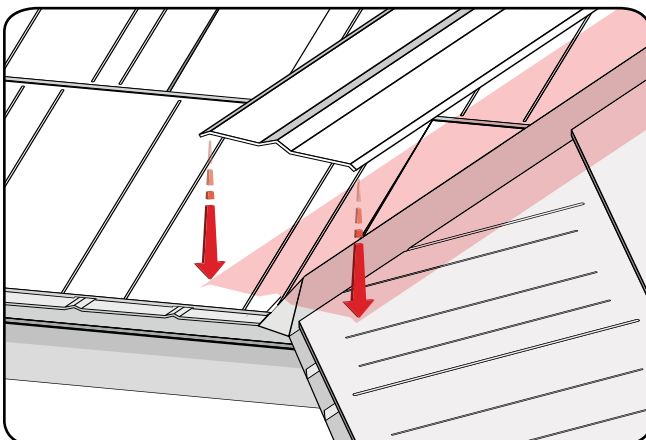


The first shingle panel at the bottom of both valleys and Rake Channel intersections is cut, folded and flattened to prevent water migration. The same technique is used at junctions with SMART-vents and SMART-jacks.



*Open valleys are recommended in locations where debris can accumulate (close proximity to trees). Open valleys better facilitate periodic debris removal.*

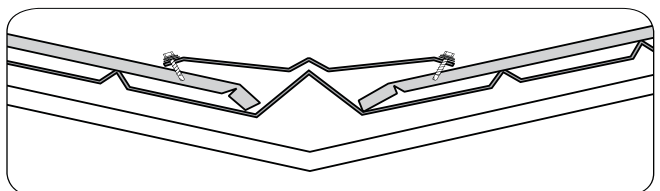
### VALLEY COVER



Valley Cover pieces are fastened with corrosion resistant screws to alternating courses of panels.



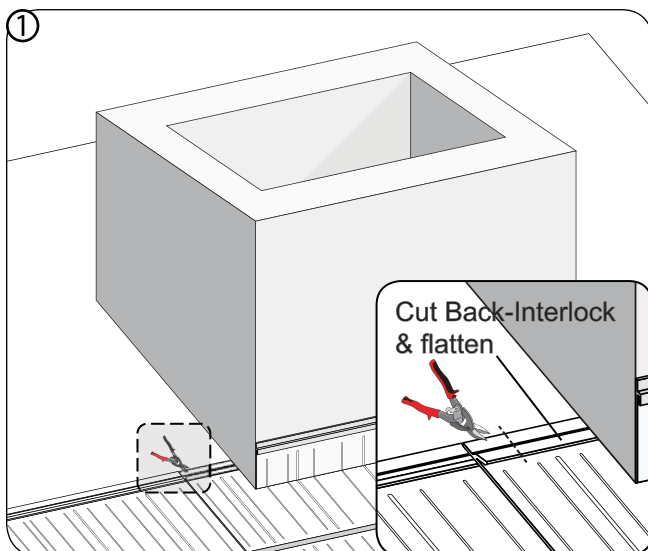
*Fasteners, attaching the Valley Covers, penetrate through the shingle panels, but do not perforate the valley flashing metal.*





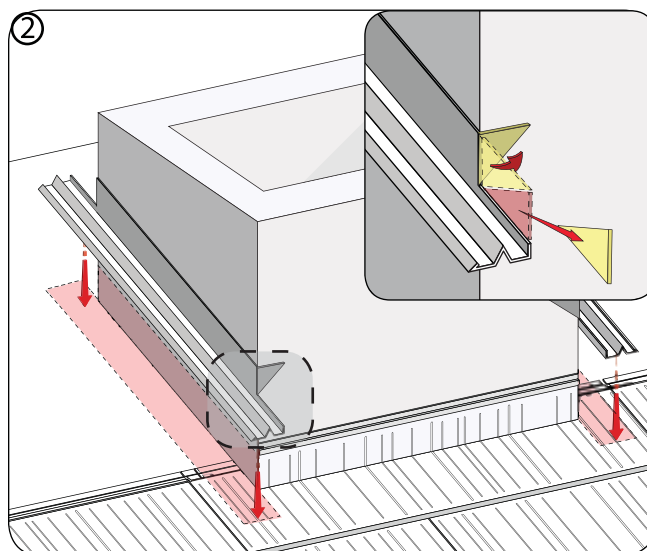
**FLASHING CHIMNEY OR SIMILAR SQUARE OBJECTS**

Installation with Side-Wall Under-pan.



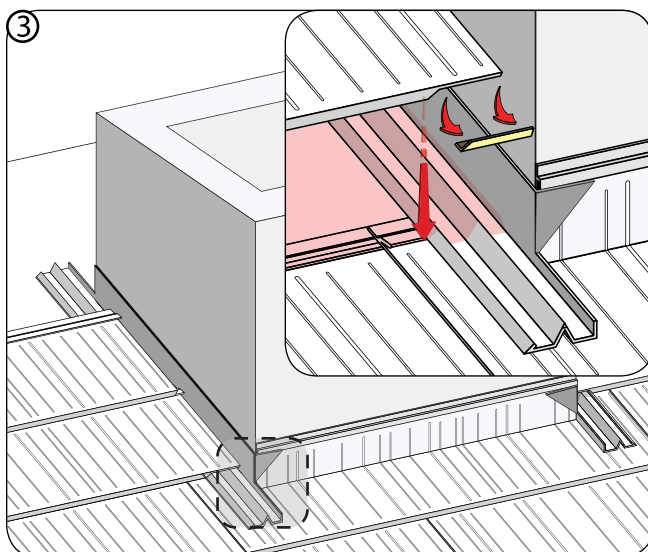
Measure, cut & fold up the panels across the front of the penetration being flashed.

Measure 2" past each side and 6" past the top side for overall path of Side-Wall Underpan.



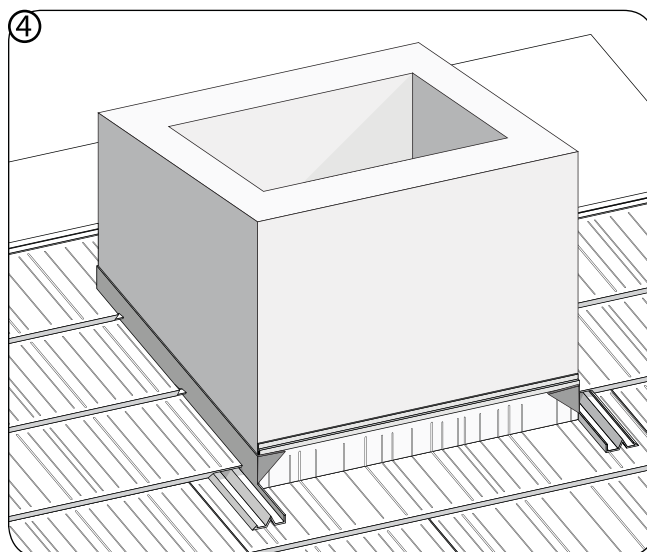
Notch & bend Side-Wall Under-Pan as shown, and install Side-Wall Under-pan below existing counter-flashing.

Alternatively, new Z-bar and Side-Wall Under-Pan can be installed.



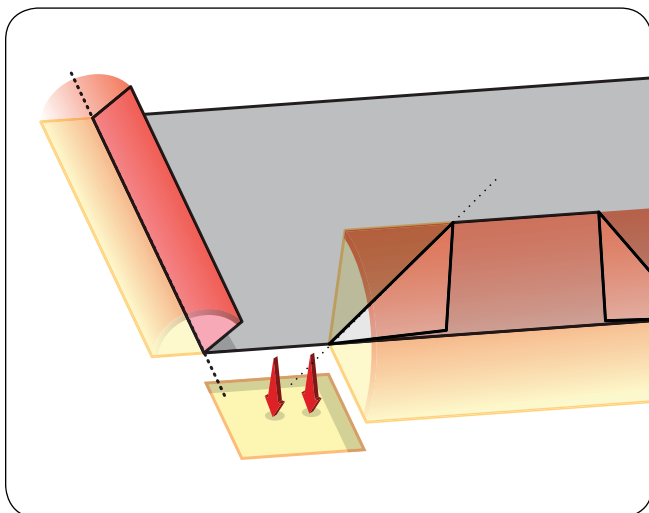
Install the panels after notching both the back fastening flange & front interlock where they intersect the Side-Wall Under-Pan flashing.

Cut & flatten the panel interlock where the Side-Wall Under-Pan exits.



Front view of completed chimney or square cornered penetration.

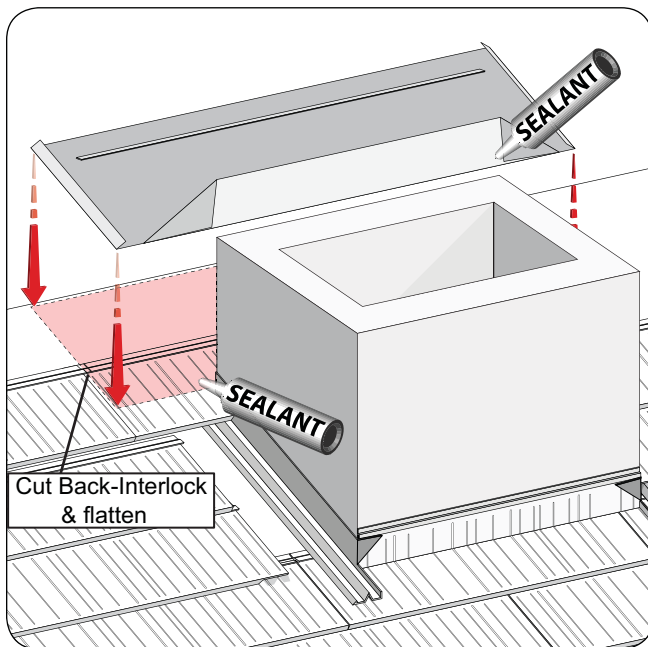
### CHIMNEY SADDLE PREPARATION



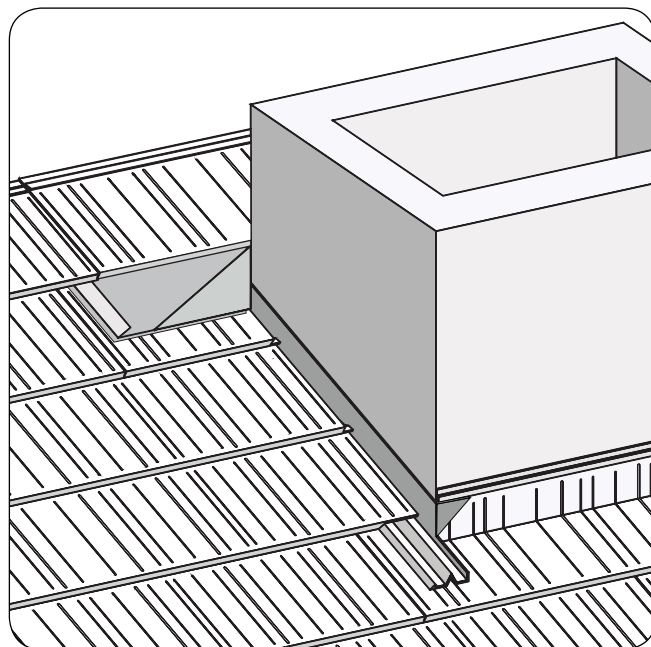
At the rear of a penetration, install Chimney Saddle metal after hemming the sides and folding the corners where it protrudes (Min 2" (50mm) past the penetration).

Trim and fold the flashing metal as needed. Seal with caulking around the corners and along the rear of the Chimney Saddle. Align and install a Short-Course Cleat with the proximate course of panels. The cleat allows the panels to interlock with the Chimney Saddle.

### CHIMNEY SADDLE INSTALLATION

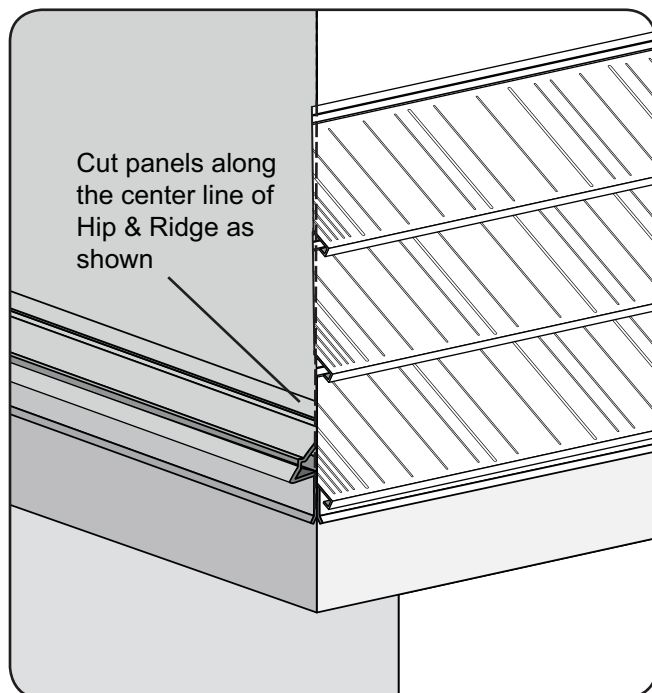


Apply a bead of sealant, set the Metro Short-Course Cleat, & fasten through sealant.



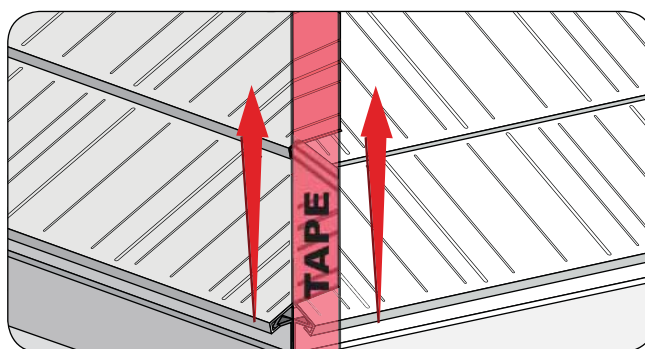
A completed and flashed square cornered penetration is shown. The Chimney Saddle Flashing is shown properly hemmed.

### HIP & RIDGE PANELS

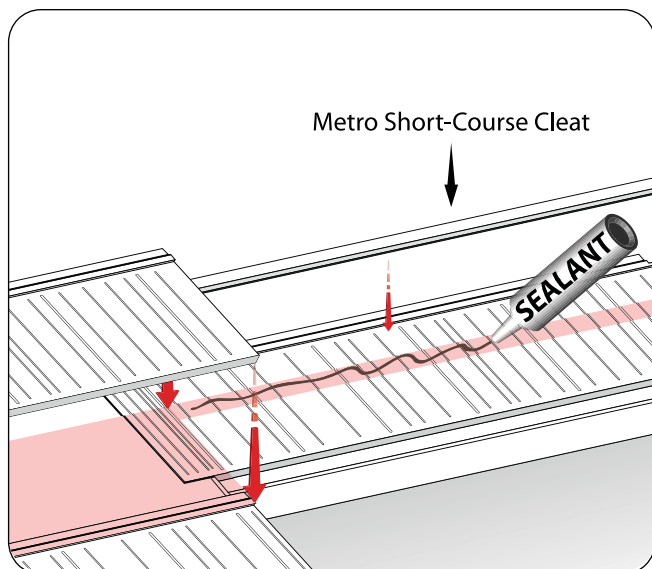


#### HIP & RIDGE CUT PANELS

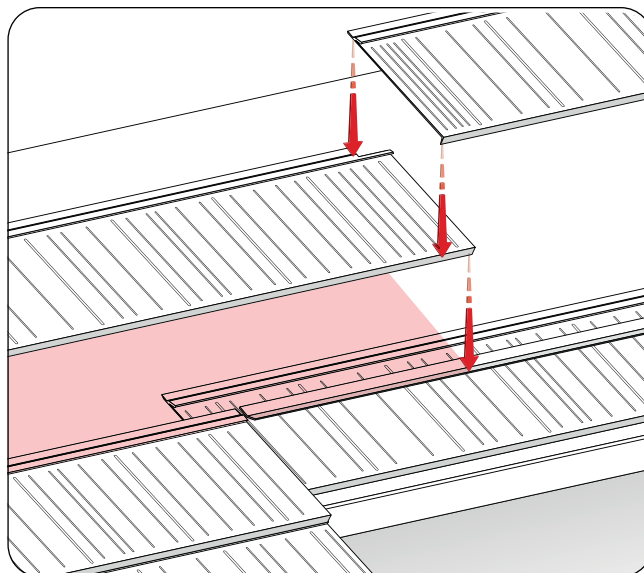
At hip and ridge locations, the panels are cut where the roof planes intersect. The junction between cut panels is sealed with 4" (100 mm) wide "peel-n-stick" roofing tape, prior to installing Trim Caps.



### SHORT COURSE

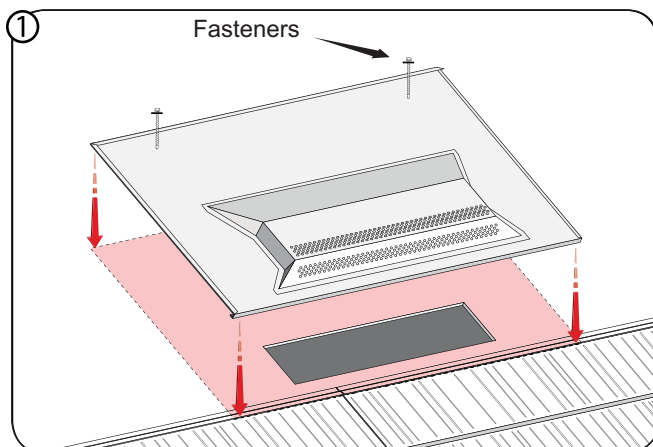


Short Course Cleats are used to recreate the back nailing (hook) section for a shingle panel. The Short Course Cleat is installed in a bed of sealant and secured with stitch screws.

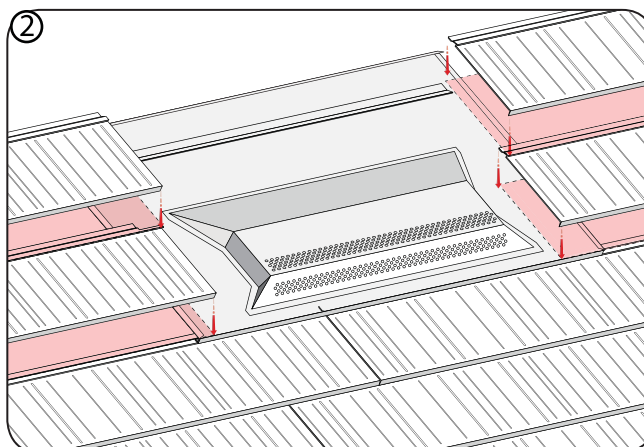


Insert & secure panels over cleated sections.

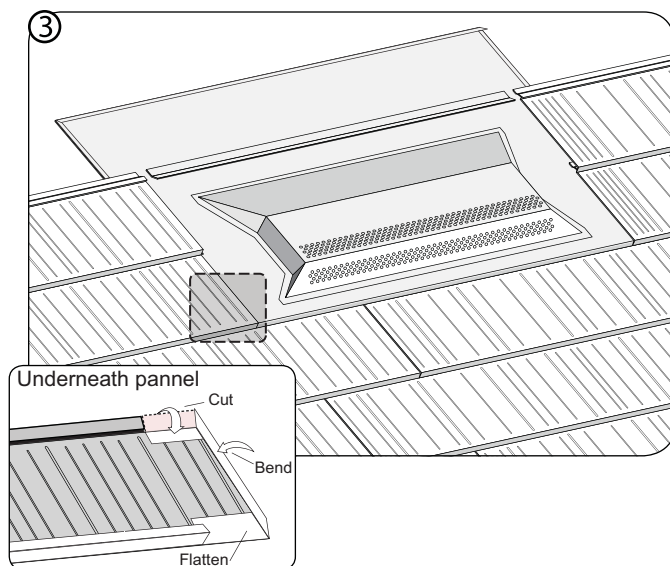
### SMARTVENT



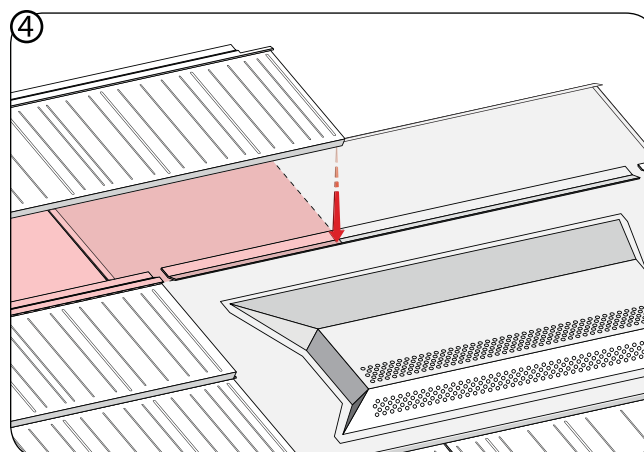
Position MetroSHINGLE® SMART-Vent over roof deck hole. SMARTvent flashings should be hemmed at the sides and at the rear to prevent the infiltration of wind driven rain.



MetroSHINGLE® panels are installed over the sides of the SMART Vent as shown, with a minimum 3-inch (75mm) side lap.



A bead of sealant is placed along the sides of a SMARTvent prior to installing the overlapping shingle panels.



Install shingles across the top of each SMART-Vent as shown. Care is taken to engage the shingle panels with rear cleat of the SMARTvent.

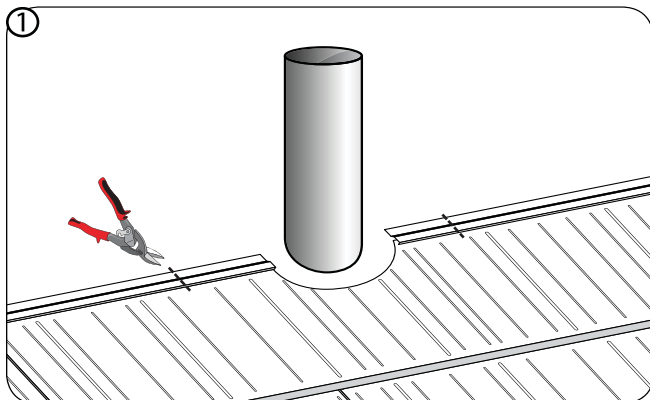


*To prevent access of rodents or vermin into the attic space, the decking penetration can first be covered with min. 1/4" sized mesh screen prior to placing the SMARTvent.*

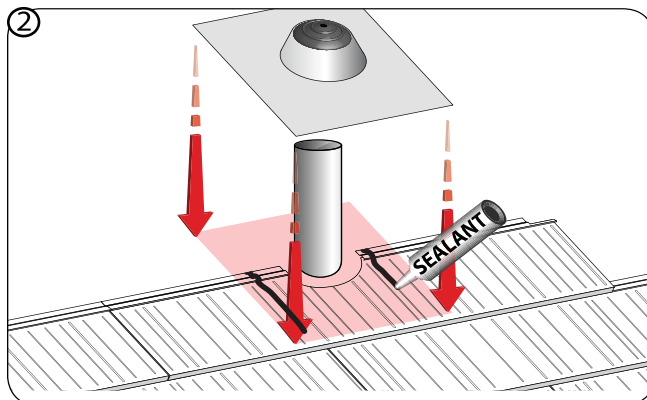


### ROOF PENETRATIONS

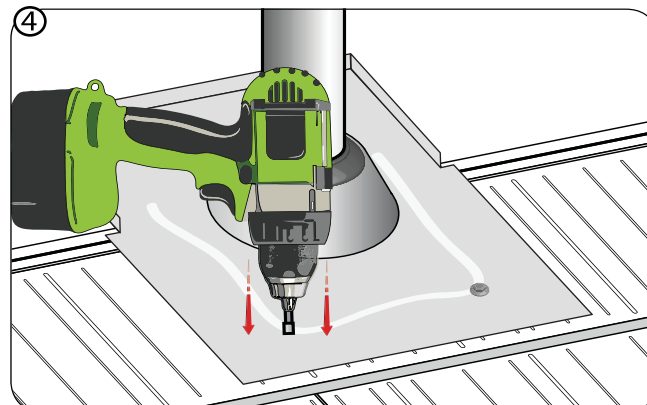
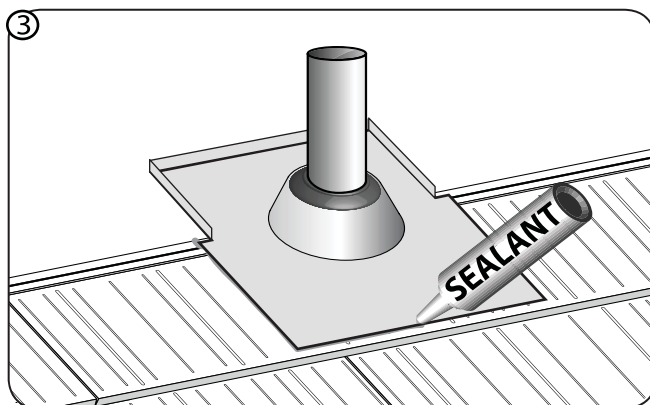
New vent jacks are installed at roof penetrations. Panels are neatly cut around protrusions as required and installed over vent flashings.



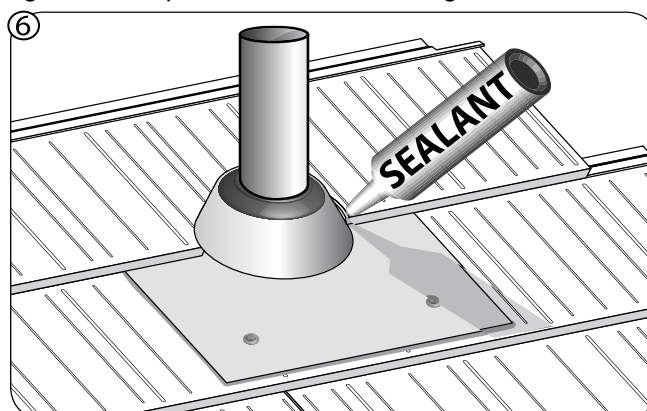
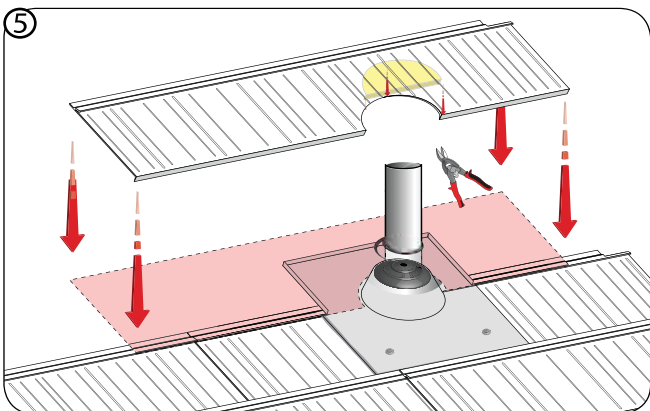
① Cut lower panel to fit the vent. Then cut the Back-Interlock and flatten.



② After first sealing the panel, the vent flashing is positioned over protrusion.



④ Stitch screws are used to secure the flashing to the shingle panel. Care is taken to locate the screws over higher ribbed panel sections, or through sealant.



### SOLAR SYSTEM FLASHING MOUNT:

As round pipe is often used to support solar systems, the details above can be used to flash the supporting solar members.





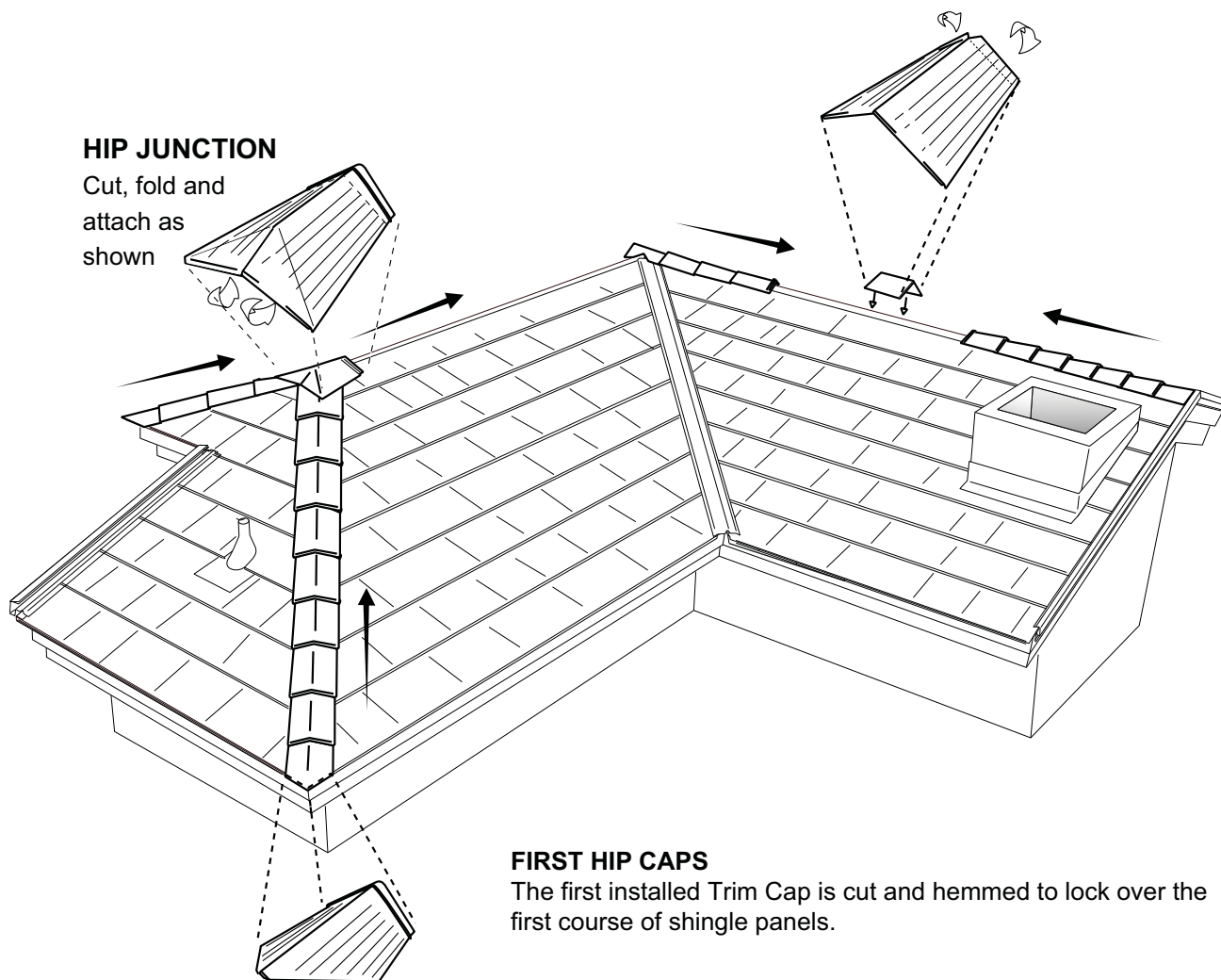
### INSTALLING TRIM CAPS

#### CENTER CAP

To create a center cap, simply cut-off the interlock flange and fold-over the cut edge so it resembles the front interlock nose of a factory cap. Position and fasten the center cap at the desired center point of the ridge after installing the caps from either end of the roof.

#### HIP JUNCTION

Cut, fold and attach as shown



#### FIRST HIP CAPS

The first installed Trim Cap is cut and hemmed to lock over the first course of shingle panels.

