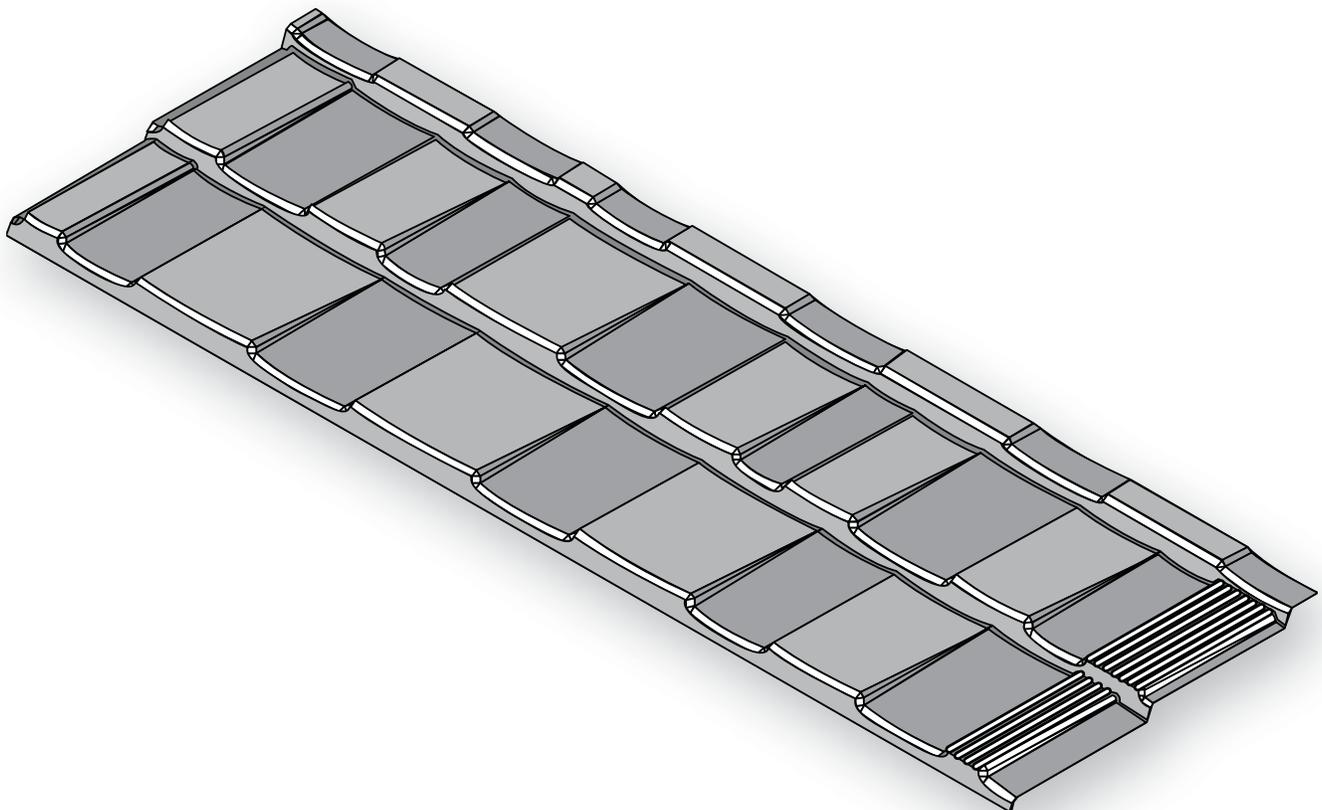




MetroCOTTAGE™ Shingle

Batten-less Installation Details



March 30, 2014

Revised November 15, 2015

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 roofs.

Metro recommends installers of Metro Roof Products use a 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.



MetroCOTTAGE™ Shingle

Batten-less Installation Details

INTRODUCTION

Installation Tools:

- Metro Installation Kit - 150lbs (68.1kg)
 - CUTTER - 40lbs (18.16kg)
 - FULL PANEL BENDER attachment - 62lbs (28.1kg)
 - FOOT BENDER - 48lbs (21.8kg)
- Hand Tools
 - Impact Driver
 - Red & Green Snips
 - 3" Hand Seamers

Other Tools:

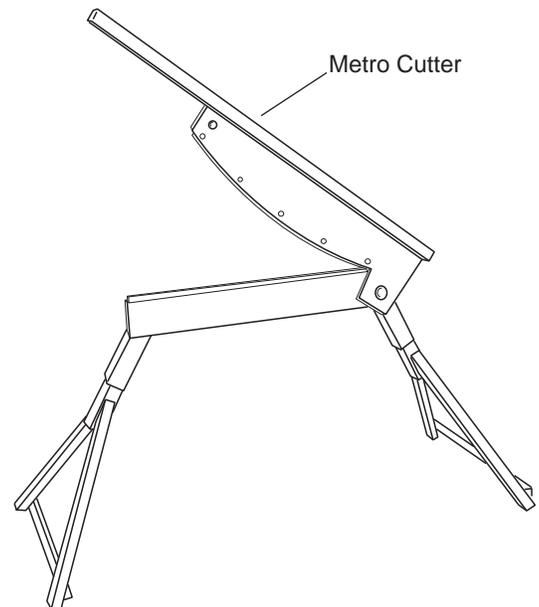
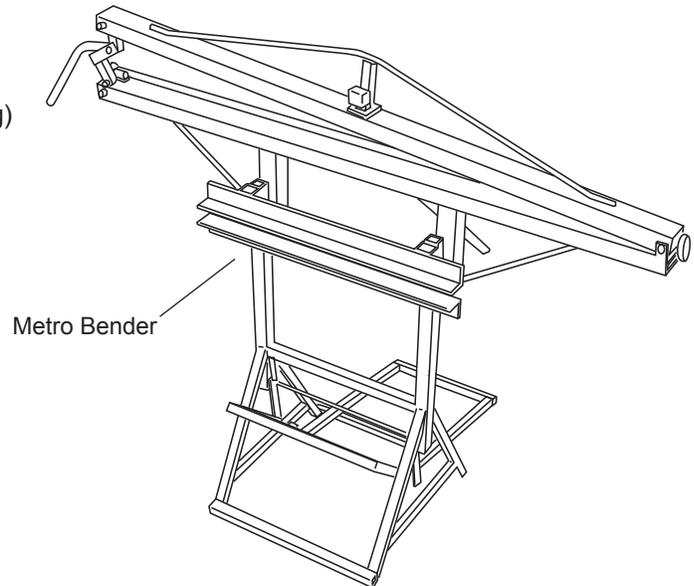
- Nail Gun
- Hammer
- Tape Measure
- Caulking Gun
- String-Line
- Soap Stone (used to mark panels)

General:

These install details are designed to be used in conjunction with Metro's SMART-Start On-Site Installer Training Program. A certificate of completion is given to installers that complete the Metro SMART-Start On-Site Training Program for each Metro profile.

Metro Roof Products - 10-Basic Steps to a Great Job

1. Install **DRIP EDGE & RISER** perimeter metals
2. Install **VALLEY** Metals
3. Install **RAKE CHANNELS**
4. Install field **PANELS** across roof sections
5. Fasten field **PANELS** & bottom row
6. Measure, Mark, Cut & Bend - **HIP, VALLEY, RIDGE & RAKE** panel sections
7. Install **PIPE** Flashings (SMART-Box Vents, SMART-Jacks, SMART-Vents etc.
8. Install **CHIMNEY** flashings panel sections
9. Install **TRIM CAPS** on Hip & Ridge and/or Rake
10. **CHECK** job overall



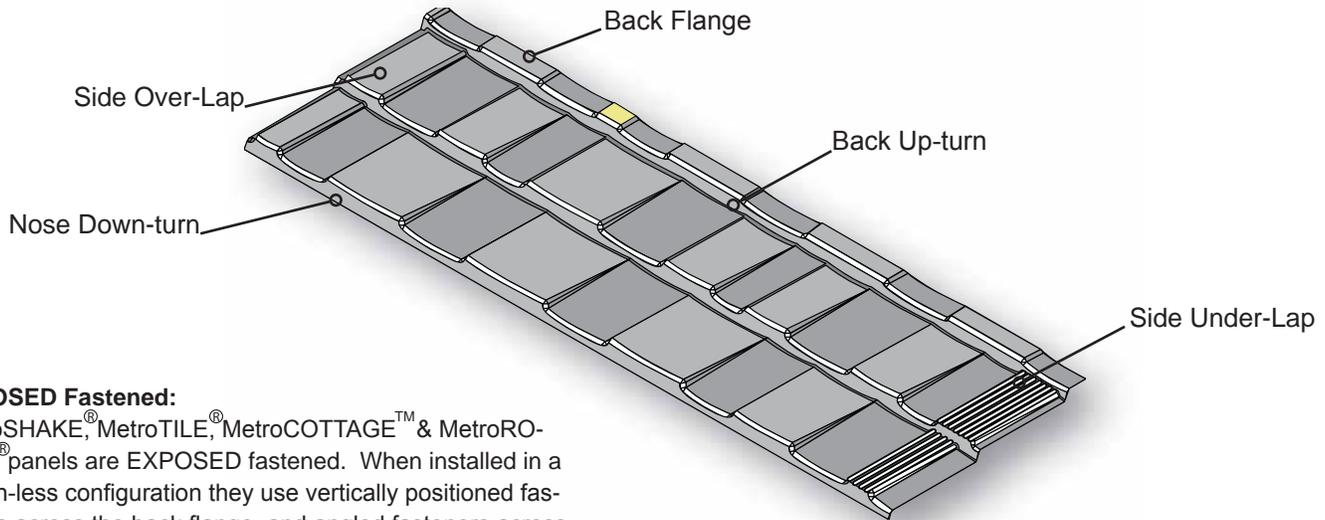
In cold climate zones with Cathedral Ceilings a Counter-Batten and Batten grid system is suggested to help prevent ice-damming.





MetroCOTTAGE™ Shingle

Batten-less Installation Details



EXPOSED Fastened:

MetroSHAKE®, MetroTILE®, MetroCOTTAGE™ & MetroRO-MAN® panels are EXPOSED fastened. When installed in a batten-less configuration they use vertically positioned fasteners across the back flange, and angled fasteners across the nose down turn. The dimensions are as follows:

MetroCOTTAGE™ Shingle

- Overall Length Range: 52" (1321mm)
- Pitch (Course Cover): 14-1/2" (368mm)
- Side-Lap: 2" (50mm)
- Back Flange: 1" (25mm)
- Back Upturn: 1" (25mm)
- Front Nose Downturn: 1" (25mm)
- Panel Cover: 50" (1270mm)
- Panels Per Sq. (100-sq-ft): 20-pcs (0.465 panels per Sq M)
- Panels per pallet: 400pcs

Materials:

Metro panels are produced from AZ-50, Aluminum-zinc alloy coated steel complying with ASTM A792.

Packing and Storage:

A pallet of Metro panels contains approximately 20 squares. (186sq mm) Care should be taken to store panels under a weather-proof cover or inside in an area free from moisture.

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.

Sealant/Caulking

Only exterior grade urethane or (Zero V.O.C. / Non-acidic) caulking should be used for sealant.

Fasteners:

All fasteners (Nails or Screws) used on a Metro roof 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) for details.

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.



Colored aerosol paints should never be sprayed on stone-coated panels & accessories

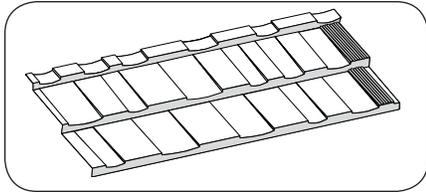




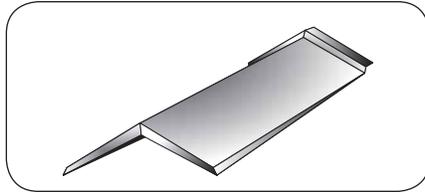
MetroCOTTAGE™ Shingle

Batten-less Installation Details

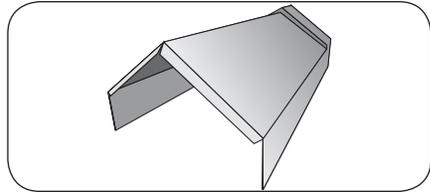
STONE-COATED ITEMS



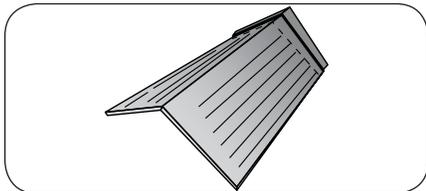
MetroCOTTAGE™ Shingle
51" x 14" (1296 X 356mm)
5.5-lbs (2.5 Kg)



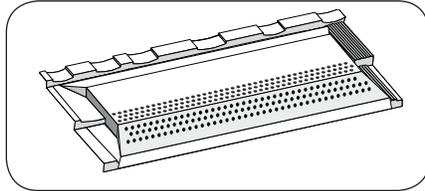
COTTAGE-Cap
12" X 12" (300 X 300mm)
1-lbs (0.45 Kg)



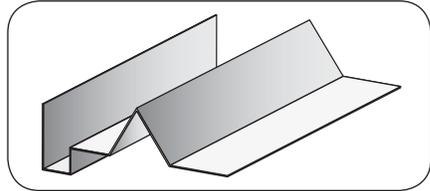
V Trim
14.5" x 6" (368 X 150mm)
1-lbs (0.45 Kg)



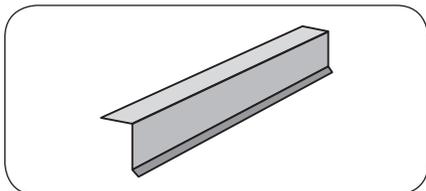
Shingle Trim Cap (Hip & Ridge)
10-1/2" X 8" (267 X 203mm) .57 lbs
(.26 Kg)



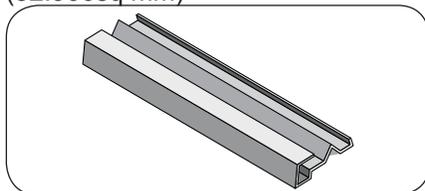
COTTAGE Shingle SMART-Vent
52" X 14" X 3" (1321X356X75mm)
11-lbs (5 Kg) NFVA-82-Sq in.
(52.906sq mm)



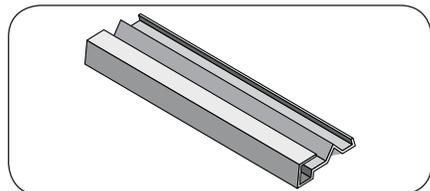
Shake-Tile V-Bat Riser (optional)
79" X 2-3/4" (2006 X 68mm)
3.75 lbs (1.7 Kg)



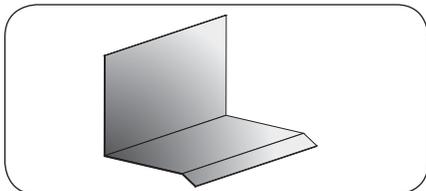
FL Drip Edge
79" X 2" X 3-1/4" (2006 X 50 X
83mm) 3.3lbs. (1.50Kg)



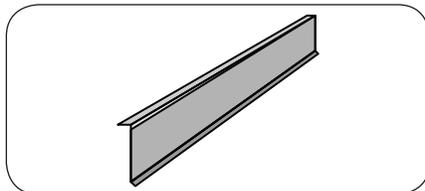
Shingle Rake Channel
79" X 2-1/2" X 1" (2006 X 64 X
25mm) 2-lbs (0.91 Kg)



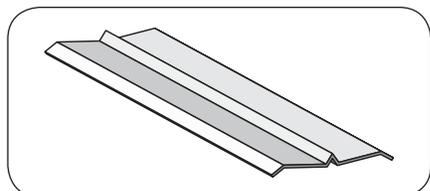
Rake Channel Shake
79" X 2-1/2" X 1-3/4" (2006 X 64 X
45mm)



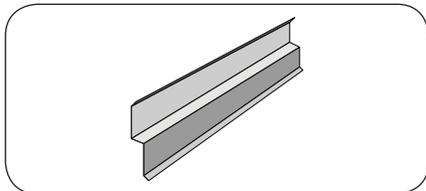
2.5" Head-wall/Side-wall
79" x 2.5" (2006 X 64mm) 3.3 lbs.
(1.50Kg)



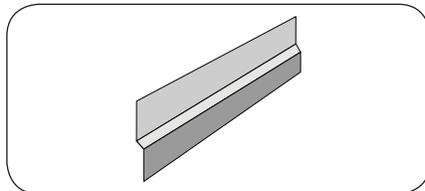
5" Fascia - Counter-Flashing
79" X 5" X 3/4" (2006X127X19mm)
2.5-lbs (1.36 Kg)



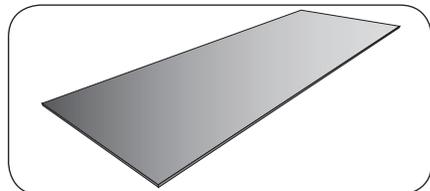
Valley Center Cover
79" X 4" (2006 X 100mm) 3.5 lbs
(1.60 Kg)



Z-Bar (Small)
(Requires sealant along top edge)
79" X 1-3/8" X 1/2 X 1-3/8" (2006 X
35 X 13 X 35mm) 2 lbs (.90Kg)



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



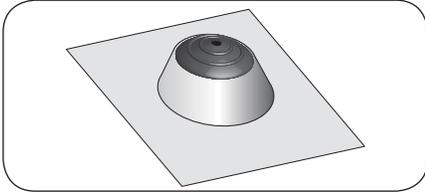
Flat-Stock Sheets
(use behind Chimney/Skylight,
Dormer Valley Exits etc.) 52" X 18"
(1321 X 457mm) 5.7 lbs (2.59 Kg)



MetroCOTTAGE™ Shingle

Batten-less Installation Details

STONE-COATED ITEMS



SMART-jack (2-Pipe-sizes SMALL base)

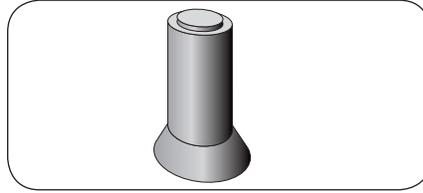
3-N-1 for 3-Inch Pipes (75mm)
12" X 16" (300 X 407mm) 1 lbs
(0.45Kg)

3-N-4 for 4-Inch Pipes (100mm)
12" X 16" (300 X 407mm) 1 lbs
(0.45Kg)

SMART-Jack (2-Pipe Sizes - LARGE Base)

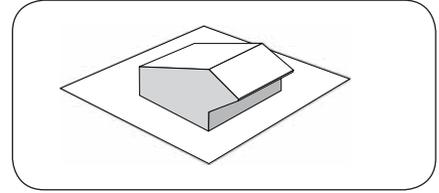
3-N-1 for 3-Inch Pipes (75mm)
18" X 18" (457 X 457mm) 1.4 lbs
(0.64Kg)

3-N-4 for 4-Inch Pipes (100mm)
18" X 18" (457 X 457mm) 1.4 lbs
(0.64Kg)



SMART-Sleeve (Pipe Cover)

16" X 4" (407 X 100mm) 1.65 lbs
(0.75 Kg)



SMART-Box Vent (2-Sizes)

SMALL - 3-4-inch (75-100mm) 2-lbs
(0.95Kg)

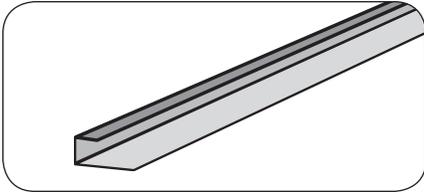
LARGE - 8-10-inch (200-254mm)
5-lbs (2.27Kg)



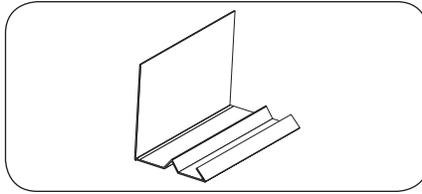
MetroCOTTAGE™ Shingle

Batten-less Installation Details

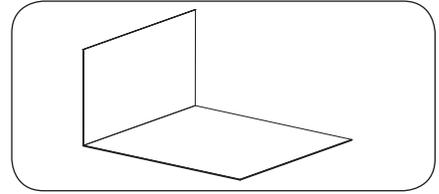
PAINTED OR BARE METAL ACCESSORIES



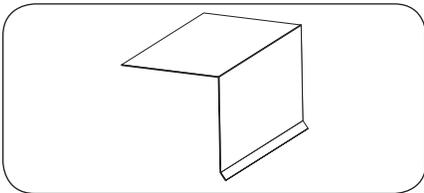
SMART-Gutter -Riser Metal
120" X 3/4" X 2-1/2"
(3048X19X63mm) 1.9lbs.
Painted Black.



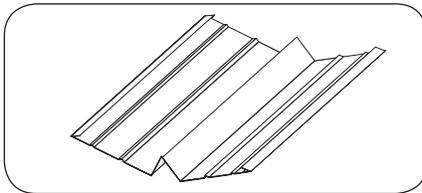
SIDE-WALL UNDER-PAN
120" X 3-1/2" X 4" (3048 X 89 X
100mm) 5 lbs (2.27 Kg)



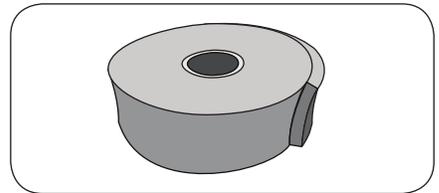
CHIMNEY SADDLE (Two Sizes)
120" or 60" X 18" X 4" (3048 or
1524 X 457 X 100mm) 13.5 or 6.75
lbs (6.13 or 3 Kg)



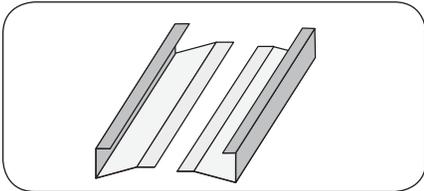
DRIP EDGE
120" X 1-1/2" X 1-1/2" (3048 X 38 X
38mm) 1.6 lbs (0.72 Kg)



DOUBLE V-VALLEY
120" X 20" (3048 X 508mm) 12.5
lbs (5.68 Kg)

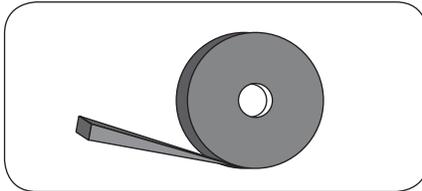


SMART-Foam Roll
6" X 1" X 240" (20-ft)
(150X25X6096mm) .9lb (.40Kg)
2-Rolls per Box

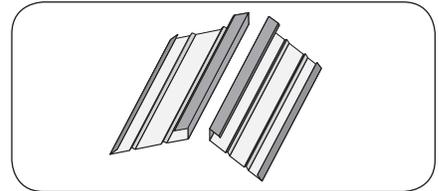


SMART-Batten
120" X 1" X 2-3/8" (3048 X 25.4 X
60mm) 3.55 lbs (1.6 Kg)

** Requires 2-pcs per 10-ft of Hip & Ridge*
** Requires panels to be cut as tight as possible (Mitered on hips) and Metro SMART-XP-Foam Tape installed on each flat leg of SMART-Batten prior to SMART-Batten installation.*



SMART-XP-Foam Tape Roll
1" X 1-1/4" Exp X 19.68-ft
(25X32X6000mm) 1.0lb 24-Rolls /
Box



SMART-Valley (2 Pcs Req.)
120" X 9-1/4" X 1-1/2" X 1-1/2"
(3048 X 235 X 38 X 38mm) 7.35 lbs
(3.3 Kg)

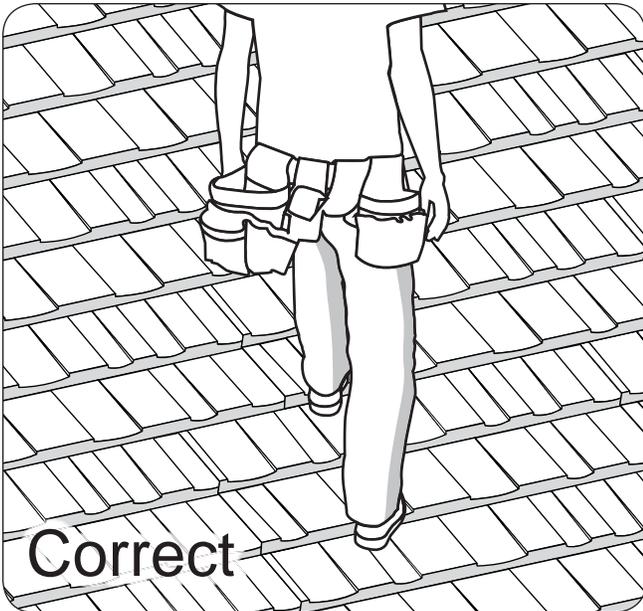
** Requires Valley Center Cover & sealant tape.*



MetroCOTTAGE™ Shingle

Batten-less Installation Details

WALKING ON YOUR METROCOTTAGE™ SHINGLE ROOF

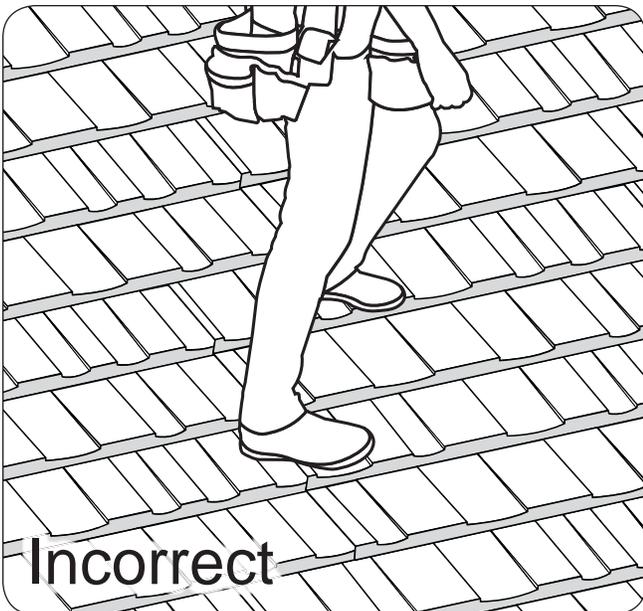


General Information

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 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 specialized cutting & bending tools used during installation.

MetroCOTTAGE™ Shingle

When walking on a MetroCOTTAGE™ Shingle roof, place your feet over the nose or front downturn of the panels. Lightweight, soft soled shoes are recommended for good grip and feel. **Avoid walking on or near the panel side-laps.**

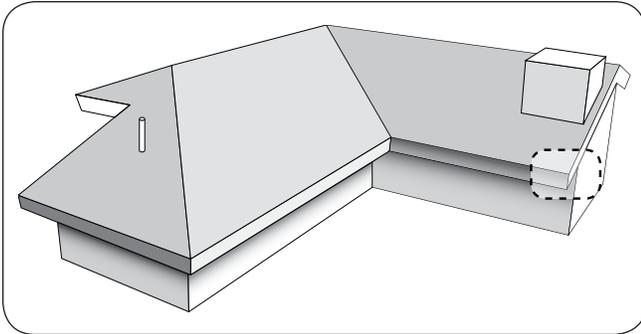




MetroCOTTAGE™ Shingle

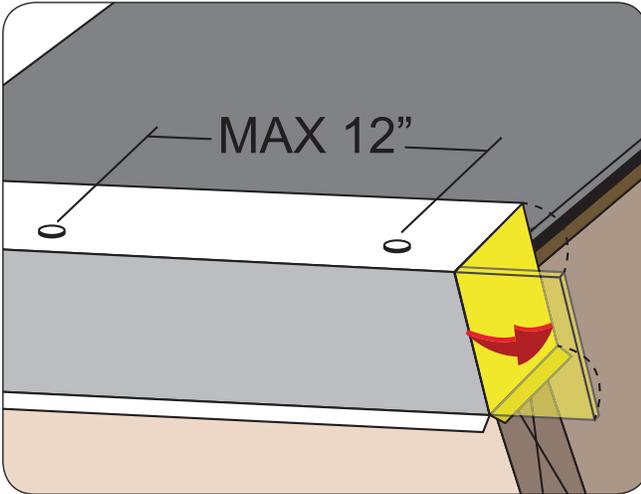
Batten-less Installation Details

GENERAL PERIMETER MATERIALS

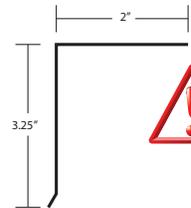


Metro Batten-less panels are installed on new or existing roofs pitched a minimum of 2-1/2:12 (12-degrees). Underlay is to be installed as per local code and manufacturer's instructions.

DRIP EDGE



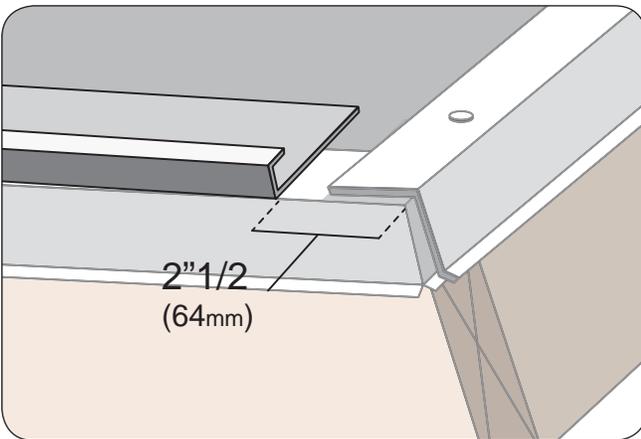
Install Drip Edge metal around entire roof perimeter, fasten per local code.



Florida and other high wind areas, use the Metro FL-FASCIA Stone-Coated metal.

For HVHZ (High Velocity Hurricane Zone) areas, perimeter flashings are fastened per local code.

RISER METAL



Use of Gutter Riser metal requires standard drip edge to be installed first. The Gutter-Riser metal is butted up to Rake Channel or Valley metal.



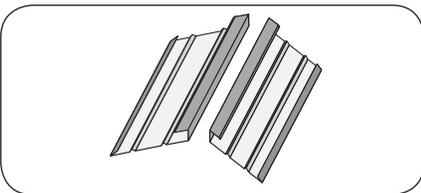
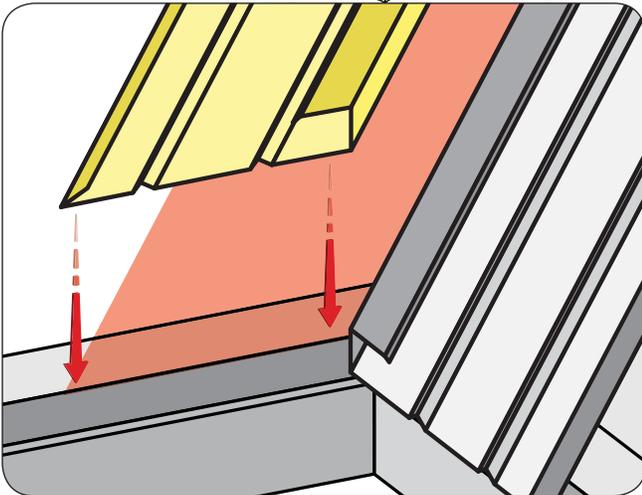
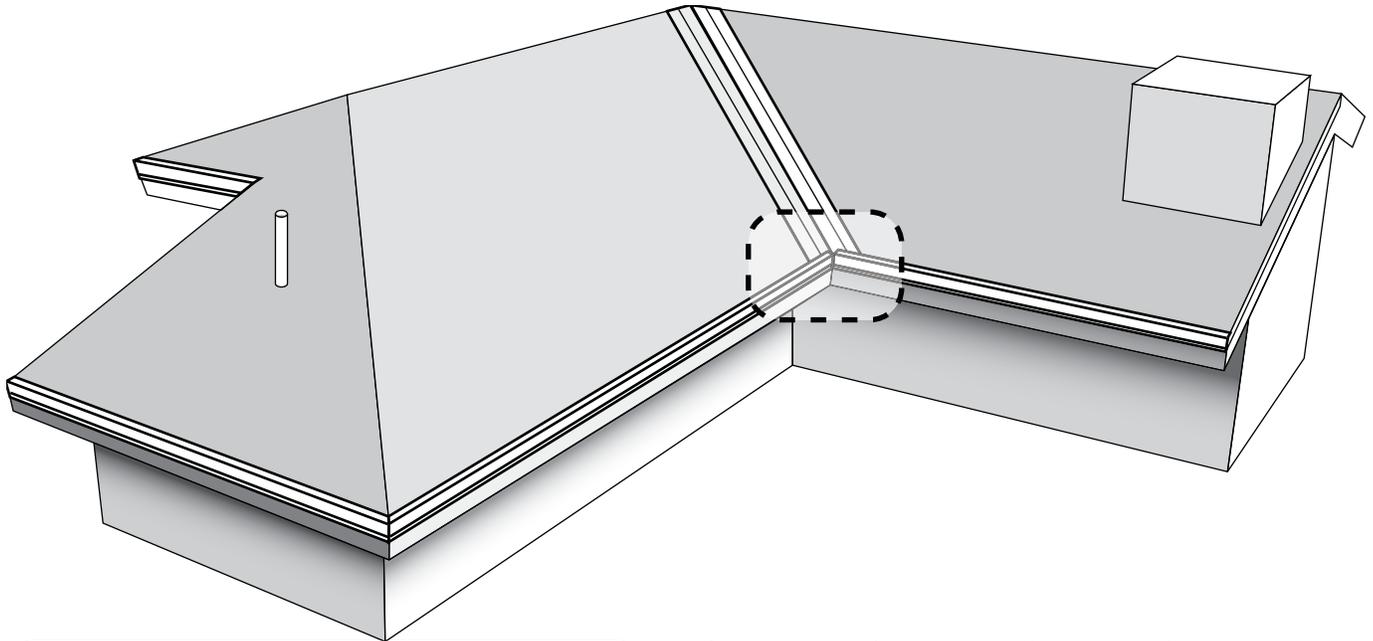
Keep Gutter Riser back from outside edge of Rake, to Allow rake channel to ext off roof.



MetroCOTTAGE™ Shingle

Batten-less Installation Details

SMART-VALLEY



SMART-Valley (2 Pcs Req'd.)
 120" X 9-1/4" X 1-1/2" X 1-1/2"
 (3048 X 235 X 38 X 38mm) 7.35 lbs
 (3.3 Kg)
 * Requires Valley Center Cover & sealant tape.

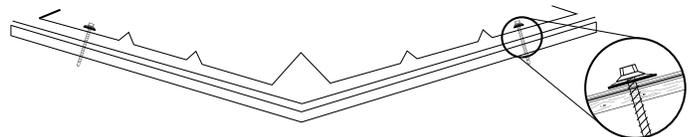
Depending on the valley metal used Metro panels can be installed to form either a 'Closed' or 'Open' valley. this page shows the Metro SMART-Valley metal which is used to create a 'Closed' valley.

- Metro SMART-Valley consists of,
 a) 1-pc SMART-Valley (Use on left side)
 b) 1-pc SMART-Valley (Use on right side)
 c) 1-pc Valley Cover

Metro SMART-Valley uses 2-pieces per each 10-foot (3.05m) length of valley.

Estimating formula: Lin-ft of Valley divided by 9.75 X 2 = # of SMART-Valley required.

Install each side of the SMART-Valley as shown, fastening as normal for a valley pan. Tightly butt each SMART-Valley section together.



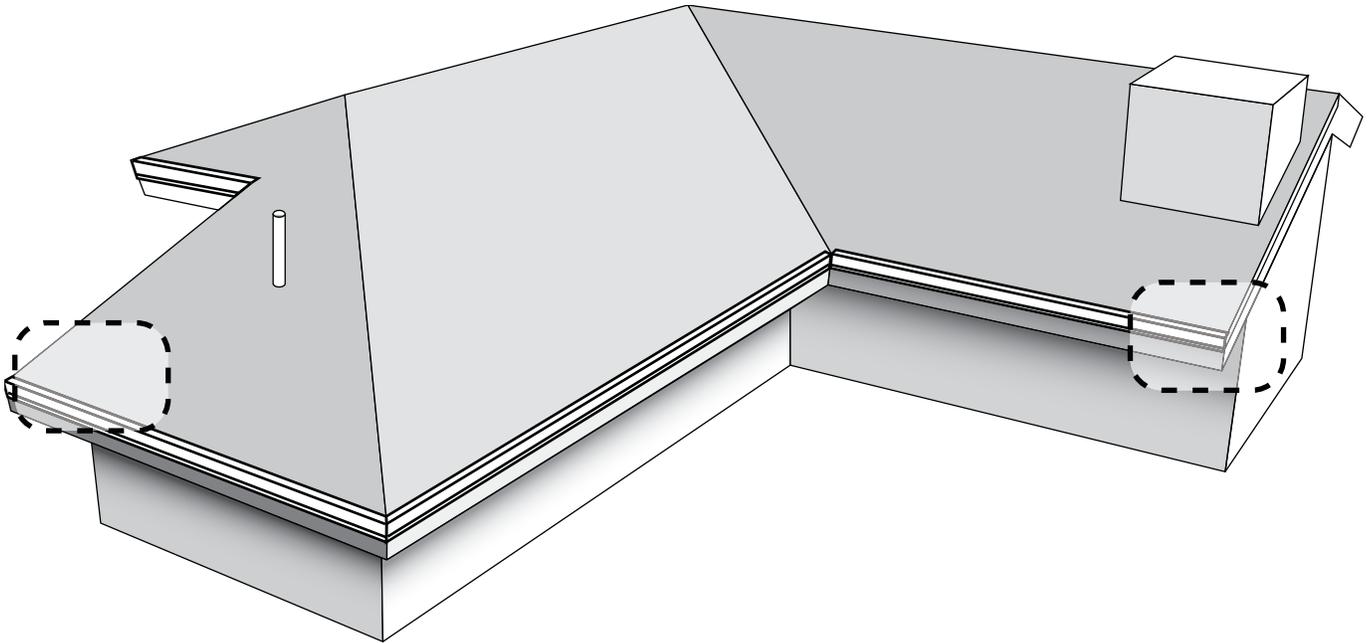
Metro SMART-2-Pc Valley requires sealant or Sealant Tape down center covering both pieces before installing stone-coated Valley Center cover.



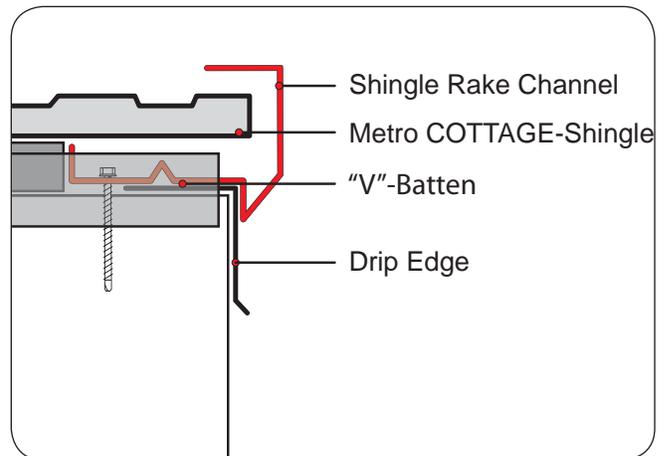
MetroCOTTAGE™ Shingle

Batten-less Installation Details

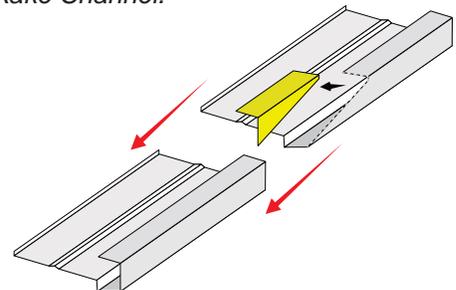
SHINGLE RAKE CHANNEL



Install the Metro panels into the Rake Channel using fasteners placed as shown. If fasteners do not have a sealing washer, apply a bead of sealant around each one. Rake Channel metal is notched to lap a minimum of 2" (50mm) with water flow as shown. For other types of riser metals refer to the Optional details later in the manual.



Existing roof thicknesses may require Shake Rake Channel.



Lap 2" (50mm) minimum to prevent leakage through seams.

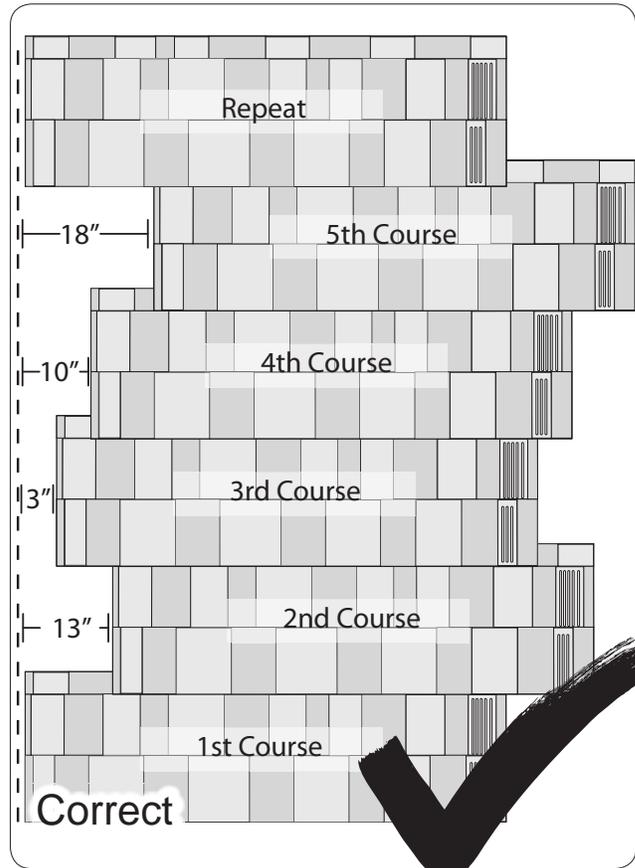
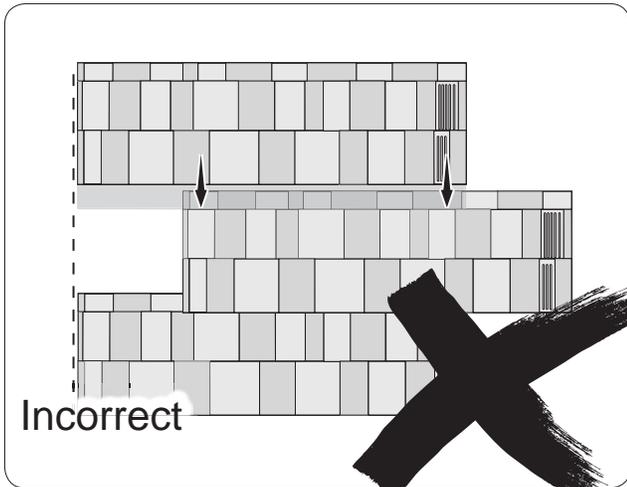
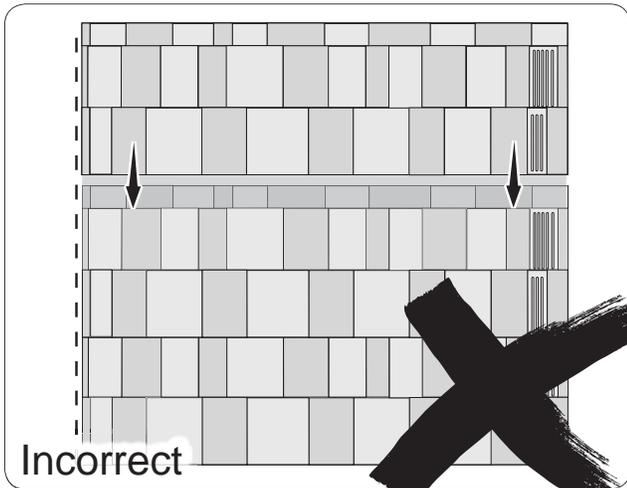


MetroCOTTAGE™ Shingle

Batten-less Installation Details

PANEL LAYOUT

Metro COTTAGE-Shingle(tm) panels have a 3-1/2" (89mm) wide side-lap and Lay LEFT to Right. To prevent alignment pattern issues, use the stagger layout below on right.



Panel Laying direction across roof →



Measured from LEFT to RIGHT

FASTENERS:

Metro panels can be installed with either Screws or Nails as listed below.

- PANEL SCREWS - #10 X 2-inch long X 1/4-inch HWH (50mm X 6mm)
Roman Panels #10 X 2-1/2-inch long X 1/4-inch HWH (64mm X 6mm)
- TRIM SCREWS - #10 X 1-inch long X 1/4-inch HWH (25mm X 6mm)
- VALLEY PAN SCREWS - #10 X 1-1/2-inch long X 1/4-inch HWH w/Rubber washer (38mm X 6mm)
- PANEL & TRIM NAILS - .131-inch Dia X 2-3/8-inch long Round Head, Ring Shank Nails(60mm X 2mm)

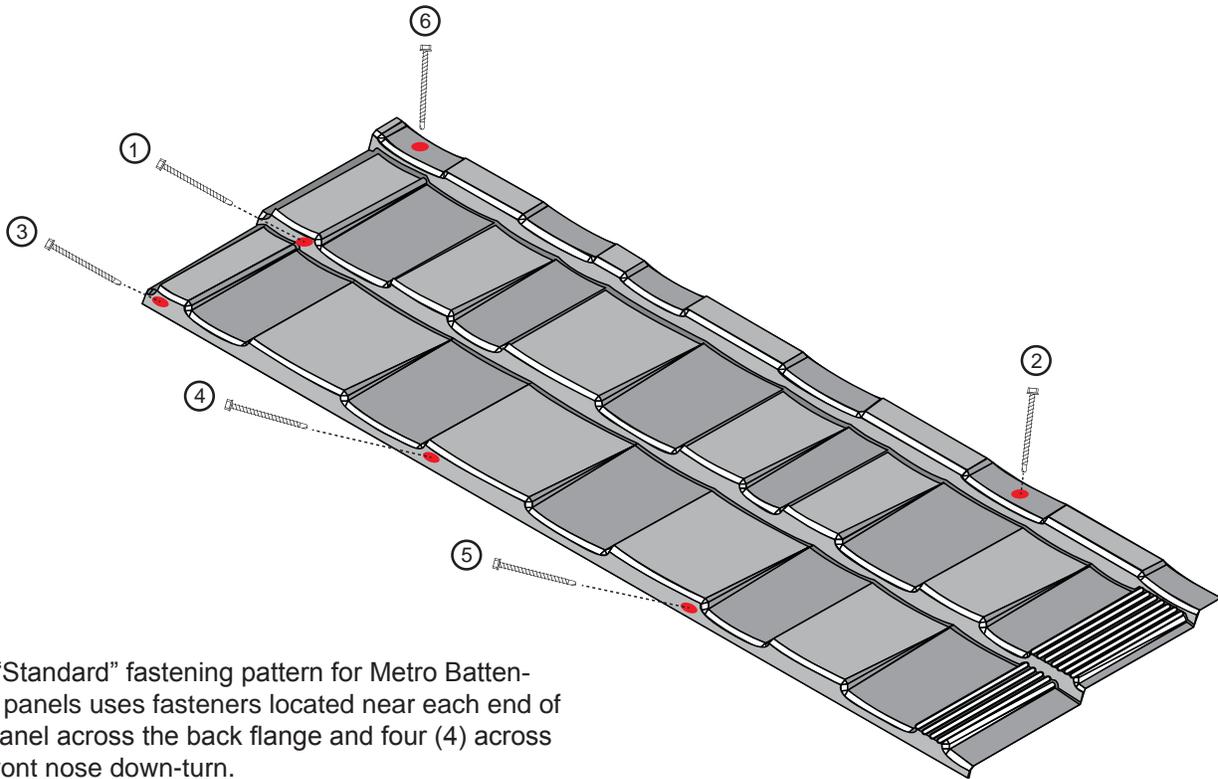




MetroCOTTAGE™ Shingle

Batten-less Installation Details

FASTENING SEQUENCE



The “Standard” fastening pattern for Metro Batten-Less panels uses fasteners located near each end of the panel across the back flange and four (4) across the front nose down-turn.

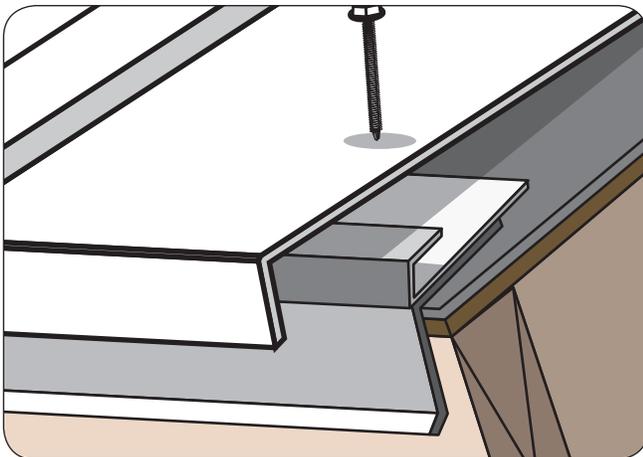
All fasteners used on a Metro roof shall meet or exceed the corrosion resistant standard as defined in ASTM B-117, (1,000hr minimum Salt Spray Corrosion Resistance).

Refer to Metro’s High Velocity Hurricane Zone (HVHZ) fastening details found in Metro’s Florida Building Code HVHZ Approval FL-6710 for details.



FASTENING SEQUENCE is applicable to any location and ensures the panels stay correctly aligned.

1ST ROW FASTENING



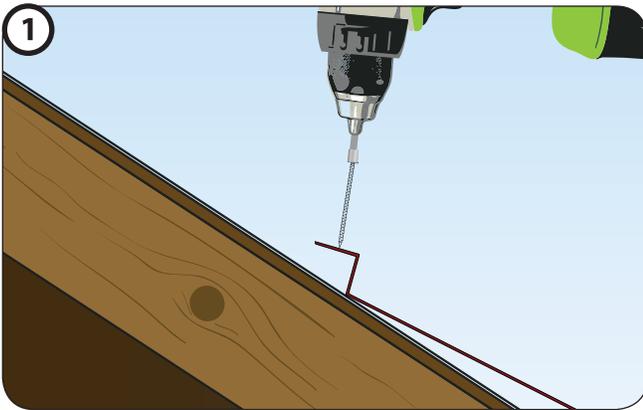
Fasten the First panel course up from the fascia through the top as shown. Top panel fastening is also acceptable behind Metro SMART-vents and chimney/skylight details as necessary.



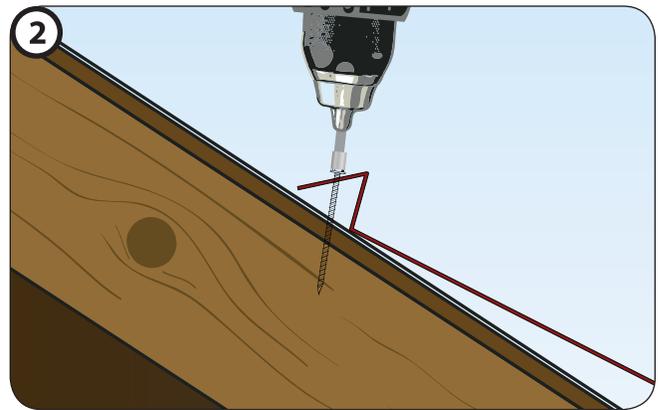
Use the Metro “Touch-up” kit to cover each top fastener.



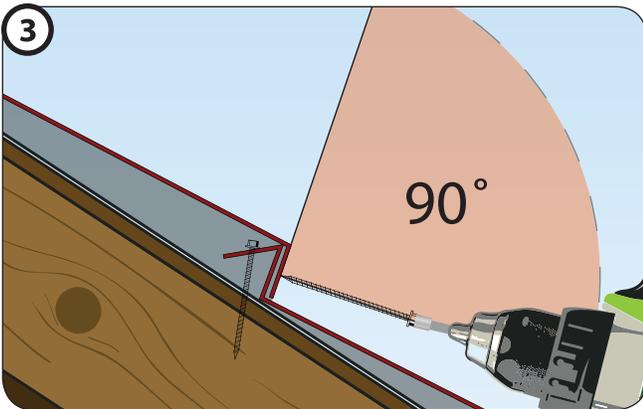
FASTENING BATTEN-LESS PANELS - SCREWS



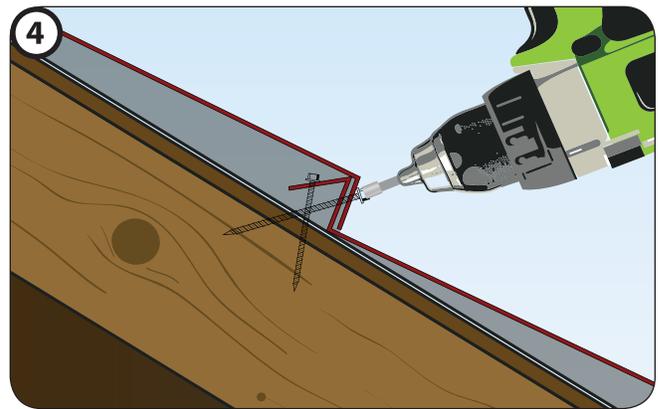
1 Panel back flange is fastened vertically into roof deck.



2 Panel back flange is 'seated' down onto roof deck.

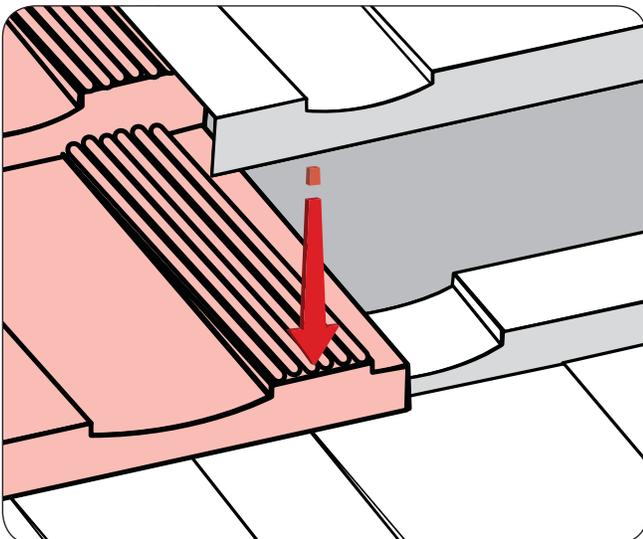


3 Start fastener at a 90° angle to the panel as shown.



4 Once fastener has penetrated the nose, angle the screw to penetrate the back up-stand of the panel beneath and into the deck.

SIDE-LAP DETAIL



COTTAGE Shingle panels lay LEFT to RIGHT. Grooved right-hand side of the panel is the "Under-Lap" portion and is covered by the "Over-Lap" of the next full panel on the same row.



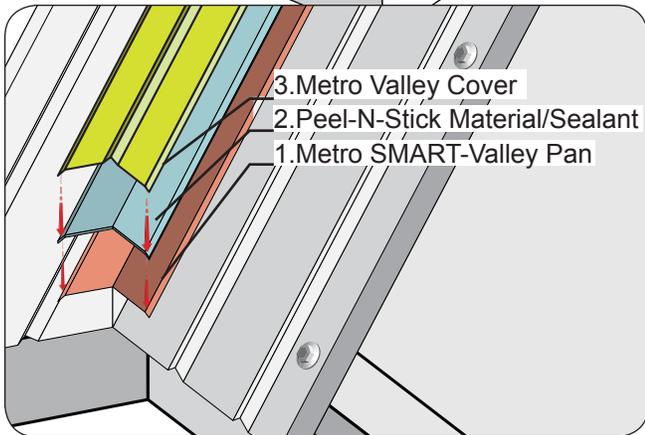
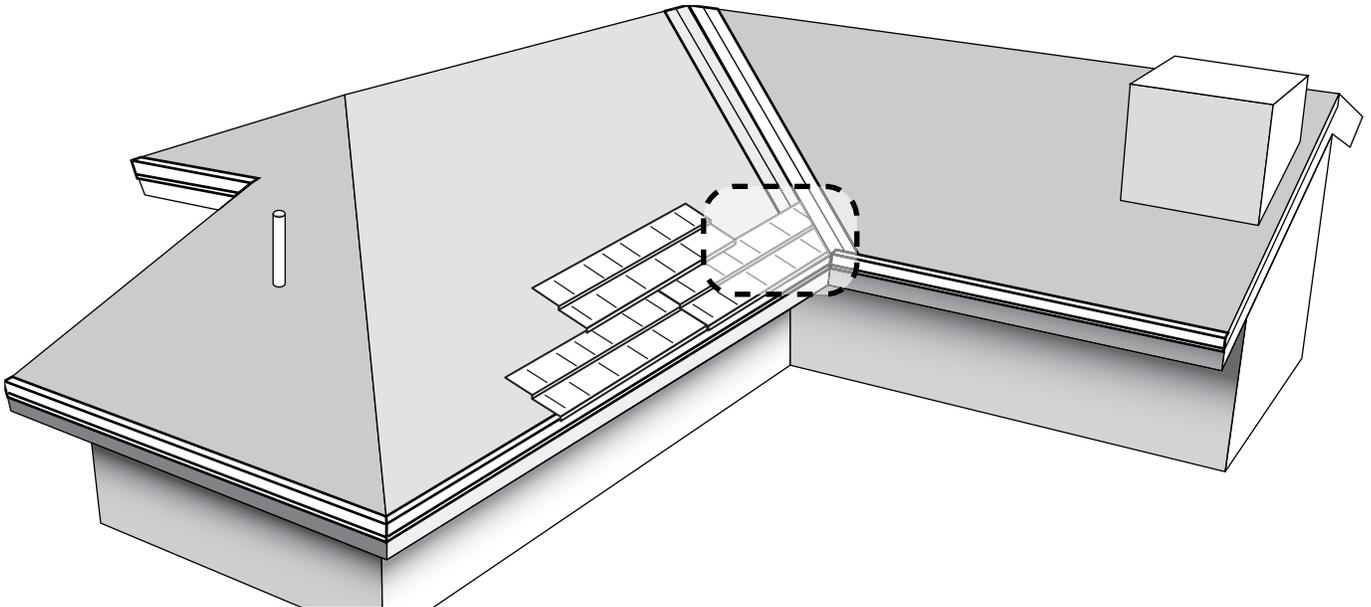
Always complete each row across the roof before starting the next row above.



MetroCOTTAGE™ Shingle

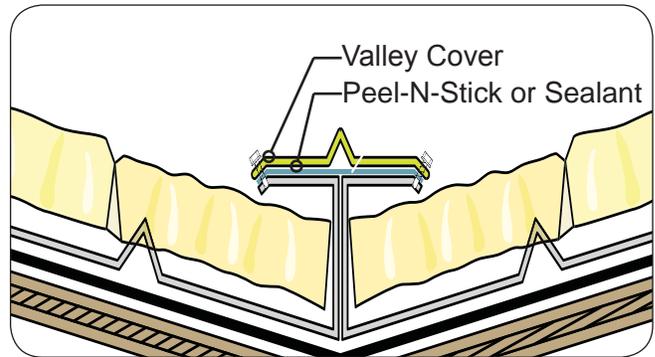
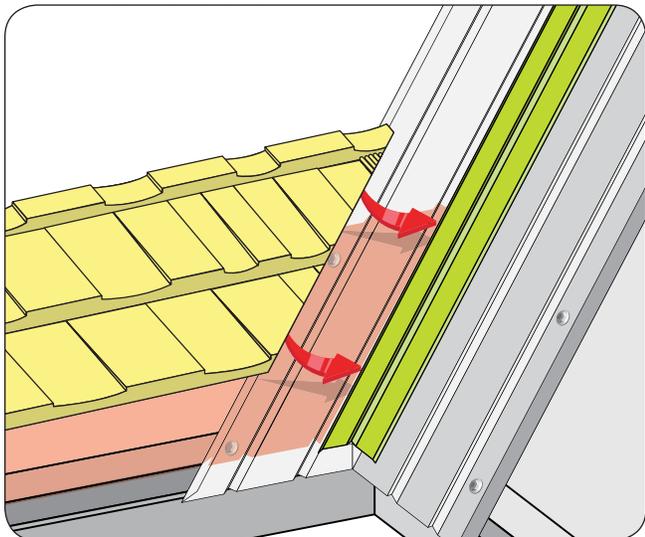
Batten-less Installation Details

SMART VALLEY DETAIL



Install a strip (Min 4-in (100mm) wide) of Peel-N-Stick type material or sealant over the center seam as shown. Install Metro Valley Cover over the center seam with stitch screws. Vertical laps for both the Peel-N-Stick and the valley Cover are a min of 4-in (100mm).”

Miter cut, and install the Metro panels beneath the overlapping Valley Cover to match the angle of the valley.



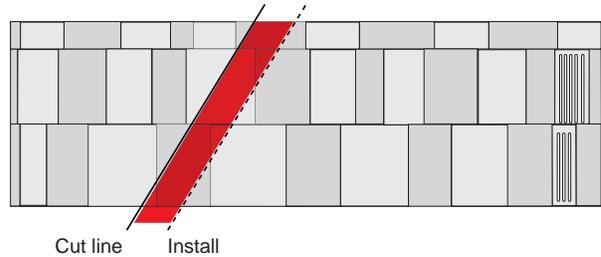
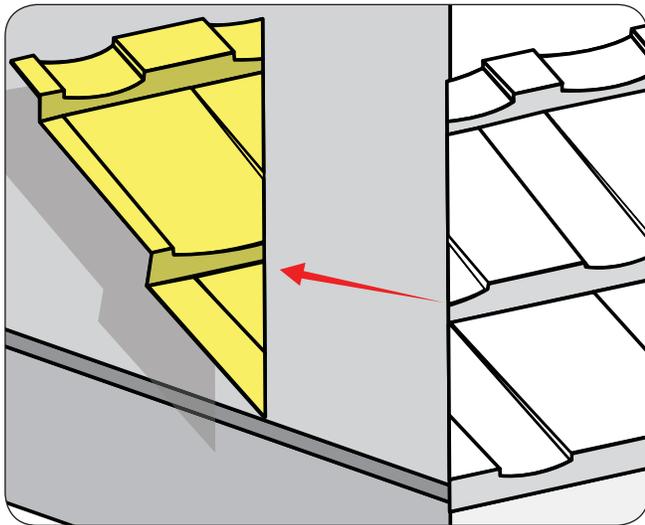
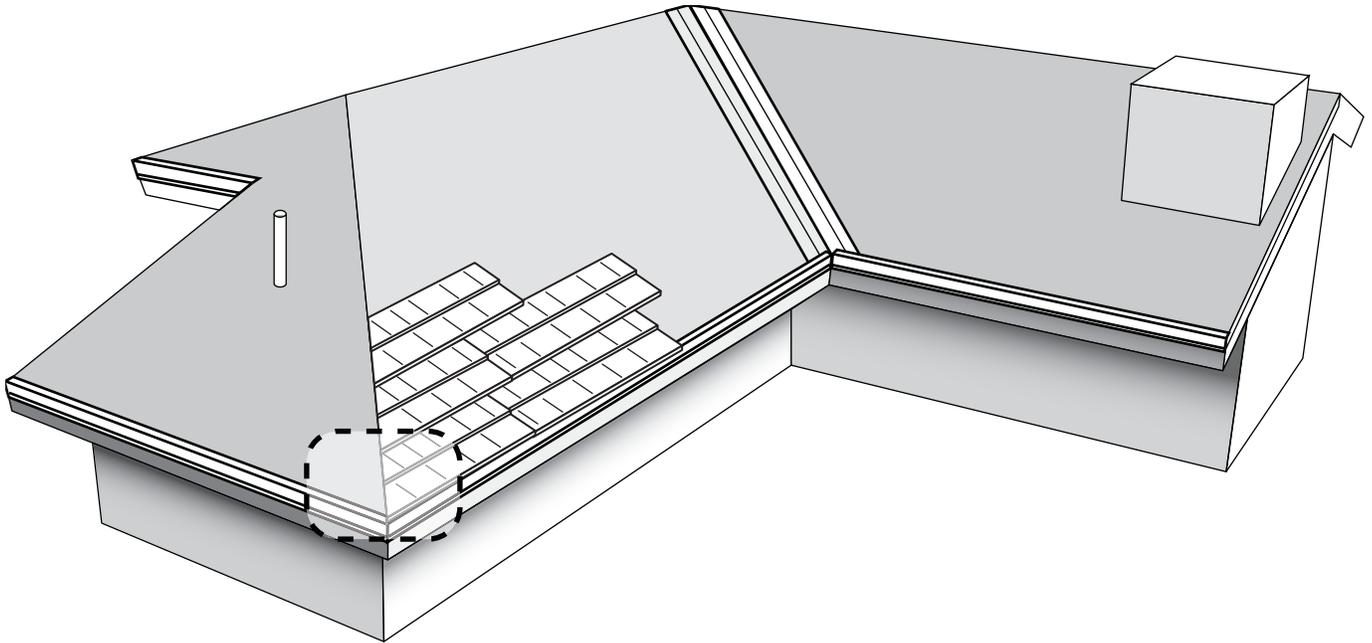
Always complete each row across the roof before starting the next row above.



MetroCOTTAGE™ Shingle

Batten-less Installation Details

HIP PANELS MITRE TO HIP CENTER-LINE



Measure, cut and install at the hip line. Install hip section panels similar to other panels.



At hips, use either a full panel or a cut section long enough to obtain the hip cut.



Always complete each row across the roof before starting the next row above.

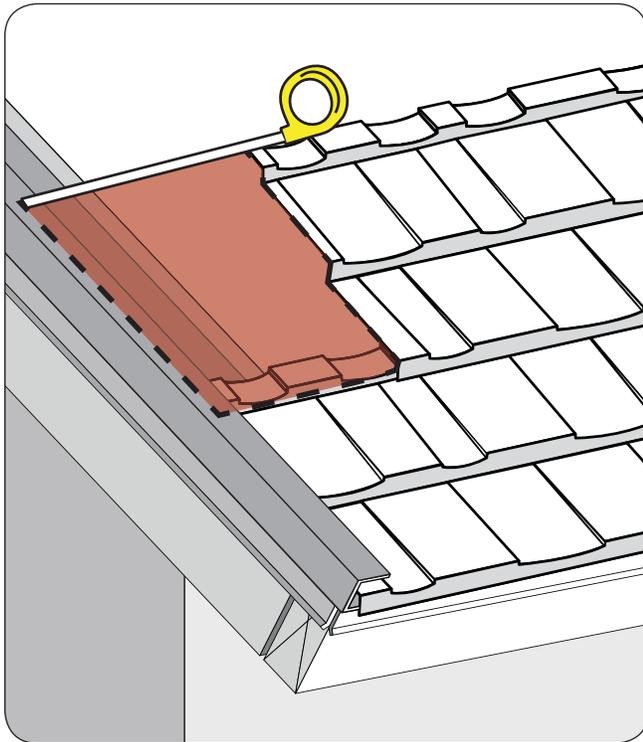
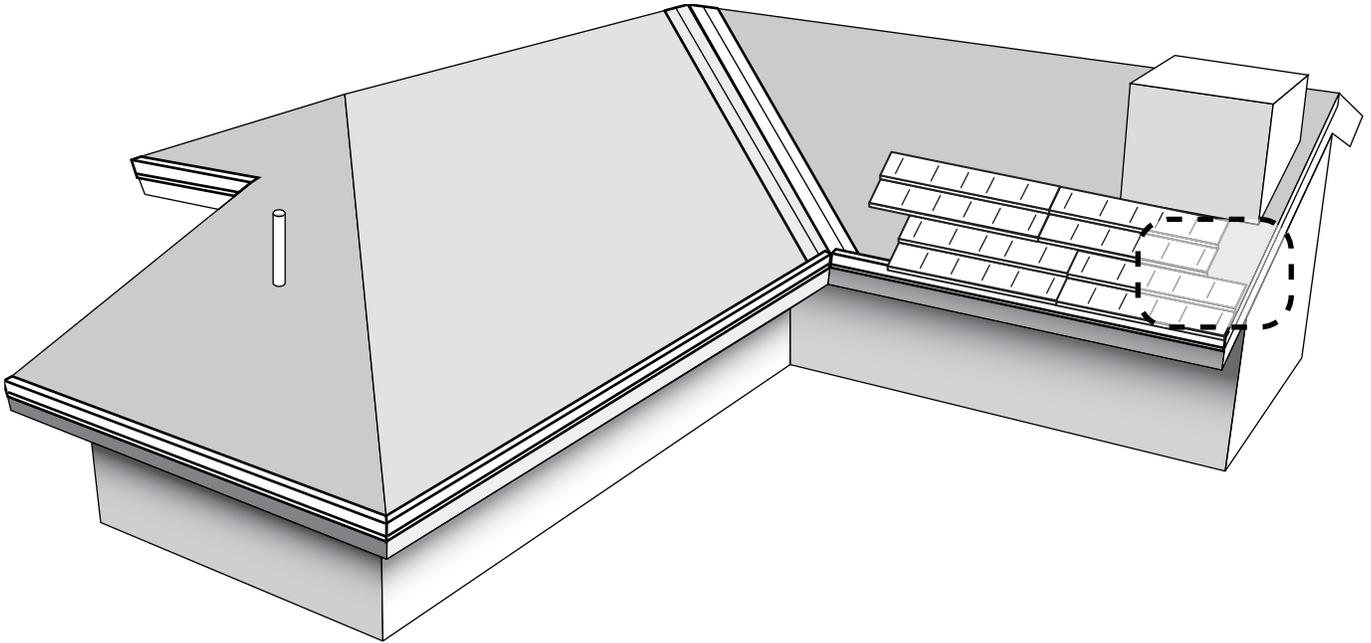




MetroCOTTAGE™ Shingle

Batten-less Installation Details

RAKE PANELS



Measure, cut and install Rake panel sections up each rake. Make sure to insert each section into the rake channel fully.



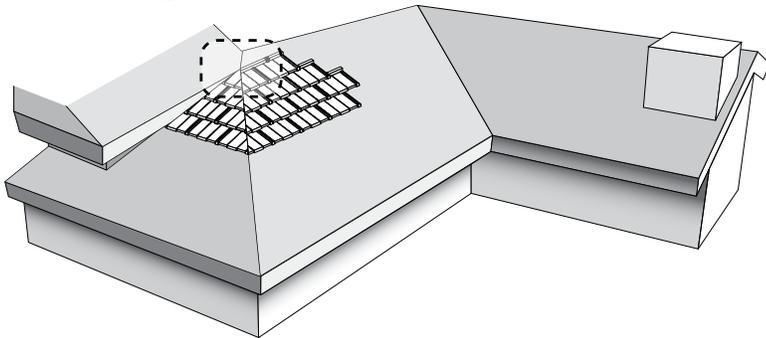
Always complete each row across the roof before starting the next row above.



MetroCOTTAGE™ Shingle

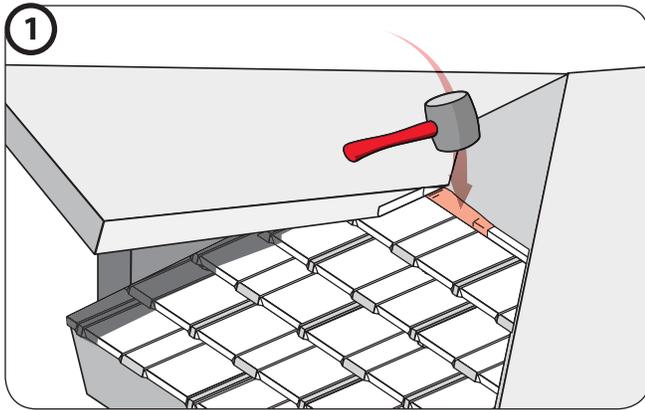
Batten-less Installation Details

DORMER VALLEY

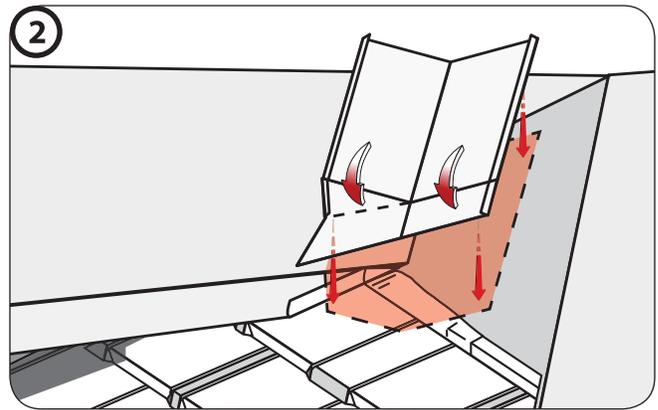


This is a critical roof area and requires special attention to ensure good weather protection. When the main roof intersects with a dormer roof, the panels back-lip where the valley exits onto the main roof must be flattened & the panels bent-up against the dormer roof, (See steps 1-4).

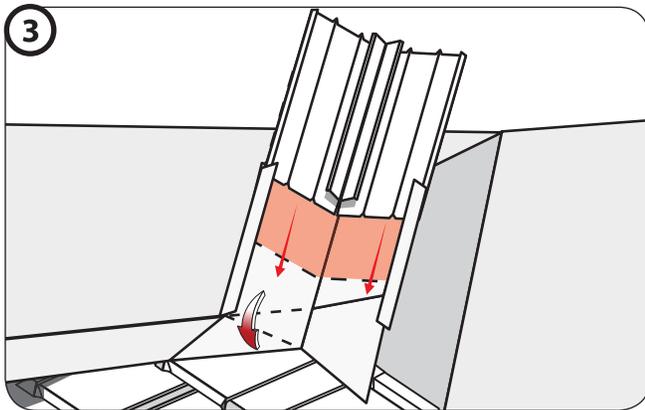
Use Metro Flat Stock to create a valley exit piece with hemmed edges for the valley to exit onto. Apply a bead of sealant to the flat stock exit piece before fitting the valley metal onto it.



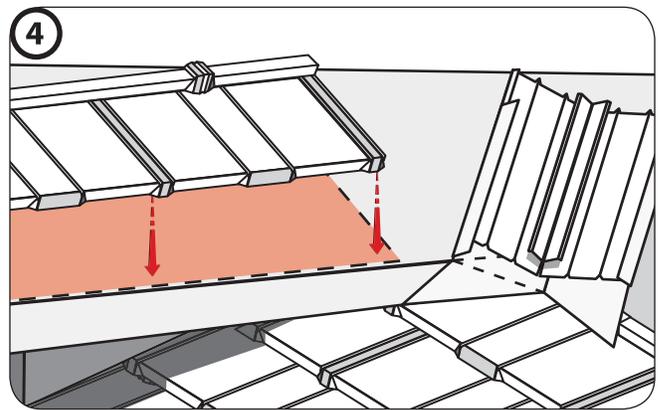
1 Flatten back flange against the roof deck.



2 Form the Stone-Coated Flat Stock as an extension and exit for the upcoming valley.



3 Install Valley metal over and onto the Stone-Coated Flat Stock.



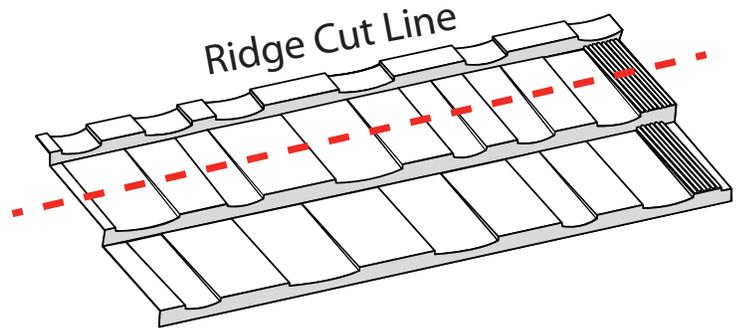
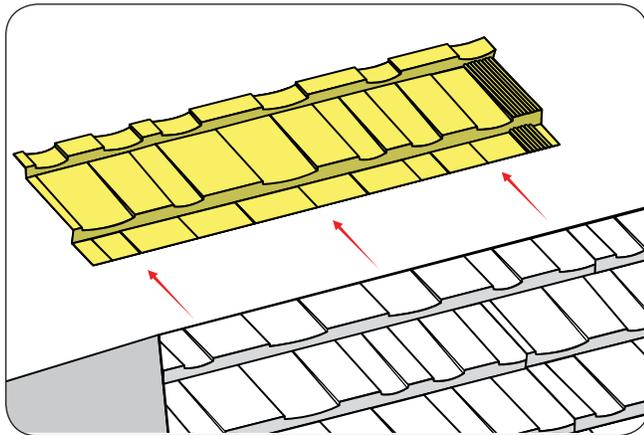
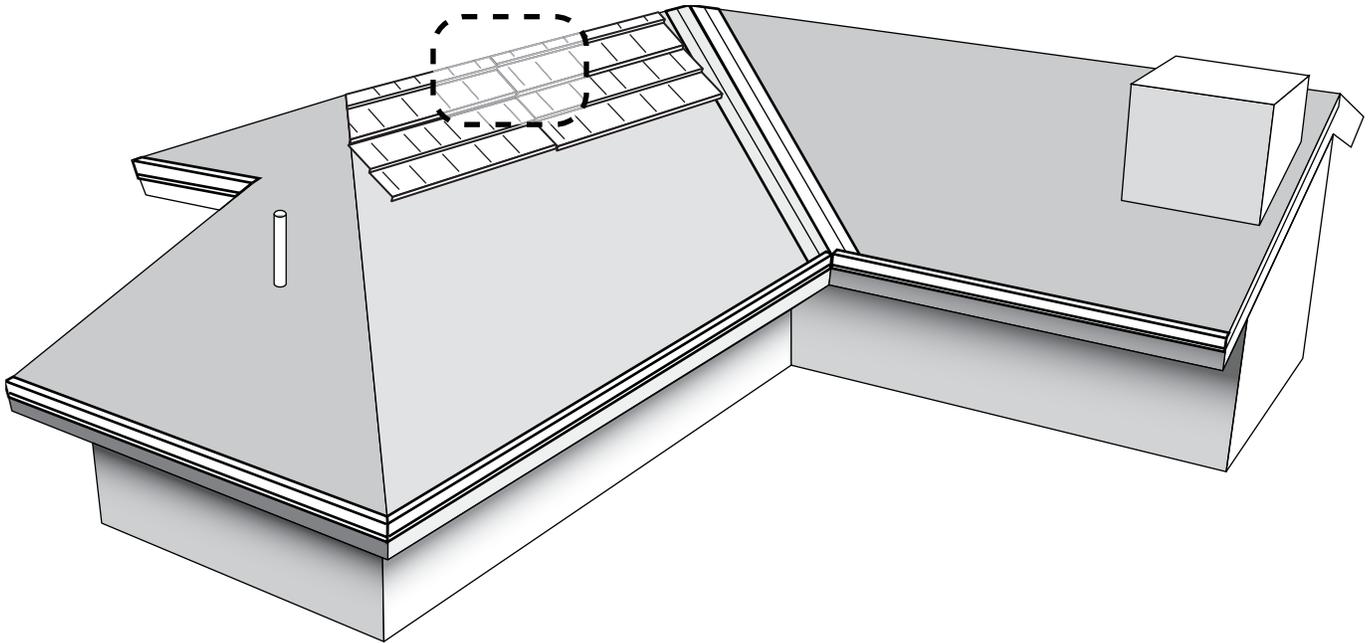
4 Then install the Panels regularly as valley cut out sections into the Smart Valley.



MetroCOTTAGE™ Shingle

Batten-less Installation Details

RIDGE PANELS



Measure, cut and install cut panels across ridge.
Fasten as feild panels



Always complete each row across the roof before starting the next row above.

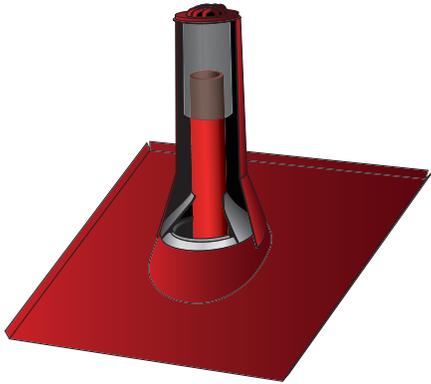




MetroCOTTAGE™ Shingle

Batten-less Installation Details

3-IN-1 SMART-JACK

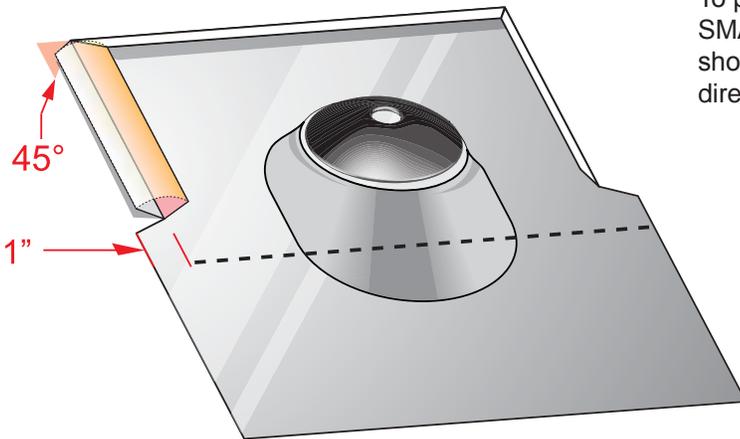


The Metro 3-in-1 SMART-jack is a moldable stone-coated roof flashing that can be used with most roof vent pipes, 1" to 3" in. (25-76mm) dia. Apply sealant under 3-in-1 SMART-jack for additional weather security.



If a particular vent location prevents a rear upturned fold with a 3-N-1 SMART-Jack, the Metro "Sandwich" method should be utilized.

SMART-JACK PREPARATION

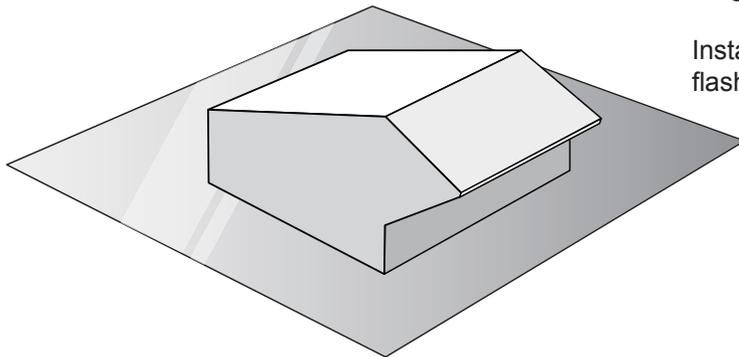


To prevent weather infiltration the edges of the SMART-Jack flashing should be folded/bent up as shown to channel any moisture onto the flashing and directed towards the lower panel.

Dotted line represents pipe penetrating through the course line, requiring SMART-Jack to be positioned between upper & lower panel courses.

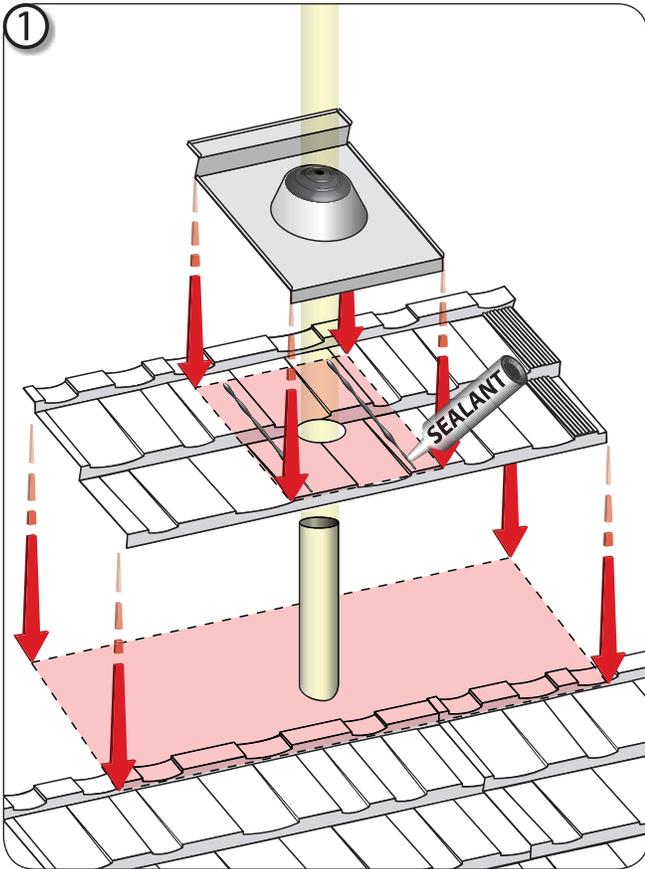
SMART-BOX-VENT

Small -3-4 inch (75-100mm) ducts.
Large -8-10 inch (200-254mm) ducts.

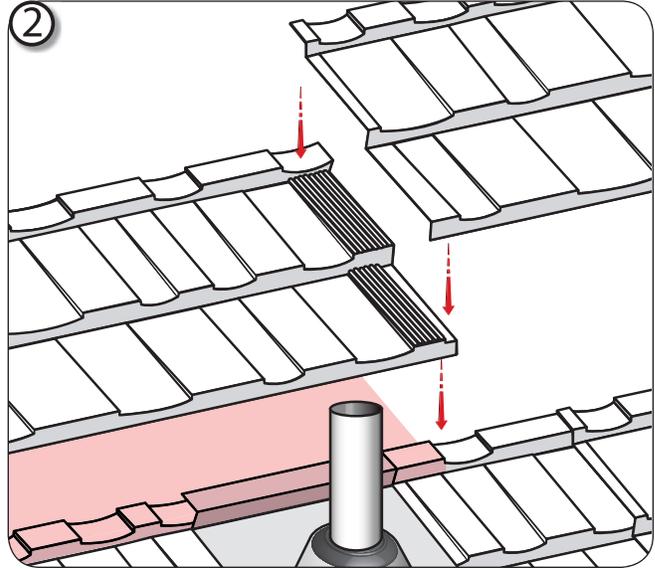


Install in the same manor as Metro SMART-Jack pipe flashings.

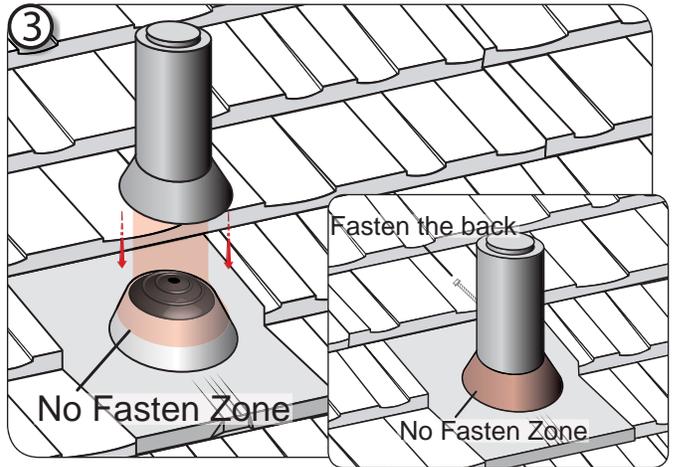
PIPE FLASHING - SMART-JACK & SMART-SLEEVE METHOD



1 Cut a pipe sized hole in the covering panel. Install covering panel and apply a bead of sealant on each side and around the hole of the pipe as shown. Slide the SMART-Jack flashing over the pipe and seat it into the sealant. Conform the SMART-Jack Flashing to the panel contours.



2 Install subsequent course above the SMART-jack flashing.



3 For added protection and appearance, SMART-sleeves are cut to conform to the panels and installed over pipes. SMART-sleeves are fastened with a screw through the back of the SMART-sleeve into the pipe.

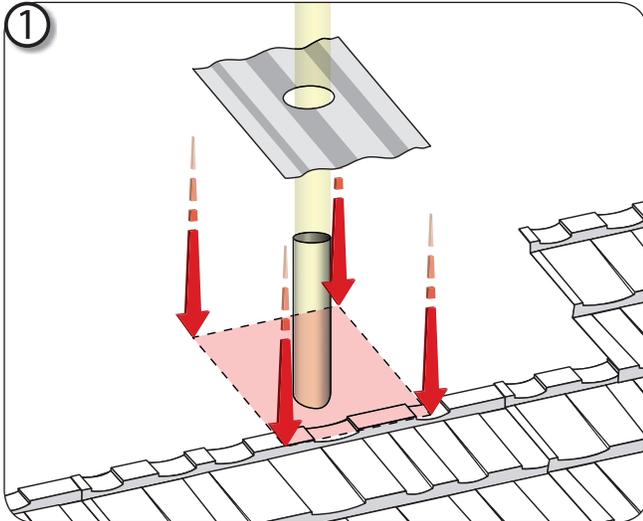
Dissimilar Metals



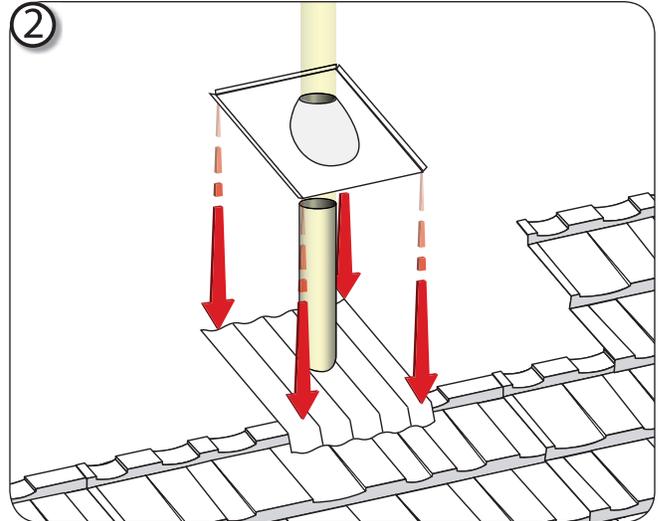
To avoid adverse corrosion effects caused by dissimilar metals, COPPER and LEAD flashings should not be used with Metro roof products and accessories



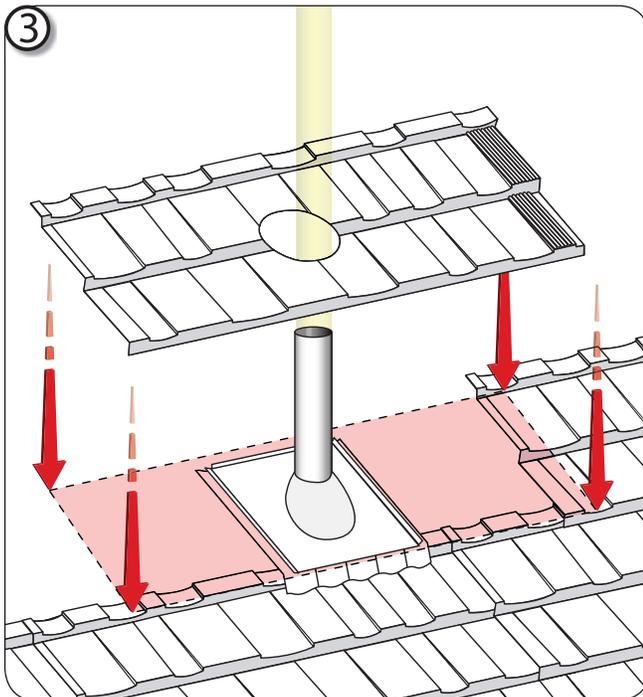
PIPE FLASHING - UNDERPAN SANDWICH METHOD - SMART-JACK



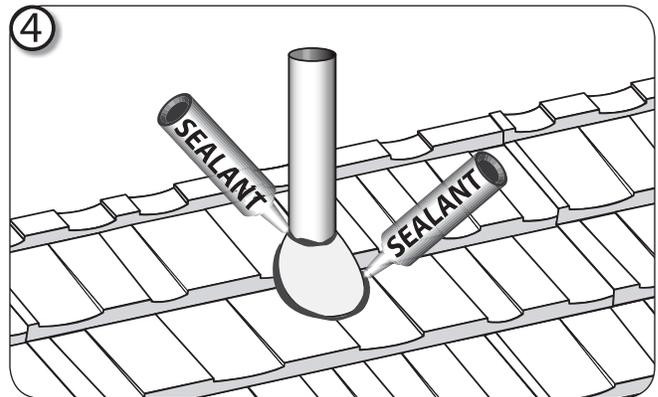
① Cut 'Under-Pan' flashing around Vent Pipe as shown. Bend front edge of 'Under-Pan' over rear of under-lapping panel.



② Install pipe flashing over 'Under-Pan'.



③ Cut a hole in the covering panel to fit the cone of the Pipe Flashing.



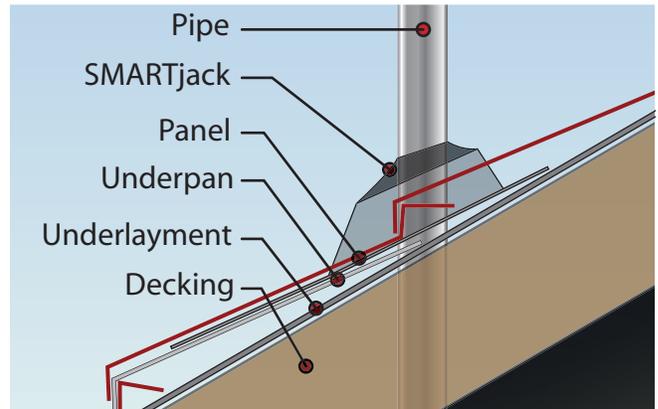
④ Seal Vent Pipe around bottom of cone and around pipe flashing as shown.

 Fasten SMART-Sleeve with screws through the back of the sleeve into the pipe. **DO NOT** fasten into the raised SMART-Jack base.

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



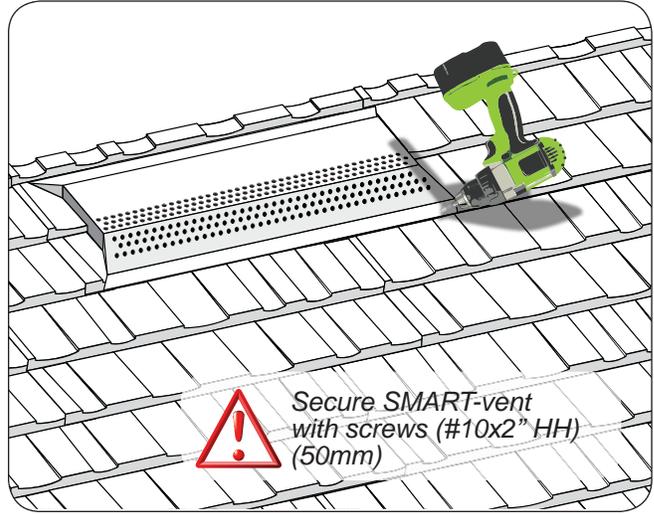
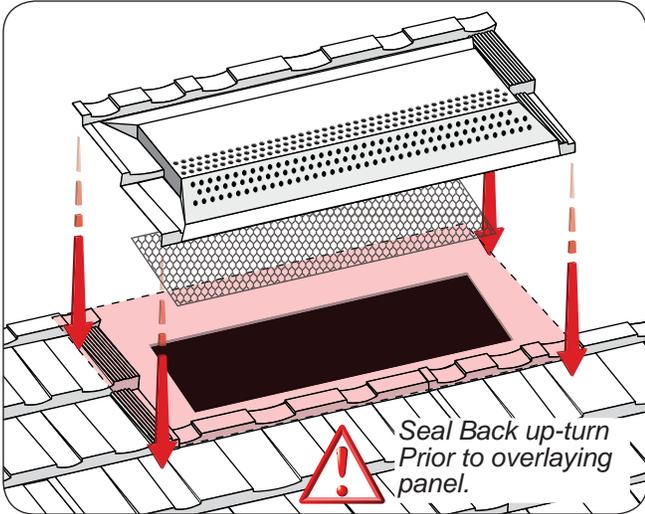


MetroCOTTAGE™ Shingle

Batten-less Installation Details

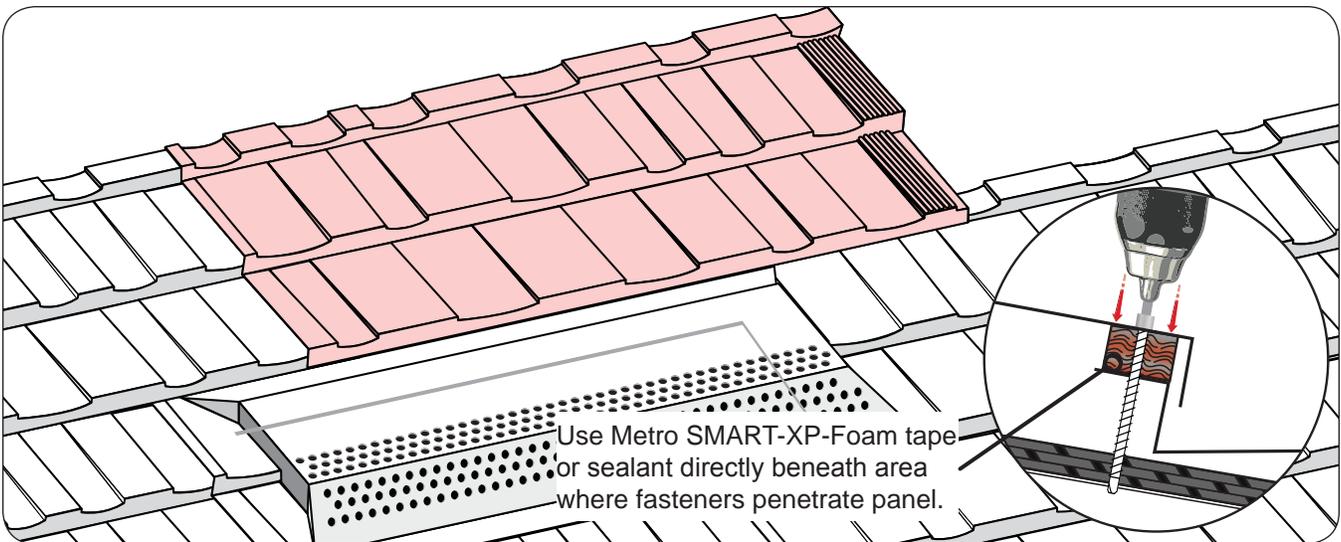
COTTAGE SHINGLE SMART-VENT

Metro SMART-vents are used in place of regular panels on the first full course down from the ridge where ventilation is required. The vents are installed similar to panels after cutting ventilation hole in decking (approximately 8" x 30"). A Metro SMART-vent provides approximately 82 sq. inches of Net Free Vent Area (NFVA). Care should be taken to adequately ventilate the building. Building codes require a minimum NFVA of 1/300 the area of the space to be ventilated (attic).



 To prevent rodents and other vermin from entering attic space, the roof deck ventilation hole should be covered with 1/4" wire mesh.

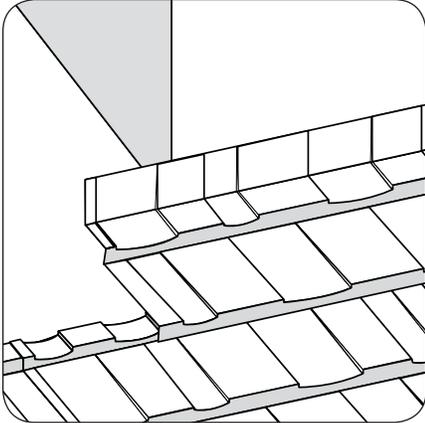
 Always check local codes and verify adequate intake ventilation to ensure SMART-Vents are exhausting air.



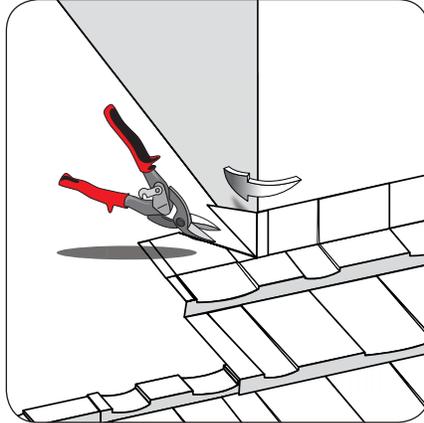
Top panel fastening is acceptable behind Metro SMART-Vents, Chimney's & Skylights as long as they are positioned out of the main water channels on the high ribs of the panel. Fasteners may be covered with material from a Metro Touch-Up Kit.

CHIMNEY / SIDE-WALL / HEADWALL

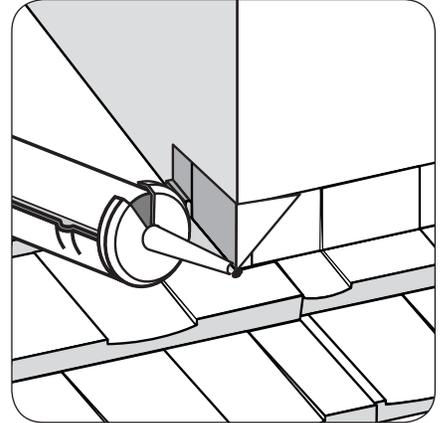
The following details apply to any square cornered protrusion through roof.



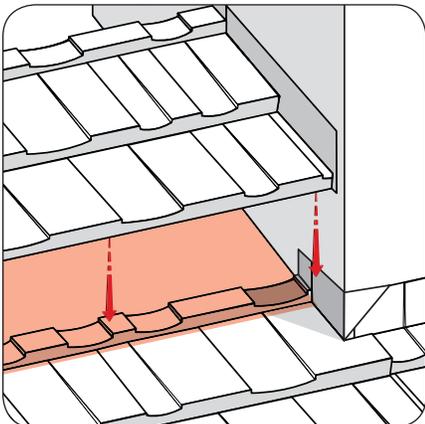
Measure, cut, and fold up panel 2" from the back of the panel to the front of protrusion.



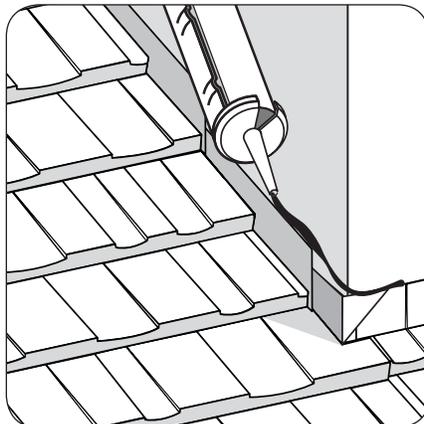
Cut a 45 degree angle as shown and fold tabs around protrusion.



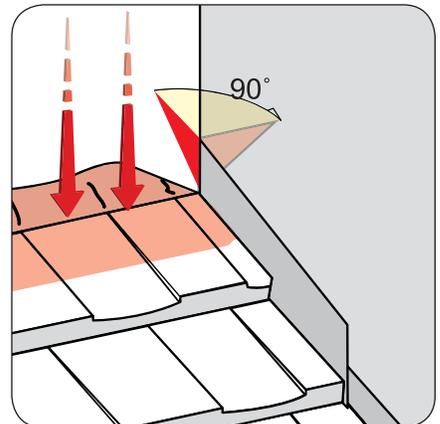
Cut and fold up panels 2" at sides of protrusion.



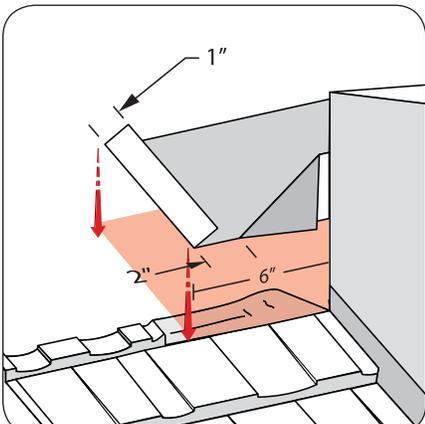
Install subsequent panels with a 2" bend up against the protrusion.



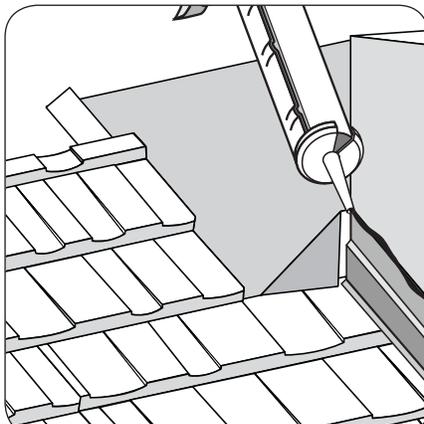
Seal around perimeter of folded panels prior to fastening to the protrusion.



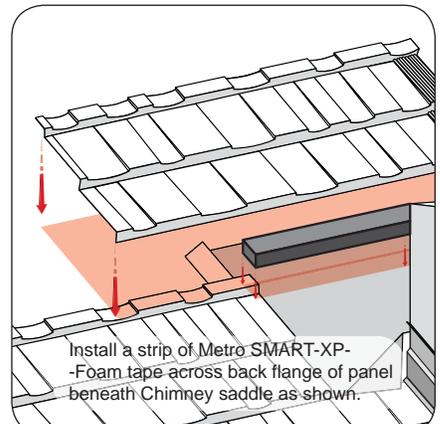
Flatten the back flange of the panel intersecting the top of the protrusion.



Install chimney saddle metal at back of chimney as shown. Extend Saddle metal a minimum of 4" past each side of protrusion.



Install and seal 'Z'-bar flashing metal over folded sections as shown.



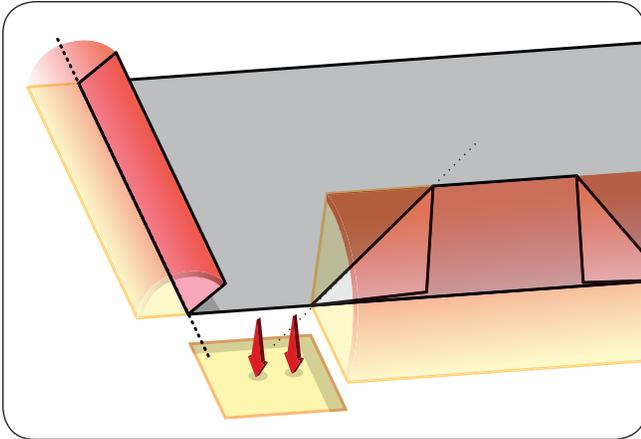
For added protection install a foam weather block under the panel overlapping the saddle.



MetroCOTTAGE™ Shingle

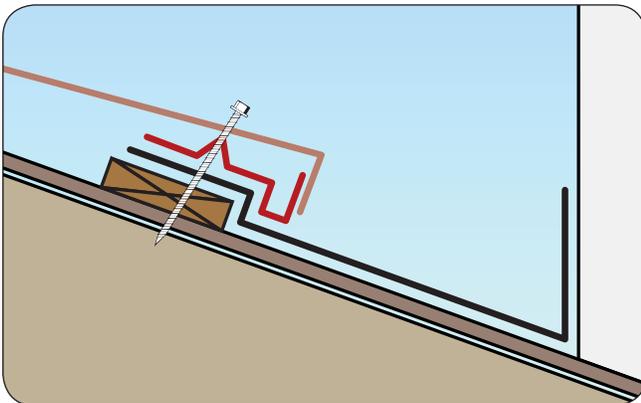
Batten-less Installation Details

CHIMNEY SADDLE PREPERATION



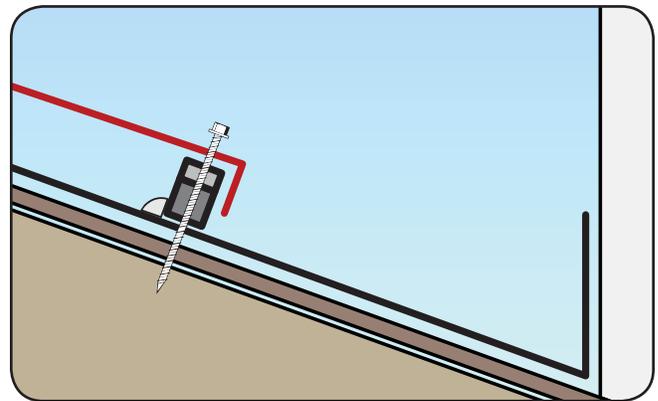
Chimney saddle is cut and folded as shown to deflect water from the chimney.

CHIMNEY FLAT-STOCK PREPARATION



Use a V-Bat Riser Metal piece as shown to elevate the panel to the correct roof plane height. Fasten as shown with the panel nose being fastened into the V-Bat Riser.

CHIMNEY FLAT-STOCK W/ FOAM CLOSURE



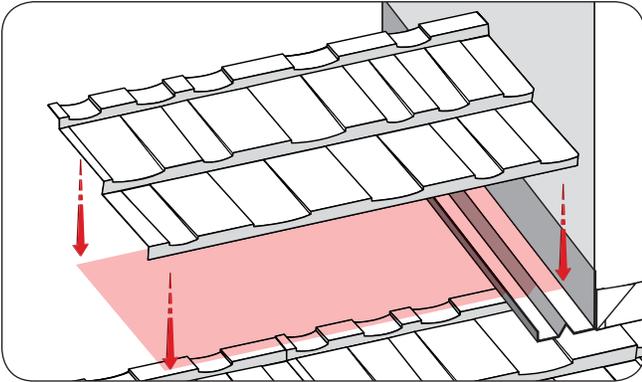
Position Metro SMART-XP-Foam or SMART-Barrier-Foam and fasten as shown above. NOTE: Metro Touch-Up Kits can be used to cosmetically coat the panel top fasteners, touch-up kit should not be used as the primary sealant.



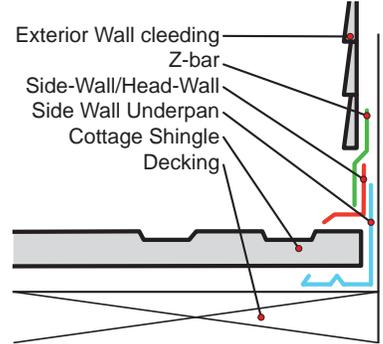
MetroCOTTAGE™ Shingle

Batten-less Installation Details

SIDE-WALL UNDER-PAN METAL

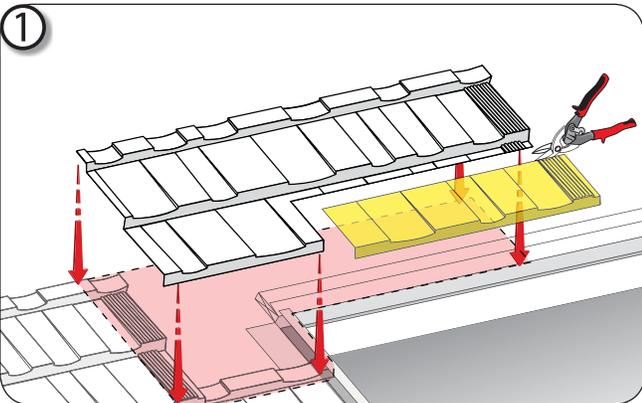


An alternative to folding panels up against walls, an "Under-Pan" metal can be installed next to the wall and behind an existing wall flashing. Metro Counter-Flashing metal or standard Z-Bar metal can be utilized to assist with weather-proofing where the wall flashing metal is needed.

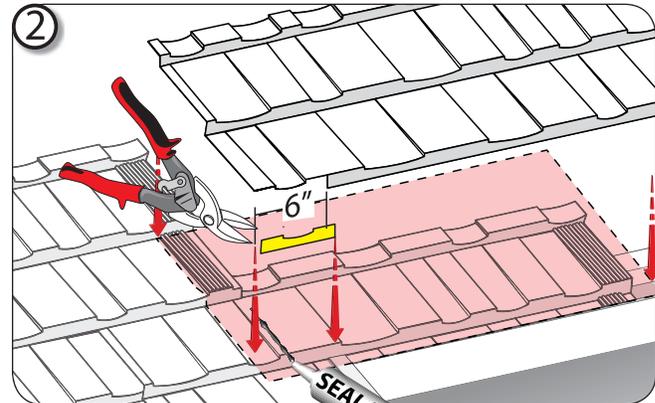


 Fold up nose of panel where under-pan metal exits onto lower panel.

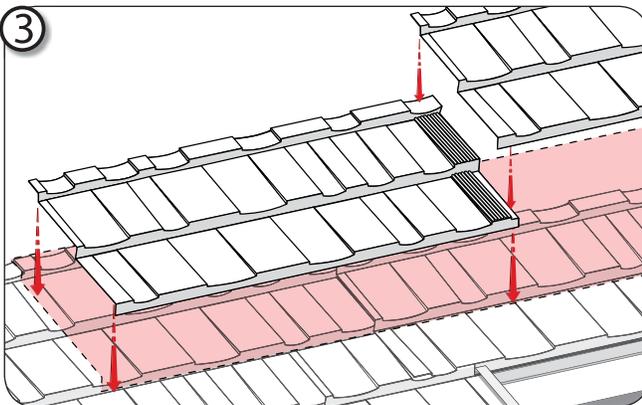
SHORT COURSE



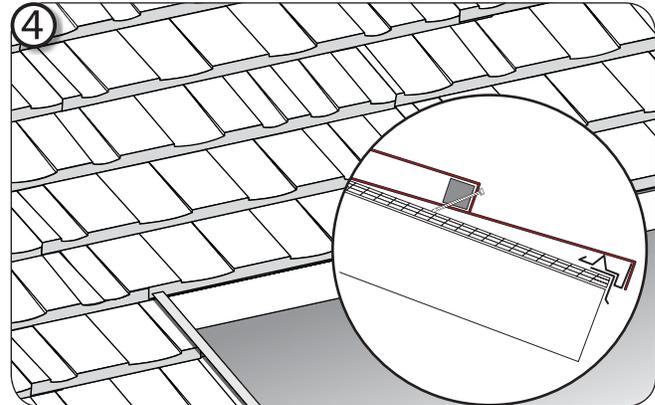
1 Cut the overhanging portion of the panel where it intersects with the stepped fascia as shown.



2 Lap over the first cut-panel with a new full panel and cut & remove the section as shown.

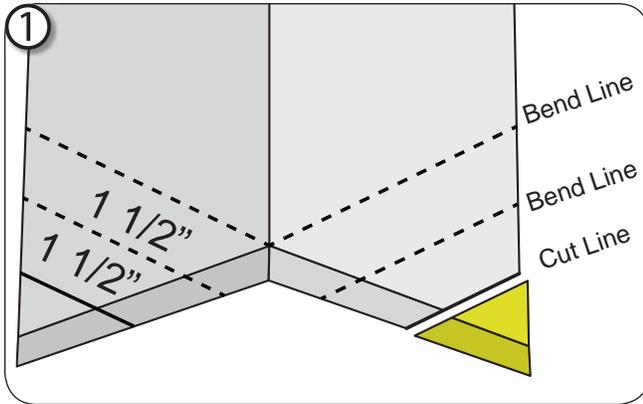


3 Apply either a bead of sealant or Metro SMART-XP-Foam or SMART-Barrier Foam along the top surface of the lower panel, just behind the dotted course line.

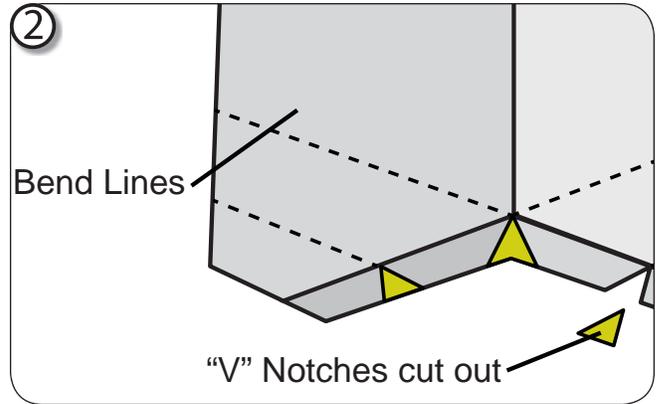


4 Finished slip-course detail with all parts in place

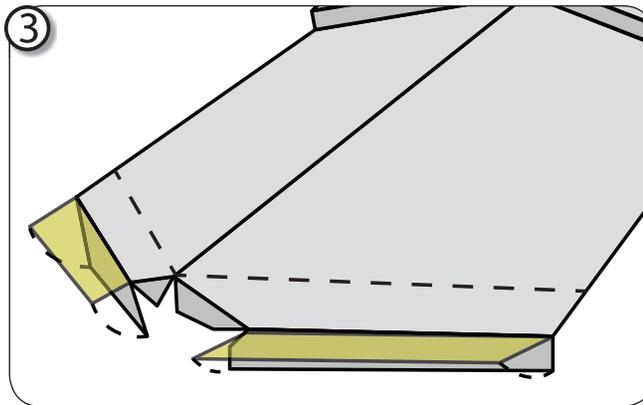
HIP STARTER



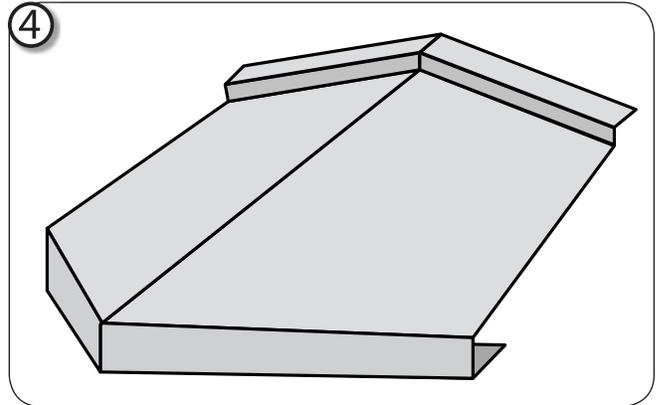
Mark cap as shown at center point. mark lines with 1 1/2" (38mm) of spacing.



Cut & notch as shown



Fold cap at the first dotted line.



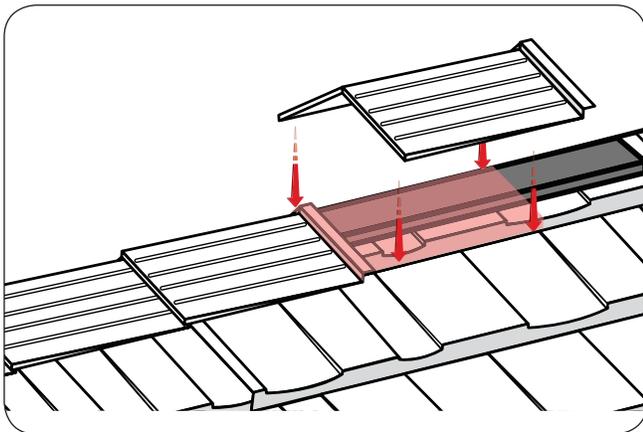
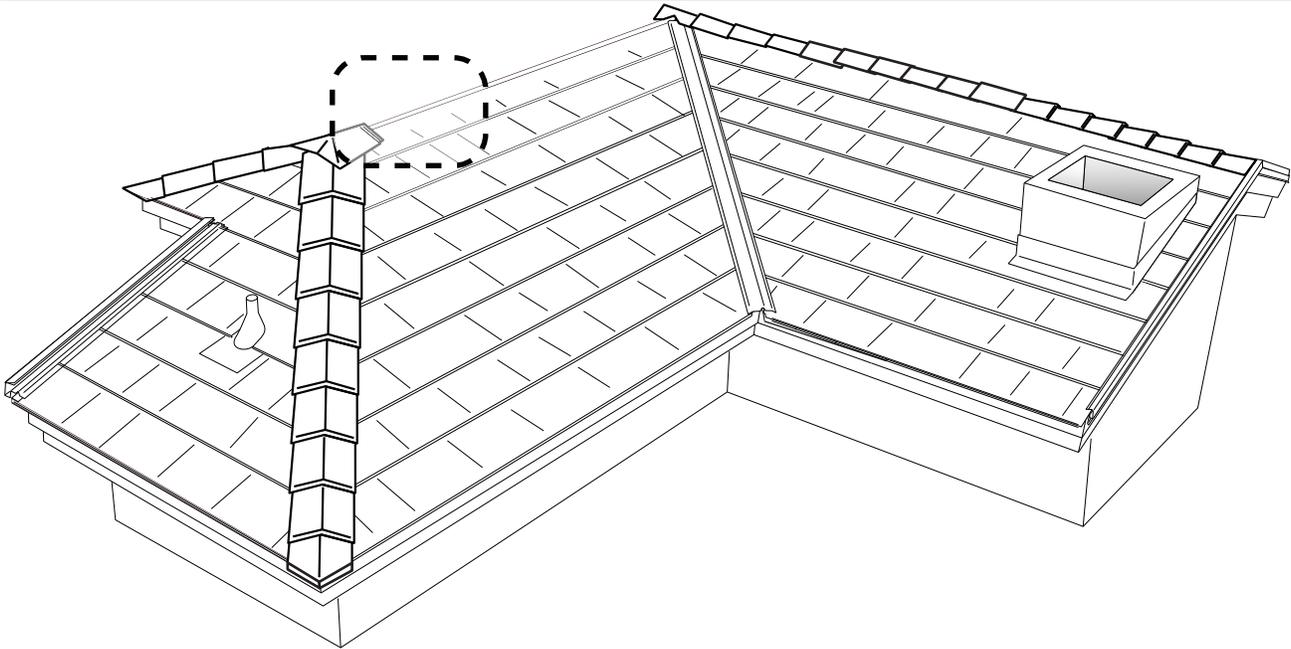
Fold Cap at the second bend line. Install Metro Smart-Barrier Foam (6" width) up the center. Install caps up the hip fastening each cap through the Smart-Barrier Foam to ensure weather protected detail.



MetroCOTTAGE™ Shingle

Batten-less Installation Details

RIDGE PANELS USING COTTAGE-CAP TRIM WITH SMART FOAM



NO (CONTINUOUS) RIDGE VENT

After cutting & installing panels to the Ridge center-line, apply SMART-Foam roll (6" X 1" X 240") down center of ridge or Butyl tape down the center-line, making sure the tape is seated on the panel surface. Position the starter cap at the rake trimming the end to form a 3-D shape (Refer to starter cap detail), then fit and fasten each cap through the nose 2-1/2"-inches from the outside edge of the cap. Follow this procedure with each cap across the ridge to the center-line, then repeat from the other end of the ridge to meet in the middle for a finished effect.

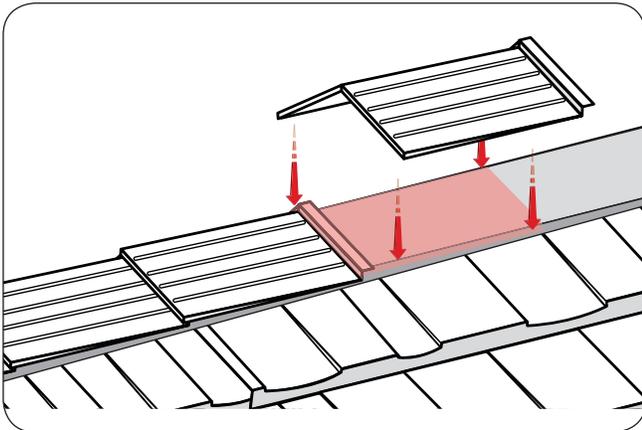
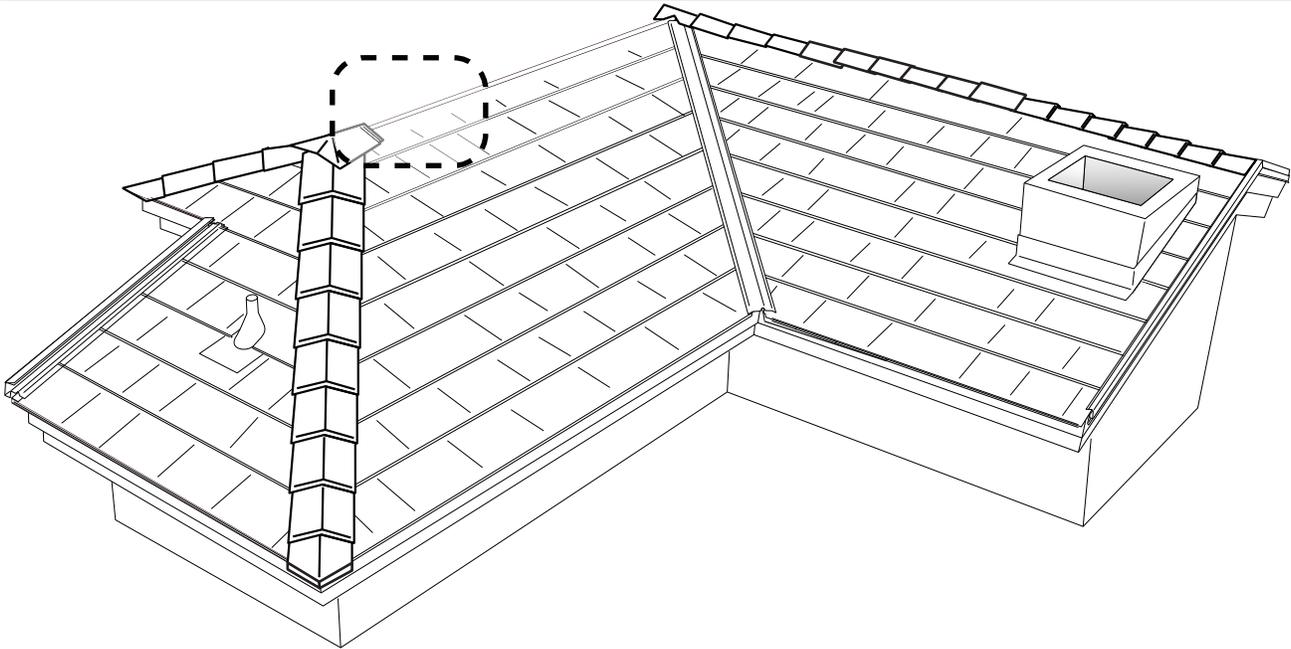




MetroCOTTAGE™ Shingle

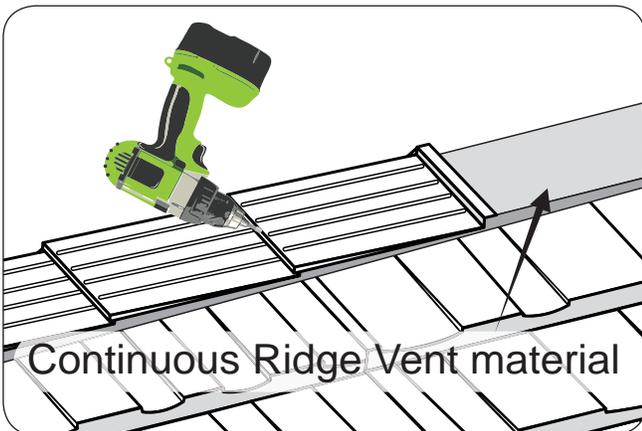
Batten-less Installation Details

RIDGE PANELS USING COTTAGE-CAP TRIM CONTINUOUS RIDGE VENT



CONTINUOUS RIDGE VENT

After cutting & installing panels to Ridge sheathing edge, apply Metro SMART-XP Foam down either side or sealant. Install the Continuous Ridge Vent material (Std. 11-1/2"-inches wide) and press into the foam/sealant and fasten in place. Position the starter cap at the rake trimming the end to form a 3-D shape (Refer to starter cap detail), then fit and fasten each cap through the nose 2-1/2"-inches from the outside edge of the cap. Follow this procedure with each cap across the ridge to the center-line, then repeat from the other end of the ridge to meet in the middle for a finished effect.



Continuous Ridge Vent material



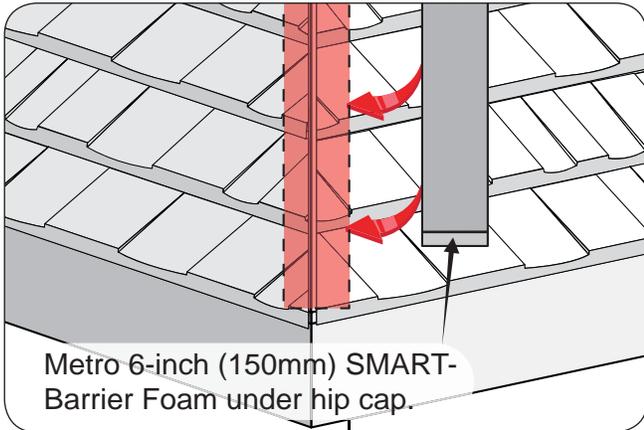
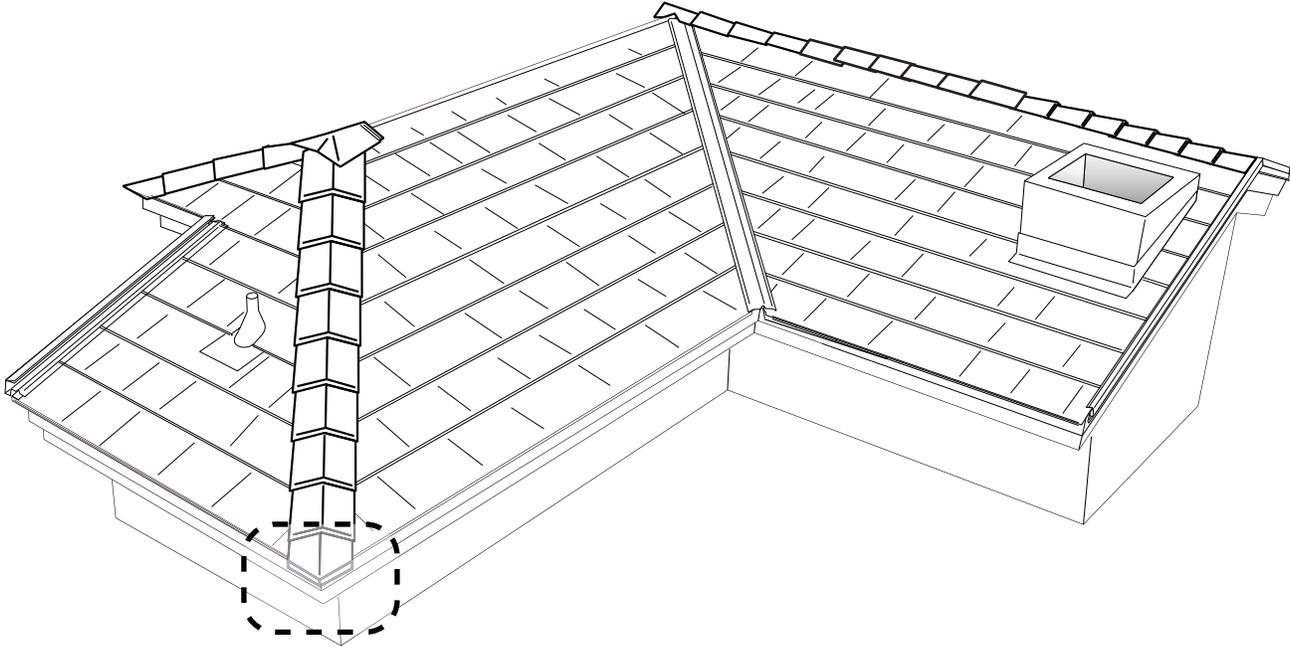
Cap fasteners to be 2-1/2"-inches in from the outside edge of the cap and installed through the nose of each cap, through the foam/sealant/ continuous ridge vent beneath & into the roof deck.



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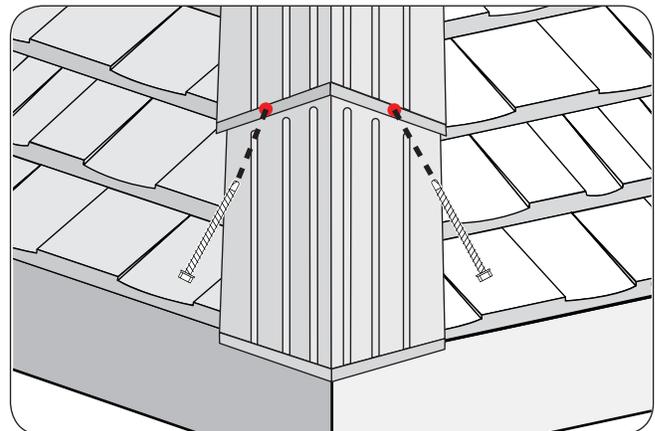
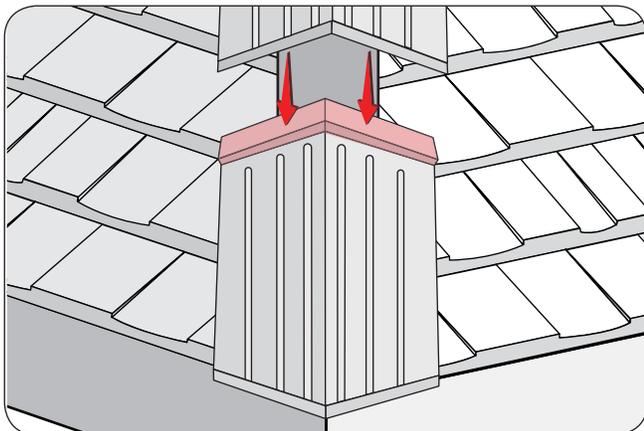
Batten-less Installation Details

HIP PANELS USING COTTAGE-CAP TRIM



Metro 6-inch (150mm) SMART-Barrier Foam under hip cap.

After cutting & installing panels to the Hip center-line, apply SMART-Foam Roll (6" X 1" X 240") down center of hip or Butyl tape down the center-line, making sure the tape is seated on the panel surface at each panel course step. Position the starter cap at the fascia trimming the end to form a 3-D shape (Refer to starter cap detail), then fit and fasten each cap through the nose 2-1/2"-inches from the outside edge of the cap. Follow this procedure with each cap up the hip to ridge intersection.





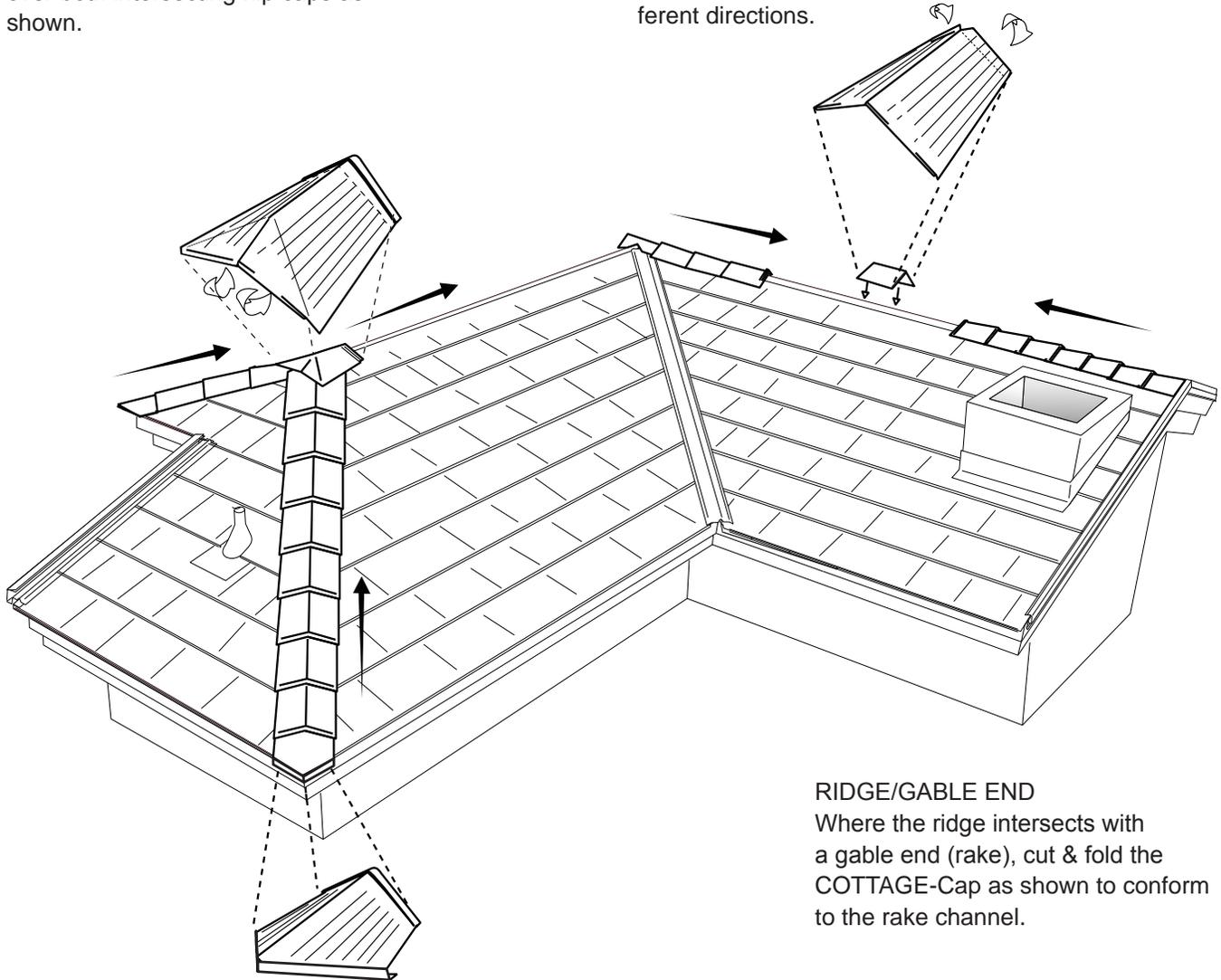
MetroCOTTAGE™ Shingle

Batten-less Installation Details

TRIM CAPS

HIP/RIDGE INTERSECTION
Install hip caps from the bottom using 2 fasteners per trim cap. Overlap trim-caps at hip/ridge intersection. Cut and fit the ridge cap over both intersecting hip caps as shown.

RIDGE CENTER CAP
At the center of a ridge line, a small/short ridge cap as shown can be made from a full Metro Trim Cap piece where trim pieces meet from different directions.



HIP STARTER
Notch, Cut & Fold the COTTAGE-Cap as shown on the previous page, around the hip panels to form a 3-D end cap. Roll out a strip of Metro SMART-Barrier Foam (6" X 1-1/2" X 240") centered over the hip. Install COTTAGE-Caps up the hip & fasten through the SMART-Barrier Foam.

RIDGE/GABLE END
Where the ridge intersects with a gable end (rake), cut & fold the COTTAGE-Cap as shown to conform to the rake channel.

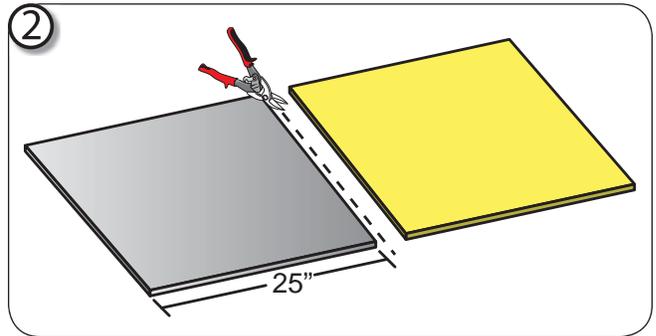
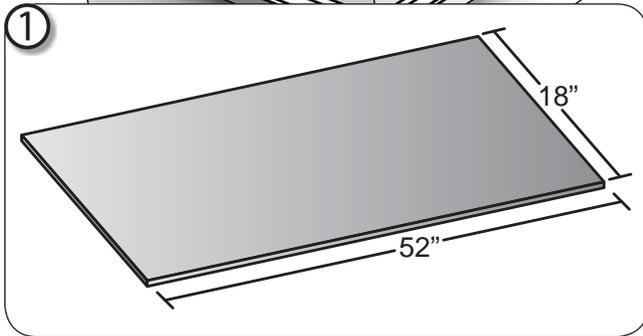
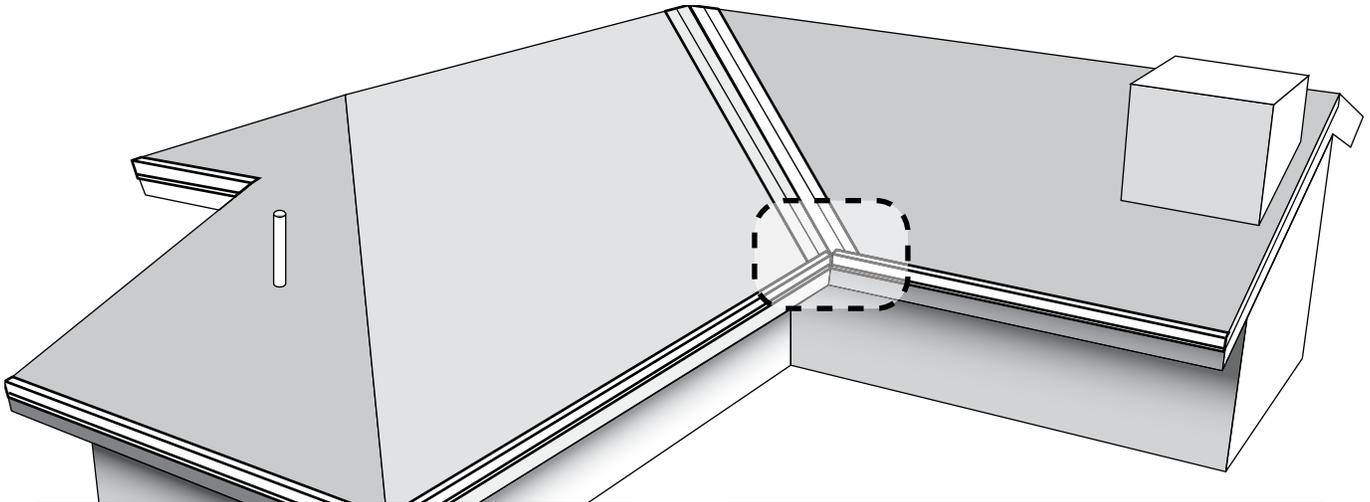


SMART-Barrier Foam Roll material is designed for use on both the Hip & Ridge to provide a weather barrier between the panel and the trim caps being used.

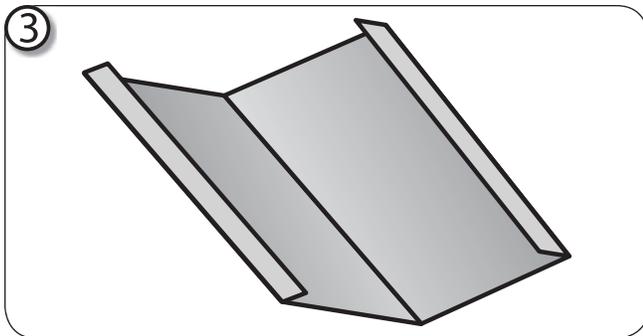


After installing trim-caps at intersections, seal cut edges and apply Metro basecoat and stone chip to provide a complete stone coat finish.

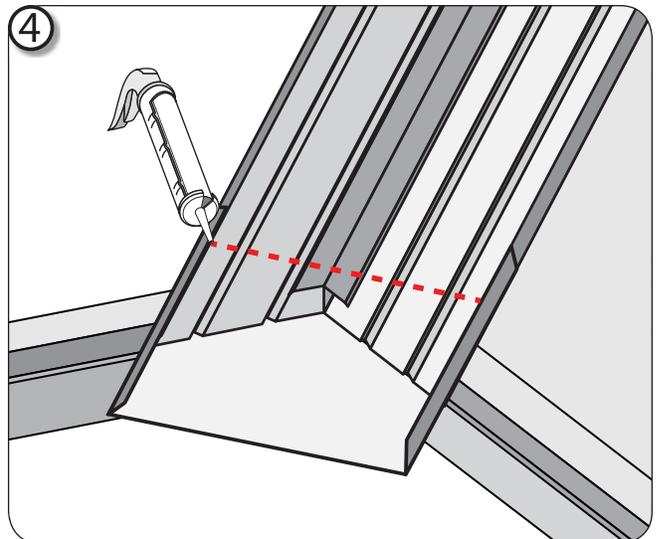
FASCIA VALLEY EXIT



Cut in half to approximately 25".



Hem both sides for the folded flatstock as shown to fit around outside edges of valley.



Apply a bead of sealant atop the Flatstock and seat the Valley Metal as shown.

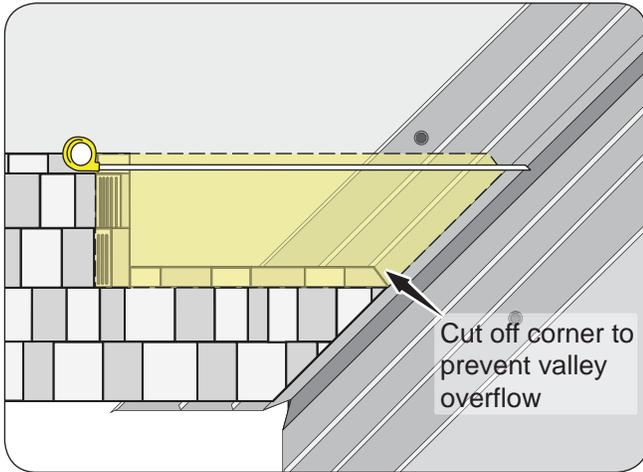
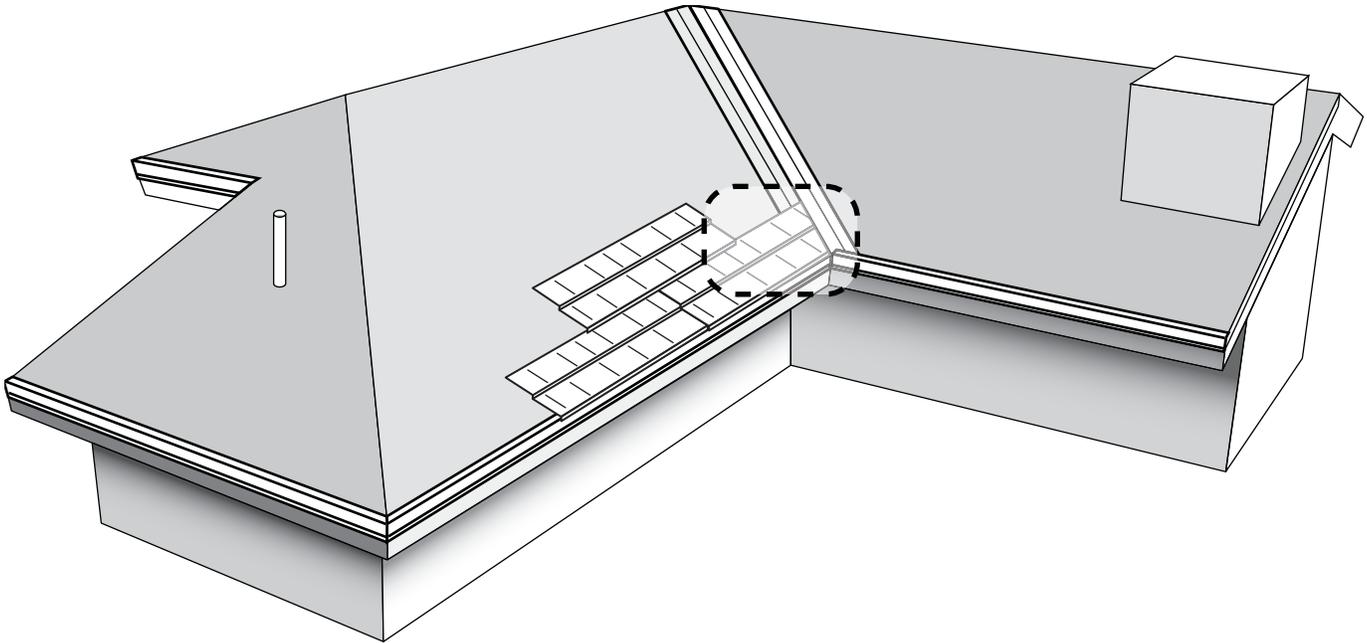
Flatstock sheat may me left straight or cut and folded into a "V" at the fascia.



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OPTIONAL INSTALLATION DETAILS

VALLEY CUTS BEND DOWN WITH CONVENTIONAL VALLEY FLASHING

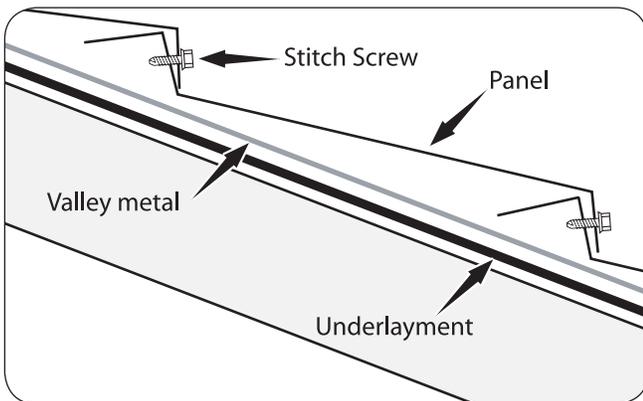


Measure, mark & cut panels to fit tightly against valley center (reverse 'V'). Fasten valley section panels to roof decking similar to the other panels without penetrating valley flashing.

Stitch panels together that lap over valley metal with corrosion resistant screws (#10 X 1-Inch long (25mm) making sure to not penetrate valley flashing.

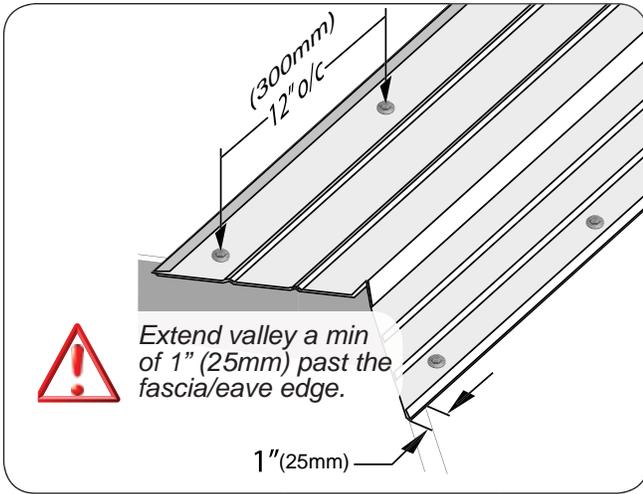
Valley cut sections can be turned down 3/4" (20mm) into valley pan, for extra rigidity. Better appearance and as an alternative to panel bending at the valley.

Install a Metro Valley Cover at the center of the valley, lapping each section a minimum of 4-inches (100mm). the valley cover is fastened to each panel course where it intersects the valley.



Start the 1st panel 12-inches (300mm) from the valley edge. This allows the valley cut sections to be securely fastened to the roof deck without penetrating the valley pan. Make sure you do NOT penetrate the valley pan, use small stitch screws (#8 X 1/2-inch long X 1/4-inch HWH (12mm X 6mm) to secure the valley cover.

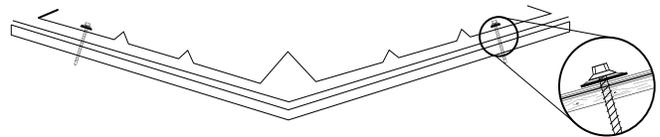
20" DOUBLE 'V' VALLEY



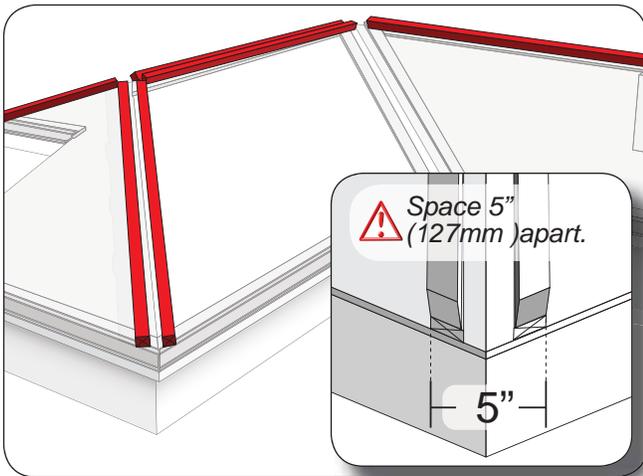
Use when extensive debris from surrounding trees (especially pine trees) are encountered.

Install new 20" (508mm) Double V-Valley metal overlapping a minimum of 4" (100mm). Valleys are attached with washer & grommet screws in the outside locations as shown. Site fabricated clips may also be used to secure valley metal.

This valley metal allows for either an 'Open' or 'Closed' valley detail.



HIP & RIDGE PANELS



Metro panels are measured, marked, cut & bent-up approximately 2-inches (50mm) against the hip boards and fastened as field panels. The trim caps are then positioned over the upturned hip panel sections and fastened through each side of the hip caps into the hip boards.

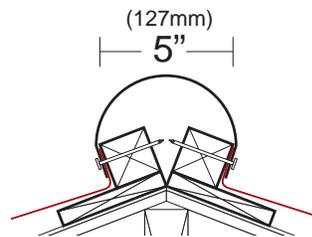
RIDGE Support Battens

Install 1X4 (25X100mm) support battens to the required height as shown. The 1X4 creates a ledge beneath the 2X2 (50X50mm) Ridge batten for the Ridge panel to be bent up against.

HIP Support Battens

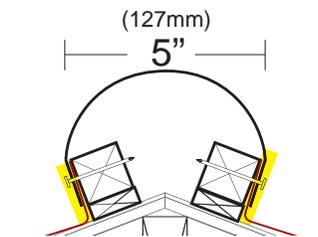
Install 1X2 (25X50mm) support battens to the required height as shown. The 1X2 is installed flush with the 2X2 (50X50mm) Hip battens to provide height for the Hip cut panels to be bent up against.

RIDGE



Metro Barrel cap shown

HIP

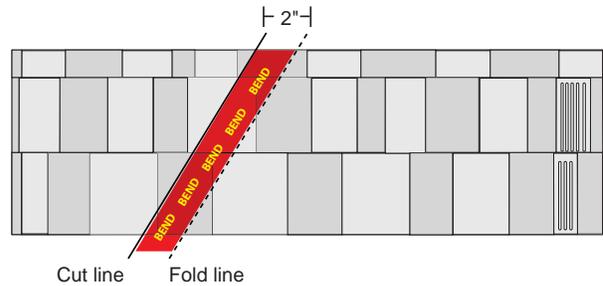
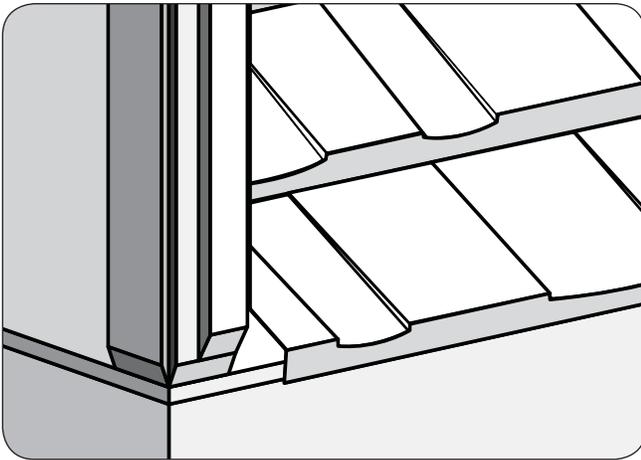




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OPTIONAL INSTALLATION DETAILS

HIP PANELS - BEND UP METHOD



Measure, cut and fold up panels 2" (50mm) at the hip line. Install hip section panels similar to other panels placing additional fasteners through the up turned flanges as shown into hip board.

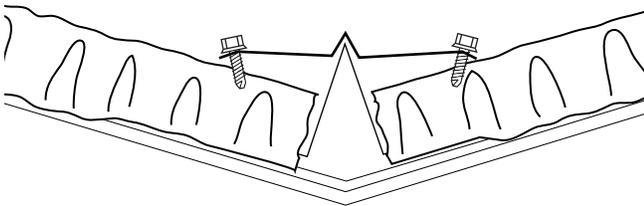


At hips, use either a full panel or a cut section long enough to obtain the hip cut.



Always deduct 1/4" (6mm) from measurements for Hip & Ridge cuts to ensure a good fit

CLOSED VALLEY



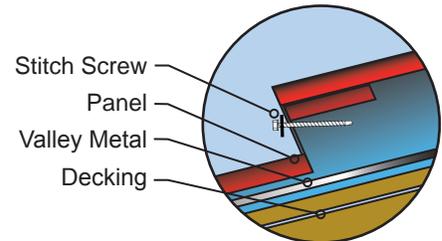
Install Metro Valley Cover metal at the center of the valley lapping each section a minimum of 4" (100mm) the valley cover is fastened to each panel course where it intersects the valley.



Do not penetrate the valley metal, use small Stitch screws to secure the valley cover



OPEN valleys (min-6-inches) between each side of the Metro panels are recommended for areas where trees or others debris may block the valley. This detail facilitates easier periodic cleaning of the valley pans.

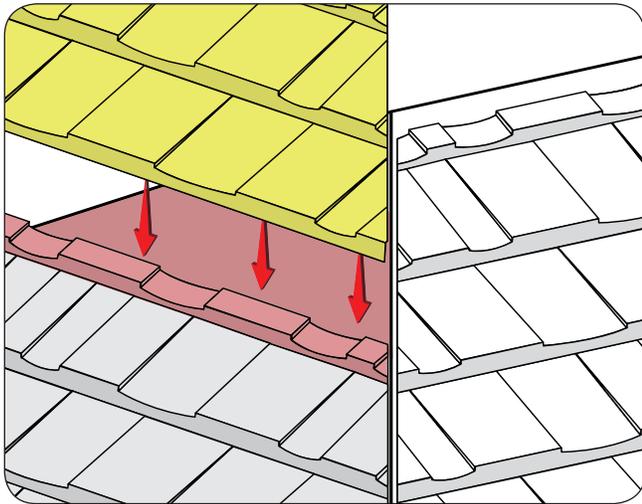




MetroCOTTAGE™ Shingle

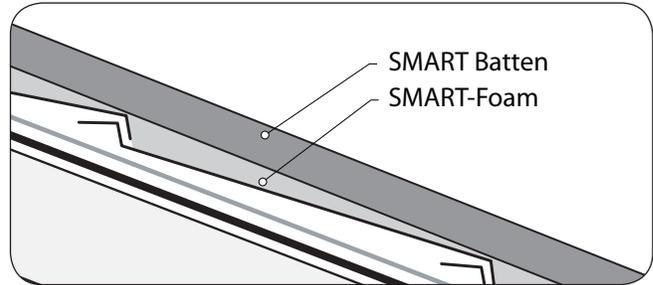
OPTIONAL INSTALLATION DETAILS

SMART ACCESSORY BATTEN



“Use the Metro SMART-Battens when installing Metro Shake ‘V’ Caps on Hips & Ridges.”

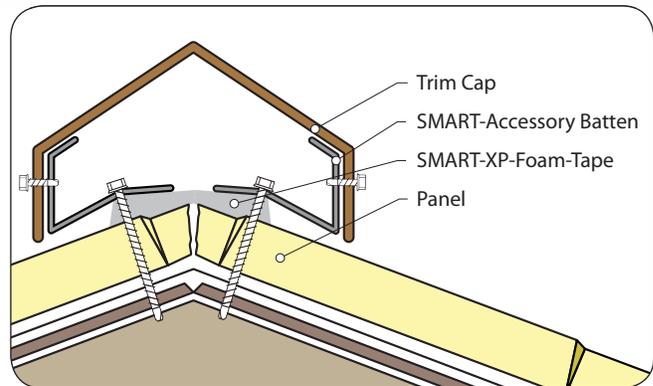
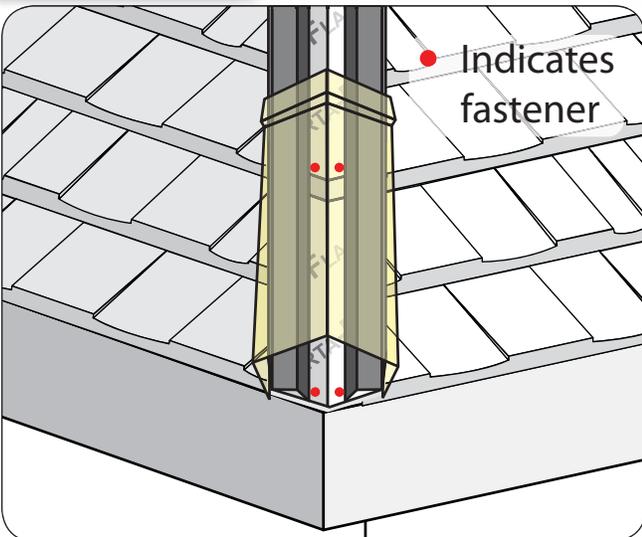
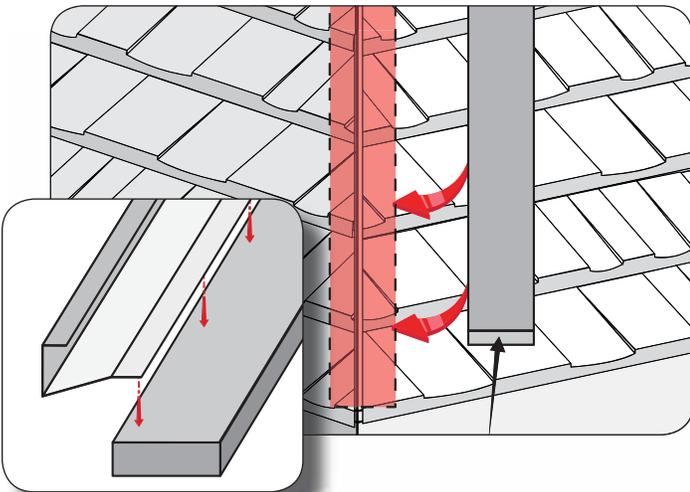
Metro SMART-Battens require 2-pieces per each 10-foot length of Hip or Ridge. Miter cut and install Metro panels at the center-line of the Hip or Ridge as shown.



After Mitering & installing panels to Hip center-line, apply Metro SMART-XP-Foam Tape onto flat section of the Metro SMART-Batten and position SMART-Batten using the Metro Trim cap as a guide (6-inches apart) so center of trim cap is aligned with center of hip. Screw SMART-Batten on one side of hip through flat section, XP-Foam Tape, Metro panel and into the roof deck. The XP-Foam expands to 1-1/4” thick and will fill the saw tooth void created by the Metro courses. Use the Metro trim cap to correctly position the other SMART-Batten and then install the trim caps up the hip.



Metro offers two (2) foam types for use under SMART-Battens - SMART-XP-Foam 1-inch (25mm) or SMART-Barrier Foam 6-inch (150mm) wide.



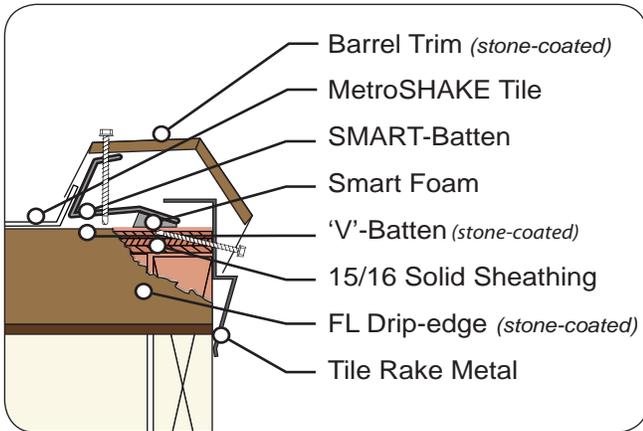
Continuous Ridge Venting is possible with Metro SMART-Battens, refer to Metro web-site for details.



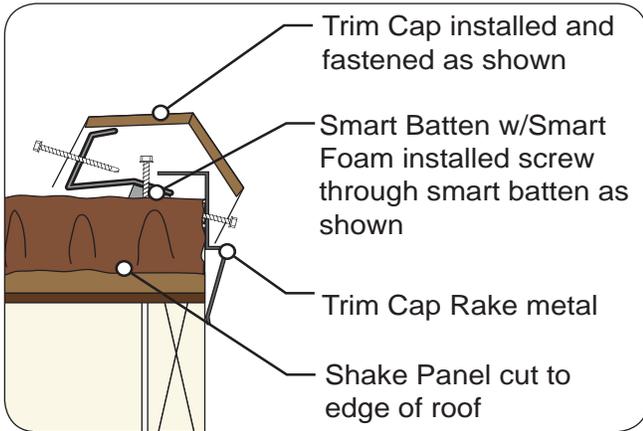
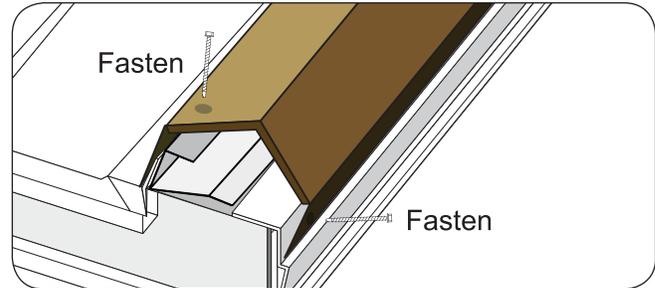
MetroCOTTAGE™ Shingle

OPTIONAL INSTALLATION DETAILS

TRIM CAP RAKE METAL - SMART-BATTEN UP RAKE

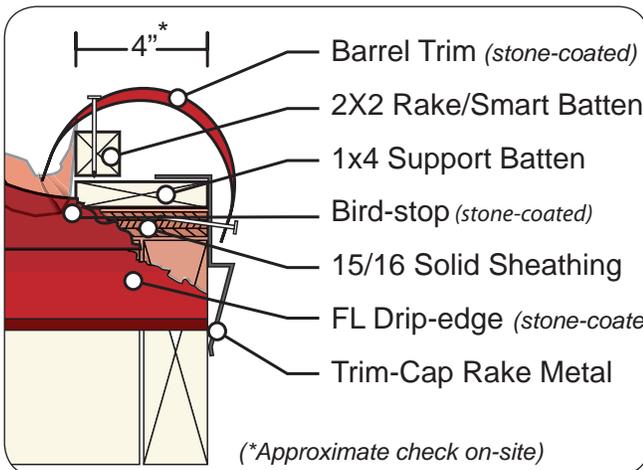


Metro Tile Rake Metal is installed along rake edges as shown. This rake edge metal aids in the alignment of Metro Trim Caps. The Metro Trim Caps install over the rake build-up and folded-up Metro panels.

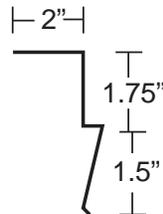


Metro SMART-Batten can be used as an alternative

TRIM CAP RAKE METAL - 1X4 & 2X2 BATTENS UP RAKE



Metro Trim-Cap Rake Metal is installed along the rake edges as shown. This metal edging aids in positioning Metro Trim caps. Tile Rake metal is placed on the wood build-up. The Metro trim Caps cover battens and folded up Metro panel, as shown.



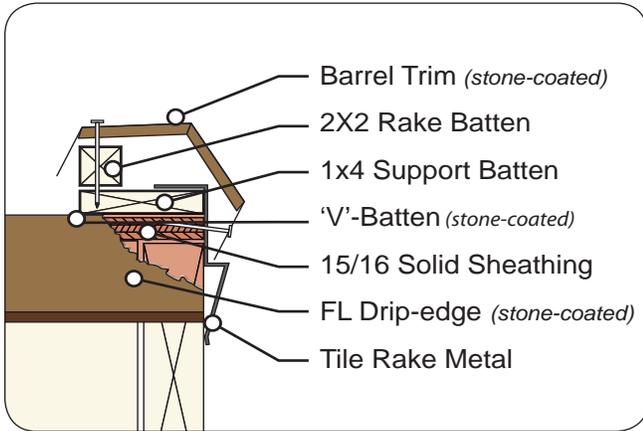
*2" X 1-3/4" X 1-1/2"
Metro Trim-Cap Rake Metal is now available in stone-coat finish.*



MetroCOTTAGE™ Shingle

OPTIONAL INSTALLATION DETAILS

TILE RAKE METAL - TRIM CAPS UP RAKE



Metro Tile Rake Metal is installed along rake edges as shown. This rake edge metal aids in the alignment of Metro Trim Caps. The Metro Trim Caps install over the rake build-up and folded-up Metro panels.

