BEST BUY METALS
Roofing That Lasts

Unified Steel Battenless Install Guide

Direct to Deck

PINE-CREST Shake | COTTAGE Shingle | PACIFIC Tile | BARREL-VAULT Tile


PACIFIC Tile


PINE-CREST Shake


COTTAGE Shingle


BARREL-VAULT Tile

800-728-4010
bestbuymetals.com

NOTICE

These installation guidelines demonstrate optional installation techniques for Unified Steel™ stone coated roof panels and accessories. Options are dependent upon chosen design, install method, and performance requirements of a given project.

INSTALLATION WARNING

The details and information in this document reflect current roofing practices used in the United States. Installers of Unified Steel™ roof panels and accessories should have knowledge of roof structures, an understanding of how to work with stone coated steel panels and accessories, and experience working with sloped roofs.

We recommend that installers of Unified Steel™ roof products use a Unified Steel™ Cutter* and Bender, and have completed an *Installer Orientation Training Program* for each profile installed (contact your Territory Manager for details at **WestlakeRoyalRoofing.com/Territory Manager**). Unified Steel™ does not consider its products to be “do-it-yourself” (D.I.Y.) mainly due to specialized cutting and bending tools used during installation.

Panels are susceptible to scuffing from foot traffic when subjected to prolonged periods of water saturation, do not install wet. ***See "Installing Panels When Wet" Technical Bulletin for details.***

Note: Circular saw or grinder wheel to cut panels is not acceptable.

Indicates critical areas of installation.

DIRECT-TO-DECK Installation Guidelines

UnifiedSTEEL STONE COATED ROOFING

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DIRECT-TO-DECK Installation Guidelines

INSTALLATION TOOLS

UNIFIED STEEL™ INSTALLATION KIT

- CUTTER
- BENDER

HAND TOOLS

- IMPACT DRIVER
- RED & GREEN SNIPS
- 3” HAND SEAMERS
- NAIL GUN
- HAMMER
- CAULKING GUN
- STANDARD SLOT SCREWDRIVER

OTHER TOOLS

- TAPE MEASURE
- STRING-LINE
- SOAP STONE (used to mark panels)

GENERAL INSTALLATION STEPS

These install details are designed to be used in conjunction with Unified Steel’s *Installer Orientation Training Program.*

Unified Steel™ Roof Products - 11 Basic Steps to a Great Job:

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

SAFETY NOTES

The safety tips provided here are for general awareness of the user. Unified Steel™ assumes no liability or responsibility for incorrect use of the products or any personal injury that may be caused as a result of use.

- *Select an open area and establish a safe working perimeter to set up tools. Instruct anyone near the safe working area.*
- *Inspect each tool before use. Do not use a tool that is not in good working condition. Regularly maintain tools for best performance.*
- *Wear personal protective equipment.*
- *Be aware of “pinch points” and keep hands and clothing away from such areas.*

In mountainous regions, with heavy snow loads and roof pitches below 6:12 and/or the structure has cathedral ceilings, the use of EBS (Elevated Batten System™), or a counter-batten /batten system, is recommended to help reduce ice damming.

GENERAL INFORMATION

FASTENERS

PINE-CREST Shake, PACIFIC Tile, BARREL-VAULT Tile and COTTAGE Shingle panels are **Exposed fastened.** When installed in a DIRECT-TO-DECK configuration, they use vertically positioned fasteners across the back flange and angled fasteners across the nose down turn. **See Page 16 for details.**

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

Panel fasteners shall be of sufficient length to penetrate into the roof deck a minimum of 0.75".

For HVHZ (High Velocity Hurricane Zone) areas **refer to Pages 45-48 for specific details.**

MATERIALS

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

PACKING AND STORAGE

A pallet of panels contains approximately 20 squares (186 sqM). Panels should be stored under a weather-proof cover or inside in an area free from moisture.

ROOF PITCH

The Unified Steel™ profiles covered in these guidelines must be installed on a minimum roof pitch of 3:12 (12 degrees) or above. Roof slopes below 3:12 mean the panels act as a decorative roof covering only.

ROOFING UNDERLAYMENT

Minimum one layer ASTM D226 Type-II (No. 30 Felt), head lapped 2" and end lapped 6", or approved equal to or better, per building code.

ROOF DECK SHEATHING

The panels must be installed on a minimum 15/32" (11.9 mm) thick plywood, close fitted sheathing, structural decking, or spaced sheathing that comply with design criteria and applicable building codes.

BATTENS (BEND-UP METHOD)

These method requires 2x2 batten to be installed down the Rake edge and on both sides of the Hip & Ridge to bend the panel up against.

2x2 Elevated Batten System (EBS) or Standard 2x2 lumber #2 Grade or better Spruce Pine Fir are acceptable. This also apples to 1x4 and 1x2 used as packers on some ridge or hip build-outs.

STEEL Battens ('Channels') can be used. They shall be a minimum of 22 AWG gauge (0.64mm) corrosion resistant material and are formed in either a 'Hat', 'C', 'U', 'J' or 'Z' shaped section. All shapes require as close to 90-degree angles as possible. Minimum batten size is' 1-1/2" high x 1" wide (38x25mm) steel battens shall be designed to resist the design loads of the building.

SEALANT/CAULKING

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

TESTING

The panels have been tested and evaluated to industry standards and are covered by Code Evaluation Report (QAI CERus-1008), International Code Council (ICC-ESR), National Research Council Canada (CCMC), State of Florida (FBC), Miami-Dade (NOA), and Texas Department of Insurance (TDI) evaluation reports. Testing has been conducted to evaluate fire, wind, impact resistance, water infiltration, and durability resistance. Information regarding specific tests and approvals can be obtained from Unified Steel™.

VENTILATION

Ensure proper attic ventilation as prescribed per local codes. Either Unified Steel™ vents or ridge venting can be installed to help achieve adequate ventilation.

WARRANTY

The panels carry a limited warranty for fifty years. This limited warranty is transferable and does not cover damage due to improper handling or installation. Complete warranty details available at **WestlakeRoyalRoofing.com.**

DISSIMILAR METALS

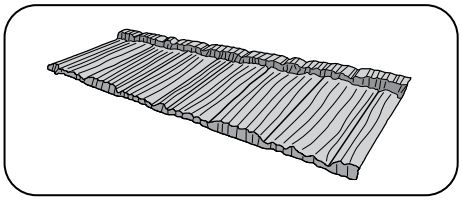
To avoid adverse corrosion effects caused by dissimilar metals, COPPER and LEAD flashings should not be used with Unified Steel™ panels and accessories.

FINISH COATING

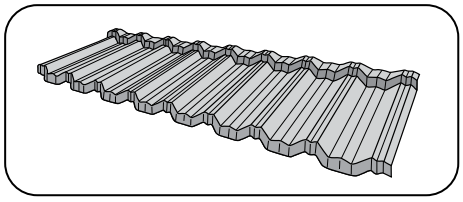
Minor scuffing of the stone coated finish can be repaired with a Touch-Up Kit. Use the basecoat acrylic supplied in the kit (not caulking) for repairs. Unfinished flashing material can be painted with durable acrylic aerosol paints. Colored aerosol paints should never be used as "touch-up" on stone coated products. Refer to Unified Steel™ Technical Bulletin "Repairing Marked or Scratched Panels" for more details.

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

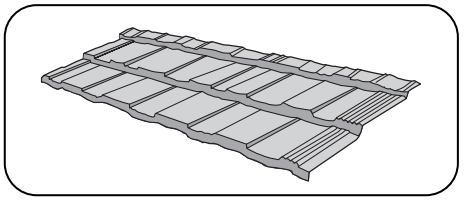
STONE COATED PANELS, CAPS AND VENTS



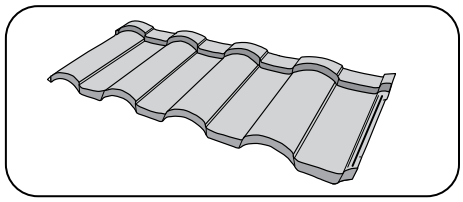
PINE-CREST Shake Panel
Coverage: 14.5" x 49.5" (368 x 1257 mm)
6.4 lbs (2.91 Kgs) 20 pcs/sq



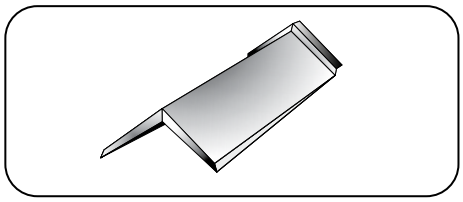
PACIFIC TILE Panel
Coverage: 14.5" x 49.5" (368 x 1257 mm)
6.3 lbs (2.86 Kgs) 20 pcs/sq



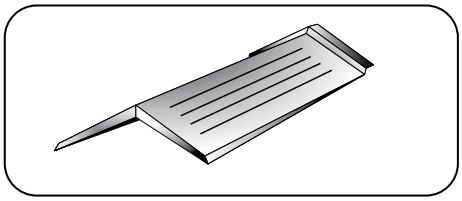
COTTAGE Shingle Panel
Coverage: 14" x 47.875" (356 x 1216 mm)
5.9 lbs (2.68 Kgs) 22 pcs/sq



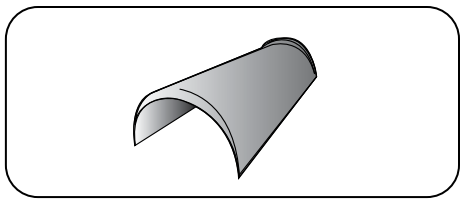
BARREL-VAULT Tile Panel
Coverage: 14" x 43.625" (356 x 1108 mm)
5.5 lbs (2.5 Kgs) 24 pcs/sq



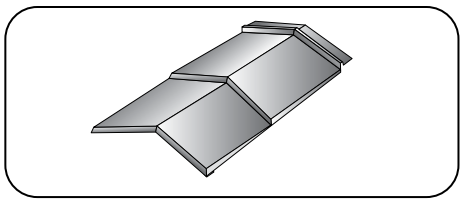
Cap Shake (Hip & Ridge)
6" x 14.5" (152 x 368 mm)



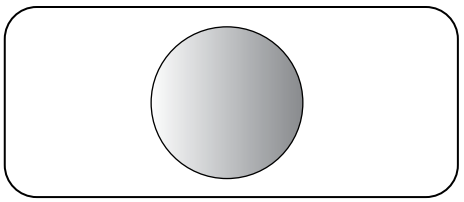
Cap Cottage (Hip & Ridge)
12" x 12" (305 x 305 mm).



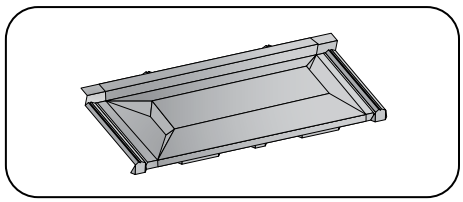
Cap Mission (Hip & Ridge)
6" x 14.5" (152 x 368 mm)



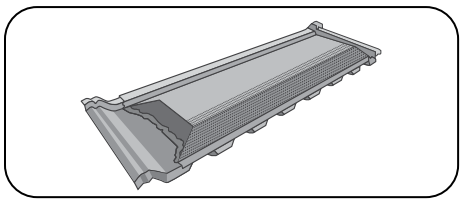
Cap Shingle (Hip & Ridge) 2-Course
8" x 14" (203 x 356 mm)



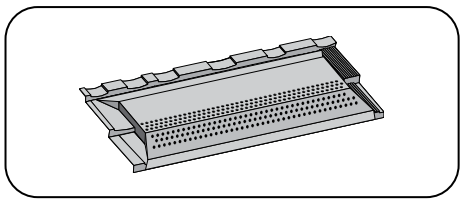
End Disc
Use with Cap Mission or Cap Shake Only.
6" Dia. (152 mm) 0.18 lbs/EA (0.08 Kgs)



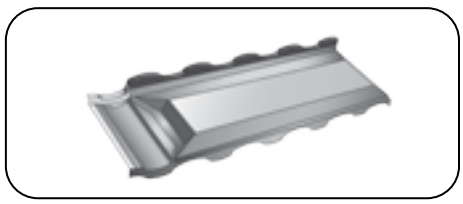
EZ-Vent PINE-CREST Shake
Coverage: 14.5" x 49.5" (368 x 1257 mm)
10.5 lbs (4.8 Kgs), NFVA 62.50 Sq In.



EZ-Vent PACIFIC Tile
Coverage: 14.5" x 49.5" (368 x 1257 mm)
10.5 lbs (4.8 Kgs), NFVA 62.50 Sq In.



EZ-Vent COTTAGE Shingle
Coverage: 14" x 47.875" (356 x 1216 mm)
10.5 lbs (4.8 Kgs), NFVA 80.00 Sq In.

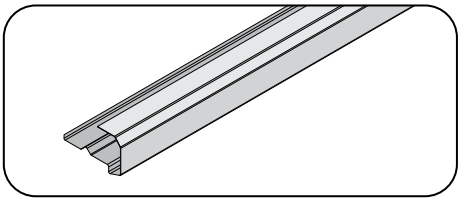


EZ-Vent BARREL-VAULT Tile
Coverage: 14" x 43.625" (356 x 1108 mm)
9.5 lbs (4.31 Kgs) NFVA 59.50 Sq In.

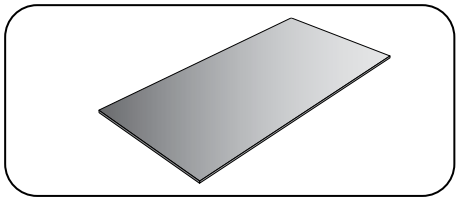
Weights are approximate.

Continued on Next Page.

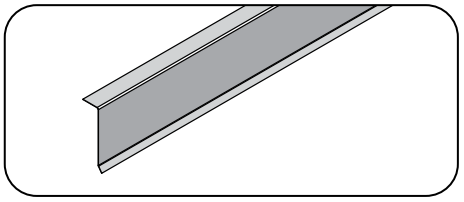
STONE COATED ACCESSORIES



Rake Channel
2" x 3.25" x 79" (50 x 83 x 2006)
3.6 lbs (1.6 Kgs)

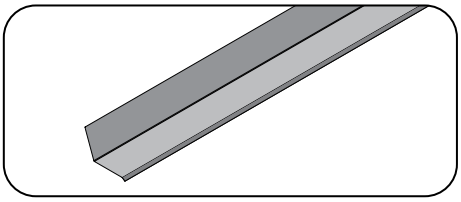


Flat Sheet
18” x 54” (457 x 1372 mm), 8 lbs (3.7 Kgs)

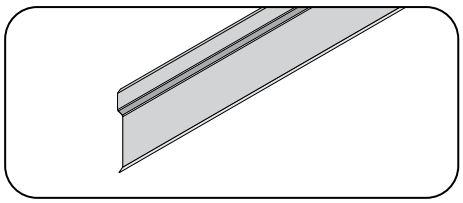


Fascia 3.5”
3.5” x 79” (89 x 2006 mm), 2.2 lbs (1 Kg)

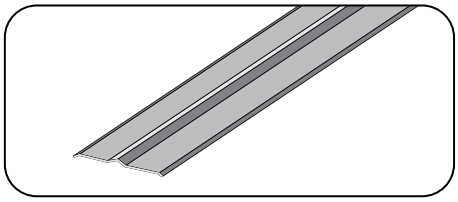
Fascia 5”
5” x 79” (127 x 2006 mm), 3 lbs (1.4 Kgs)



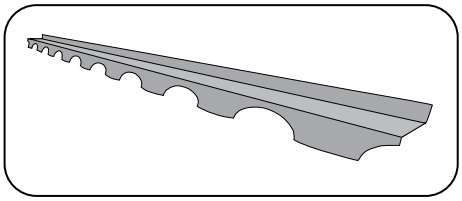
Head-Side-Wall Metal
3" x 3.5" x 79" (76 x 89 x 2006 mm)
3.7 lbs (1.7 Kgs)



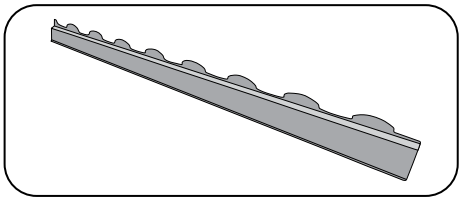
Z-Bar
5” x 79” (127 x 2006 mm)
2.7 lbs (1.2 Kgs)



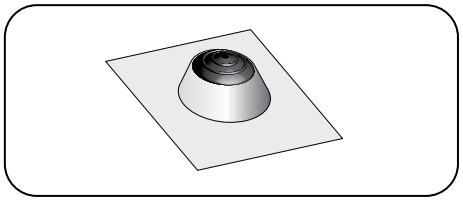
Valley Center Cover
4.5” x 79” (114 x 2006 mm), 2.2 lbs (1 Kg)



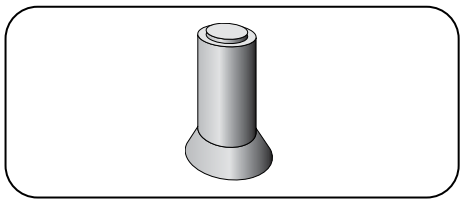
BARREL-VAULT Top Row
3.75” x 79” (95 x 2006 mm), 3.17 lbs (1.44 Kgs)



BARREL-VAULT BirdStop 3.75”
3.75” x 79” (95 x 2006 mm), 3.13 lbs (1.42 Kgs)

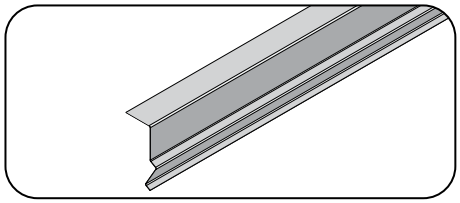


Pipe-Jack 4-N-1
Base 18" x 18" (457-457mm)
Fits 1.25" to 4" pipes (32-100mm)
1.86 lbs (0.85Kg)

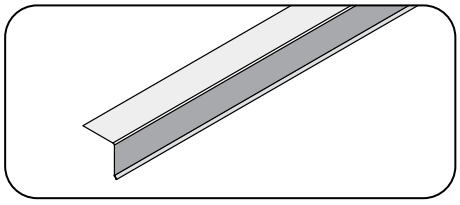


Pipe Sleeve
3/4” – 4” Dia. Pipes (19 – 100 mm)
1.72 lbs (0.78 Kg)

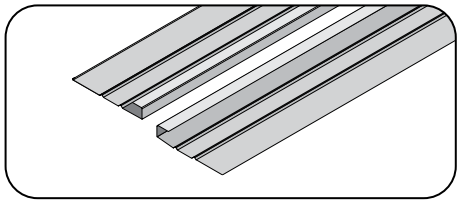
PAINTED OR BARE ACCESSORIES



Trim Cap Rake
2” x 3.5” x 120” (50 x 89 x 3048 mm)
4 lbs (1.8 Kg)
Painted Black, Brown or White outside



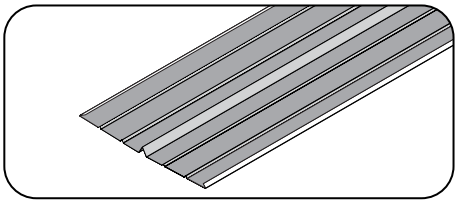
Drip Edge
1.5" x 120" (38 x 3048 mm)
1.6 lbs (0.72 Kg)
Painted Black, Brown or White outside



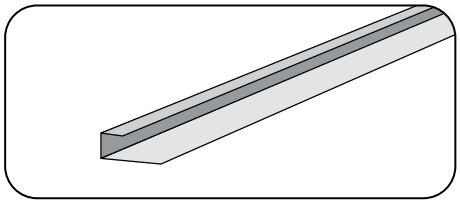
Valley 2-Pc
9" x 120" (229 x 3048 mm)
7.35 lbs (3.33 Kg)
Painted Black inside

Weights are approximate.

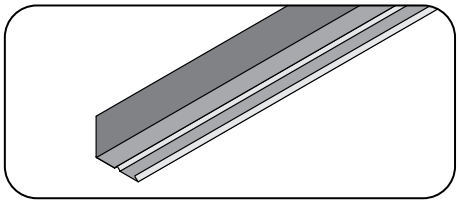
PAINTED OR BARE ACCESSORIES



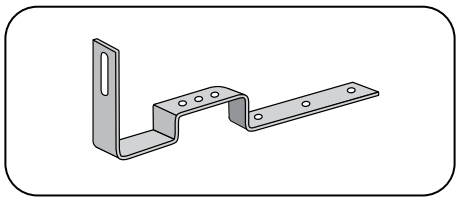
Valley Five 'V'
22" x 120" (559 x 3048 mm), 16.8 lbs (7.6 Kgs)
Painted Black, Brown or Bare inside



Gutter Riser
0.625" x 120" (16 x 3048 mm), 1.9 lbs (0.86 Kg)
Painted Black outside



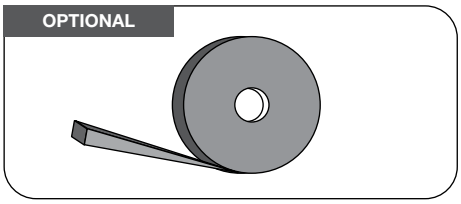
Side-Wall Under-Pan
4" x 3 x 120"" (100 x 76 x 3048 mm)
5 lbs (2.3 Kg) Painted Brown inside



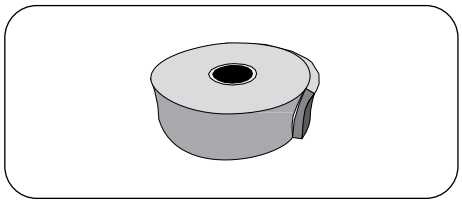
Solar Roof Mount (Direct Install)
Stainless Steel Side Mount 90˚
3/4" (19.05 mm) fixed bridge height
3" (76.2 mm) wide bridge
Screws Included: 5.16" HWH x 3"

OTHER ACCESSORIES AND ROOF SYSTEM COMPONENTS

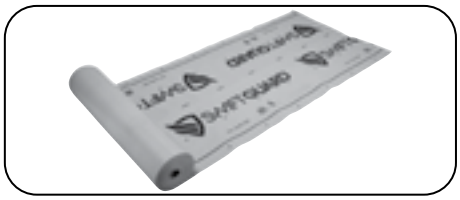
OPTIONAL



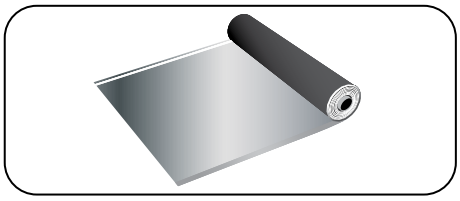
EmSeal Foam Tape Rolls
0.75" x 1" x 19.68' (19 x 25 x 6000 mm)
1 lbs (0.45 Kg)



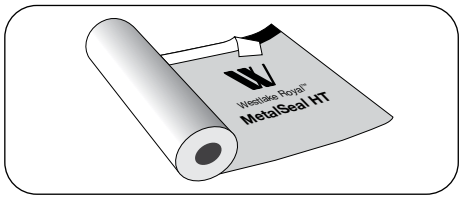
Barrier Foam Rolls
6" x 1" x 20' (150 x 25 x 6096 mm)
3.5 lbs (1.6 Kg)



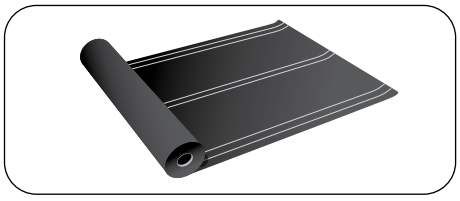
SwiftGuard™ High-Performance Synthetic Roof Underlayment
40" x 300' (1000 sq ft) (1016 mm x 91.44 M)
35.5 lbs/Roll (16 Kgs)



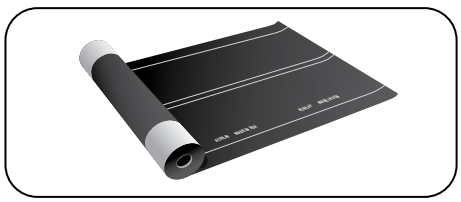
Sol-R-Skin™ BLUE Fire Resistant, Thermal Insulating Underlayment
54" x 100' (450 sq. ft.) (1372 mm x 30.48 M)
45 lbs/Roll (20.4 Kg)



Westlake Royal™ MetalSeal HT
Ice and water shield, self-adhered,
high-temperature Underlayment
36" x 72' (200 sq. ft.) (915 mm x 2.96 M)
70 lbs/Roll (31.7 Kgs)



Westlake Royal ORG-Ply 40™
Underlayment/Base Sheet
39-3/8" x 65'-10" (216 sq ft.) (1 M x 20.37 M)
81 lbs/Roll (36.7 Kg)



Acrilay® Underlayment/Base Sheet
39 3/8" x 61' (200 sq. ft.) (1 M x 18.59 M)
74.5 lbs/Roll (33.8 Kg)

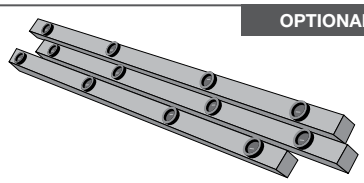
Weights are approximate.

OTHER ACCESSORIES AND ROOF SYSTEM COMPONENTS (Cont.)

OPTIONAL

Wakaflex® Universal Flashing
11" x 33'- Black, Brown, Terracotta
(290 mm x 10.07 M)

OPTIONAL

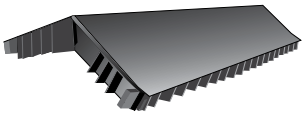


2x2 Elevated Batten System® (EBS)
2" x 2" x 96" (50 x 50 x 2438 mm)
12 pcs/Bundle, 1 Bundle = 96 L/ft (29.28 L/M)
See Page 3 Batten Bend-Up section.

Unified Steel™ Ridge Vent
Continuous ridge vent. **Use with Cap Shake or Cap Mission Only.** 17 sq.in (NFVA)/Lft.
2.5" x 1" x 20' (64 x 25 x 6096 mm)

OPTIONAL

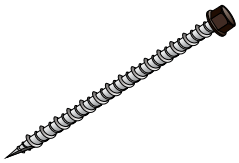
Quarrix® Rigid Roll®
Continuous ridge vent. **Use with Cap Shingle Only.** 0.625" x 7" x 20' (16 x 178 x 6096 mm)



RidgeMaster® Plus
Continuous ridge vent. **Use with Cap Cottage Only.** 1" x 11" x 48" (25 x 280 x 1219 mm)

Touch-up Kit
1 Tube of adhesive, 1 Bag of stone chips, brush.
2 lbs (0.9 Kg)

Bulk Stone Chips
1 Bucket of stone chips - 25 lbs (11.3 Kg)



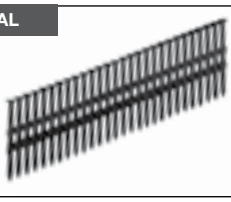
Panel Screws
Carbon Steel or 410 Stainless Steel
2.0" L x 0.25" HWH (50 mm L x 6 mm HWH)
2.5" L x 0.25" HWH (63 mm L x 6 mm HWH)
Available in Black, Red, Brown, Gold, White.

Valley Screws Carbon Steel (Dome Cap over rubber washer)
1.5" L x 0.25" HWH (38 mm L x 6 mm HWH)

Stitch Screws Carbon Steel
0.75" L x 0.25" HWH (19 mm L x 6 mm HWH)
Available in Black, Red, Brown, Gold, White.

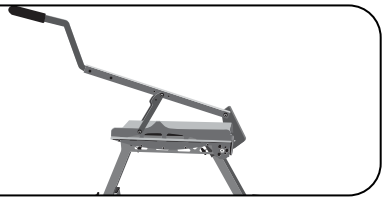
Batten Nails
0.131" Dia x 3.25" (3 mm Dia x 83 mm)
53 lbs/Box (24.06 Kgs)

OPTIONAL



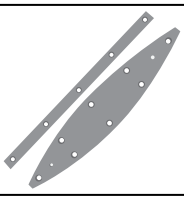
Panel Ring Shank Nails
0.131" Dia x 2.375" (3 mm Dia x 60 mm)
41 lbs/Box (18.61 Kgs), Black

TOOLS



Cutter
39 lbs (17.7 Kg)

Bender
150 lbs (68.1 Kg),
54" x 43" x 35.25" (1372 x 1092 x 895 mm)

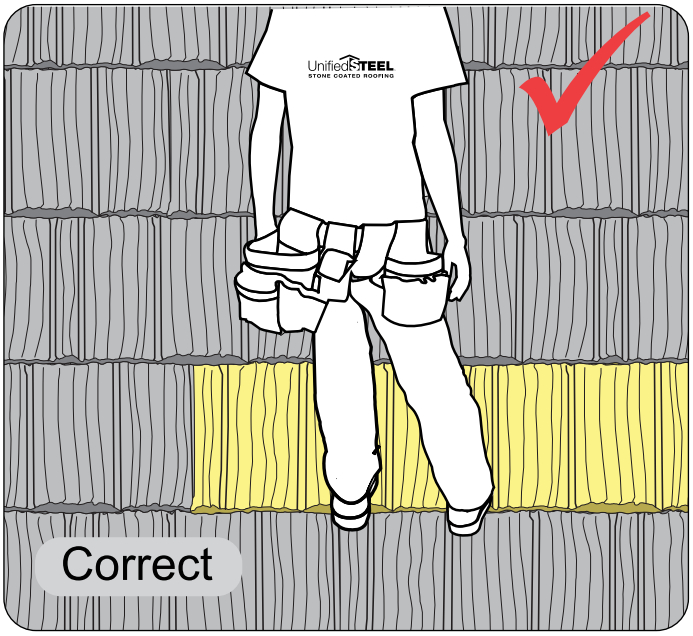


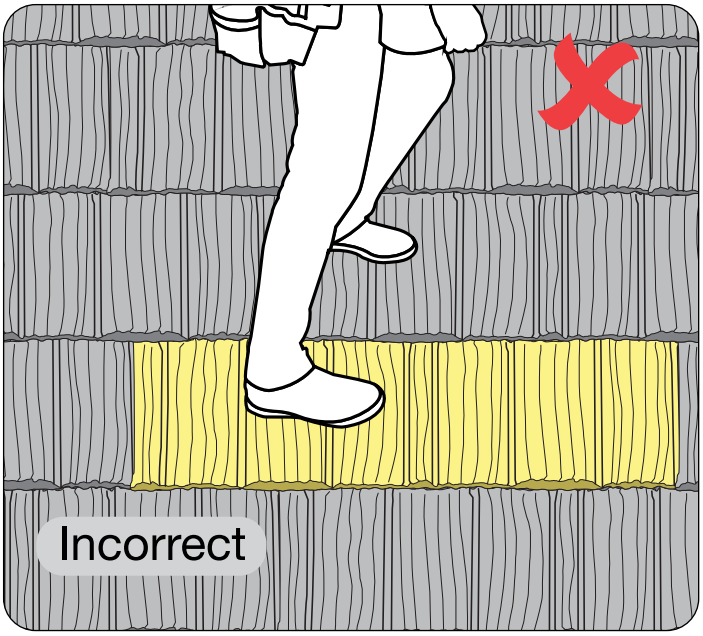
Cutter Blades (Top and Bottom)
54" x 43" x 35.25" (1372 x 1092 x 895 mm)
8 lbs/Set (3.63 Kg)

NOTE: *Install Cutter and Bender tools may vary from images shown.*

WALKING ON YOUR ROOF (PINE-CREST Shake shown)

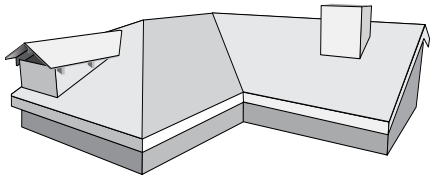
Appropriate OSHA approved fall protection must be used when walking on roofs panels. Place your feet over the front lip of the panels as shown in left image below. Avoid walking near the panel Side Laps as shown in right image below.





DIRECT-TO-DECK Installation Guidelines

UNDERLAYMENT

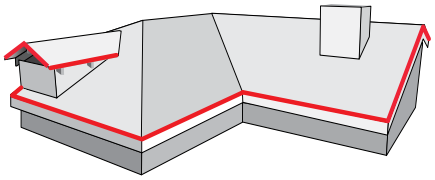


Unified Steel™ panels are installed on new or existing roofs with a minimum pitch of 3:12 (12 degrees). All underlayments shall be installed as per local code and manufacturer's instructions.

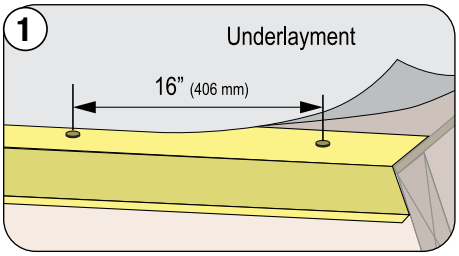
We offer a wide range of options for Underlay. For specifications **refer to Page 6** and explore **Components** section of our website for more information.

	UNDERLAY	DESCRIPTION	EXPOSURE	WARRANTY
MECHANICALLY FASTENED	SwiftGuard™	**High-Performance, Synthetic** Innovative, patented nail gasketing technology for superior moisture resistance. A high grip backing and non-woven, thermally embossed facer provide increased deck grab and superior walkability.	6 months	30 years
	Sol-R-Skin™ BLUE	**Fire Resistant, Thermal Insulating & Reflective** Class A fire rated with one layer under stone coated steel. Aluminum foil facer and fiberglass insulation provide R 5.5 insulation. Cool blue surface helps to reduce sun glare during installation, use in any climate at any temperature.	6 months	30 years
	Westlake Royal ORG-Ply 40™	**SBS Modified Organic Reinforced** SBS modified asphalt minimizes wrinkling & buckling associated with non-modified membranes.	6 months	10 years for 1 layer 20 years for 2 layers
SELF-ADHERED	Westlake Royal™ MetalSeal HT	**Modified Asphalt Self-adhered** High strength, non-woven polyester surface remains intact under high foot traffic, stable in low and high temperatures for all climates.	6 months	30 years
	Acrilay®	**Partially Self-adhered SBS Modified Fiberglass Reinforced** Adhesive lap seal technology helps protect against wind driven rain. SBS modified asphalt minimizes wrinkling & buckling associated with non-modified membranes.	6 months	20 years

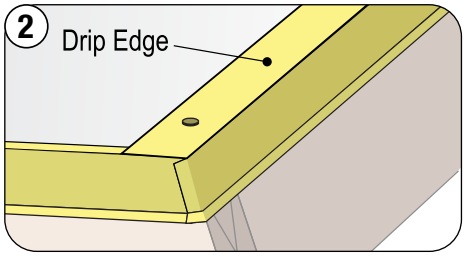
DRIP EDGE & RAKE METAL INSTALL For PINE-CREST Shake, PACIFIC Tile, COTTAGE Shingle



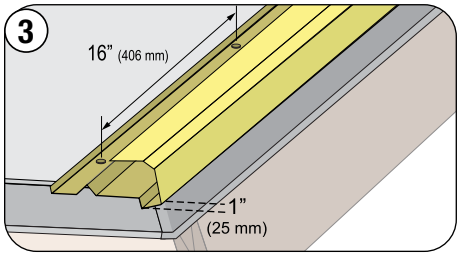
This method does not require the bend-up of the rake panel cuts. ***If using Trim Caps*** *on the rake edges, first install Trim Cap Rake metal on rake.* **See Page 13 for further details.**



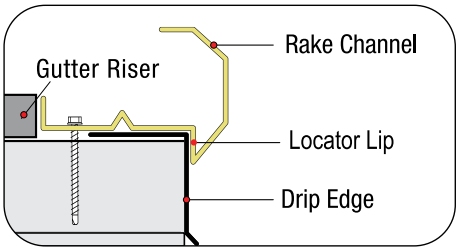
Install Drip Edge across fascia under the Underlayment. Fasten every 16" (406 mm) o.c.

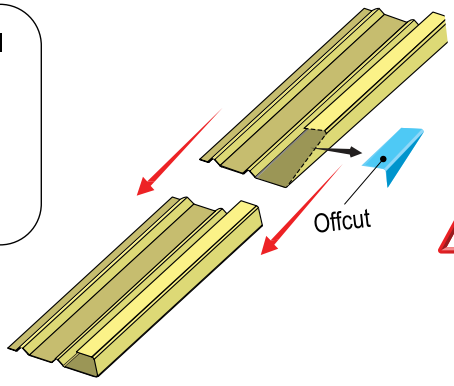


If using Rake Channel on rake, install Drip Edge up the rake edges on top of the Underlayment, as shown.



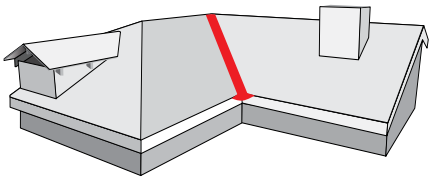
Install Rake Channel up the rake extending it past the Drip Edge by 1" (25 mm). Make sure the 'Locator-Lip' is snug against the rake Drip Edge. Fasten with washer & grommet screws every 16" (406 mm) o.c. If fasteners do not have a sealing washer, apply a bead of sealant around each one.





Rake Channel metal is notched to lap a minimum of 2" (50 mm) to prevent leakage through seams.

VALLEY 2-PC CLOSED & EXIT TRAY For PINE-CREST Shake, PACIFIC Tile, COTTAGE Shingle

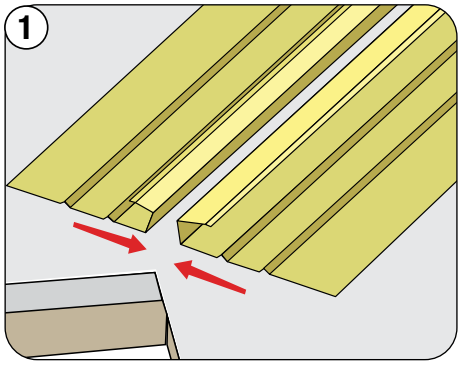


Depending on the valley metal used, Unified Steel™ panels can be installed to form either a 'Closed' or 'Open' valley. This page shows the Unified Steel™ Valley 2-Pc metal which is used to create a 'Closed' valley. Unified Steel™ Valley 2-Pc uses two (2) pieces per each 10 foot (3048 mm) length of valley.

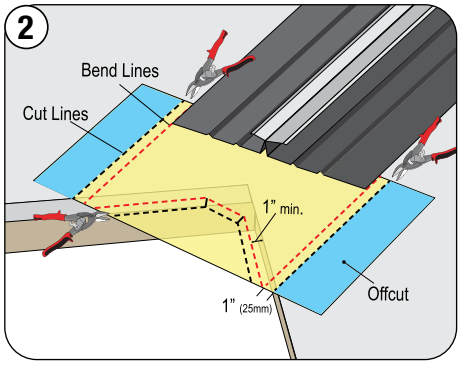
Estimating formula:
Lin-ft of Valley divided by 9.75 x 2 = # of Valley 2-Pc required.

Overlap Valley metal a minimum of 6" (152 mm).
Apply Sealant between overlapped pieces.

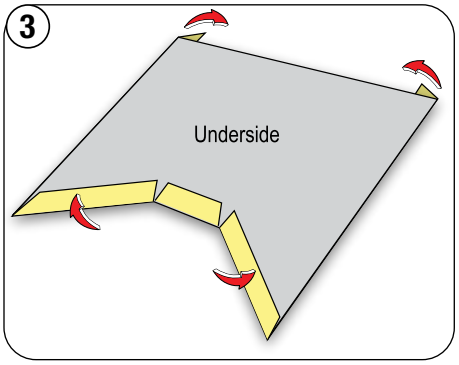
An Exit Tray helps provide a finished appearance to the exit area of the valley especially if the valley is exiting onto another roof section such as from a Dormer roof.



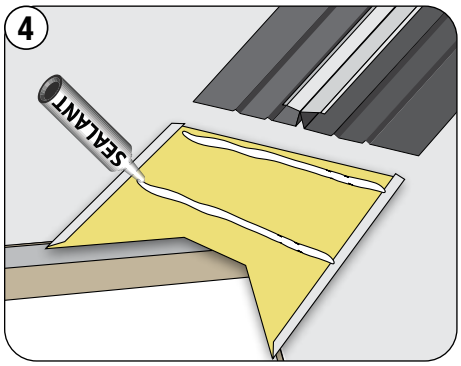
Position Valley 2-Pc at the center of the valley. If installing Valley 2-Pc without Exit Tray, overhang 1" (25 mm) at the eave.



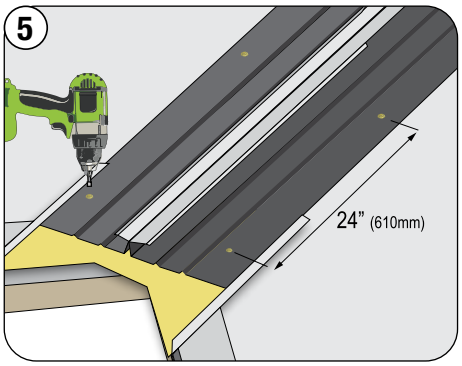
Place half a Flat Sheet under the Valley. Extend Flat Sheet a minimum of 1" (25 mm) past fascia. Mark, cut and bend, as shown.



Hem both sides of the folded Flat Sheet to fit around outside edges of Valley 2-Pc.

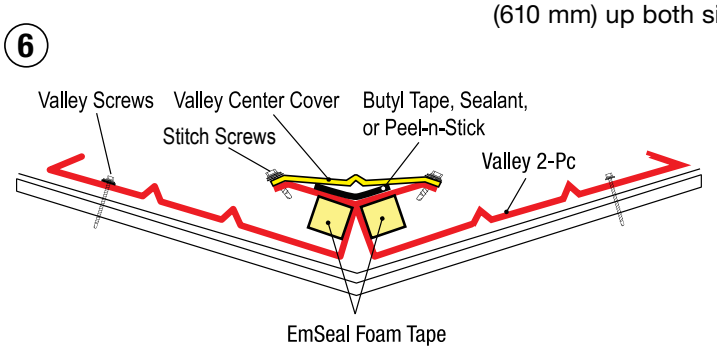


Fit the Exit Tray at the fascia. Apply sealant, as shown.



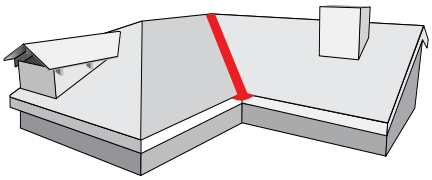
Insert Valley 2-Pc into the Exit Tray. Fasten Valley with washer and grommet screws in the outside locations a minimum of 24" o.c. (610 mm) up both sides.

Unified Steel™ Valley 2-Pc requires sealant tape down the center covering both pieces before installing the stone coated Valley Center Cover.
See page 21 for details.



When installing in wooded areas or where trees overhang the valley, use EmSeal Tape in the 2-Pc Valley to prevent debris damming the Valley Pan. Install a strip of EmSeal tape down each valley section on the inside vertical leg.

VALLEY FIVE 'V' & EXIT TRAY For All Profiles



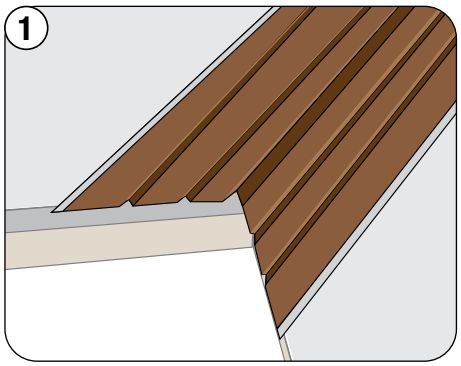
When using Valley Five 'V' metal Unified Steel™ panels can be installed to form either a 'Closed' or 'Open' valley.

When using Valley Five 'V' metal, an exit tray helps provide a finished appearance to the exit area of the valley especially if the valley is exiting onto another roof section such as from a Dormer roof.

Estimating formula:
Lin-ft of Valley divided by 9.75 = # of Valley pieces required.

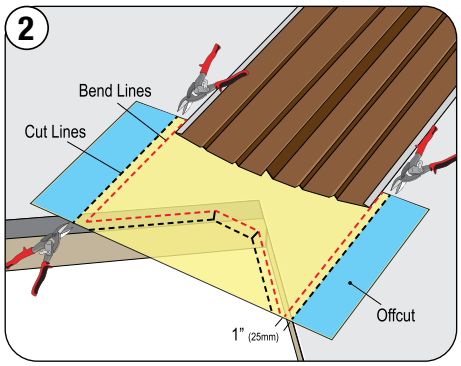
Overlap Valley Five 'V' sections a minimum of 6" (152 mm). Apply Sealant between overlapped pieces.

VALLEY FIVE 'V' WITHOUT TRAY

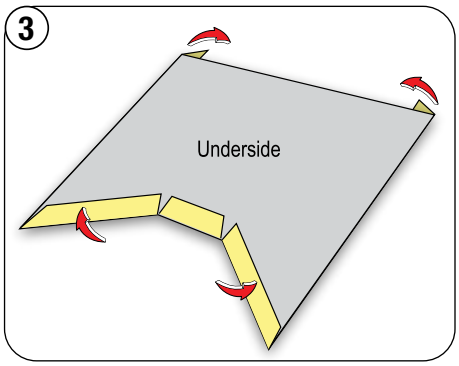


To install Valley Five 'V' without Exit Tray, overhang it 1" (125 mm) at the eave.

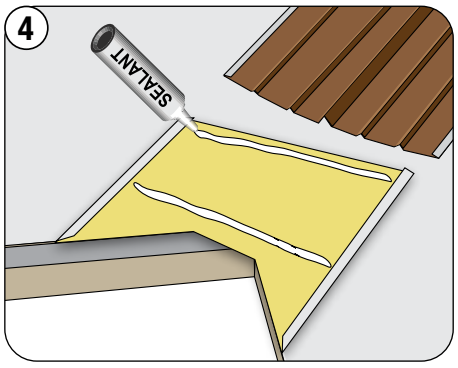
VALLEY FIVE 'V' WITH EXIT TRAY



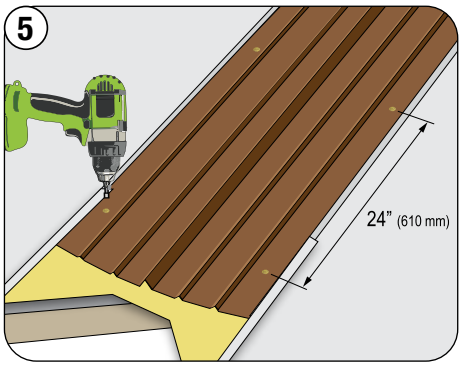
Position Valley Five 'V' at the center of the valley. Place half a Flat Sheet under the Valley. Extend Flat Sheet a minimum of 1" (25 mm) past fascia. Mark, cut and bend, as shown.



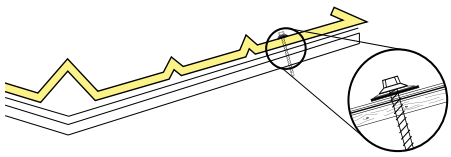
Hem both sides of the folded Flat Sheet to fit around outside edges of the Valley.



Fit the Exit Tray at the fascia. Apply sealant, as shown.

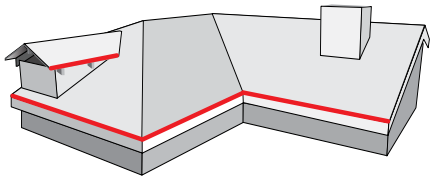


Insert Valley Five 'V' into the Valley Exit. Fasten Valley with washer and grommet screws in the outside locations a minimum of 24" o.c. (610 mm) up both sides.



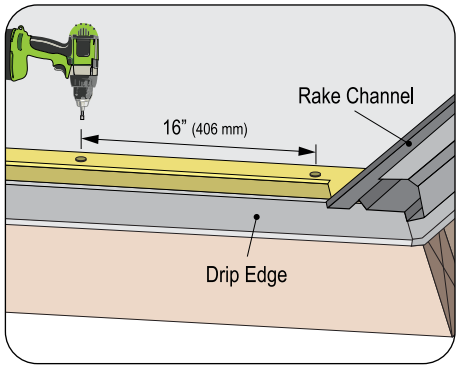
When fastening through the valley metal, fasteners must have a rubber washer covered by metal cap to ensure a seal around the fastener location.

GUTTER RISER INSTALL For PINE-CREST Shake, PACIFIC Tile, COTTAGE Shingle



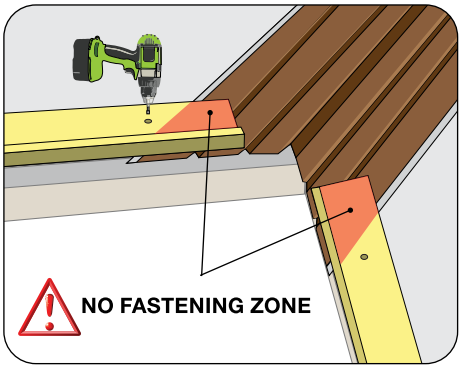
For HVHZ (High Velocity Hurricane Zone) areas, perimeter metals are fastened per local code.

RAKE AND EAVE INTERSECTION



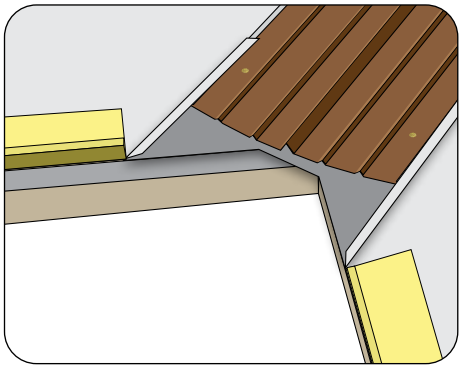
Install Gutter Riser on top of the Drip Edge across the fascia and flush with the fascia board. Butt up against the Rake Channel. Fasten 16" (406 mm) o.c.

VALLEY INTERSECTION



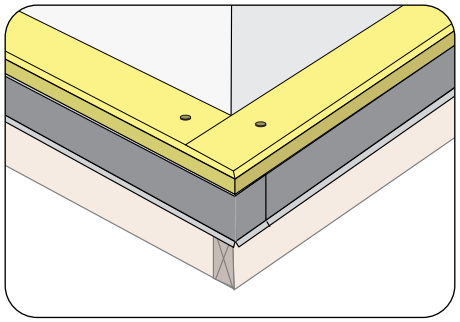
Install Gutter Riser on top of the Valley to the second rib from the edge on both sides (Valley Five "V" shown). Fasten 16" (406 mm) o.c. **When fastening, do not penetrate Valley area.**

VALLEY EXIT TRAY INTERSECTION



If using Exit Tray, install Gutter Riser to the edge of the Exit Tray on both sides.

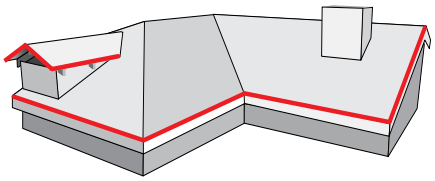
HIP INTERSECTION



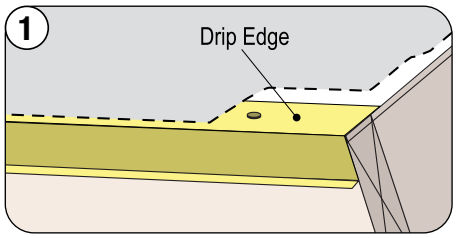
Intersect Gutter Riser at the hip area, as shown.

DIRECT-TO-DECK Installation Guidelines

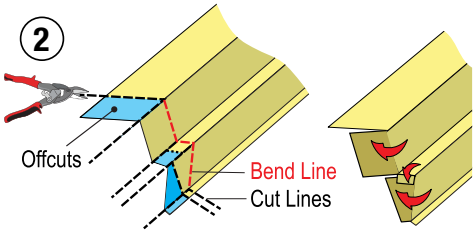
TRIM CAP RAKE INSTALL (CAPS ON RAKE) For PINE-CREST Shake, PACIFIC Tile, COTTAGE Shingle



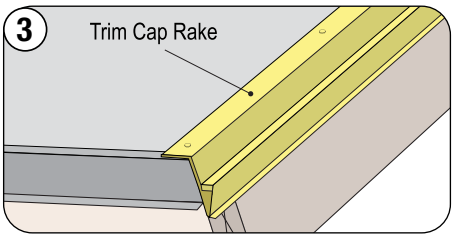
*Apply this method when using **Cap Mission or Cap Shake** on Rake.*
This method requires the bend-up of the rake panel cuts.



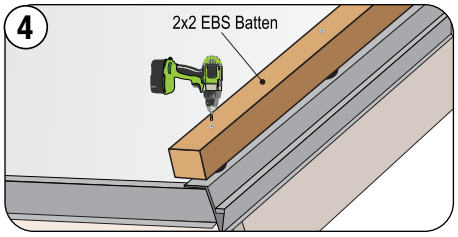
Install Drip Edge across the fascia under the underpayment. Fasten 16" (406 mm) o.c.



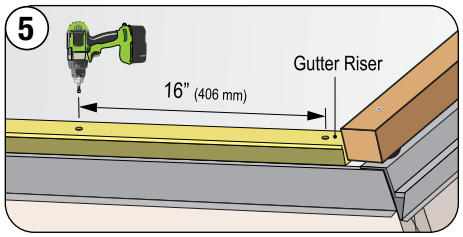
Notch and fold Trim Cap Rake metal, as shown.



Install Tim Cap Rake metal across the rake. Fasten 16" (406 mm) o.c.

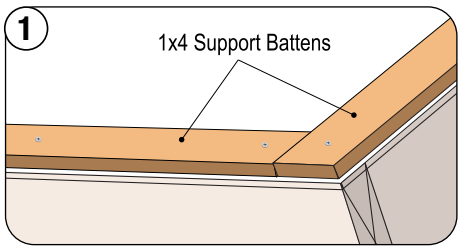


Install 2x2 EBS Batten on top of the Trim Cap Rake metal. Fasten through the plastic pads. **See Page 3 Batten Bend-Up section.**

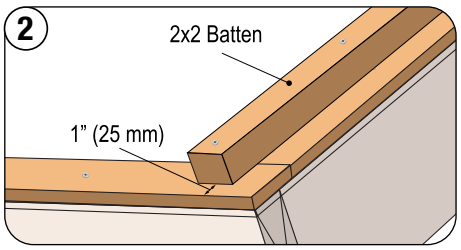


Install Gutter Riser on top of the Drip Edge across the fascia and flushed with the fascia board. Butt up against the 2x2 EBS batten. Fasten 16" (406 mm) o.c.

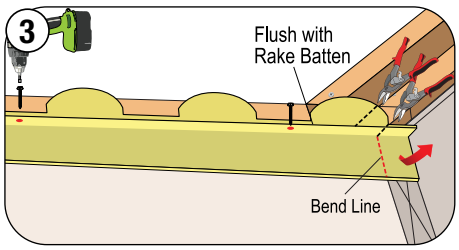
TRIM CAP RAKE INSTALL For BARREL-VAULT Tile



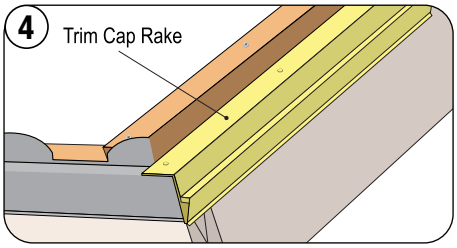
Install 1x4 support battens under the Underlayment across the fascia and up the rake. Fasten 12" (305 mm) o.c.



Install 2x2 batten up the rake, flush with the left edge of the 1x4 batten. Fasten 16" (406 mm) o.c. **See Page 3 Batten Bend-Up section.**



Install the BARREL-VAULT Tile BirdStop across the fascia on top of a 1x4 support batten. The positioning is critical as this part will dictate panel layout across the roof, as the panels follow the scalloped profile of the BirdStop.

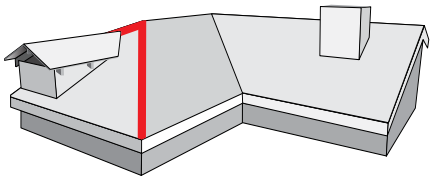


Install Trim Cap Rake metal, as shown. Fasten 16" (406 mm) o.c.

As an option, instead of the 1x4 and 2x2 battens, you can use 2x2 EBS Battens up the rake.

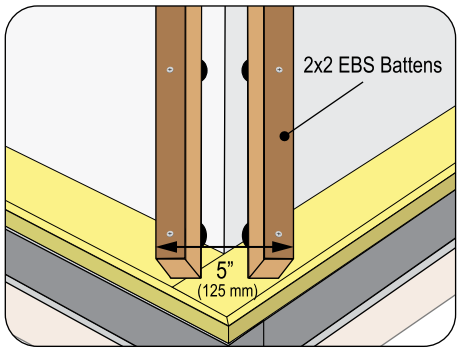
*BirdStop fastener locations shall be evenly spaced across the BirdStop **at each or every second, low-scalloped section** so the panel overhangs and hides the fastener, as shown.*

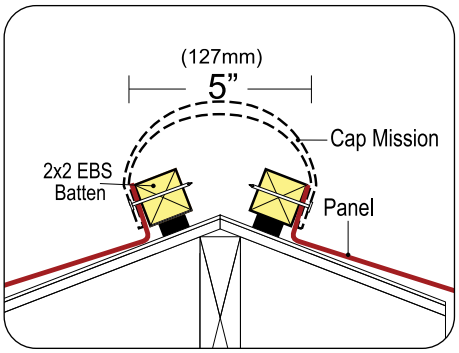
HIP BATTENS All Profiles if using Cap Mission or Cap Shake



If installing with Cap Mission or Cap Shake, hip battens used to provide approximately 1.5" (38 mm) of build-up height for hip panels.

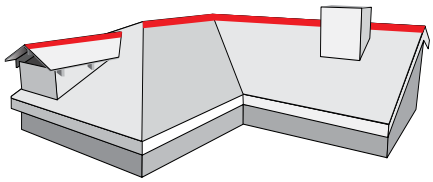
This method requires the bend-up of the hip panel cuts.





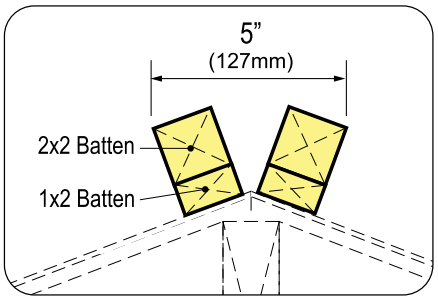
Hip Battens: Install 2x2 EBS battens 5” (125 mm) apart. Fasten each batten through the plastic pad into the deck. **See Page 3 Batten Bend-Up section.**

RIDGE BATTENS All Profiles if using Cap Mission or Cap Shake



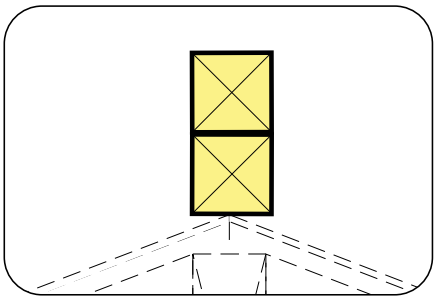
If installing with **Cap Mission or Cap Shake**, ridge battens used to provide approximately 2" (50 mm) of build-up height for ridge panels.
See Page 3 Batten Bend-Up section.

SIDE BY SIDE STACK



Install 1x2 (25 x 100 mm) support battens and 2x2 (50 x 50 mm) ridge battens as shown.

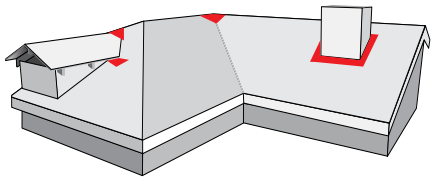
VERTICAL STACK



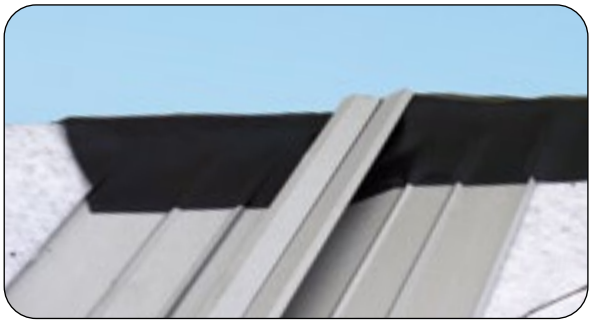
Install 2x2 (50 x 50 mm) ridge battens, as shown.

Note: Third batten may be needed, depending upon roof pitch and panel layout.

WAKAFLEX® UNIVERSAL FLASHING — OPTIONAL



VALLEY INTERSECTING RIDGES



Where two valleys meet at the ridge line, Wakaflex® universal flashing can be used to seal the intersecting pieces of Valley.

The following necessary steps are provided to prevent water migration under the roof tile.

1. Cut Wakaflex® of equal width to form on top of the 2 pieces of valley metal extended min. 6” on both sides.
2. Remove the protective film exposing the butyl strip and form on top both sides of valley metal.
3. Ensure that the top upper side of the Wakaflex® is integrated into underlayment installed to prevent moisture from penetrating roof deck.

Wakaflex® can also be used for:

- *Sidewalls*
- *Splayed Gables*
- *Hip & Ridge Junctures*
- *Solar Panels*
- *Chimneys*
- *Tricky details that require weather protection*
- *Variety of repair applications*

DIRECT-TO-DECK Installation Guidelines

FASTENERS

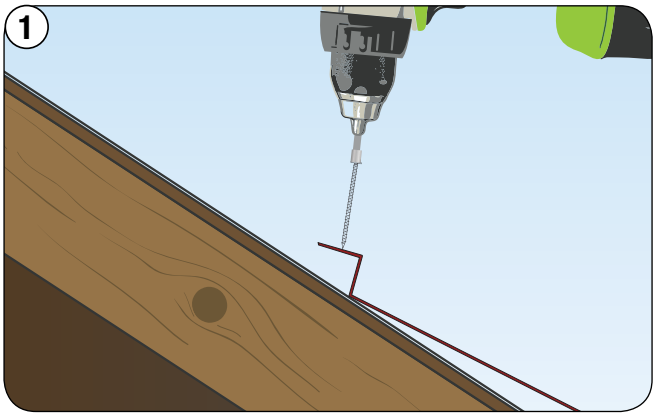
Unified Steel™ panels can be installed with Screws as listed below:

- **PANEL SCREWS** - PINE-CREST Shake, COTTAGE Shingle and PACIFIC Tile:
  #10 x 2” long x 1/4” HWH (50 mm x 6 mm) or #10 x 2.5” long x 0.25” HWH (64 mm x 6 mm)
  BARREL-VAULT Tile: #10 x 2.5” long x 1/4” HWH (64 mm x 6 mm)
- **STITCH SCREWS** - #8 x .75" long x 0.25" HWH (19 mm L x 6 mm)
- **VALLEY PAN SCREWS** - #10 x 1.5” long x 0.25” HWH w/Rubber washer (38 mm x 6 mm)

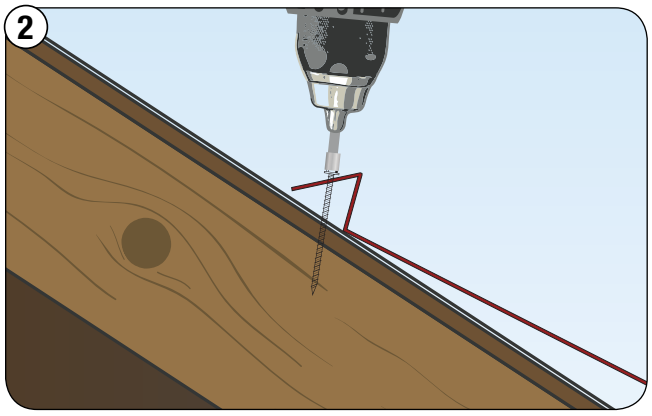
Panel Screw must achieve 0.75” penetration of the deck.

All fasteners used on a Unified Steel™ 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 Pages 45-48 for specific details.**

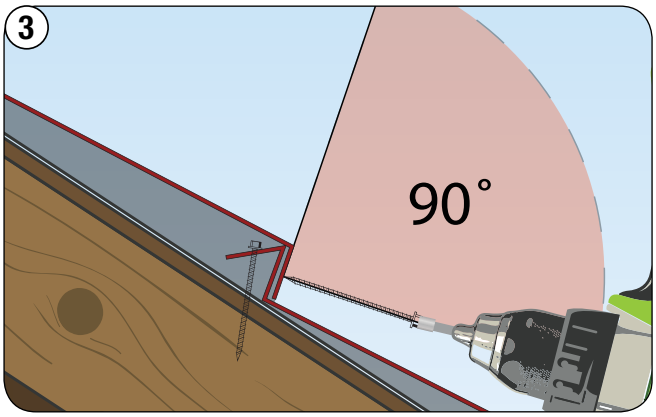
FASTENING DIRECT-TO-DECK PANELS



Panel Back Flange is fastened vertically into roof deck

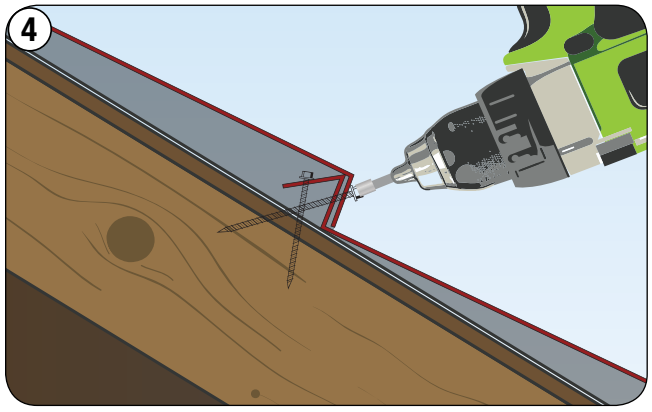


Panel Back Flange is ‘seated’ down onto roof deck.



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

Step 1 and 2 above:
Do Not crush/flatten the Back Flange.

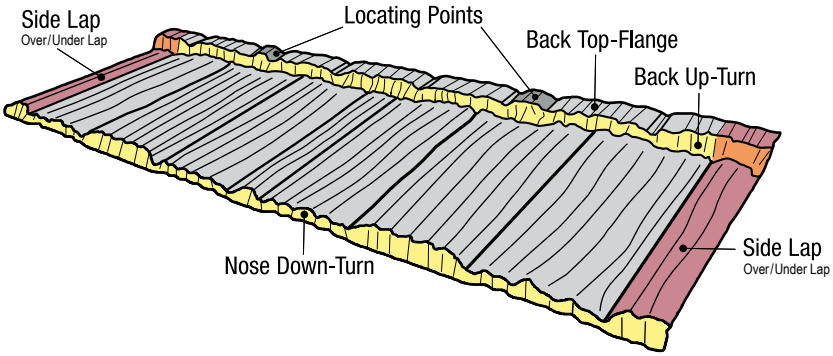


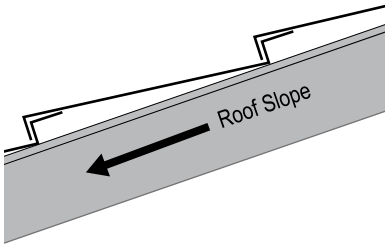
Once fastener has penetrated the nose, angle the screw to penetrate the Back Up-Turn of the panel beneath and into the deck. Due to the Back Flange and Nose Down-Turn fastener angles, the “X” pattern provides exceptional uplift resistance.

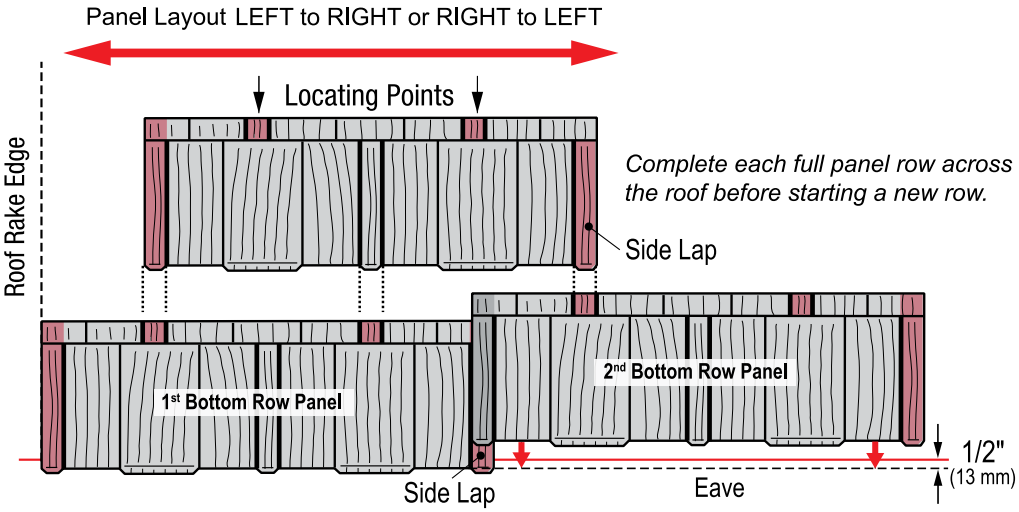
DIRECT-TO-DECK Installation Guidelines

PANEL LAYOUT - PINE-CREST Shake

PINE-CREST Shake panels have a 2” (50 mm) Side Lap and two staggered locating points along the back flange of the panel. The panels can be installed on battens or DIRECT-TO-DECK in a staggered pattern and placed according to their locating points. They **CANNOT** be straight laid.





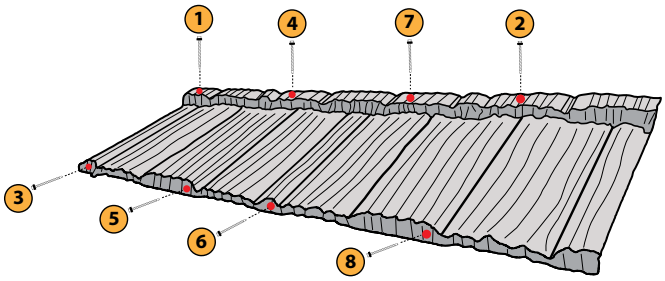


Complete each full panel row across the roof before starting a new row.

Batten Bend-Up method on the Rake, Ridge and Hip is required when installing Cap Shake and Cap Mission. ***See Page 3 Batten Bend-Up section.***

The bottom panels need to have a minimum of 1/2" (13 mm) overhang at the eave.

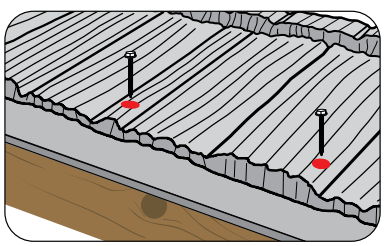
STANDARD FASTENING SEQUENCE



8 STANDARD fastening pattern: Four (4) across Nose Down-Turn and Four (4) across Back Top-Flange, as shown.

FASTENING SEQUENCE shown is for the Left to Right layout direction; applicable to any location on the roof and ensures the panels stay correctly aligned. Check local code for wind uplift requirements.

1ST ROW FASTENING AT EAVE

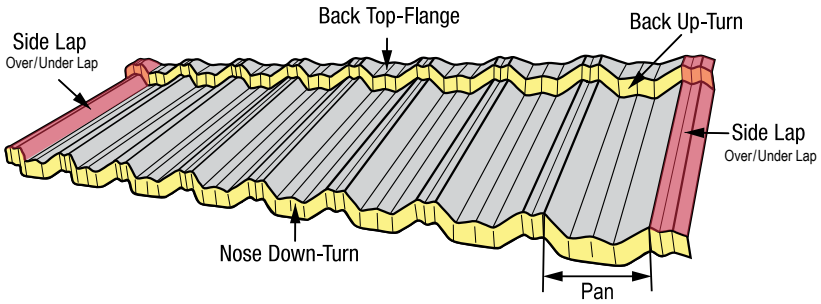


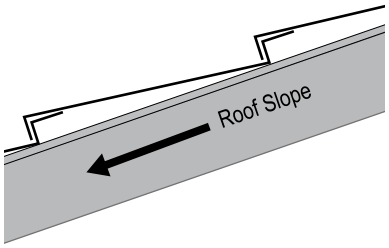
Fasten the bottom row panels through the top of the panel as shown, out of the main water channel of the panel. Top panel fastening is acceptable behind Unified Steel™ EZ-Vents and chimney/skylight details, as necessary.

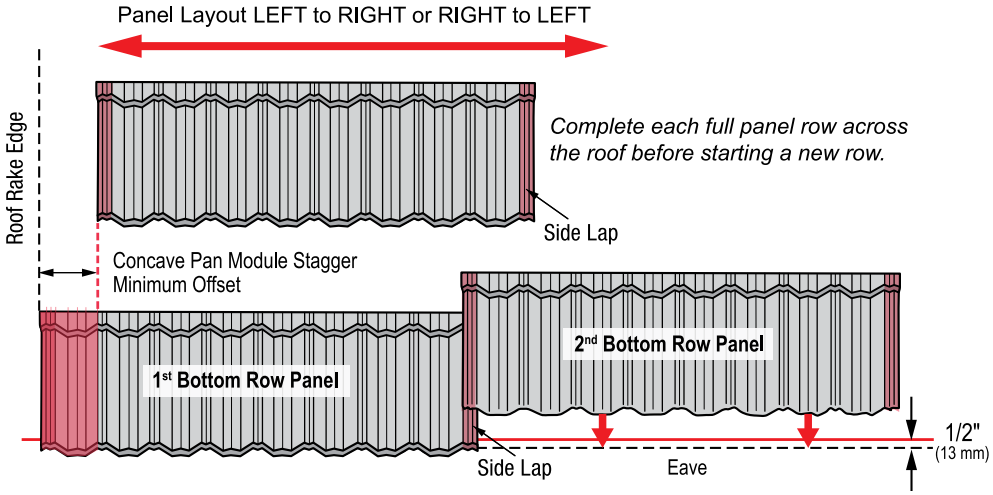
Use the Touch-Up Kit to cover each top fastener.

PANEL LAYOUT - PACIFIC Tile

PACIFIC Tile panels have a 2” (50 mm) Side Lap and can be staggered by one or multiple concave modules across the back of the panel as needed. The panels can be installed on battens or DIRECT-TO-DECK in a staggered pattern and **CANNOT** be straight laid.



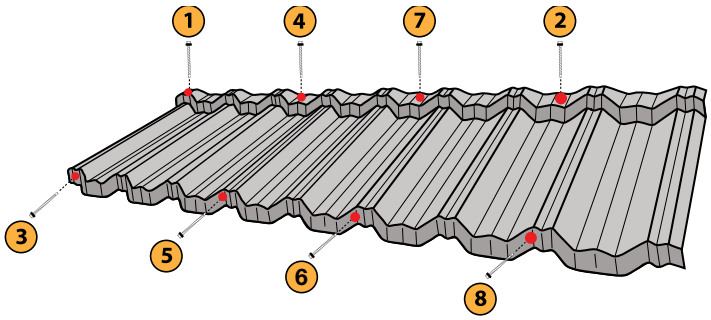




Batten Bend-Up method on the Rake, Ridge and Hip is required when installing Cap Shake and Cap Mission.
See Page 3 Batten Bend-Up section.

The bottom panels need to have a minimum of 1/2" (13 mm) overhang at the eave.

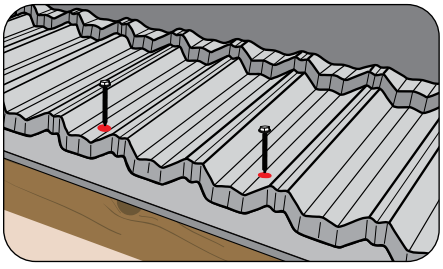
STANDARD FASTENING SEQUENCE



8 STANDARD fastening pattern: Four (4) across Nose Down-Turn and Four (4) across Back Top-Flange, as shown.

FASTENING SEQUENCE shown is for the Left to Right layout direction; applicable to any location on the roof and ensures the panels stay correctly aligned. Check local code for wind uplift requirements.

1ST ROW FASTENING AT EAVE



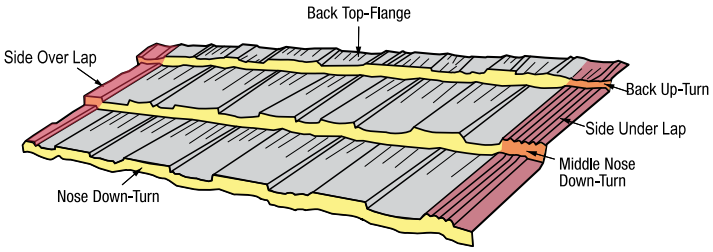
Fasten the bottom row panels through the top of the panel as shown, out of the main water channel of the panel.

NOTE: Top panel fastening is acceptable behind Unified Steel™ EZ-Vents and chimney/skylight details, as necessary.

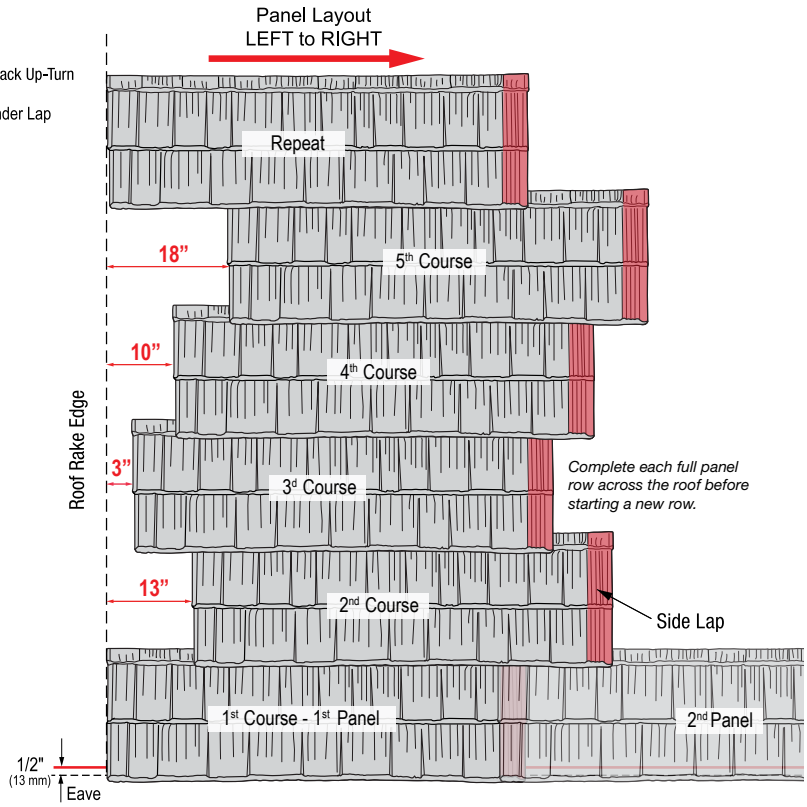
Use the Touch-Up Kit to cover each top fastener.

PANEL LAYOUT - COTTAGE Shingle

COTTAGE Shingle panels have a 3-1/2” (89 mm) Side Lap and require a set stagger pattern to limit any alignment issues. The panels are designed to be installed DIRECT-TO-DECK in a staggered pattern and they **CANNOT** be straight laid.



Side Lap: 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.

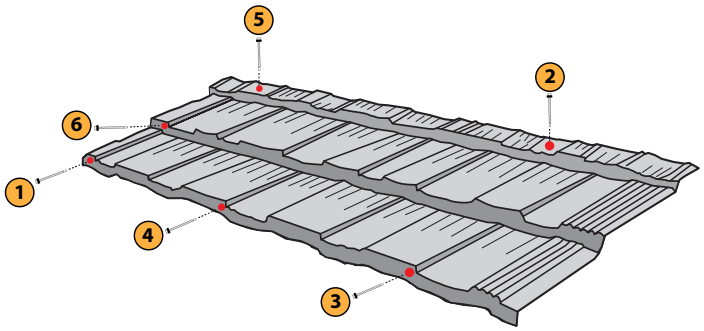


Always complete each row across the roof before starting the next row above.

Batten Bend-Up method on the Rake, Ridge and Hip is required when installing Cap Shake and Cap Mission. ***See Page 3 Batten Bend-Up section.***

The bottom panels need to have a minimum of 1/2" (13 mm) overhang at the eave.

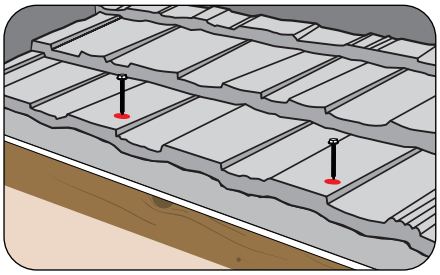
STANDARRD FASTENING SEQUENCE



6 STANDARD panels fastening pattern: Three (3) across Nose Down-Turn, Two (2) across Back Top-Flange and 0ne (1) at the Middle Nose Down-Turn.

FASTENING SEQUENCE shown is for the Left to Right layout direction; applicable to any location on the roof and ensures the panels stay correctly aligned. Check local code for wind uplift requirements.

1ST ROW FASTENING AT EAVE

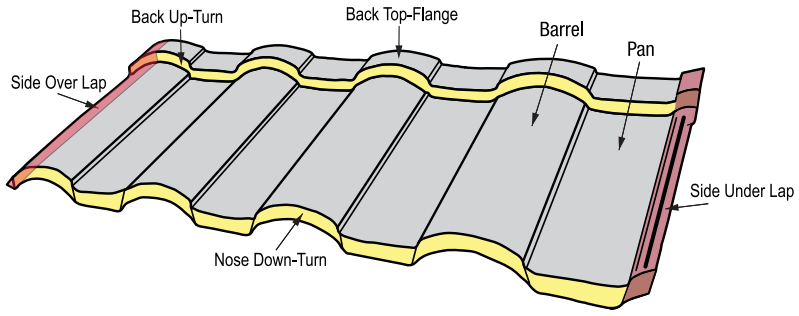


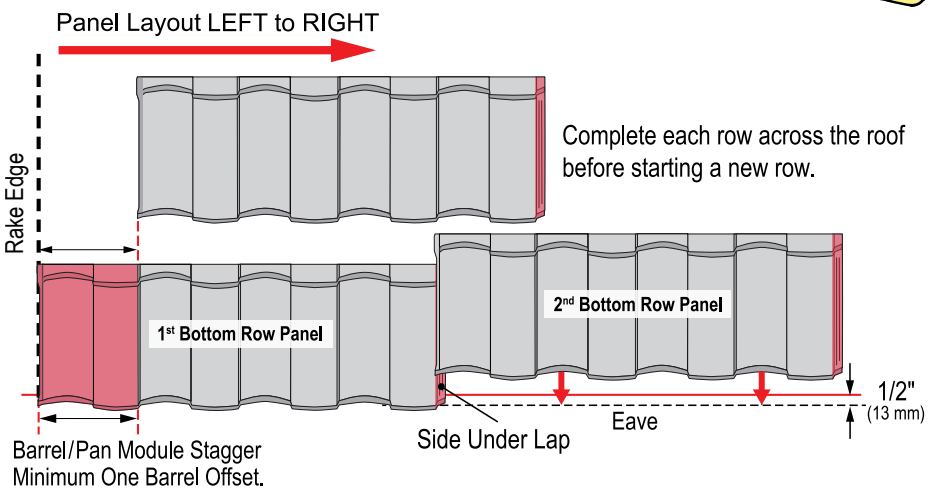
Fasten the bottom row panels through the top of the panel as shown, out of the main water channel of the panel. Top panel fastening is acceptable behind Unified Steel™ EZ-Vents and chimney/skylight details, as necessary.

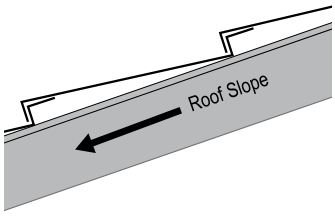
Use the Touch-Up Kit to cover each top fastener. The screw cannot be installed at the low point of the water trough.

PANEL LAYOUT - BARREL-VAULT Tile

BARREL-VAULT Tile panels have a 9/16" (14 mm) Side Lap and can be staggered by one or multiple concave/convex modules across the panel as needed. The panels can be installed on battens or DIRECT-TO-DECK in a staggered pattern and they **CANNOT be straight laid.**



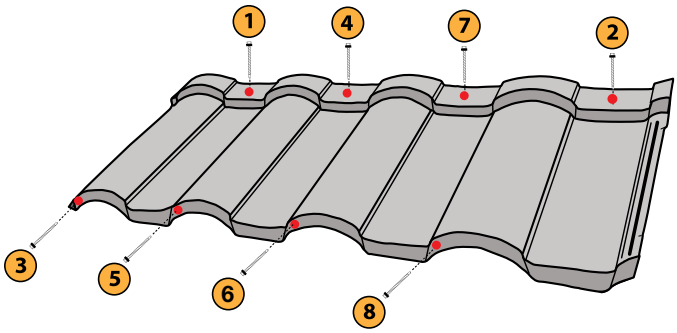




Batten Bend-Up method on the Rake, Ridge and Hip is required when installing Cap Shake and Cap Mission. ***See Page 3 Batten Bend-Up section.***

The bottom panels need to have a minimum of 1/2" (13 mm) overhang at the eave.

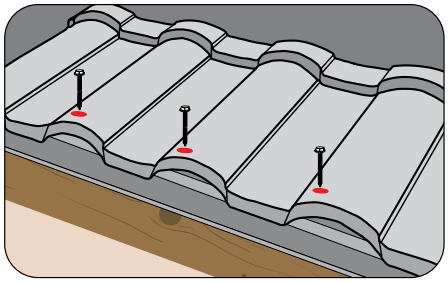
STANDARD FASTENING SEQUENCE



8 STANDARD fastening pattern: Four (4) across Nose Down-Turn and Four (4) across Back Top-Flange, as shown.

FASTENING SEQUENCE shown is for the Left to Right layout direction; applicable to any location on the roof and ensures the panels stay correctly aligned. Check local code for wind uplift requirements.

1ST ROW FASTENING AT EAVE

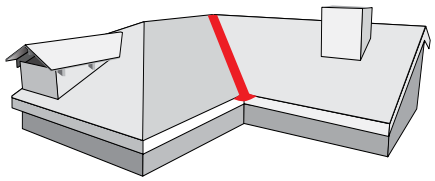


Fasten the bottom row panels through the top of the panel on the left or the right side of each concave section, out of the main water channel of the panel.

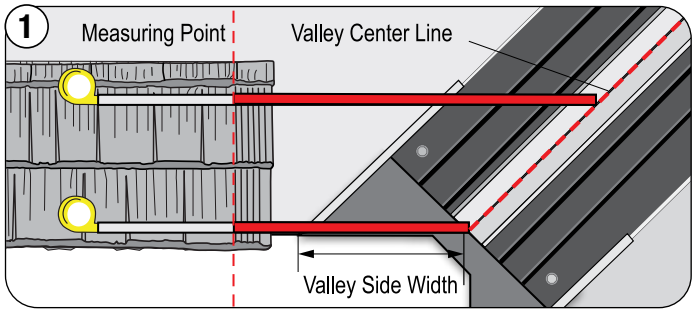
NOTE: Top panel fastening is also acceptable behind Unified Steel™ EZ-Vents and chimney/skylight details, as necessary.

Use the Touch-Up kit to seal and cover each top fastener.

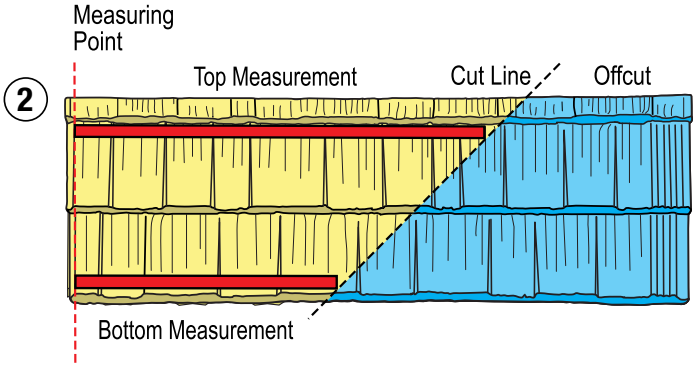
VALLEY CUTS INSTALL INTO VALLEY 2-PC All Profiles (COTTAGE Shingle Shown)



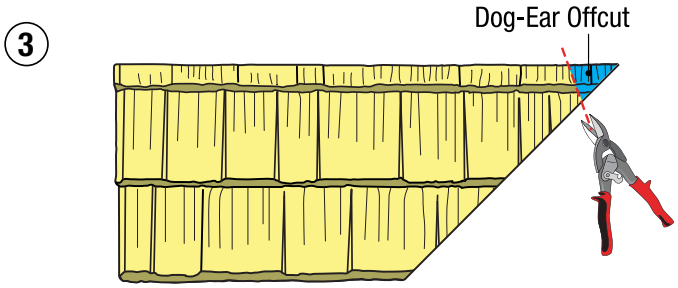
Where debris may accumulate in valleys use EmSeal tape inserted into each piece of the two piece valley metal.



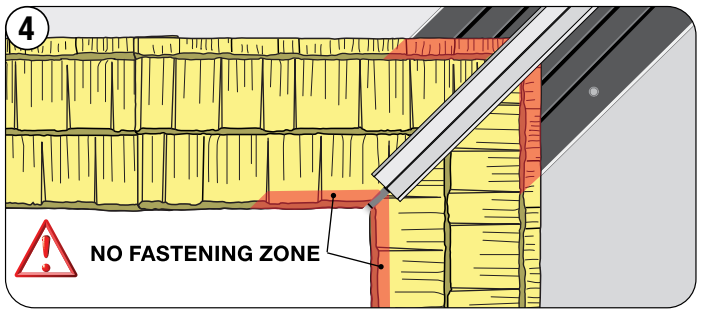
Measure from the Side Lap reference point to the center of the Valley 2-Pc.



Apply measurements to the full panel from the Side Lap reference point, mark & cut panels to fit into the Valley 2-Pc.



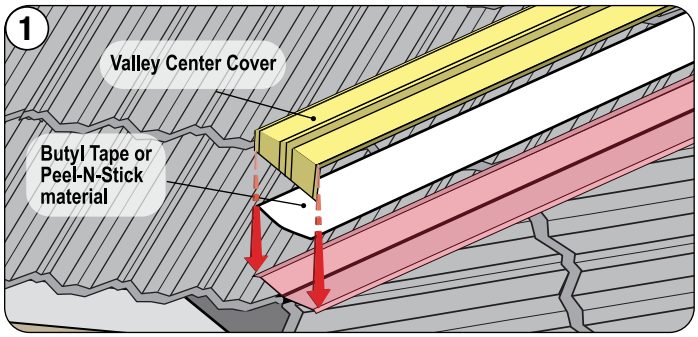
Cut off the top corner ("dog-ear") of the panel in 45 degree angle of ***each panel that is inserted into*** Valley 2-Pc.



Insert valley panel sections into the Valley 2-Pc, as shown. When fastening, do not penetrate valley area.

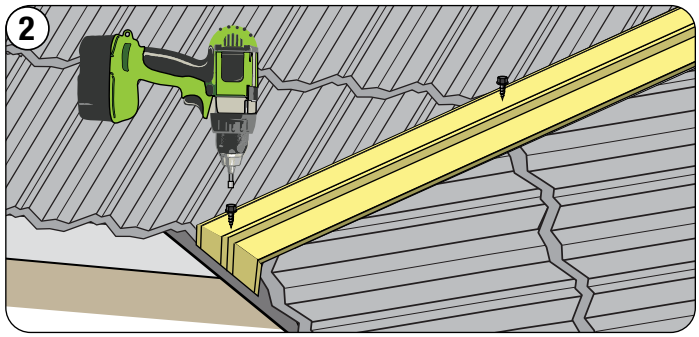
Repeat Steps 1-4 on the other side of the Valley 2-Pc.

VALLEY CENTER COVER All Profiles (PACIFIC Tile Shown)



After all valley cut sections are installed, install a Butyl Tape (min. 4" (100 mm) wide) or Peel-N-Stick type material over the center seam, as shown.

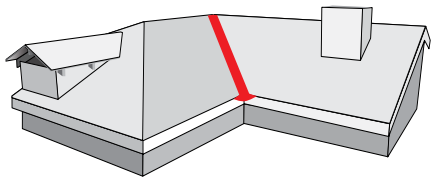
Install Valley Center Cover over the center seam, as shown. Vertical laps for both the Peel-N-Stick and the Valley Cover are a min. of 4" (100 mm).

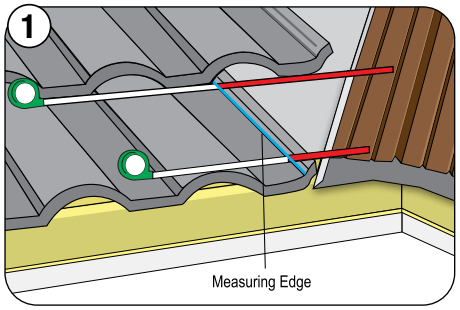


Fasten the Valley Center Cover with the Stitch screws to each panel course, where it intersects the valley.

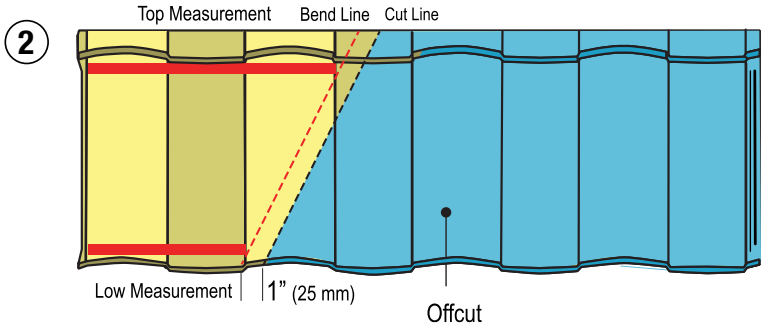
Do not penetrate the Valley Metal, *use Stitch screws to secure the Valley Cover.*

VALLEY CUTS INSTALLED INTO VALLEY FIVE 'V' All Profiles (For BARREL-VAULT Tile Shown)

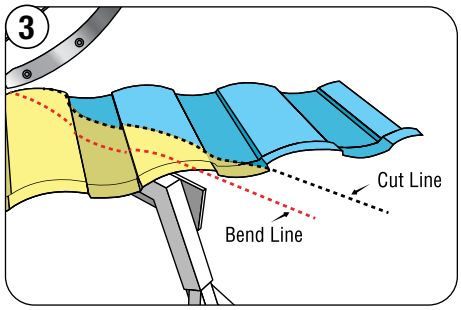




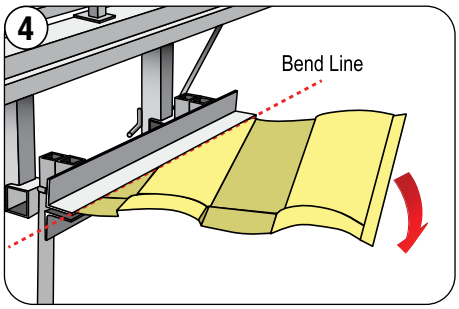
Measure each panel row across the top and bottom of the valley cut to the second rib of the Valley Five 'V' to ensure the angle is correct.



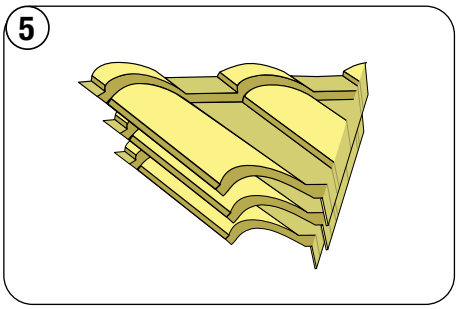
Apply Measurements to the full panel and mark as a Bend Line. Add 1" (25 mm) and mark as a Cut Line.



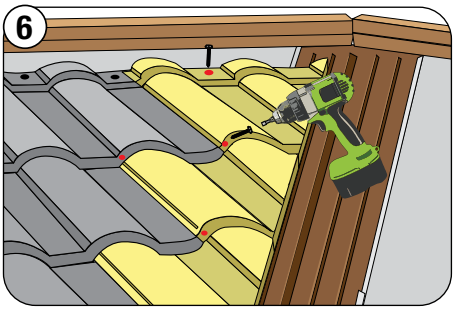
Use the Unified Steel's Cutter, start the cut from the nose edge of the panel to the back up-turn.



Using the Unified Steel's Bender, insert the valley cut into the bender jaws, clamping the valley cut section and bend the valley section down.

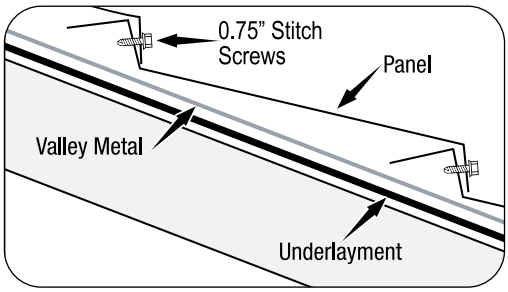


After bending the cut section, start stacking each one as shown. Be sure to keep them in the correct order so they are easily accessible for installing in the correct spot on the roof.



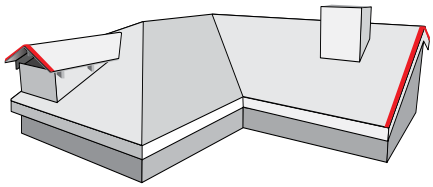
Install valley cuts from the fascia to ridge. If installing BARREL-VAULT Tile, first valley cut will be fastened after BirdStop installation.

PANEL FASTENERS OVER VALLEY

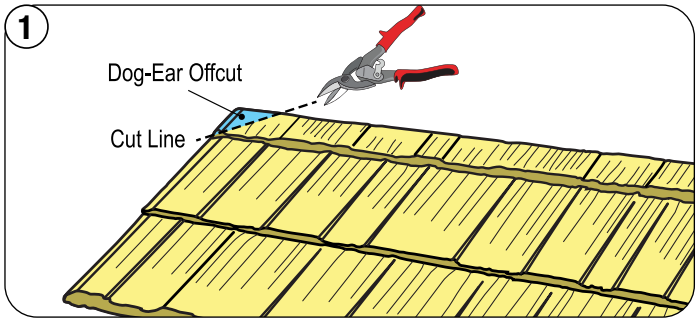


*Do not penetrate Valley metal with panel fasteners. Use 0.75" **Stitch Screws** over the Valley metal.*

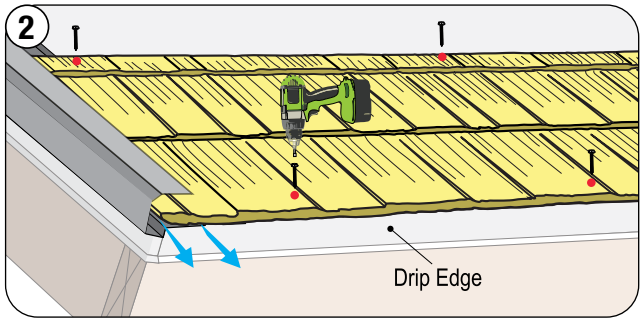
RAKE PANEL SECTIONS - NO BEND UP All Profiles (COTTAGE Shingle Shown)



LEFT SIDE OF THE ROOF



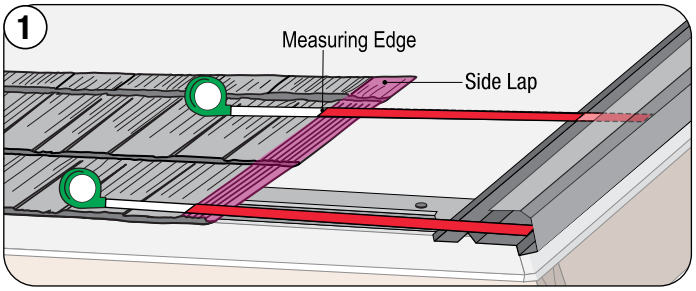
*Cut the top corner ("dog-ear") of the panel in 45 degree angle of **each panel that is inserted into Rake Channel.***



Insert first course panel into Rake Channel. Overhang Drip Edge minimum of 1/2" (13 mm). Fasten panel using correct fastening sequence. Continue installation across the roof.

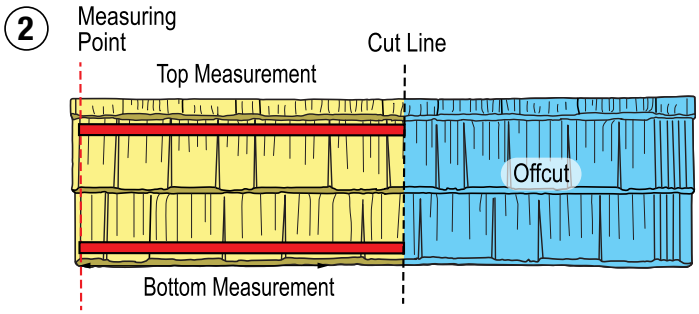
First course panels need to overhang Drip Edge minimum of 1/2" (13 mm).

RIGHT SIDE OF THE ROOF

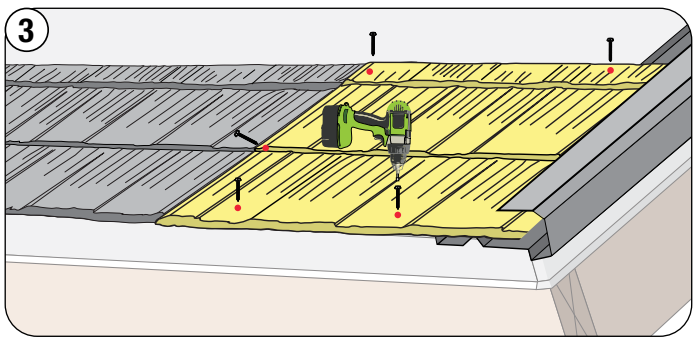


Measure from the full panel across to the rake edge on each course. Refer to Panel Layout pages for correct panel lap and stagger layout.

When measuring the rake panel cut, make sure to keep the tape measure in the same "plane" as the panels and parallel to the panel nose or back up-turn.

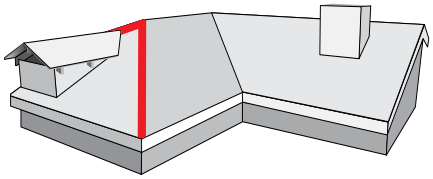


Apply measurements to the full panels, as shown, and cut.



Install rake panels into Rake Channel and fasten as a regular field panels. Continue installation up the roof.

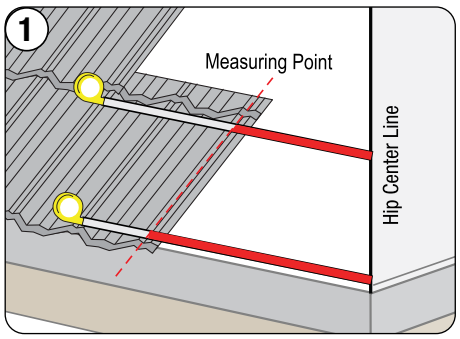
HIP PANEL SECTIONS - NO BEND UP For PINE-CREST Shake, PACIFIC Tile, COTTAGE Shingle.



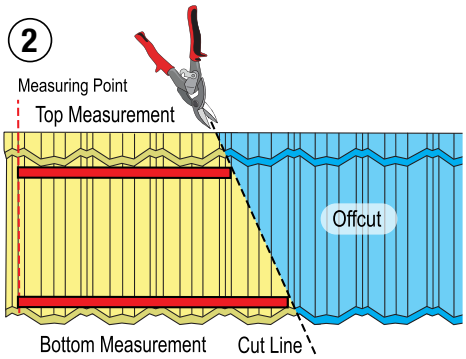
*Use this method if installing with **Cap Cottage, or Cap Shingle.***

First course panels need to overhang Drip Edge minimum of 1/2" (13 mm).

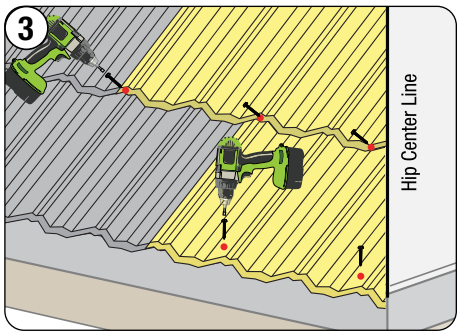
LEFT SIDE OF THE ROOF



Measure hip panels, as shown.

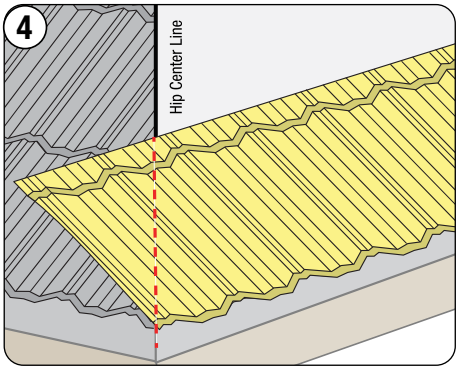


Apply measurements to the full panel, mark and cut.

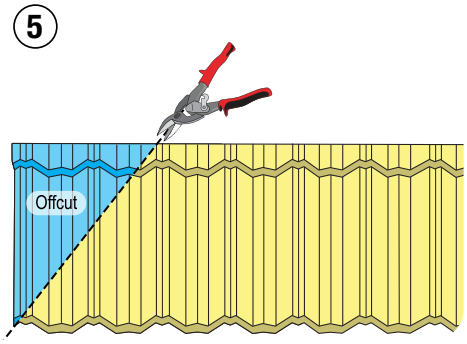


Fit hip panels to the hip center line and fasten as a regular field panel.

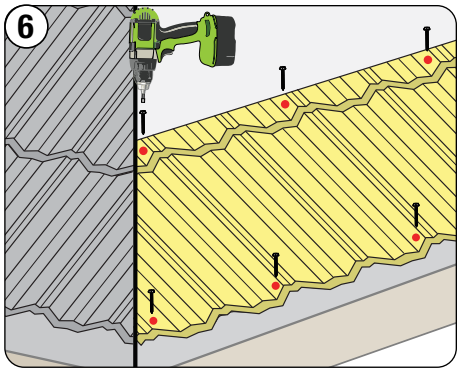
RIGHT SIDE OF THE ROOF



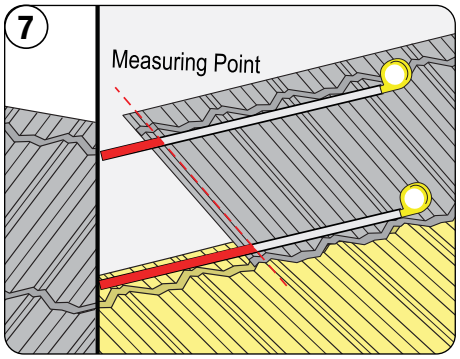
Place full first row panel aligning with the fascia and mark the center line on the panel, as shown.



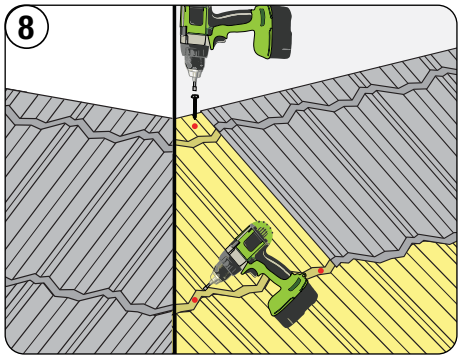
Apply measurements to the full panel, mark and cut.



Fit hip panel cut to the hip center line and fasten as a first row panel. Continue installation of the panels across the eave.

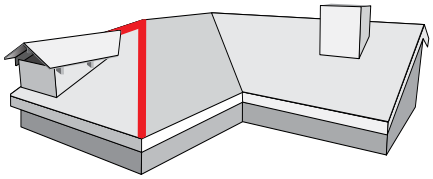


Place second course full panel in a staggered pattern. Measure hip panel, as shown.

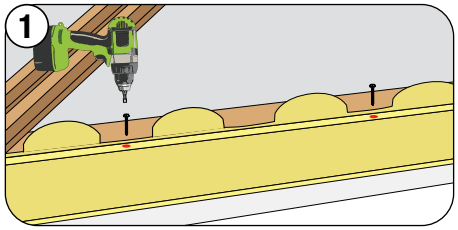


Continue hip panels installation and fasten as regular field panels.

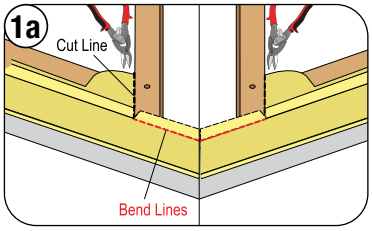
HIP PANEL SECTIONS - BEND UP All Profiles (For BARREL-VAULT Tile Shown)



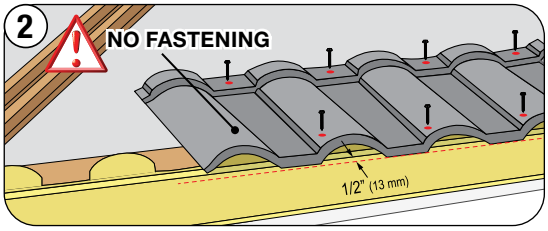
Use this method if installing with Cap Mission or Cap Shake. Hip Battens must be installed. ***See Page 3 Battens Bend-Up section*** *and* ***Pare 14 for details.***



For Barrel-Vault Tile Only: Install the BirdStop across the fascia, as shown.

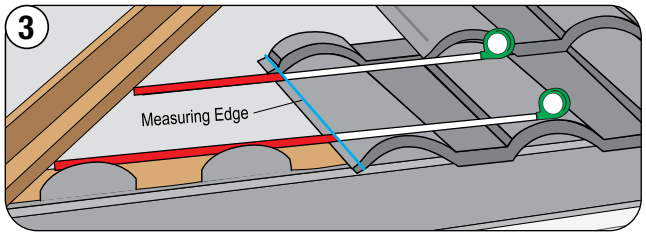


Cut and bend BirdStop at the hip area, as shown.

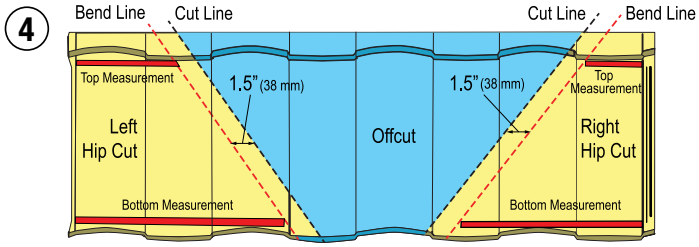


Place full BARREL-VAULT Tile panel at the eave. Overhang 1/2" (13 mm) the BirdStop. Fasten through the top and back flange. Do not fasten where the hip panel cut will be inserted.

BirdStop fastener locations shall be evenly spaced across the BirdStop ***at each or every second, low-scalloped section*** *so the panel overhangs and hides the fastener.*



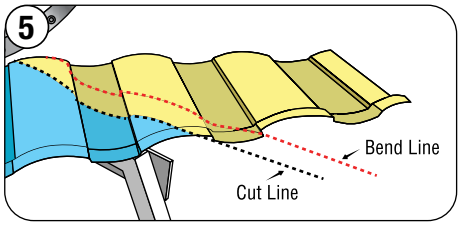
Measure and record the top and bottom of each hip cut (do this for the entire hip length on both the right & left side of the hip center line).



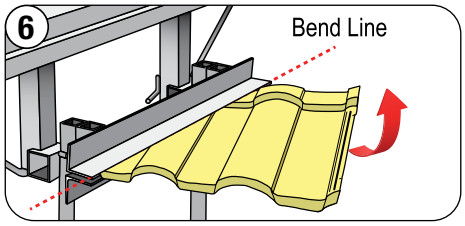
Apply measurements to the full panel and mark the Bend Line. Add 1.5" (38 mm) and mark the Cut Line on the other side.

When measuring the hip panel cut, make sure to keep the tape measure in the same "plane" as the panels and parallel to the panel nose or back up-turn.

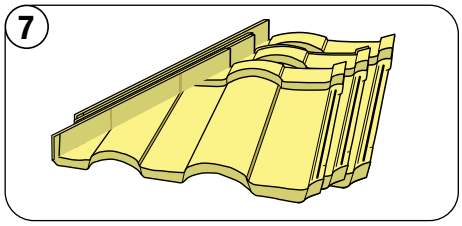
Always ***DEDUCT 1/2"*** *(13 mm) from actual measurements to ensure an easy fit of hip cuts.*



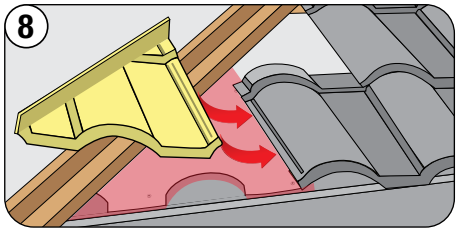
Using the Unified Steel™ Cutter, start the cut from the nose edge of the panel to the back up-turn.



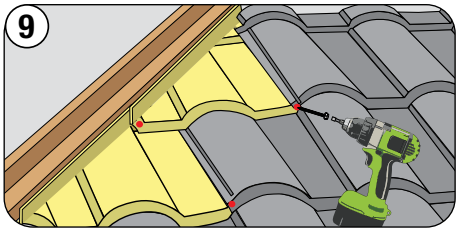
Using the Unified Steel™ Bender, insert the hip cut into the bender jaws, clamping the hip cut section and bend the hip section up to create an 1.5" (38 mm) bend up on the panel section.



After bending the cut section, start stacking each one, as shown. Be sure to keep them in the correct order so they are easily accessible for installing in the correct spot on the roof.

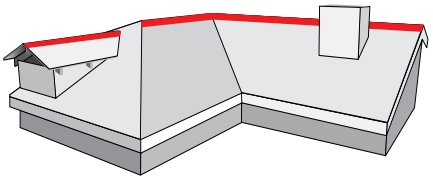


Install hip cuts under the full panel.



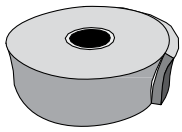
Fasten, as shown.

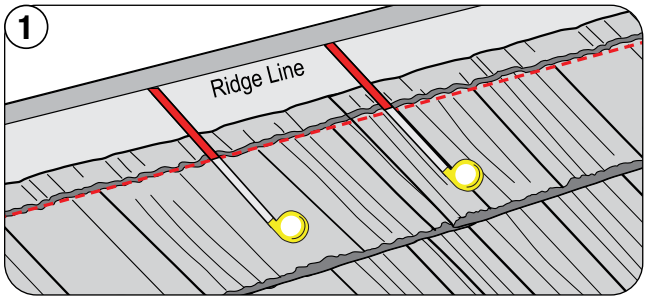
RIDGE CUT SECTIONS - BARRIER FOAM METHOD All Profiles (PINE-CREST Shake Shown)



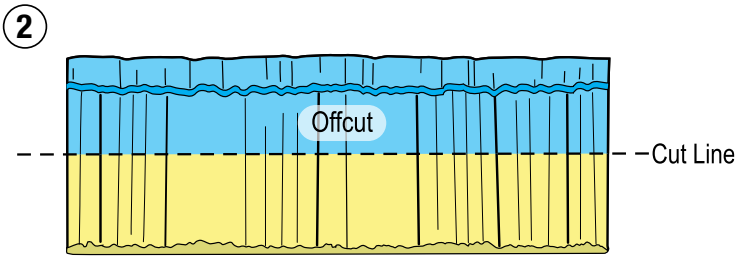
*Ridge with Barrier Foam is used with **Cap Shingle or Cap Cottage** only.*

This method does not require the bend-up of the ridge panel cuts.

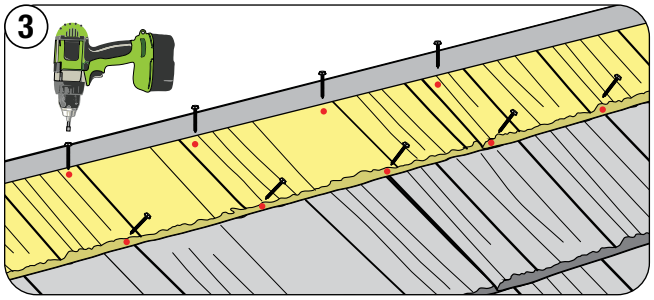




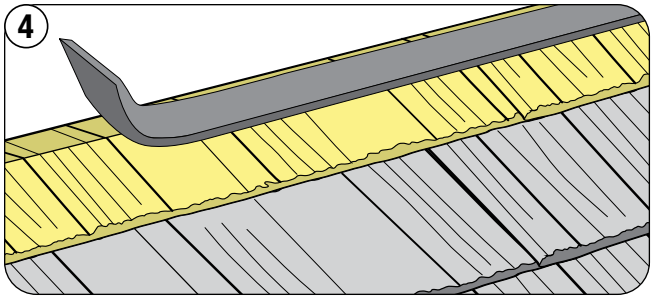
Measure from the Back up turn to the ridge center line.



Apply measurements to the full panel, mark and cut.



Install ridge panel across the ridge, aligning with the panel below. Fasten at each end through the nose down-turn, then fasten at each end and center at the ridge line. After that, continue fastening as regular panels. Finish installation on both sides of the roof.

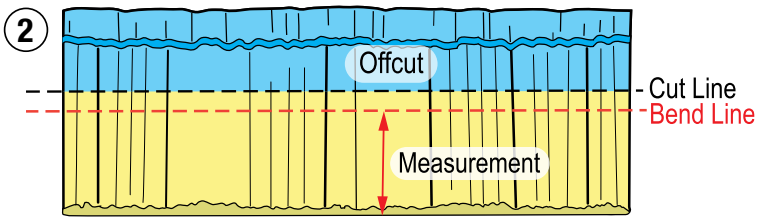


Barrier Foam is installed over center line of the ridge and either Cap Shingle or Cap Cottage is installed on top. **See Page 43 for details.**

RIDGE CUT SECTIONS - OVERLAP METHOD OPTIONAL

The overlap method requires a 2" (50 mm) lap on **only one side** of the ridge. One panel is cut along the ridge center line, the other panel uses an overlap.

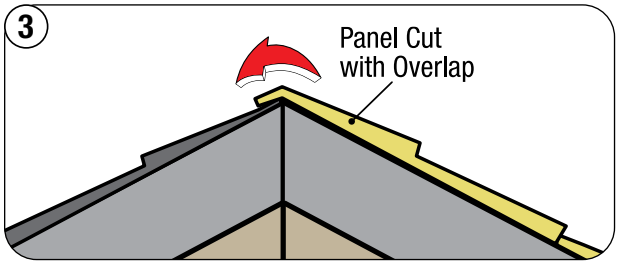
*Use this method if installing with **Cap Shingle or Cap Cottage.***



Measure ridge panels, as shown in Step 1.

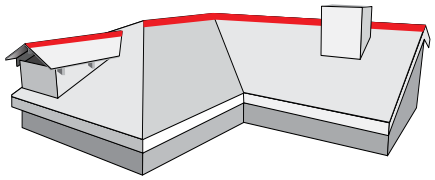
Apply measurements to the full panel and mark as Bend Line. Add 2" (50 mm) and mark as Cut Line. Bend and cut the ridge panel.

***Always bend the ridge panels before cutting,** as they deform slightly in the bender.*



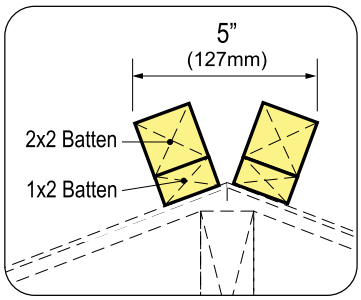
Install ridge panels overlapping, as shown.

RIDGE CUT SECTIONS - BATTEN BEND-UP METHOD All Profiles (PACIFIC Tile Shown)

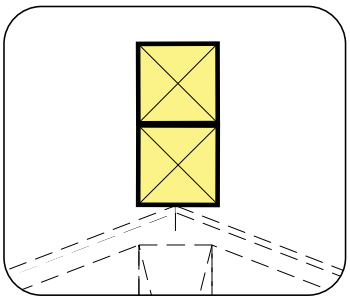


*Ridge with Batten Bend-Up method is used with **Cap Mission or Cap Shake** only. Ridge Battens must be installed for this method.*
See Page 3 Battens Bend-Up section.

SIDE BY SIDE STACK

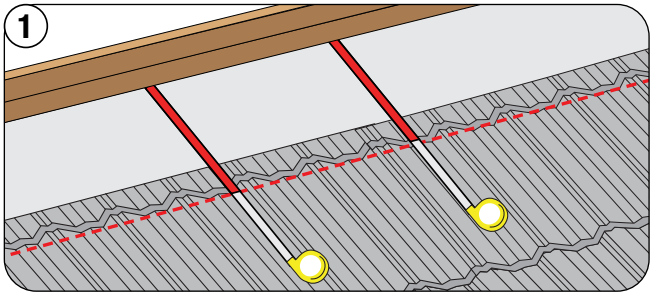


VERTICAL STACK



Ridge battens can be positioned side by side, or vertically stacked as shown, using 2x2 battens. **Note:** For Vertical Stack third batten may be needed, depending upon roof pitch and panel layout.

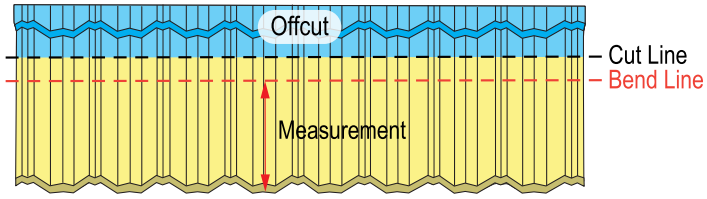
1



Vertical stack shown. Measure ridge panel, as shown.

***DEDUCT 1/2”** (13 mm) from actual measurements to ensure an easy fit of ridge cuts.*

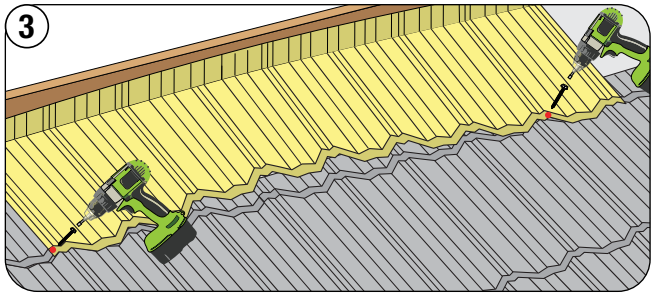
2



Apply measurements to the full panel. Mark Bend Line, add 2" (50 mm) and mark a Cut Line. Bend and cut ridge panel.

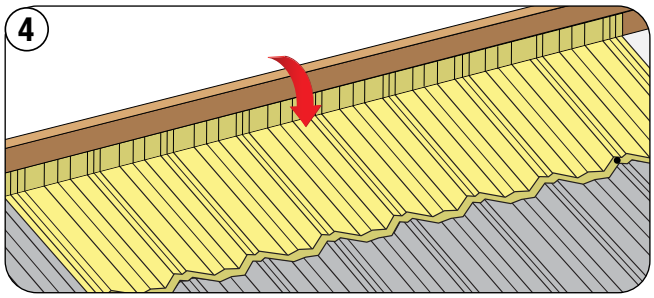
***Always bend the ridge panels before cutting**, as they deform slightly in the bender.*

3



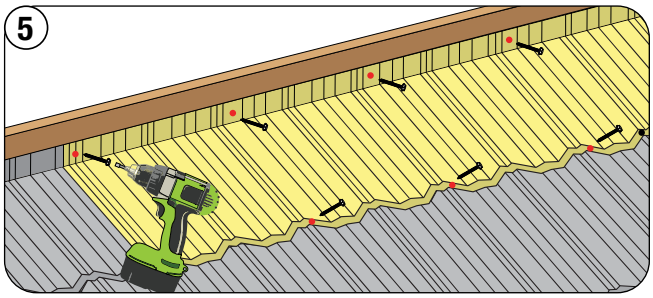
Install ridge cut panel across the ridge, aligning with the panel below. Fasten left end, then right end of the panel.

4



Push panel down to fit coursing properly. Force back of panel into position against ridge batten.

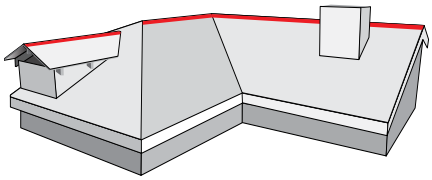
5



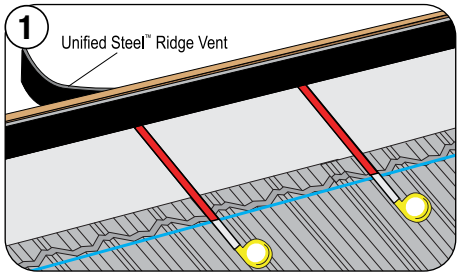
Continue fastening ridge cut panel across the nose. Refer to **Fastening Sequence** on the Panel Layout pages.

Next, fasten panel through bend-up into ridge batten.

CONTINUOUS UNIFIED STEEL™ RIDGE VENT All Profiles (PACIFIC Tile Shown)

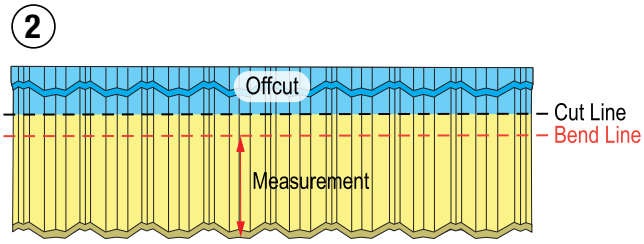


*Continuous Unified Steel™ Ridge Vent is used with **Cap Mission and Cap Shake** only.*



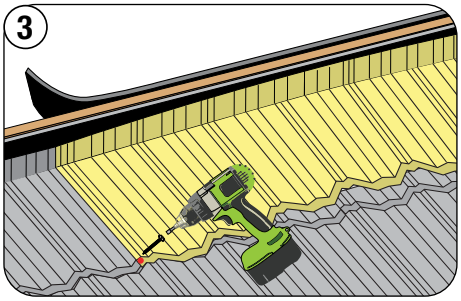
Measure the top row from the back-flange upstand to the Ridge Vent material.

***DEDUCT 1/2"** (13 mm) from actual measurements to ensure an easy fit of ridge cuts.*

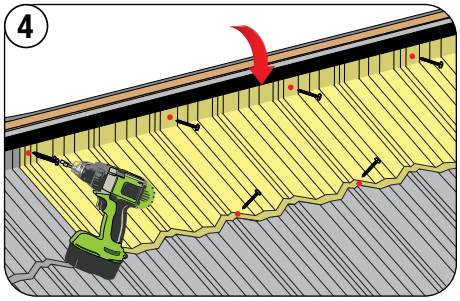


Apply measurements to the full panel. Mark Bend Line, add 2" (50 mm) and mark a Cut Line. Bend and cut ridge panel.

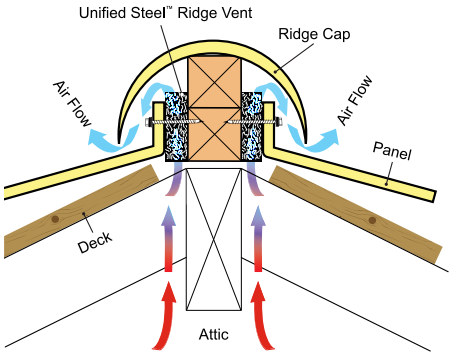
***Always bend the ridge panels before cutting**, as they deform slightly in the bender.*



Fasten left end of the panel first, then right end. **Refer to Page 27, Step 3.**



Push panel down to fit coursing properly. Continue fastening ridge panel. **Refer to Page 27, Step 5.**

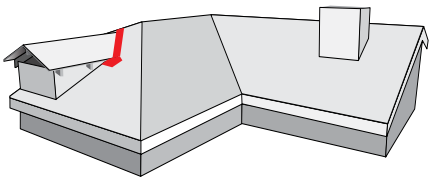


Note: Third batten may be needed, depending upon roof pitch and panel layout.

DO NOT *compress the Ridge Vent when fastening panels into the ridge batten. Make sure the air-flow path from the attic space is not restricted.*

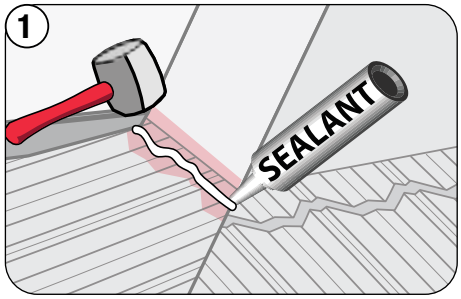
Refer to vent manufacturer's specifications for the correct slot-width to be cut on either side of the ridge.

DORMER VALLEY EXIT All Profiles (PACIFIC Tile shown)

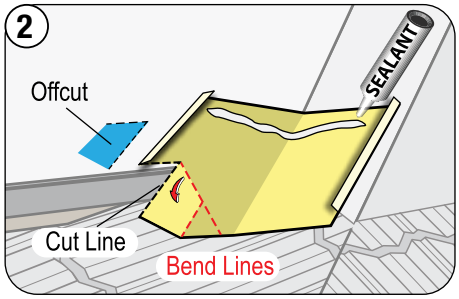


This is a critical roof area and requires special attention to ensure good weather protection. When the main roof intersects with a dormer roof, the panels back-lip where the valley exits onto the main roof must be flattened & the panels bent-up against the dormer roof (see steps below).

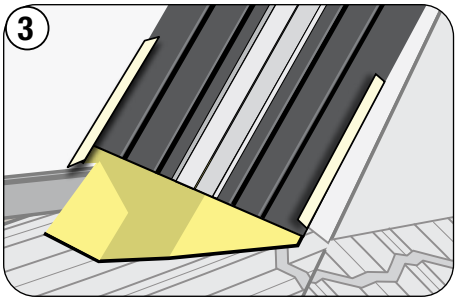
Use either Unified Steel™ stone coated Flat Sheet or Wakaflex® flashing to create a valley exit piece with hemmed edges for the valley to exit onto.



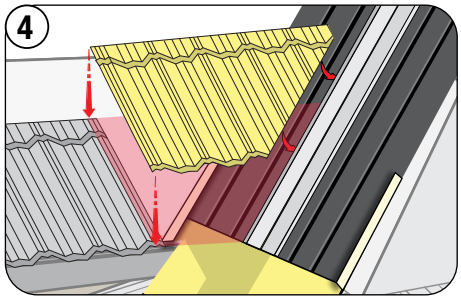
Flatten back flange against the roof deck and apply sealant.



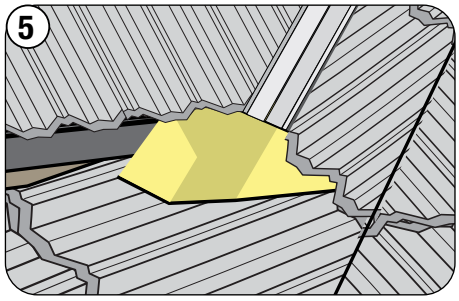
Form the stone coated Flat Sheet as an extension and exit tray for the upcoming valley. Apply sealant, as shown.



Install Valley metal over and onto the stone coated Flat Sheet and embed the Valley into the sealant.



Insert valley panel cuts onto the Valley 2-Pc to complete the dormer roof section.



Completed Dormer Valley Exit.

DORMER VALLEY EXIT - WAKAFLEX® FLASHING OPTIONAL

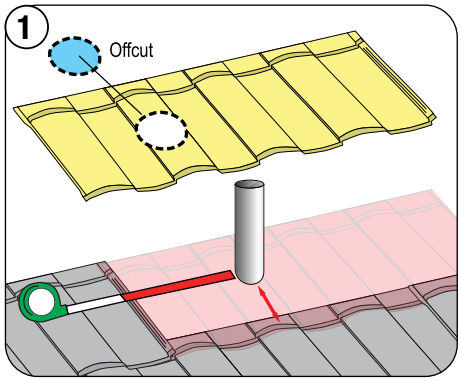
Where a typical standard metal valley flashing transitions onto an adjoining roof plane, a Wakaflex® flexible extension must be added to make certain that moisture flows from the valley and onto the courses of roof tiles below. The following necessary steps are provided to prevent water migration under the roof panels.

1. Cut Wakaflex of equal width of the valley metal plus additional amount to allow Wakaflex to cover 1” minimum past the high barrel portion (crown) of a profiled panel on both sides.
2. With top surface facing up fold forward completely 6” one end of the Wakaflex® (butyl strip side is now facing upwards) place under the lower end of the valley metal.
3. Remove the 5-1/2” strip protective release film to expose butyl, press butyl strip firmly onto the bottom side of valley metal. This will prevent any windblown moisture under the valley metal.
4. Form the other portion of Wakaflex® on top of the panel, remove the protective release film and form Wakaflex® to top side of profile panel ensuring a complete bond.

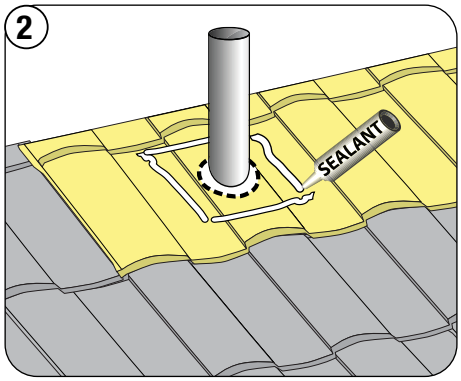
Wakaflex® should be painted or stone coated to match the panel color.

PIPE FLASHING - SANDWICH METHOD All Profiles (BARREL-VAULT Tile Shown)

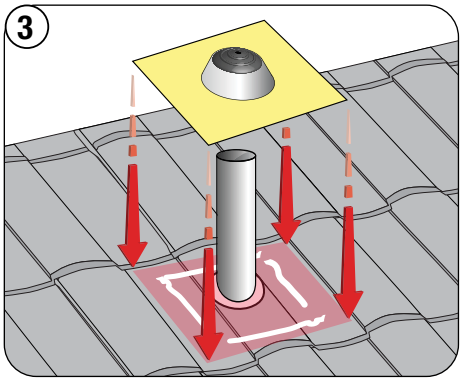
New Unified Steel™ 4-N-1 Pipe-Jacks designed to fit pipes from 1.25" to 4" (32-100 mm) in diameter are installed at roof penetrations. Panels are neatly cut around protrusions as required and installed over vent flashings.



Measure, mark and cut a pipe sized hole in the base panel.

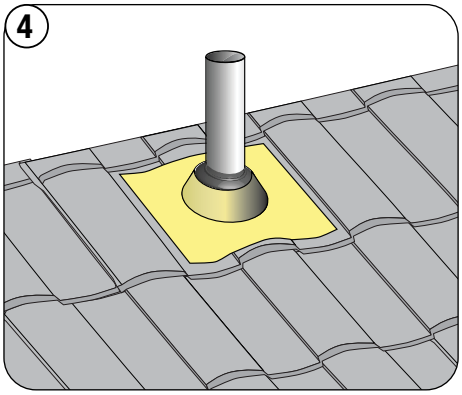


Install base panel to fit around the vent pipe. Apply a bead of sealant on each side and around the hole of the pipe, as shown.

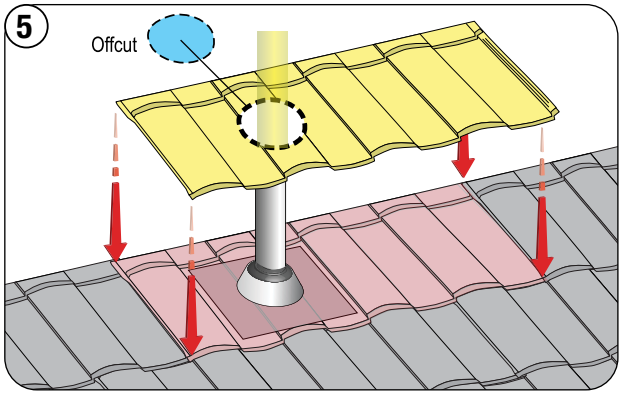


Slide the Pipe-Jack flashing over the pipe and seat it into the sealant.

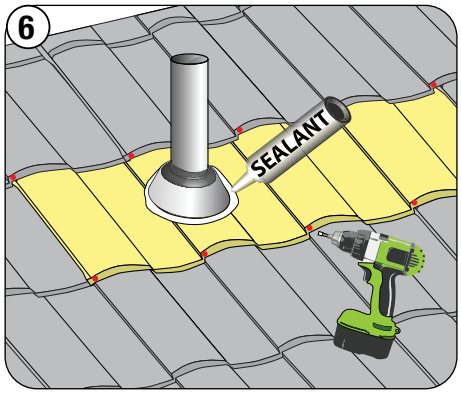
Trim Pipe Jack base, as needed, to fit panel course.



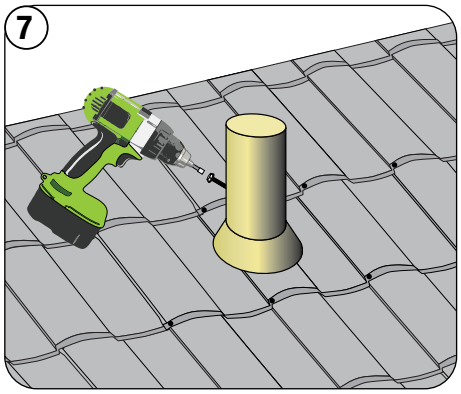
Press the Pipe-Jack flashing firmly over the contours of the panel.



Measure, mark and cut the top cover panel around the cone base to fit around the flashing cone.



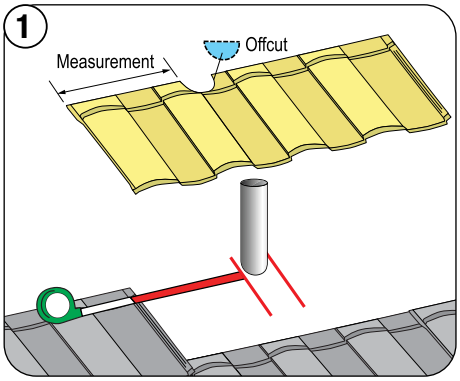
Install top panel and fasten as field panel. Apply sealant around the Pipe-Jack.



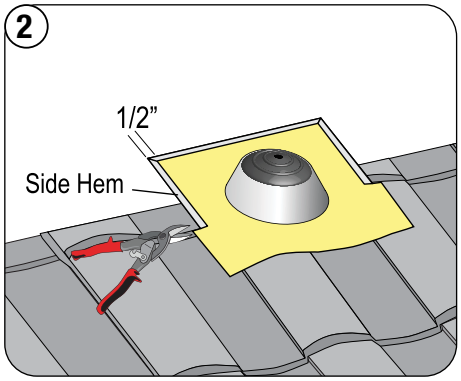
Install and fasten the Pipe-Sleeve through the back of the sleeve into the pipe. Make sure to fasten at least 2” (50 mm) above the Pipe-Jack cone.

Dissimilar Metals: *To avoid adverse corrosion effects caused by dissimilar metals,* ***COPPER and LEAD flashings should not be used*** *with Unified Steel™ panels and accessories.*

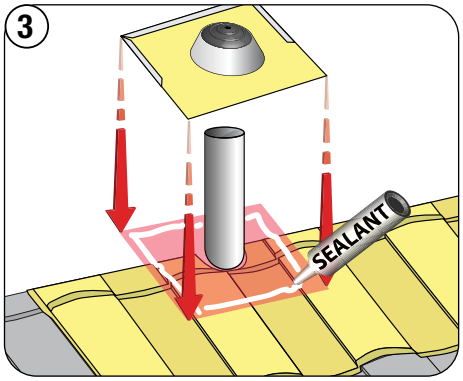
PIPE FLASHING - STANDARD METHOD All Profiles (BARREL-VAULT Tile Shown)



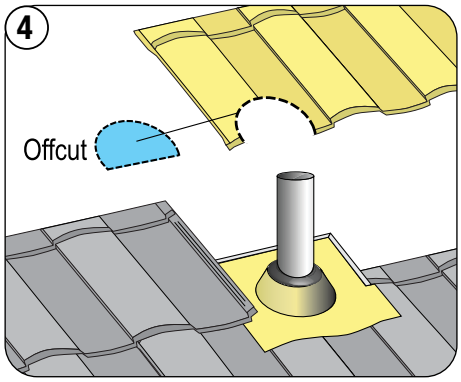
Measure and cut lower panel to fit around the vent pipe. Install panel.



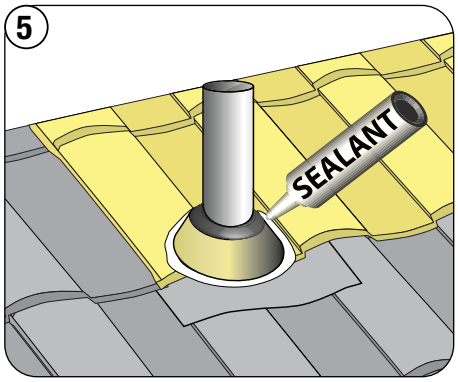
Place Pipe Jack on the panel to the side of the pipe and make 1/2" (13 mm) cuts in line with the back up-turn of the panel. Hem the edges, as shown.



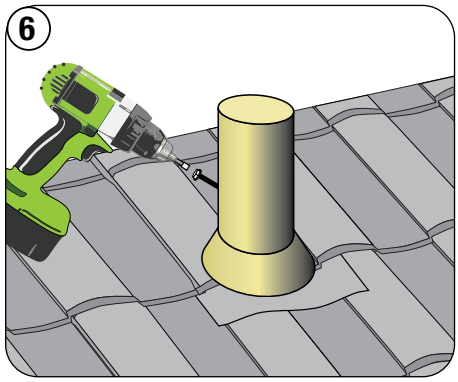
Apply sealant to the area where the Pipe-Jack will be installed.



Install full panel to the side of the pipe.Mark the top panel to where the flashing cone base will align, cut out this piece to allow the panel to fit around the flashing cone.



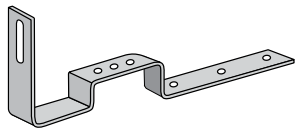
Apply sealant and stone chip around the flashing cone.



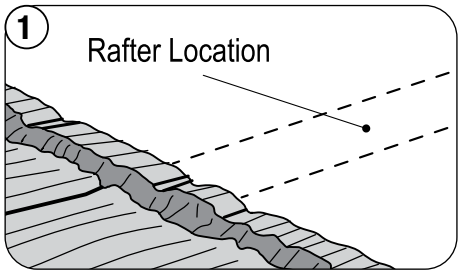
Install and fasten Pipe Sleeve from the back into the PVC pipe to finish the detail.

Dissimilar Metals:
To avoid adverse corrosion effects caused by dissimilar metals, ***COPPER and LEAD flashings should not be used*** *with Unified Steel™ panels and accessories.*

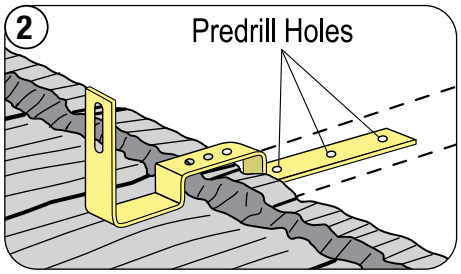
SOLAR ROOF MOUNTS (DIRECT) (PINE-CREST Shake shown)



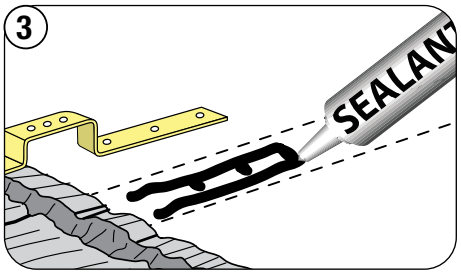
Solar Roof Mounts are designed to be used with the following four profiles; PINE-CREST Shake, PACIFIC Tile, COTTAGE Shingle & BARREL-VAULT Tile. Solar Roof Mounts are installed without making any penetration through the Unified Steel™ panels. This is achieved by bending the nose of the upper cover panel directly above the Solar Roof Mounts so the bracket easily exits between the panel courses and when the cover panel is fastened the system does not require any flashing to provide a weather seal around the bracket.



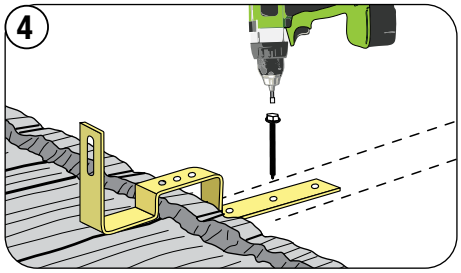
Find and mark the location of the rafter beneath the roof deck.



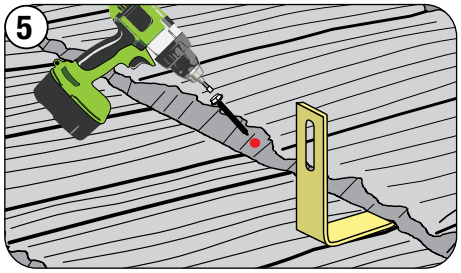
Place the Solar Roof Mount and predrill holes using 3/16" Drill Bit.



Apply a bead of sealant beneath Solar Roof Mount mounting foot and in each hole.



Install Solar Roof Mount with mounting foot embedded in sealant and fasten with lag bolt screws, per local code.



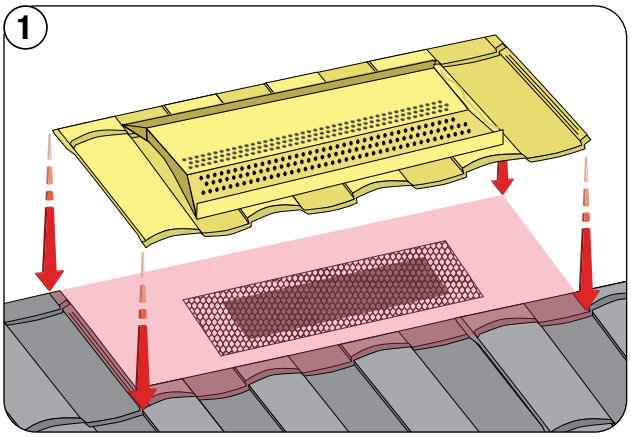
Install the panel above the Solar Roof Mount. Bend the panel nose where it intersects with the Solar Roof Mount to ensure a tight fit. Fasten the panel through the nose, as regular field panels.

Solar Panels support rails installed.

Depending on rafter location it may necessary to place a pad of peel-n-stick material or Wakaflex® strip beneath each Solar Roof Mount where it canter levers out onto the panel beneath to prevent abrasion.

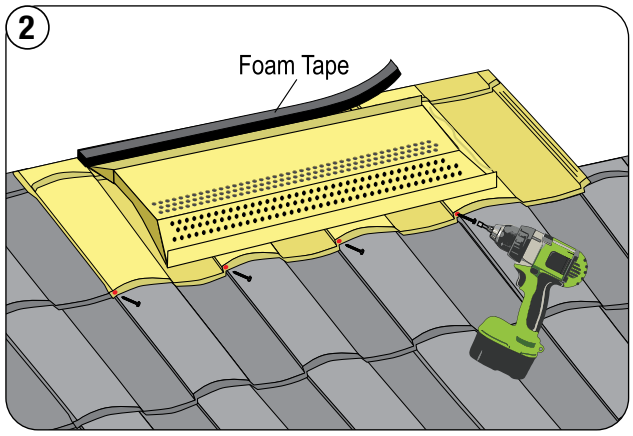
EZ-VENT All Profiles (BARREL-VAULT Tile Shown)

Unified Steel™ EZ-Vents are used in place of regular panels on the first full course down from the ridge where exhaust ventilation is required. Care should be taken to adequately ventilate the building. Check with the local codes for correct Net Free Vent Area required for attic ventilation.

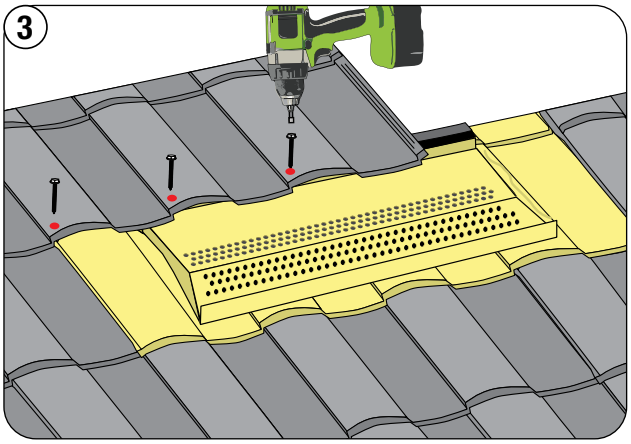


Cut a hole in the decking, approximately 5" x 30" (127 x 762 mm). Cover the hole with metal mesh (0.25" (6.5 mm) square) to prevent rodents from entering the attic.

Install the EZ-Vent unit interlocking and overlapping as field panels.



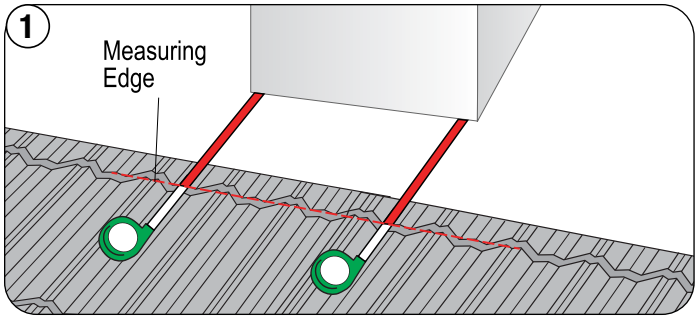
Install a section of EmSeal tape across the back edge where the ridge panel will overlap across the EZ-Vent. This provides additional weather protection across the back of the EZ-Vent. Fasten, as field panels.



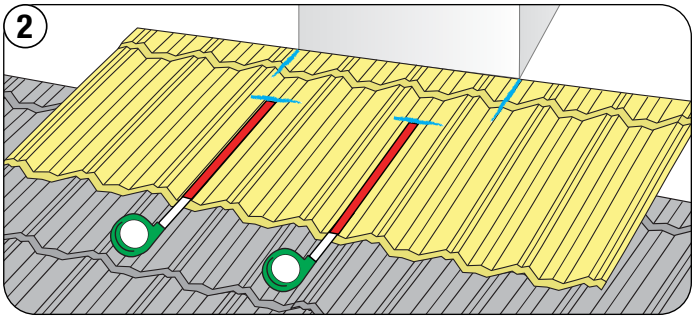
Make sure the back-fastening flange is in the correct alignment to allow the top course to be installed across the ridge.

The top course above the EZ-Vent can be fastened like the bottom row (through the top of the panel). Make sure to locate these fasteners out of the main panel water channel and use the Touch-Up kit to seal each top row fastener.

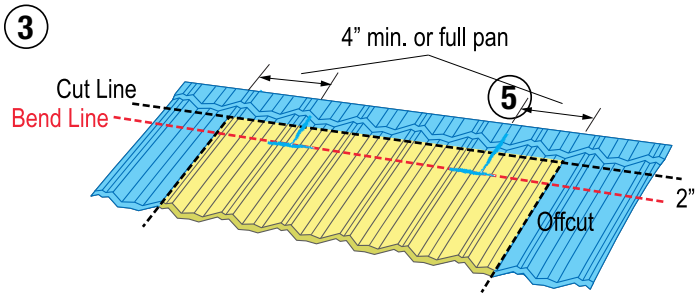
CHIMNEY / SKYLIGHT DETAIL - SIDE-WALL UNDERPAN METHOD All Profiles (PACIFIC Tile Shown)



Measure panel from the back-Nose Down-Turn of the panel to the front of Chimney/Skylight.

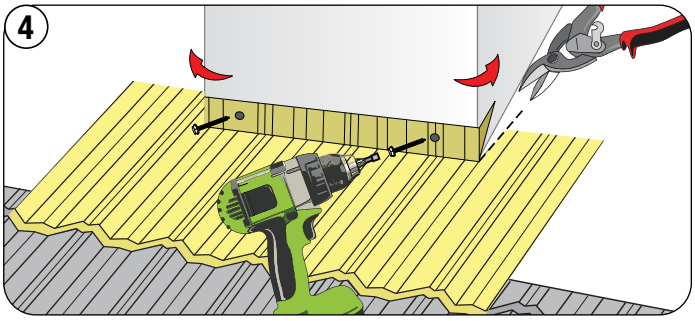


Align the front panel with the course below and the correct layout pattern for the profile. Mark the sides of the chimney and mark the measurements from Step 1.

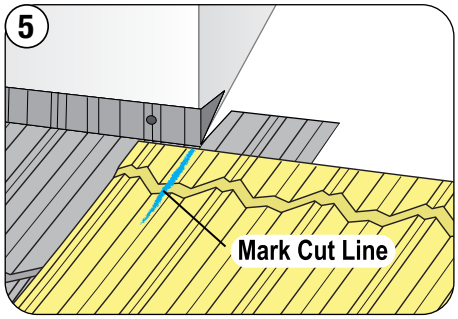


Apply the measurements to a full panel. Bend the entire length then cut off the excess.

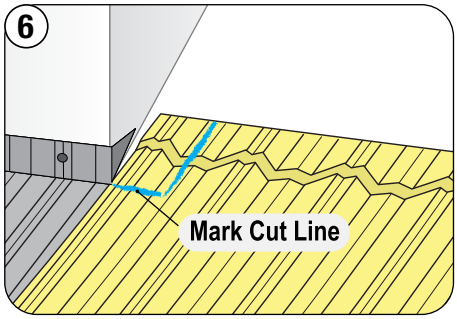
Make sure panel is cut a minimum of 4" (100 mm) past the width of the Chimney/Skylight.



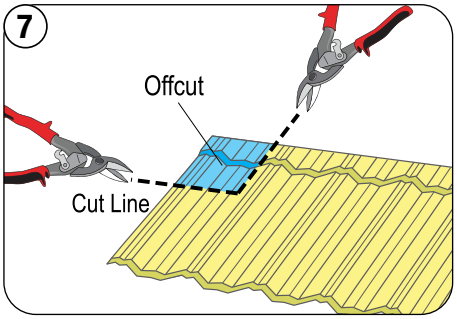
Fit the front panel flashing section as shown and cut at a 45 degree angle from each side. Bend the corners around the Chimney/Skylight.



Align side panel with the course below and the correct layout pattern for the profile and mark the Cut line aligned with the Chimney/Skylight side edge.



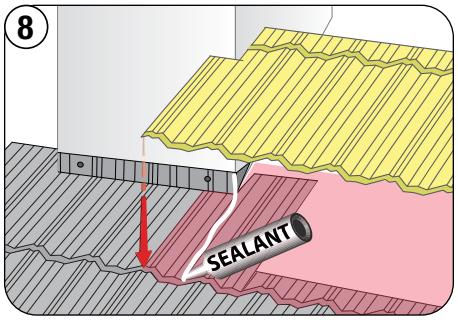
Place marked panel to the side of the chimney, align with the front panel and mark Cut line, aligned with the chimney front edge.



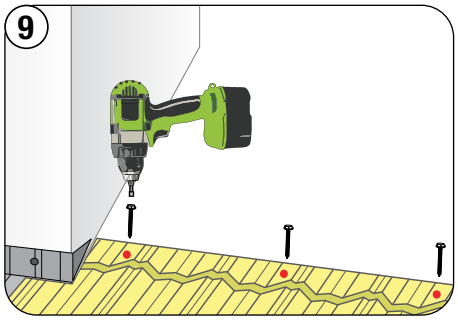
Cut panel according to the marked lines.

Always start from the bottom of the item being flashed to ensure correct weather protection.

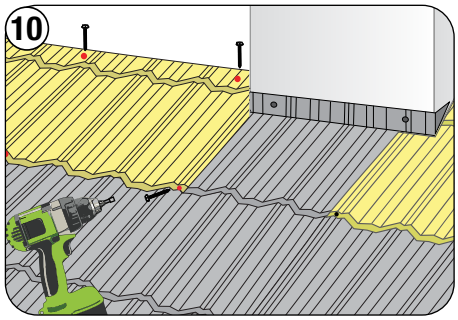
CHIMNEY / SKYLIGHT DETAIL - UNDERPAN METHOD All Profiles (PACIFIC Tile Shown)



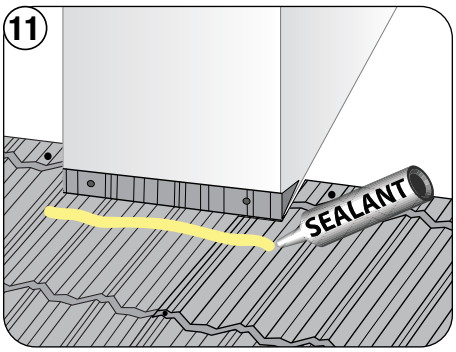
Apply sealant and fit the side panel aligning it with the field panels already installed.



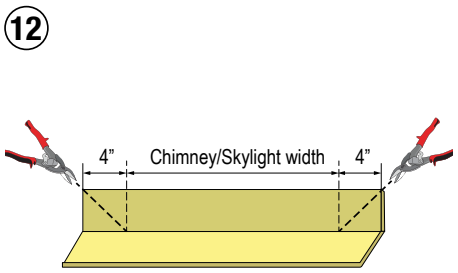
Fasten panels the same way as field panels.



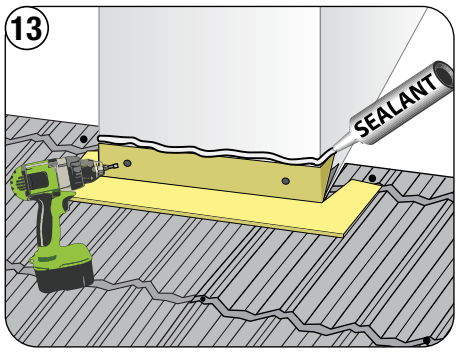
Repeat the procedure on the left side of the Chimney/Skylight.



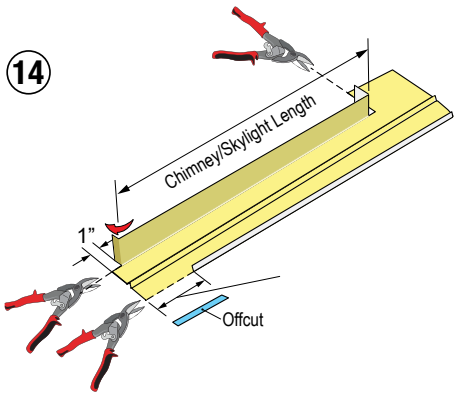
Apply Sealant across top of front panel section as a weather block.



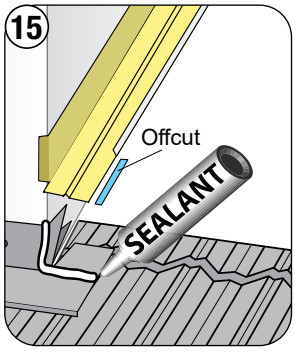
Measure the width of the Chimney/ Skylight and mark the Head-Side-Wall metal. Add 4" on each side. Cut the corners in 45 degree angle.



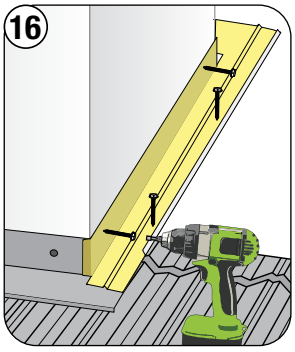
Install Head-Side-Wall piece to fit around the front of the Chimney/ Skylight. Apply Sealant across the top edge, as shown.



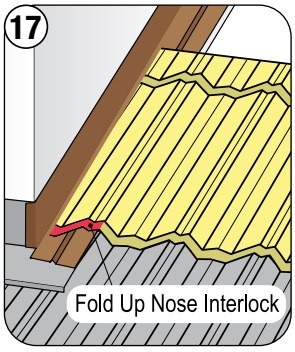
Place Side-Wall Underpan metal to fit to the side of the wall extending it 1" minimum over the front edge. Measure, cut and bend Side-Wall Underpan metal, as shown. Snip the return flange off the Side-Wall Underpan so the covering panel can be fastened as regular panels.



Apply Sealant, as shown. Place Side-Wall Underpan on both sides of the Chimney/Skylight.



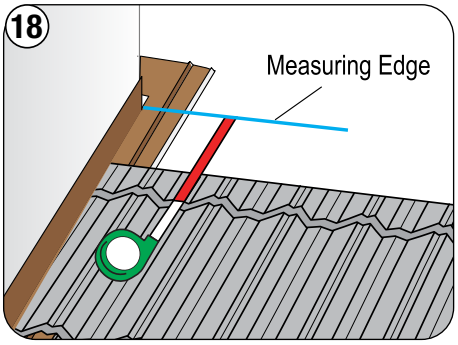
Fasten Side-Wall Underpan metal, as shown.



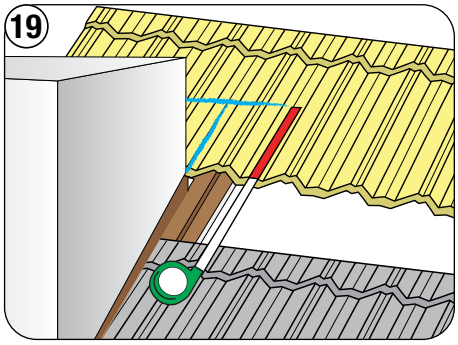
Align next course panel with the panel below. Measure, cut and install side panel.

Cut out or fold-up nose of the side panel where Underpan exits onto lower panels to allow water to exit.

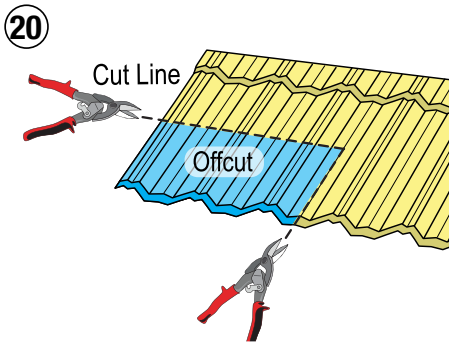
CHIMNEY / SKYLIGHT DETAIL - UNDERPAN METHOD All Profiles (PACIFIC Tile Shown)



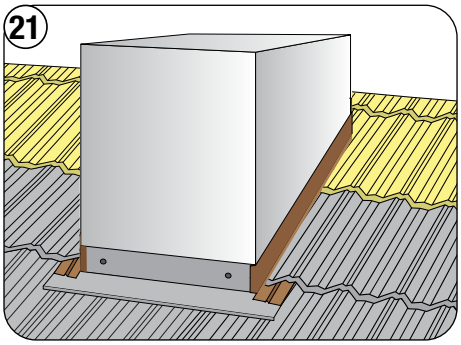
Measure from the back-up turn of the panel to the back of the Chimney/Skylight.



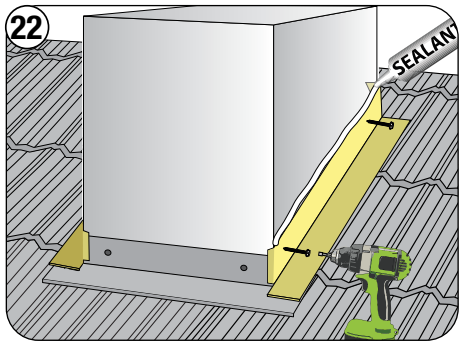
Align a full panel or panel section to the panel profile and mark the measurements.



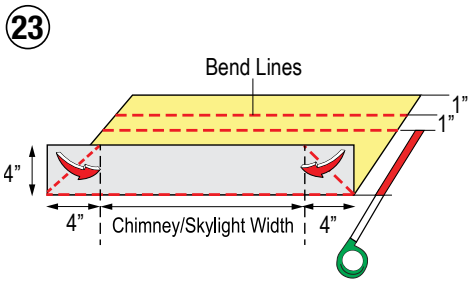
Draw the cut lines on the panel and cut out.



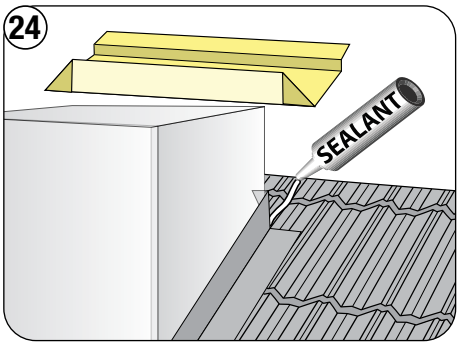
Install side panels on both sides of the Chimney/Skylight.



Install Head-Side-Wall metal pieces to fit around the sides of the Chimney/Skylight. Apply Sealant across the top edge on both sides, as shown.

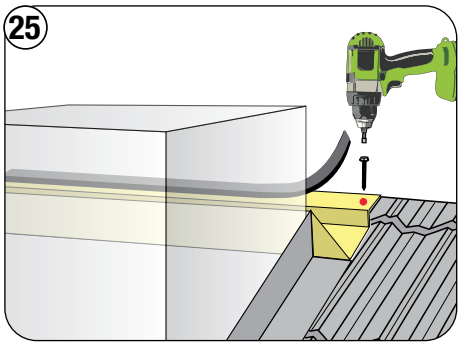


Using a section of Flat Sheet, mark and bend it up 4" (100 mm) minimum, forming a Saddle flashing for the back of the item being flashed. It is 4" (100 mm) wider on each side of Chimney/Skylight.



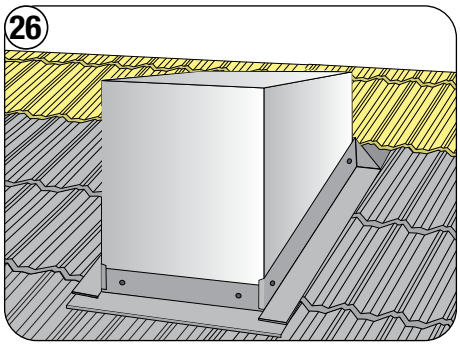
Apply sealant down both sides of the panel in line with the Chimney/Skylight width.

Wakaflex® may be used as an option to form a chimney saddle around roof protrusions.
See Wakaflex® Installation Video for details.



Apply an EmSeal tape on the Saddle aligned with the back-top flange of the panels.

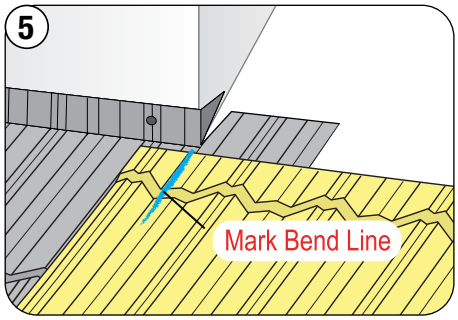
Fasten each end of the Saddle through the back-flange under EmSeal tape.



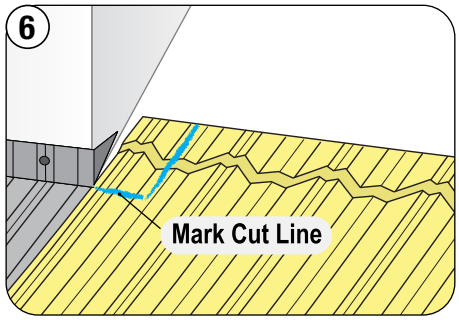
Continue panel installation behind the Chimney/Skylight.

CHIMNEY / SKYLIGHT DETAIL - BEND UP METHOD All Profiles (PACIFIC Tile Shown)

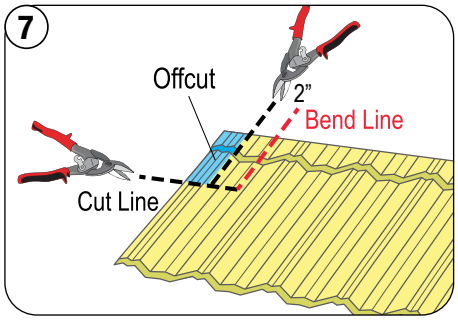
Repeat Steps 1-4 from Page 34.



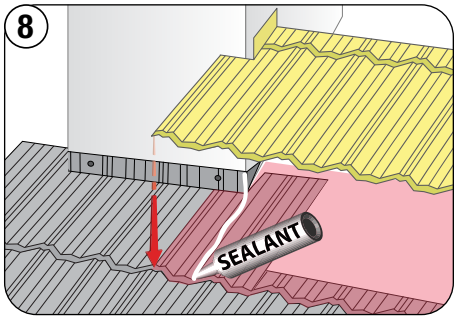
Align side panel with the course below and the correct layout pattern for the profile and mark the Bend line aligned with the Chimney/Skylight side edge.



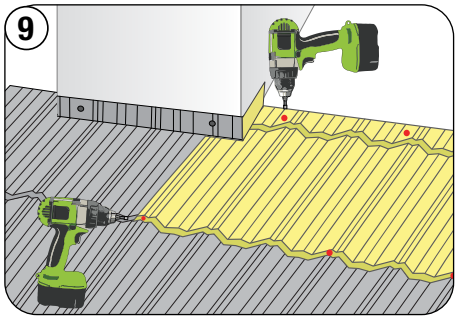
Place marked panel to the side of the chimney, align with the front panel and mark Cut line, aligned with the chimney front edge.



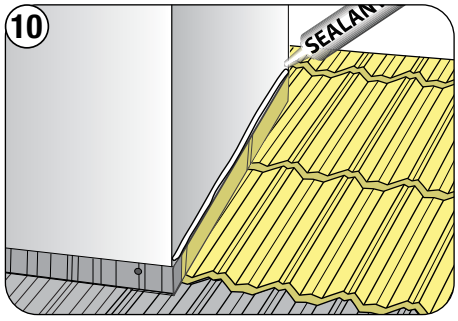
Add 2" to the Bend Line and mark another Cut Line. Cut and bend side panel.



Apply sealant and fit the side panel aligning it with the field panels already installed.

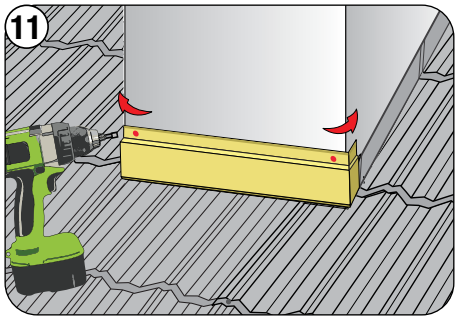


Fasten panels the same way as field panels. Repeat the procedure on the left side of the Chimney/Skylight.

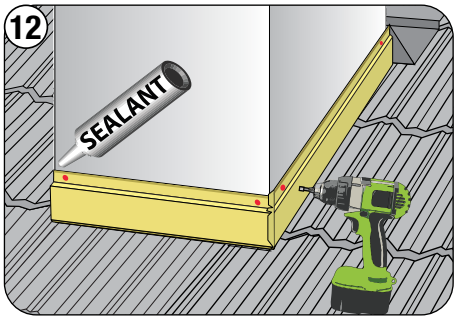


Continue measuring side panels and adding 2" to create a bend. Install on both sides. Apply Sealant across top edge, as shown.

See Page 36, Steps 23-25 to install Chimney Saddle flashing.



Measure, cut and bend Z-Bar metal, starting across the front.

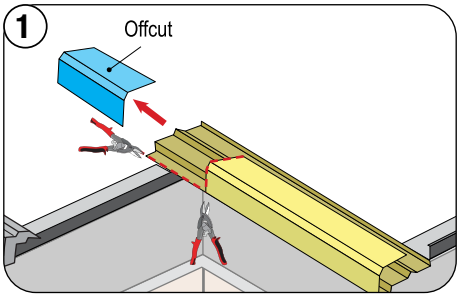


Complete Z-Bar installation up both sides, scribed to the Chimney saddle. Apply Sealant along the top edge of the Z-Bar.

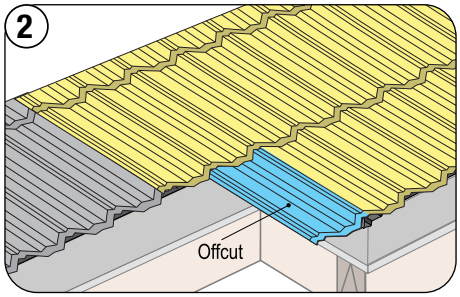
Always start from the bottom of the item being flashed to ensure correct weather protection.

SHORT COURSE DETAIL All Profiles (PACIFIC Tile Shown)

Always start panel laying from the longest eave length and work towards the short course area where the eave line steps down. Work down to keep panels correctly interlocked and aligned over the short course area.

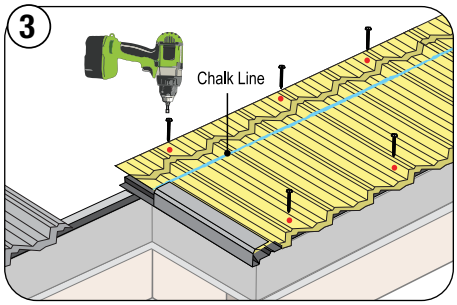


Install Rake Channel on the short course lower section, as shown.
See details on Page 9.



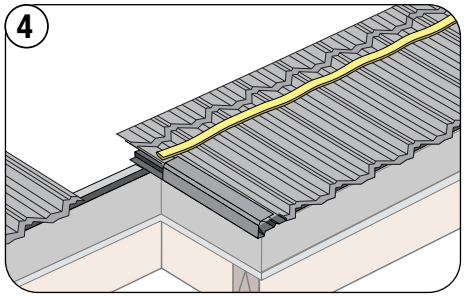
Place the long course panel lapped to the previous panel on the long course row.

Align the short course panel to the long course panel above using correct staggering pattern. Mark and cut short course panel.

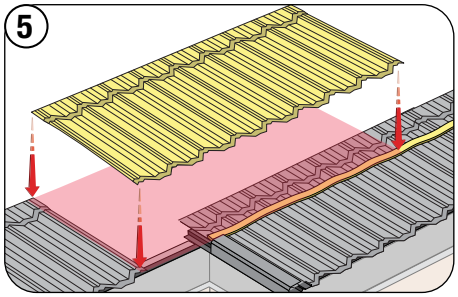


Install short course rake panel cut into Rake Channel. Complete first row installation and fasten.

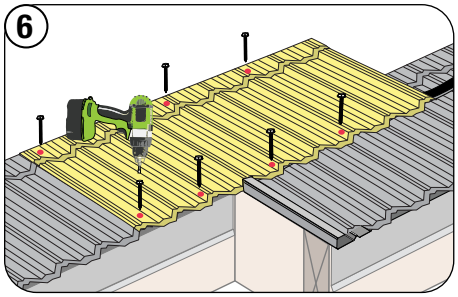
Mark a line onto the short course panels, aligned with the nose down-turn of the long course panels.



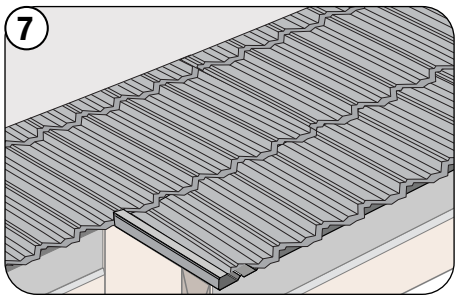
Apply EmSeal tape across the short course panels.



Fit the full panel from the longer roof section.

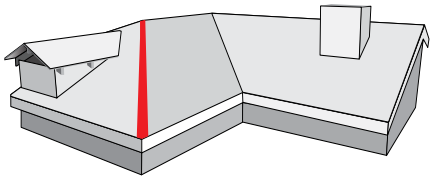


Fasten second row through the top of the panel into the EmSeal tape, as shown.



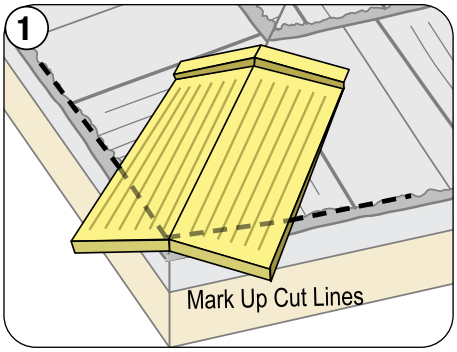
The completed short course detail should look almost seamless from the rest of the field.

HIP STARTER & HIP TRIM CAPS - WITH BARRIER FOAM (Cap Cottage Shown)

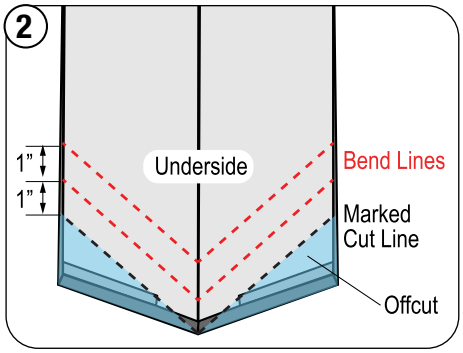


After field panels, hip / ridge cut panels and rake cut sections are installed, the final step is to install Trim Caps.

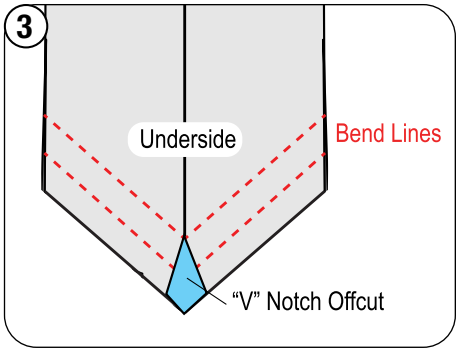
*This detail applies to both **Cap Shingle and Cap Cottage.***



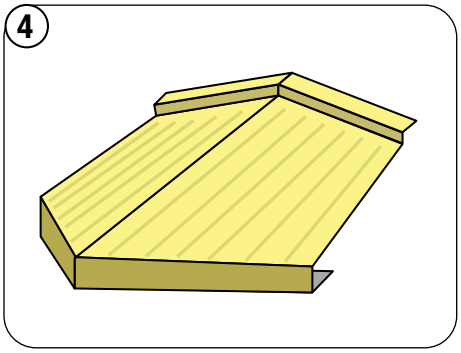
Position full cap on the roof so the hip center line is covered by the nose of the cap. Mark the panel line on the underside of the cap.



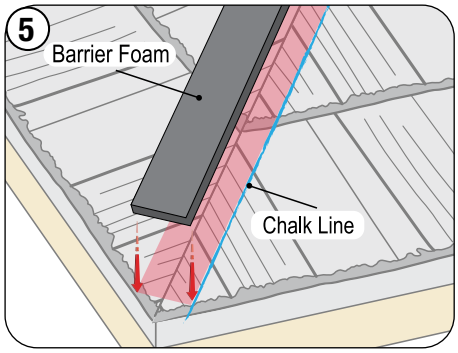
From the scribed panel line, add two more lines 1” (25 mm) minimum apart so the cap now has three lines marked on the underside.



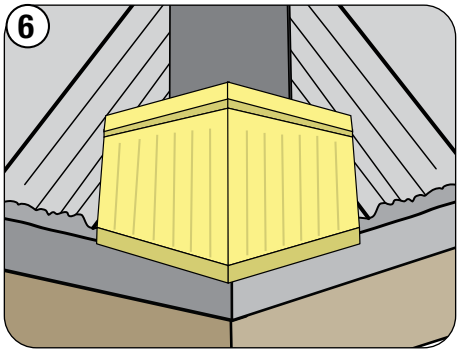
Cut a ‘V’ notch out of the cap. Using hand seamers, bend the cap to create a 3-D nose section that will hook onto the front edge of the panel around the hip corner.



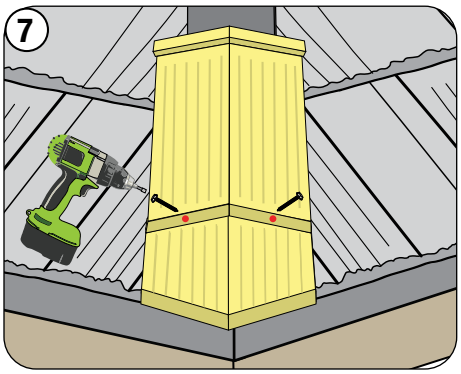
The finished Hip Starter Cap piece will have a 3-D look and a nose that is approximately 1” (25 mm).



Install a strip of Barrier Foam over the center line of the hip. Use a chalk line to create a straight edge to align Barrier Foam and Caps.

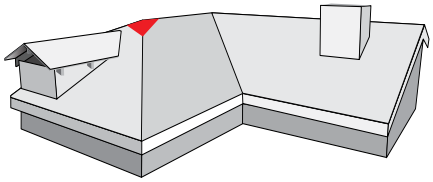


Install the Hip Starter Cap previously formed, interlocked over the nose of the panels, at the hip corner.



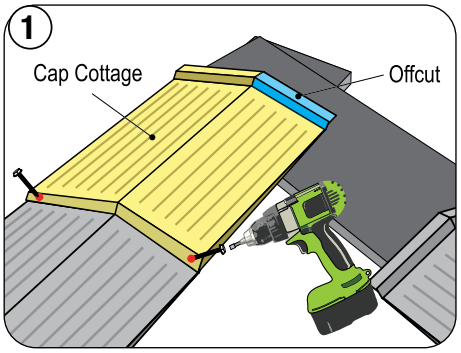
Fit each cap, making sure the nose down-turn is secure. Fasten each cap using two screws.

TRIM CAPS - HIP AND RIDGE INTERSECTION (Cap Cottage Shown)

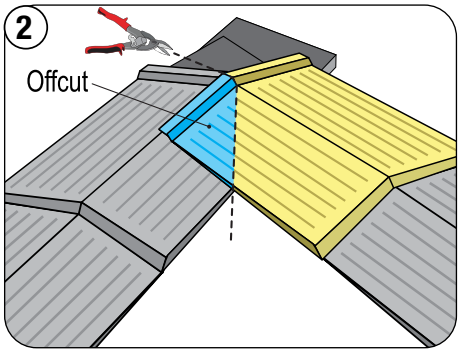


*This detail applies to both **Cap Shingle and Cap Cottage.***

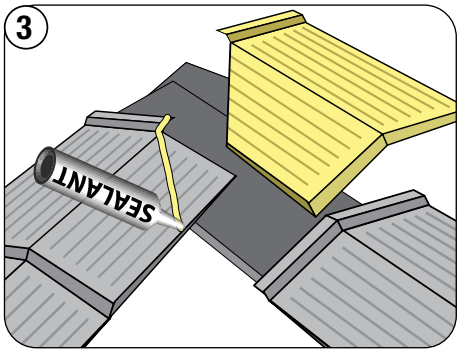
When two hips intersect, its necessary to mark and cut them so they intersect tightly and allow the ridge caps to cover over the two hip caps, providing a finished detail at this trim cap intersection.



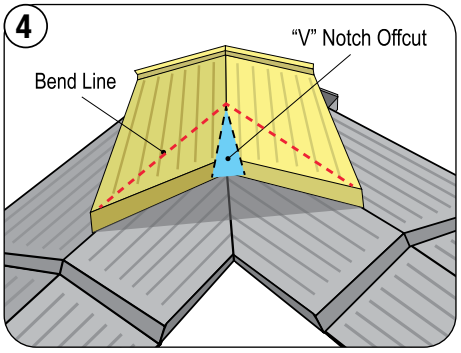
Cut off back flange of the cap, as shown, and install.



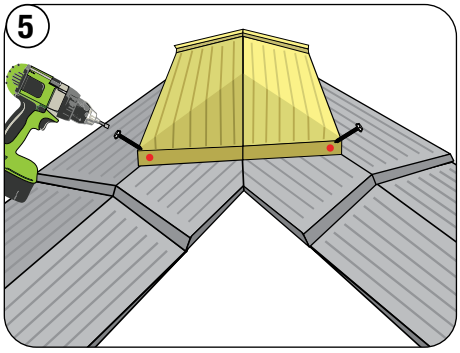
Overlap hip caps at hip/ridge intersection and mark the center line.



Trim top hip cap. Apply a bead of sealant along the center line, as shown, and install hip cap.



Place the ridge cap over both hip caps. Cut off "V" notch and mark bend lines.

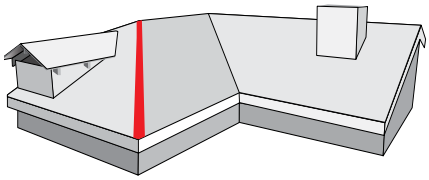


Bend the ridge cap to close the gap and create 3-D look. Fasten, as shown.

Any fasteners that penetrate through the top of Trim Caps must be sealed and chipped using the Touch-Up kit.

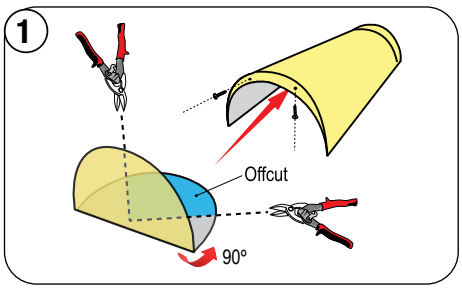
DIRECT-TO-DECK Installation Guidelines

HIP STARTER CAP All Profiles if using Cap Mission or Cap Shake (Cap Mission shown)

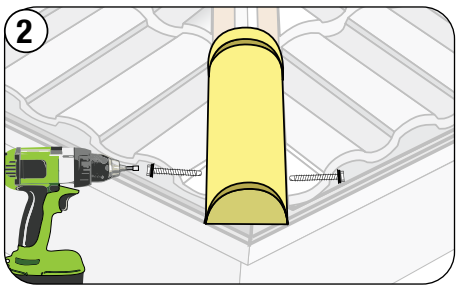


*This detail applies to both **Cap Mission and Cap Shake.***

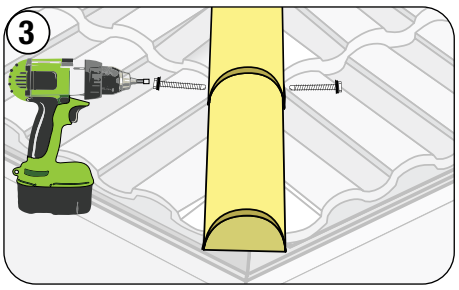
A Starter Cap is created by inserting a 6” (152 mm) End Disc into the Trim Cap.



Insert the End Disk into Trim Cap and fasten with stitch screws. Bend End Disk at 90 degrees. Mark and cut at 45 degrees to fit around hip corner.



Fasten the Starter Cap through the sides.



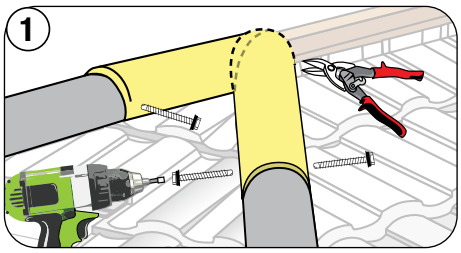
Fit each cap up the hip, making sure to keep the caps straight. Fasten through the sides into the batten.

Starter Cap End Disks should always be bent at a 90 degree angle to form 3-D effect.

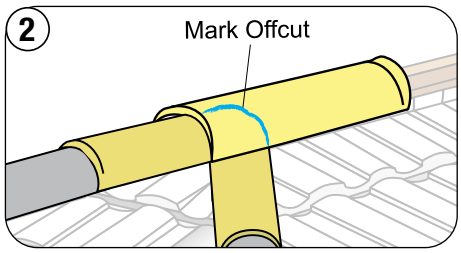
Any fasteners that penetrate through the top of Trim Caps must be sealed and chipped using the Touch-Up kit.

TRIM CAPS - HIP AND RIDGE INTERSECTION All Profiles if using Cap Mission or Cap Shake (Cap Mission shown)

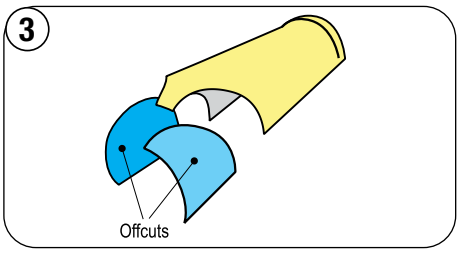
*This detail applies to both **Cap Mission and Cap Shake.***



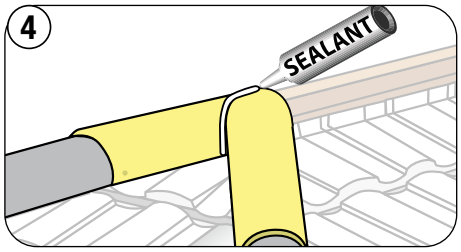
Position the two hip caps at the ridge intersection. Mark and cut them to fit by overlapping each other. Fasten, as shown.



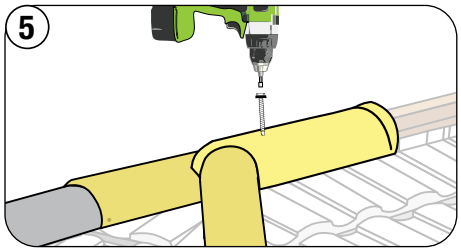
Position the ridge cap over the intersecting hip caps and scribe the hip cap profiles on both sides.



Cut out the ridge cap scribed lines to fit over the two intersecting hip caps.



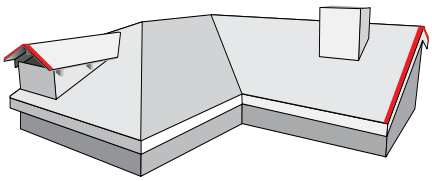
Apply a bead of sealant along the intersection.



Fit the ridge cap and fasten into the ridge batten. Use the Touch-Up kit to seal fasteners.

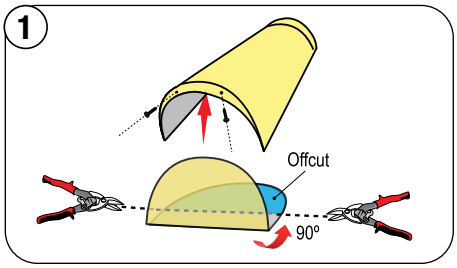
Any fasteners that penetrate through the top of Trim Caps must be sealed and chipped using the Touch-Up kit.

RAKE TRIM CAP DETAIL All Profiles if using Cap Mission or Cap Shake (Cap Mission shown)

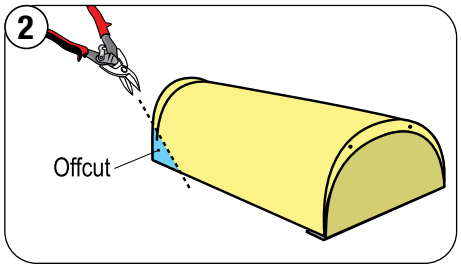


*This detail applies to both **Cap Mission and Cap Shake.***

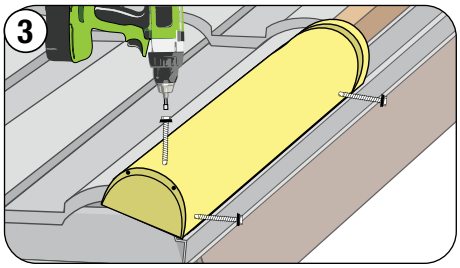
When installing Trim Caps on the rake, the Trim Cap Rake metal (painted) should be used. This creates a perfect ledge to align the Rake Trim Caps up the rake and ensure water is directed away from the rake rafter board.



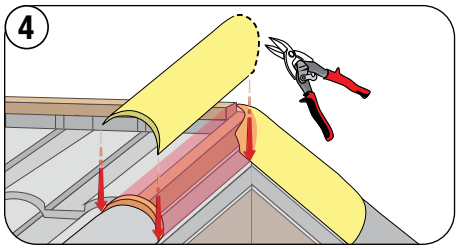
Insert the End Disk into Trim Cap and fasten with stitch screws. Bend End Disk at 90 degrees. Mark and cut to fit around the nose of the panel at the rake edge.



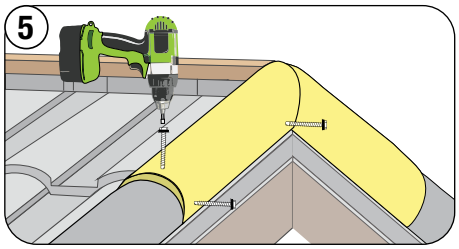
Notch Starter Cap's inside corner, as shown, to allow it to fit on the bottom panel course.



Position the rake Starter Cap at the fascia and fasten into the rake batten and into the side of the Trim Cap Rake metal.



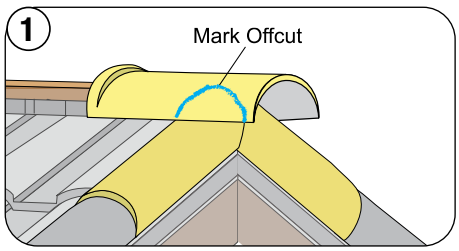
Fit each cap up the rake until it intersects with the ridge. Mark, cut and fit the final rake cap at the ridge.



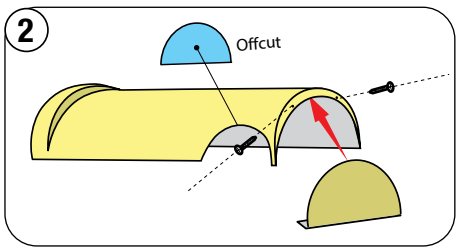
Fasten at the top and sides. Use the Touch-Up kit to finish this detail.

Any fasteners that penetrate through the top of Trim Caps must be sealed and stone chipped using the Touch-Up kit.

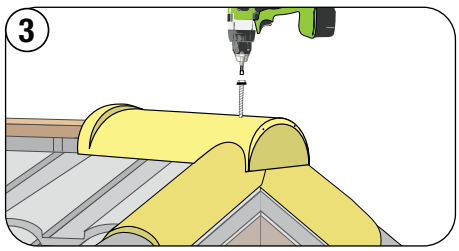
RAKE / RIDGE INTERSECTION DETAIL All Profiles if using Cap Mission or Cap Shake (Cap Mission shown)



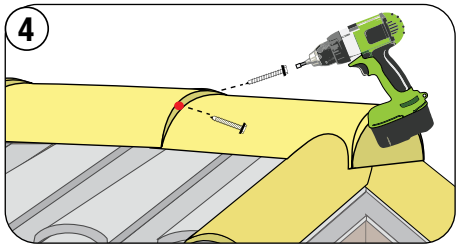
Position the Ridge / Rake Starter Cap as shown and scribe the profile of the rake caps on either side.



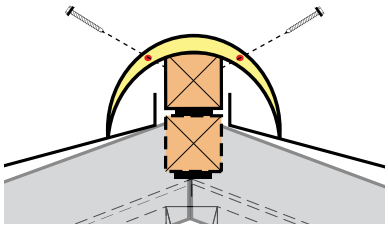
Cut out the rake cap profiles on each side and fit an end disc into the Ridge / Rake Starter Cap.



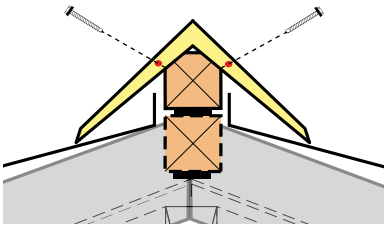
Fasten the Ridge / Rake Starter Cap through the top into the ridge batten.



Install Ridge Trim Caps across and fasten through the nose on both sides, as shown.

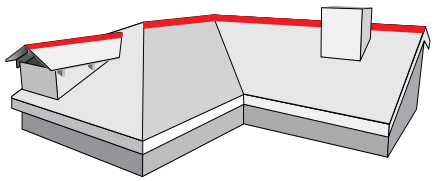


CAP MISSION FASTENING

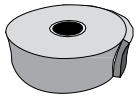


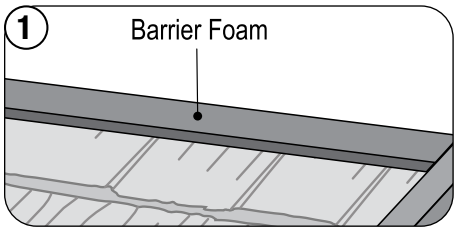
CAP SHAKE FASTENING

RIDGE TRIM CAPS - BARRIER FOAM (NO RIDGE VENT) (Cap Shingle and Cap Cottage Shown)

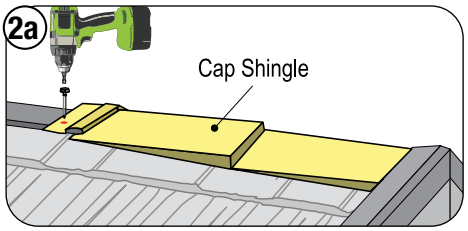


*This detail applies to both **Cap Shingle and Cap Cottage.***

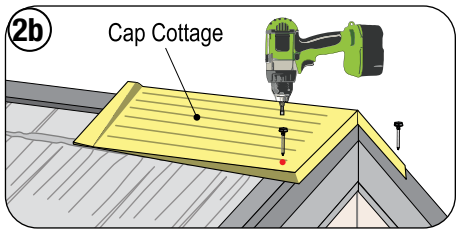




Apply Barrier Foam Roll (6” x 1” x 240”) down center of ridge, making sure the foam is seated on the panel surface.



At the rake and ridge intersection, cut and fit Cap Shingle into the Rake Cover. Fasten through the cap, barrier foam, panel and into the roof deck, with two fasteners per cap.

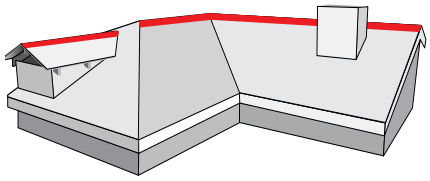


If using Caps Cottage, install Cap over the Rake Cover and fasten, as shown.

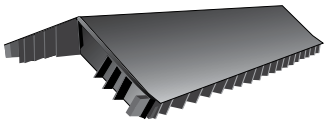
Continue Caps Cottage installation, fastening through the nose with two screws.

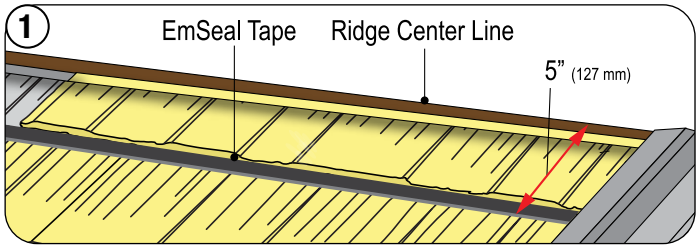
If the ridge is long, start cap installation from both ends and create a custom cap at the center of the ridge.

RIDGE TRIM CAPS COTTAGE - CONTINUOUS RIDGE VENT

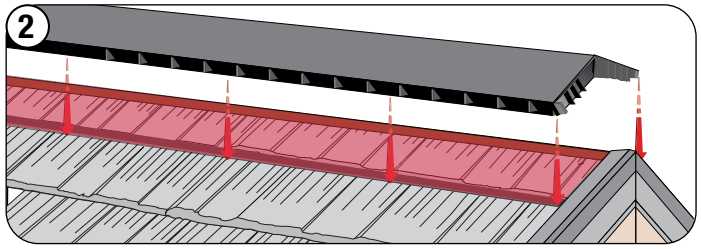


RidgeMaster® Plus 11" wide continuous ridge vent installed under Caps Cottage.

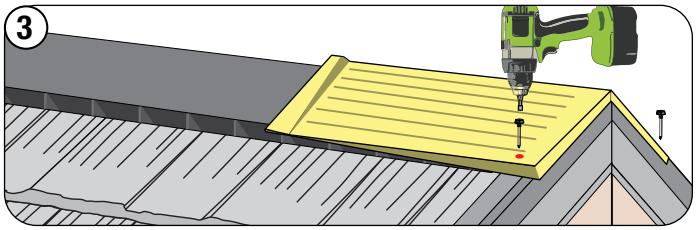




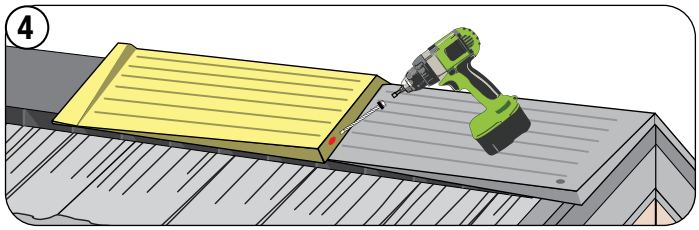
Install ridge panels. Apply EmSeal Tape (shown) or a bead of Sealant 5" (127 mm) apart from the ridge center line.



Install RidgeMaster® Plus ridge vent and fasten.



At the rake and ridge intersection, install Cap Cottage over the Rake Channel and fasten, as shown.

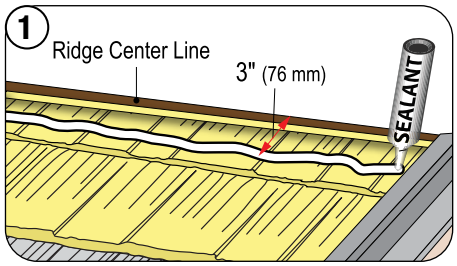


Continue installation of the Caps Cottage out across the ridge. Fasten each cap through the nose at an angel on each side of the center line through the ridge vent and into the decking, with two fasteners per cap.

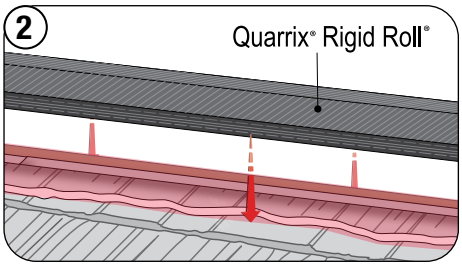
Trim Cap Screws should be of sufficient length to penetrate a minimum of 0.75" (19 mm) into the roof decking. Any fasteners that penetrate through the top of Trim Caps must be sealed and stone chipped using the Touch-Up kit.

RIDGE TRIM CAPS SHINGLE - CONTINUOUS RIDGE VENT — OPTIONAL

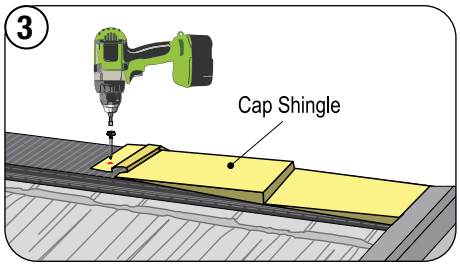
Quarrix Rigid Roll® 7" wide continuous ridge vent installed under Caps Shingle.



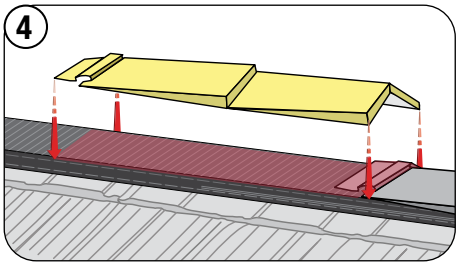
After cutting and installing panels to ridge deck sheathing edge, apply a bead of Sealant (shown) or EmSeal tape 3" (76 mm) apart from the ridge center line.



Install Quarrix® Rigid Roll® ridge vent across the ridge and fasten.



At the rake and ridge intersection, cut and fit Cap Shingle into the Rake Channel. Fasten through the cap, Quarrix® Rigid Roll, panel and into the roof deck, with two fasteners per cap.

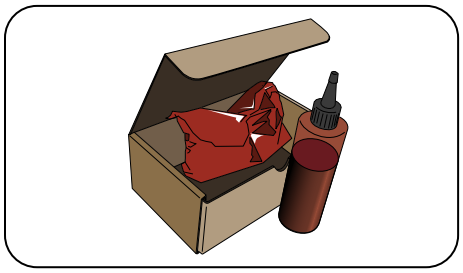


Follow this procedure with each cap across the ridge to the center line, then repeat from the other end of the ridge to meet in the middle for a finished effect.

Trim Cap Screws should be of sufficient length to penetrate a minimum of 0.75" (19 mm) into the roof decking.

Any fasteners that penetrate through the top of Trim Caps must be sealed and stone chipped using the Touch-Up kit.

FINISHING TOUCHES



After completing the roof installation, check the overall job for areas where the coating is scuffed or marked during install. Apply Unified Steel™ adhesive and stone chip to provide a complete stone coat finish.

HIGH VELOCITY HURRICANE ZONE (HVHZ) FASTENING GUIDELINES

We have simplified the ASCE 7 roof areas for high wind and HVHZ steep slope roofs (3:12 and greater) into three main areas; (1) FIELD, (2) PERIMETER & (3) CORNERS. Refer to the specific Evaluation Report or Product Approvals (i.e., Miami-Dade County Notice of Acceptance (NOA), Florida Product Approvals (FBC), Texas Department of Insurances (TDI) or Evaluation Report for your jurisdiction) for the selected panel profile (PINE-CREST Shake, PACIFIC Tile, COTTAGE Shingle or BARREL-VAULT Tile) and install method (Direct-to-Deck) for fastener size, spacing and penetration into the roof deck.

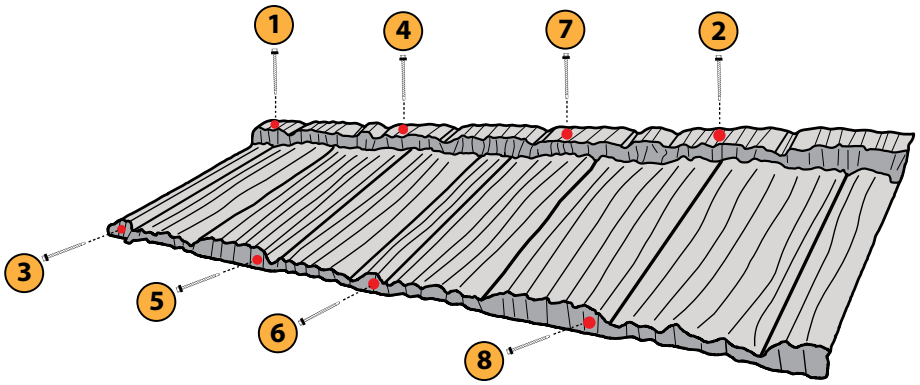
ROOF SLOPE: **3:12 Minimum**

ROOF DECK: **New Construction: 19/32" thick plywood or wood plank.**
Re-Roof: 15/32" thick plywood or wood plank.

PINE-CREST SHAKE - FIELD PANELS HVHZ FASTENING PATTERN

UPLIFT DESIGN PRESSURE: **52.5 PSF**

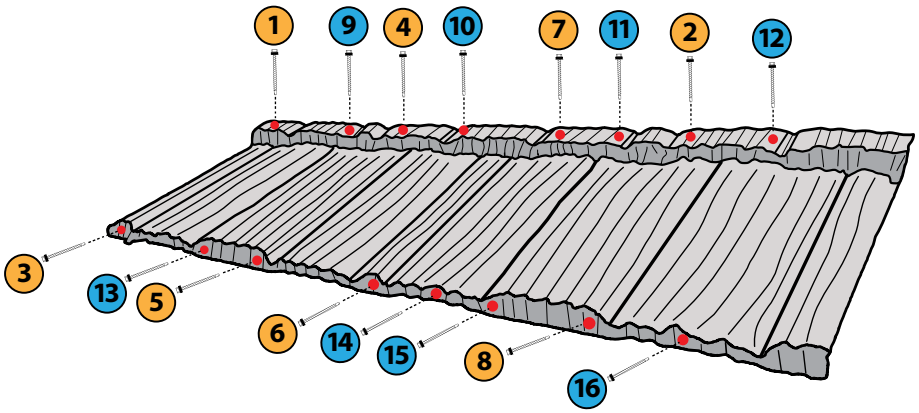
Assumes a LEFT to RIGHT panel layout.
For Fastening Directions See Page 16.



8 STANDARD fastening pattern: Four (4) across nose Down-Turn and Four (4) across Back Top-Flange, as shown.

PINE-CREST SHAKE - PERIMETER & CORNER PANELS HVHZ FASTENING PATTERN

UPLIFT DESIGN PRESSURE: **127.5 PSF**



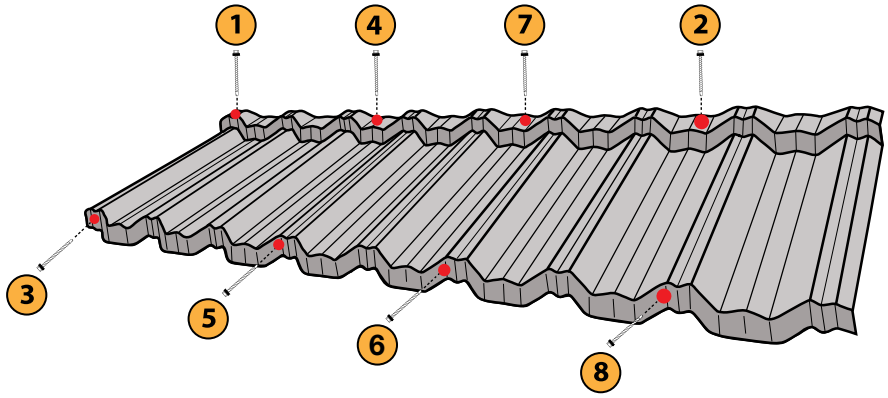
8 STANDARD fastening pattern: Four (4) across nose Down-Turn and Four (4) across Back Top-Flange, as shown.

8 Additional Eight (8) HVHZ fasteners for **Perimeter & Corner** area panels: Four (4) across Nose Down-Turn and Four (4) across the Back Top-Flange for a total of Sixteen (16) fasteners, as shown.

PACIFIC Tile - FIELD PANELS HVHZ FASTENING PATTERN

UPLIFT DESIGN PRESSURE: **52.5 PSF**

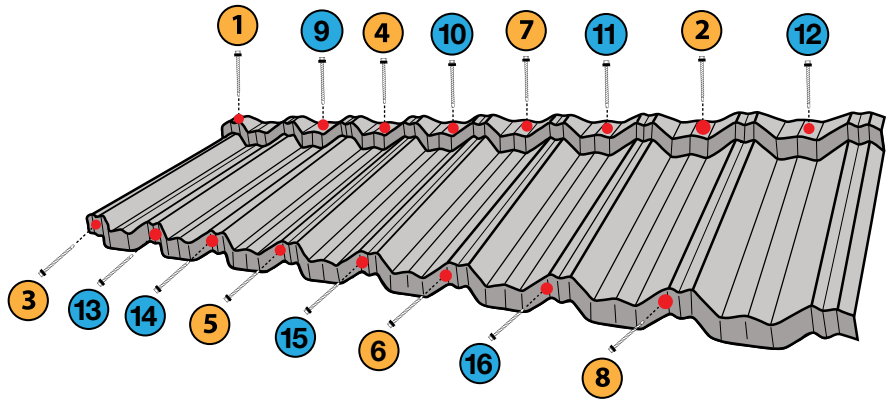
Assumes a LEFT to RIGHT panel layout.
For Fastening Directions See Page 16.



8 STANDARD fastening pattern: Four (4) across Nose Down-Turn and Four (4) across Back Top-Flange, as shown.

PACIFIC Tile - PERIMETER & CORNER PANELS HVHZ FASTENING PATTERN

UPLIFT DESIGN PRESSURE: **127.5 PSF**



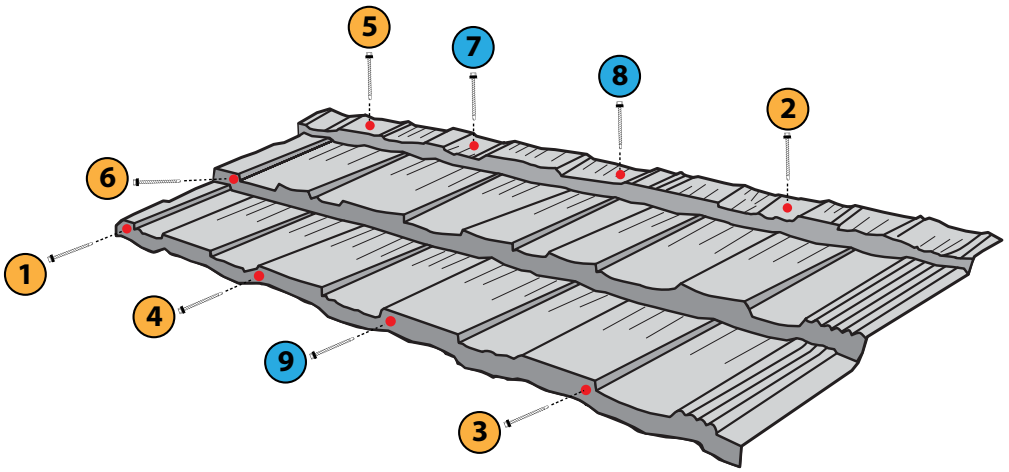
8 STANDARD fastening pattern: Four (4) across Nose Down-Turn and Four (4) across Back Top-Flange, as shown.

8 Additional Eight (8) HVHZ fasteners for **Perimeter & Corner** area panels: Four (4) across Nose Down-Turn and Four (4) across the Back Top-Flange for a total of Sixteen (16) fasteners, as shown.

COTTAGE Shingle - FIELD PANELS HVHZ FASTENING PATTERN

UPLIFT DESIGN PRESSURE: **52.5 PSF**

COTTAGE Shingle panels can only be laid LEFT to RIGHT. ***For Fastening Directions See Page 16.***

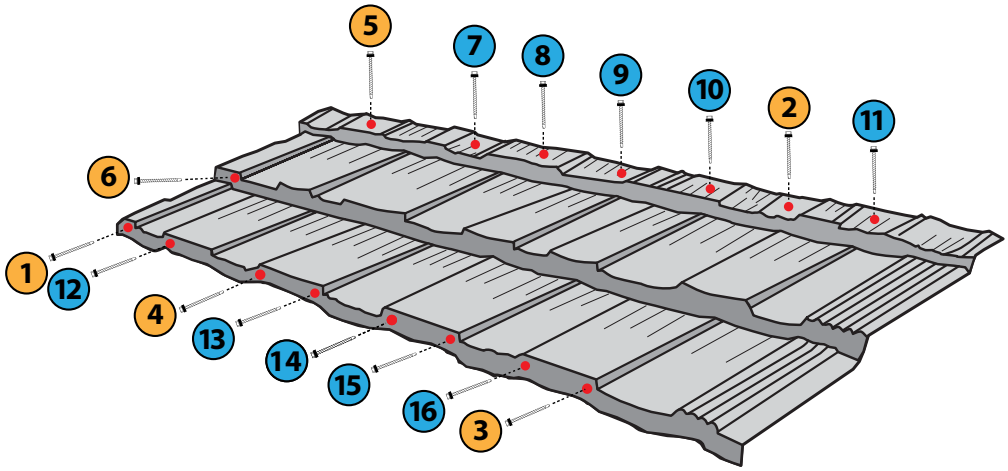


6 STANDARD panels fastening pattern: Three (3) across Nose Down-Turn, Two (2) across Back Top-Flange and 0ne (1) at the Middle Nose Down-Turn.

3 Aditional Three (3) HVHZ fasteners for **Field area** panels: Two (2) across Back Top-Flange and One (1) across Nose Down-Turn, as shown.

COTTAGE Shingle - PERIMETER & CORNER PANELS HVHZ FASTENING PATTERN

UPLIFT DESIGN PRESSURE: **127.5 PSF**



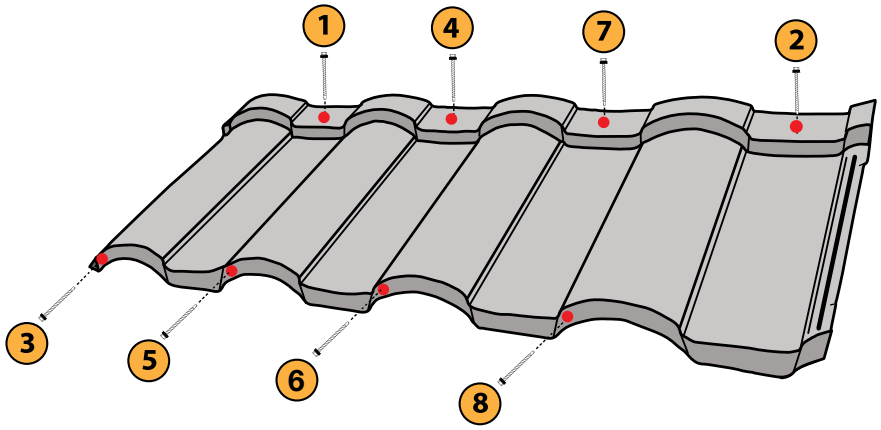
6 STANDARD panels fastening pattern: Three (3) across Nose Down-Turn, Two (2) across Back Top-Flange and One (1) at the Middle Nose Down-Turn.

10 Additional Ten (10) HVHZ fasteners for **Perimeter & Corner** area panels: Five (5) across Nose Down-Turn and Five (5) across the Back Top-Flange for a total of Sixteen (16) fasteners, as shown.

BARREL-VAULT Tile - FIELD PANELS HVHZ FASTENING PATTERN

UPLIFT DESIGN PRESSURE: **52.5 PSF**

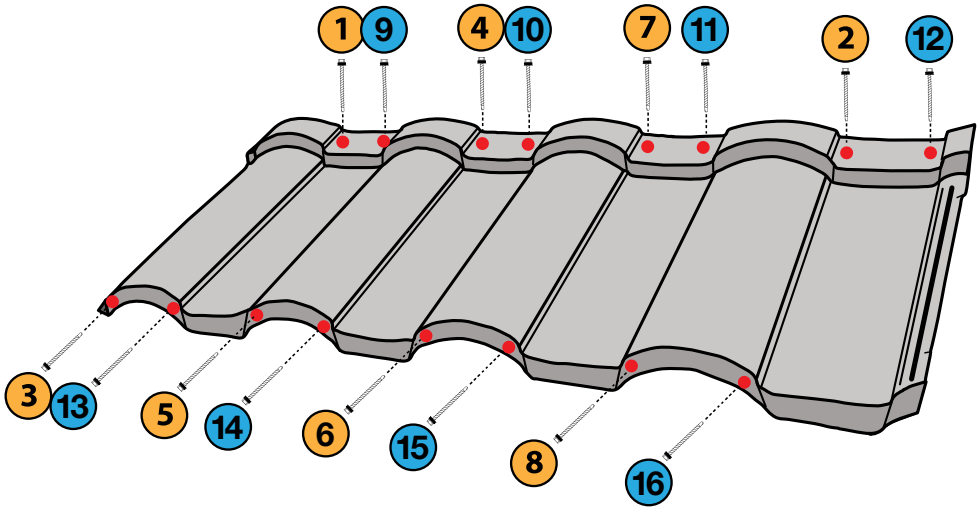
BARREL-VAULT Tile panels can only be laid LEFT to RIGHT. ***For Fastening Directions See Page 16.***



8 STANDARD fastening pattern: Four (4) across Nose Down-Turn and Four (4) across Back Top-Flange, as shown.

BARREL-VAULT Tile - PERIMETER & CORNER PANELS HVHZ FASTENING PATTERN

UPLIFT DESIGN PRESSURE: **127.5 PSF**



8 STANDARD fastening pattern: Four (4) across Nose Down-Turn and Four (4) across Back Top-Flange, as shown.

8 Additional Eight (8) HVHZ fasteners for **Perimeter & Corner** area panels: Four (4) across Nose Down-Turn and Four (4) across the Back Top-Flange for a total of Sixteen (16) fasteners, as shown.

NOTES

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