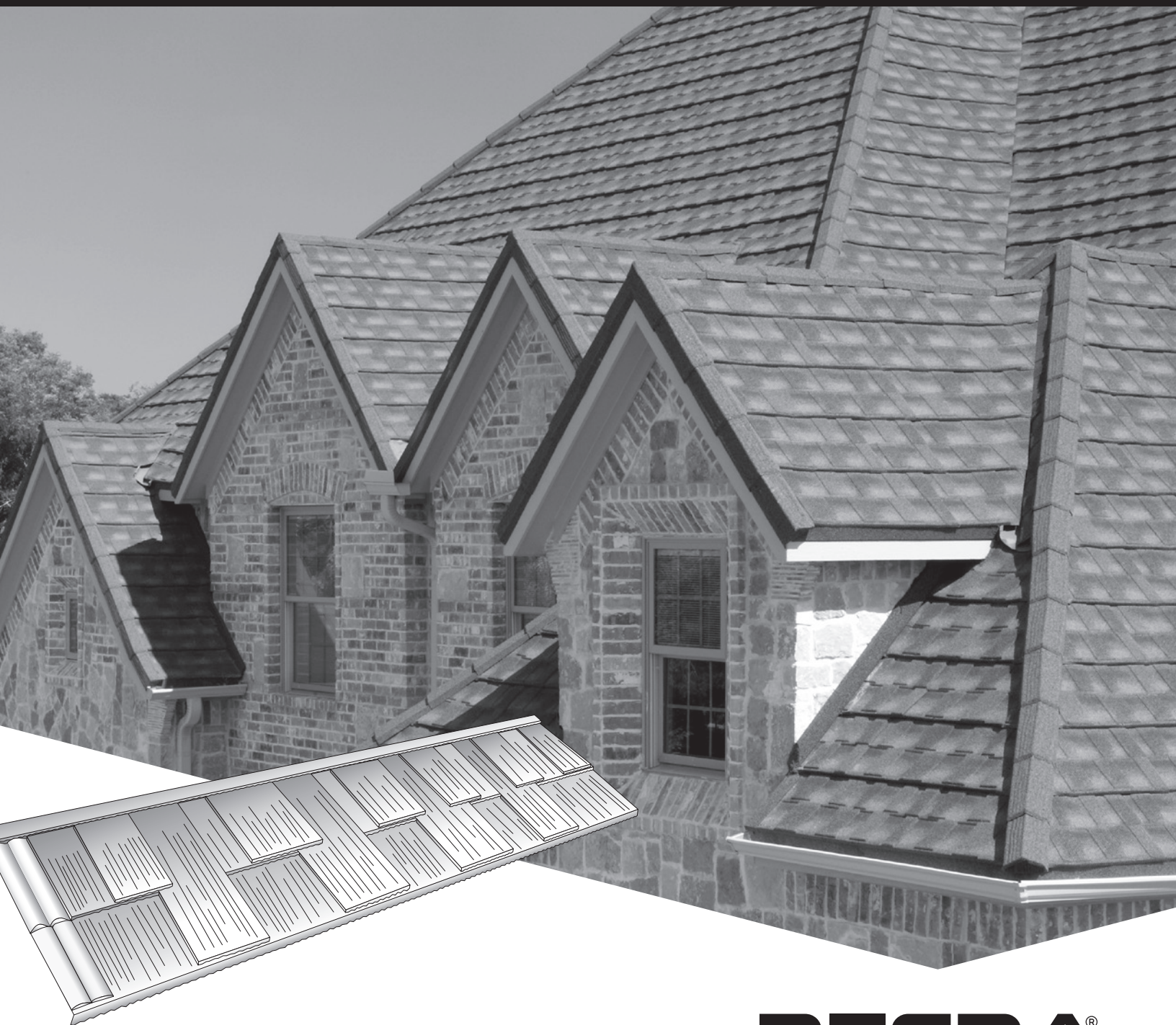


DECRA[®] Shingle Plus **INSTALLATION GUIDE**

Installation with Battens and Direct-to-Deck



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DECRA[®]
Metal Roofing

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Introduction

The instructions and drawings included in this guide are intended only as a reference to install DECRA Roofing Systems' **Shingle Plus** profile. The materials and methods specified help maintain the overall integrity of the roof system. These instructions are not intended to address all aspects of roofing installation, as a quality installation is ultimately dependent upon the workmanship of the roofing contractor. Information regarding alternative situations not covered in these instructions can be obtained by contacting DECRA Roofing Systems.

Safety

Adhere to recommended safe roofing practices. Wear appropriate clothing and use safety equipment, such as fall protection and protective eyewear. Light, soft-soled shoes are recommended. Use proper tools and keep the roof clear of debris as you work.

Tools

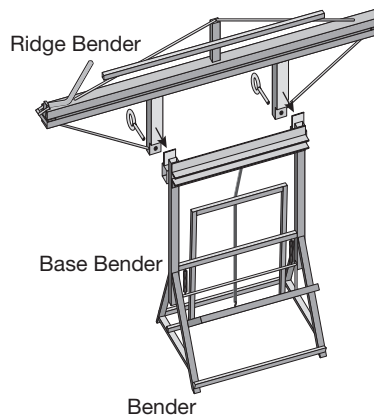
DECRA **Shingle Plus** panels may be cut using a cutter / guillotine, tin or aviation snips, or a circular saw using a 'cool-cut' metal-cutting blade. A portable brake (combined bender) or hand bender is recommended to bend **Shingle Plus** panels for hips, ridges, rakes and valleys. Safety equipment should be worn during the installation process.

Estimating Sheets

The DECRA **Shingle Plus** – with Battens Estimating Sheet and the DECRA **Shingle Plus** – Direct-to-Deck (without Battens) Estimating Sheet are both available at DECRA.com.



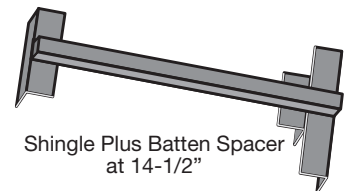
Cutter/Guillotine



Ridge Bender

Base Bender

Bender



Shingle Plus Batten Spacer
at 14-1/2"



Cordless Drill



Circular Saw



Aviation or
Tin Snips



Hand Bender

Codes & Requirements

Refer to local building codes and/or ICC Evaluation Service reports. A link to the DECRA ICC-ES Report ESR-2901 that covers DECRA **Shingle Plus** is available at DECRA.com.

Roof Slope

Roof slopes of less than 3:12 are considered decorative, and panels must be applied over a roof system complying with local codes.

Underlayment

It is required that one layer of underlayment be used before applying the DECRA **Shingle Plus** panels to a roof deck or on battens attached to the roof deck in new construction or if the existing roofing material is removed. If the panels are installed on battens over another roofing material, additional underlayment is not required unless specified by local code. One layer of underlayment is required before installing all DECRA products in both new construction and reroofing applications. Underlayment should be placed between the roof deck and the counter battens or battens. Underlayment shall comply with ASTM D 226, Type I or Type II, ASTM D 4869, Type I or Type II or ASTM D 1970. Check local code requirements as ice and water shield and additional requirements may apply.

Deck Preparation

New Construction: Prepare the roof deck to meet local building codes.

Roof Tear-off (Solid Deck): If tearing off an old roof, clean and prepare the roof deck to meet local building codes.

Re-Roof Tear-off (Skip/Spaced Sheathing): There are two options available when skip / spaced sheathing is encountered. Use counter-battens and battens without filling, or fill as necessary and install just battens.

Re-Roof over Even Surfaces (e.g. Asphalt Shingles): Prepare the asphalt shingles by cutting them back, flush with the fascia or rake, as needed. Remove existing overhang back as needed to install battens and accommodate flashings.

Re-Roof over Irregular Surfaces (e.g. Wood Shake / Shingles): When needed, install counter-battens to obtain a level surface for battens when installing over an irregular surface. Additionally, some codes require a specified underlayment when roofing over wood shake / shingles. Prepare the roof deck by removing all existing Hip & Ridge. Cut the existing overhang back as needed to install battens and accommodate flashings

Do not use LEAD or COPPER with this steel roofing system. Do not use PRESSURE TREATED LUMBER in contact with roof system panels or accessories.

Measuring, Cutting, Bending Panels

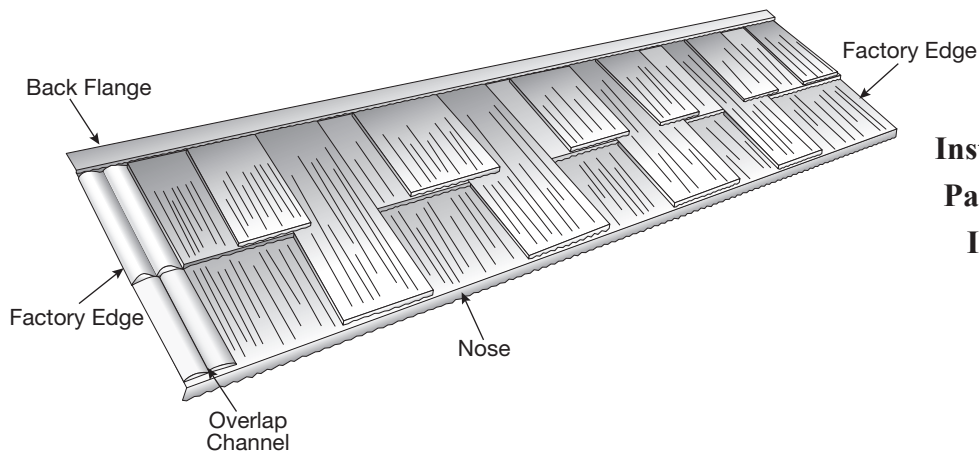
Measurements are made on the roof – however, the panels are normally marked, cut and bent on the ground. Panels may be cut with a guillotine, tin snips or circular saw with a ‘cool-cut’ metal-cutting blade. Cut roof panels and accessories must have all residue and metal shavings completely removed, especially metal shavings on the roof. A portable brake press or hand bender is used to bend the cut edge of the panel for hips, ridges, rakes and valleys.

If you are installing the **Shingle Plus** roof system with battens, please continue on this page. If you are installing the **Shingle Plus** roof system direct-to-deck without battens, continue on to page 10 of this guide.

Installation with Battens

This section is specific to the **Shingle Plus** roof system installed with battens. (For Shingle Plus installation direct to the roof deck, go to page 10.)

Panels: The DECRA **Shingle Plus** panel is formed from corrosion-resistant aluminum-zinc alloy coated steel with a ceramic-coated stone granules protective coating that provides an attractive appearance. The **Shingle Plus** Hip & Ridge used at the ridge, rake/gable and hip is produced in a similar manner.

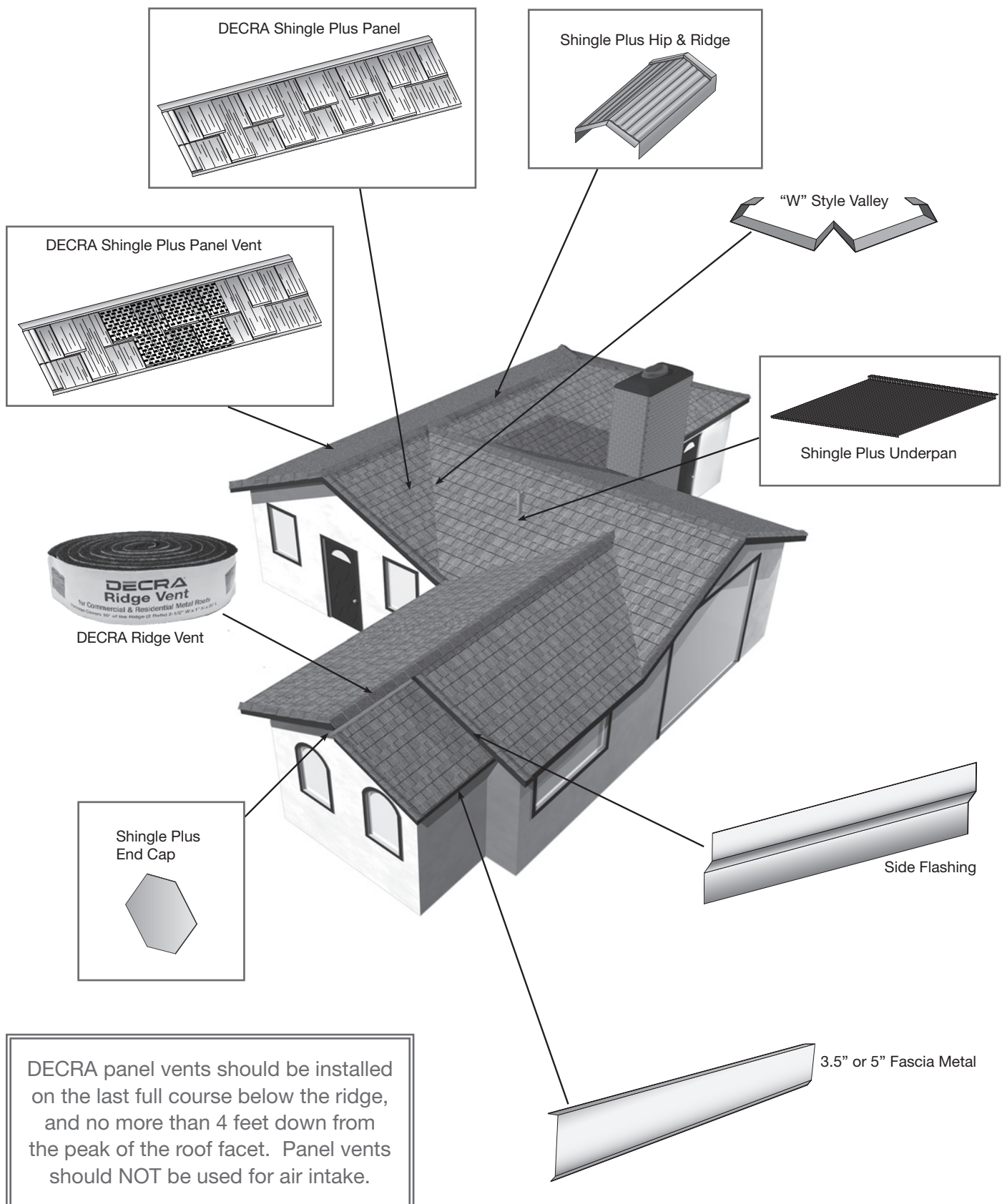


Installed Exposure: 14-1/2" x 50"

Panels per Square: 20

Installed Weight: 150 lbs./sq.

DECRA Shingle Plus (Installed on Battens)



Preparation for Panel Installation with Battens: Set the top front edge of the first batten flush at the edge of the fascia board, parallel with the ridge. Install 2 x 2 nominal size battens in standard grade lumber using a 16d minimum common nail or equivalent at a maximum of 24" on center into rafters (see diagram 1). Install 2 x 2's at hips. Batten spacing for **Shingle Plus** installation is 14-1/2". Please note: Batten spacing is measured from the front of batten to front of next batten as you go up the roof – refer to diagram drawings.

Starter Batten should be parallel with the ridge.

Diagram 1

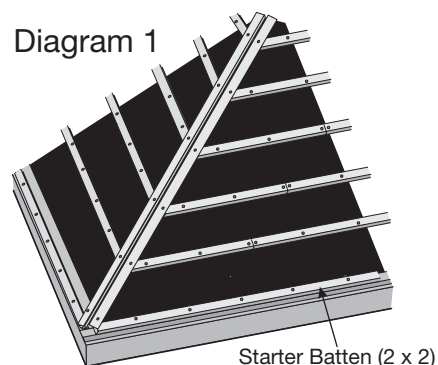
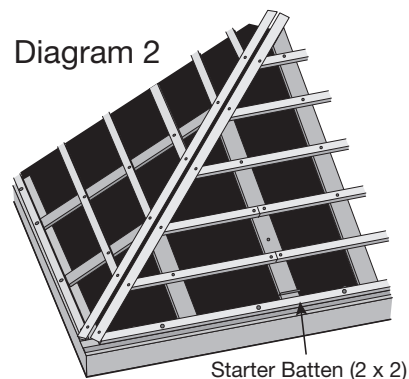


Diagram 2



BATTEN SPACING

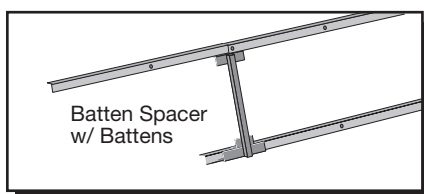
14-1/2"

DECRA PANEL

DECRA Shingle Plus

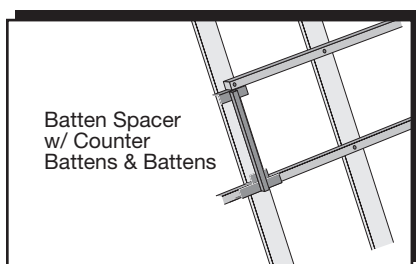
NOTE: BATTEN SPACING IS MEASURED FROM FRONT OF BATTEN TO FRONT OF NEXT BATTEN AS YOU GO UP THE ROOF. SEE DIAGRAMS BELOW.

Adjust placement of first batten to accommodate uneven fascia.



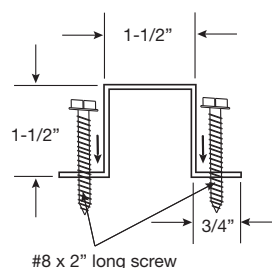
Use tape measure to check batten spacing accuracy every few rows.

Note: Additional fasteners are required for battens in high wind areas per local code. Reference wind chart detail on DECRA.com.



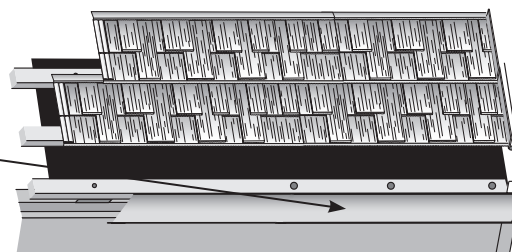
Counter-Battens and Battens: Use counter-battens when installing **Shingle Plus** panels over an irregular surface or skip / spaced sheathing (see diagram 2). Position 1 x 4 counter-battens over the framing members (or no more than 24" on center) and secure using a minimum of 16d common nail or equivalent into rafters or through sheathing 6" on center. Proceed with batten installation as described above.

Steel Hat Sections: As an alternative to wood battens, steel hat section purlins can be used. Different configurations of lighter and heavier gauge purlins can be used for various rafter spans. Fasten steel hat section through to rafters using minimum #8 by 1-1/2" long corrosion-resistant screws.



20 gauge thick batten suitable for rafters up to 4' on center.

Fascia Metal Flashing: Flashing is required along the fascia to cover the build-up at the first batten. Stone coated Fascia Metal is available in 3.5" and 5" exposures in all **Shingle Plus** panel colors.



Panel Layout with Battens: Lay full **Shingle Plus** panels starting with the first full course down from the ridge. Fasten the first course along the panel back flange. Start laying the panels by tucking them under the upper panels. DECRA **Shingle Plus** panels should be staggered to create an irregular appearance. The **Shingle Plus** panels *must be laid right to left*. The overlapping panel must cover the overlap channel. Begin fastening through the nose of the panel, working down the roof. See Fastening Panels with Battens (below).

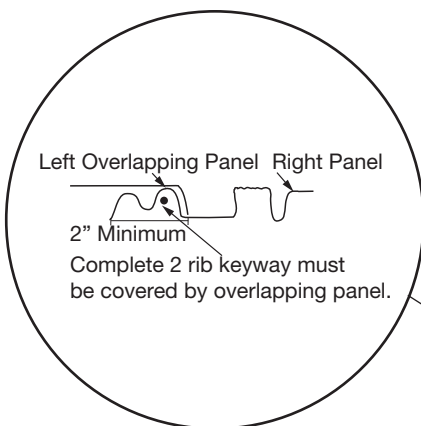
DO NOT rack panels (DO NOT line them vertically up the roof), or use even panel offsets that will detract from the appearance of the roof.

DO NOT make a pattern.

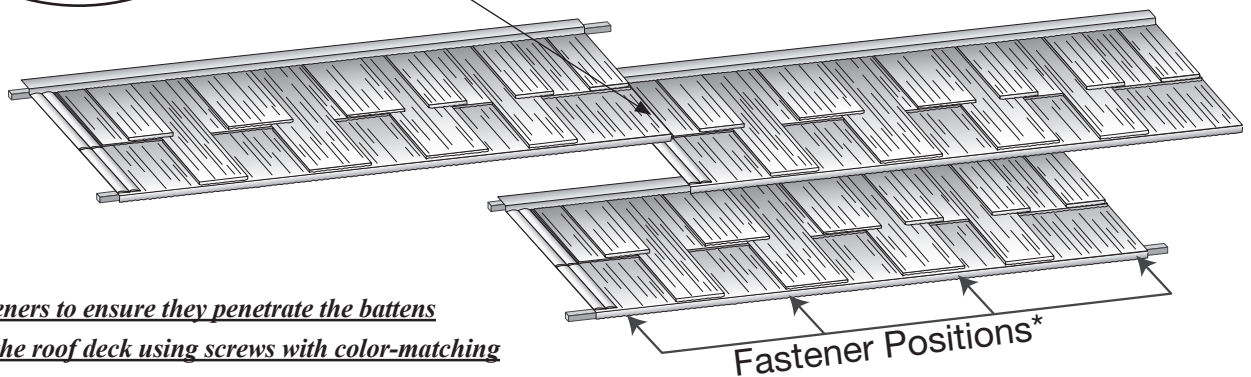
Fastening Panels with Battens: Panels are fastened to wood battens using at least four, minimum #8 hex head corrosion resistant 1-1/2" long screws (color coordinated heads for fasteners into panel nose).

One fastener is placed near the bottom on the downturn of the panel, 1" from the overlapped edge. The remaining fasteners are evenly spaced across the panel.

Care must be taken while fastening to avoid striking the finished panel surfaces. Damaged surfaces can be refinished by using a DECRA Touch-Up Kit matching the panel color being installed. Apply the enclosed roof sealant to the affected area, followed by embedding it with matching color stone granules.



Fasten nose prior to back flange. Apply downward pressure to "seat" panel when fastening.



** Install fasteners to ensure they penetrate the battens parallel to the roof deck using screws with color-matching heads for exposed applications to the panel nose.*

Apply downward pressure to "seat" the Shingle Plus panel when fastening.

Valley Application with Battens: All valley metal should be minimum 26 gauge pre-finished aluminum-zinc alloy coated steel. Valley metal should be a minimum 7" wide. XD® Valley may be used as an option.

In new construction, the metal valley flashing must have one layer of Type 30 felt underlayment, 36" wide – or, ice and water shield underneath as required by local building code.

Install the valley metal, overlapping the valley pieces a minimum of 6". Secure the valley metal in locations that won't channel water.

For fast accurate hip and valley angle measurements, use a T-bevel, which can be purchased at your local hardware store.

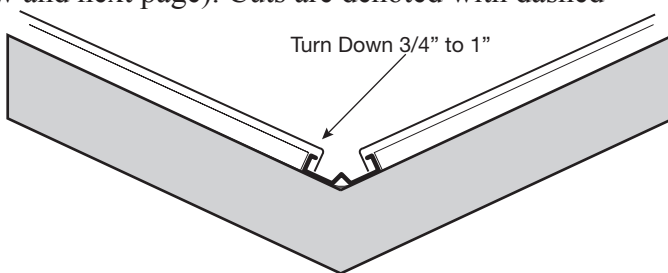
After valley flashing has been fit and secured into the valley area and full panels have been positioned up to the valley, measure for cut panels. See Open and Closed Valley Sections (below). Panels are cut and bent down into valleys leaving either an open or completely covered (closed) valley. If using XD® Valley, measure and cut panels so they fit tight to center of XD® Valley metal. Finish with XD® Valley Cap.

All measurements need to be taken from the center of the panel Overlap Channel. Refer to diagram in the Panel Section (page 4).

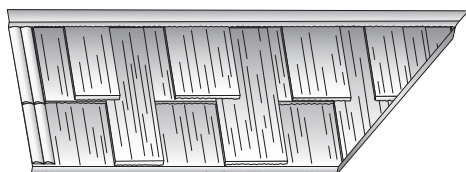
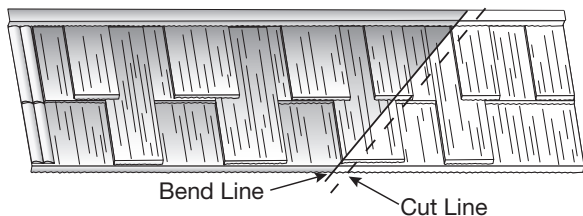
Make sure the ends of the valley metal extend beyond the fascia or onto a lower roof area to ensure proper drainage.

See diagrams in Open and Closed Valley Sections (below and next page). Cuts are denoted with dashed lines and bends are denoted with solid lines.

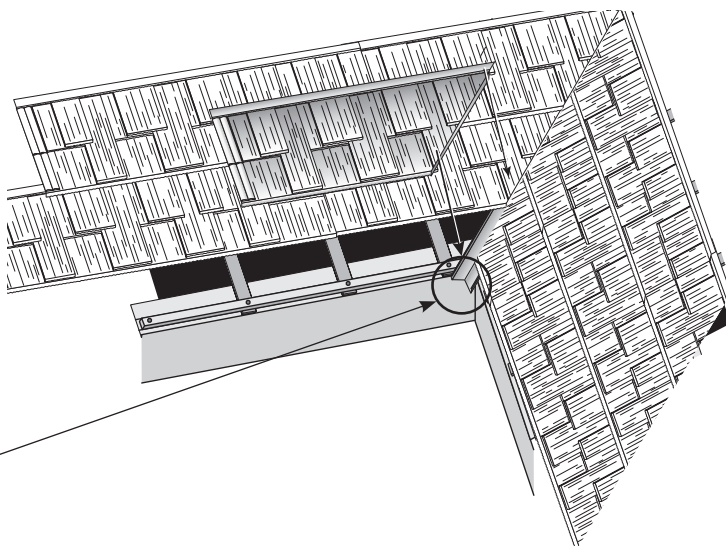
Open Valley: To create an open valley, snap lines to desired opening. Working on one side of the valley at a time, measure, cut and bend panels starting at the bottom of the valley and working up. Bend the cut edge of panels down against the up-stand of the valley metal as indicated in the drawing.



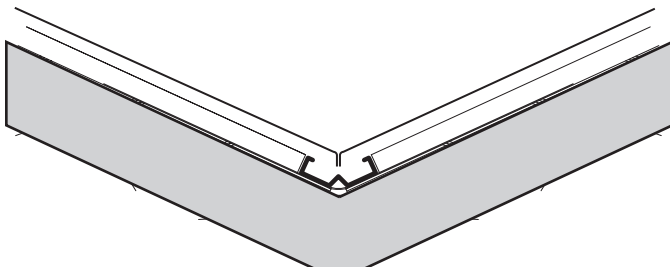
Verify batten spacing along the valley to ensure accuracy.



Make sure the ends of the valley metal extend beyond the fascia or onto a lower roof area.



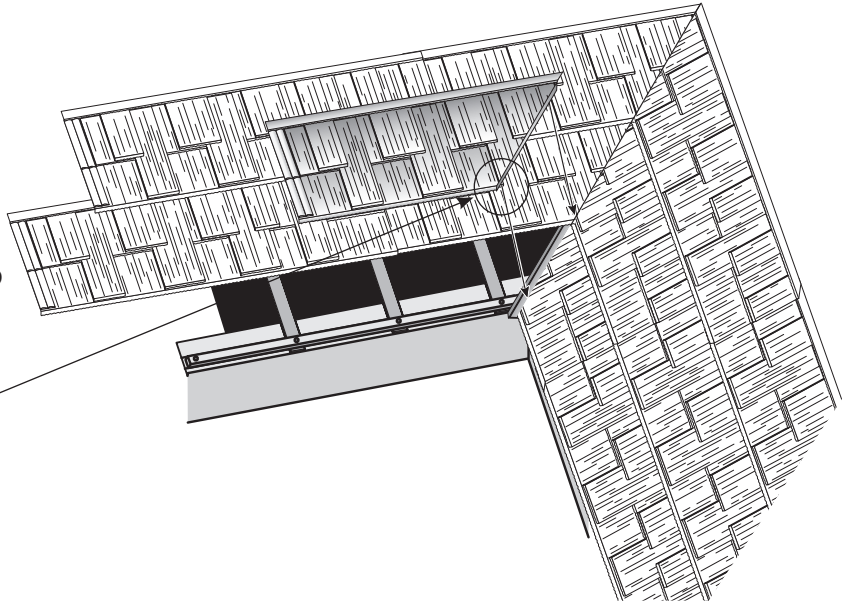
Closed Valley:



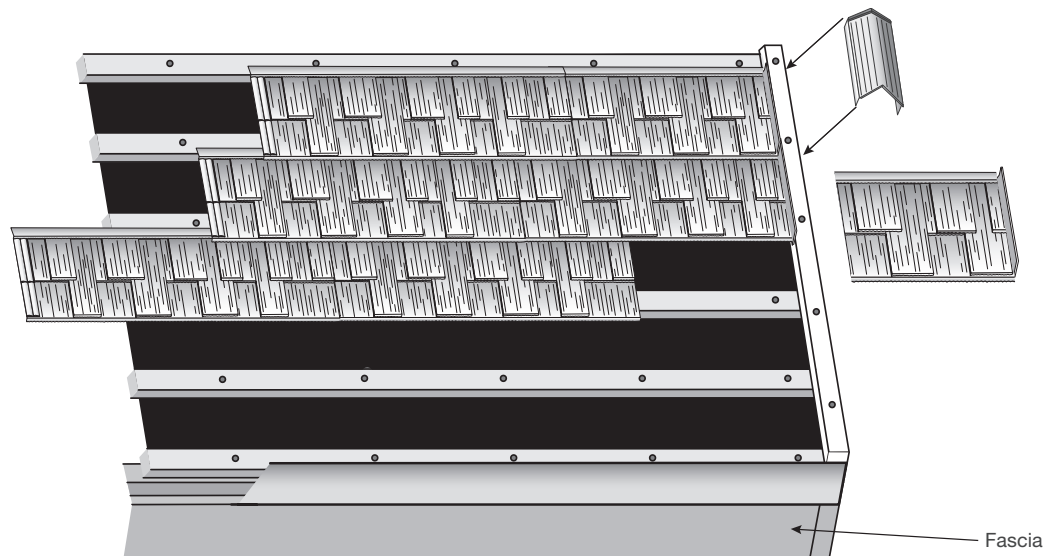
Find and establish the center of the valley by either snapping a line or following the existing center rib. After valley flashing has been fit and secured into the valley area, start on one side of the valley by measuring, cutting, bending and installing panels as accurately as possible to create a clean straight line.

Next – measure, cut and bend panels to fill in the other side of the valley. Make sure these panels meet the opposing side of the valley. The panels from the two sides of the valley should fit as closely as possible, and the line between them should run straight up the valley.

Notch the nose of panels terminating in a closed valley to accommodate the width of the valley.



Rake / Gable with Battens: When installing **Shingle Plus** panels along the rake / gable and finishing it with Hip & Ridge, run a 2 x 2 vertically along the rake. Position the 2 x 2 vertically just back from the edge of the rake to accommodate the proper look and fit of the Hip & Ridge pieces. In a batten installation the 2 x 2 will sit on top of the battens. Bring the panel up to the 2 x 2 and bend the panel up 1-1/2". At the fascia, cover the open end of the Hip & Ridge with the appropriate End Cap. See Hip & Ridge section (page 19).



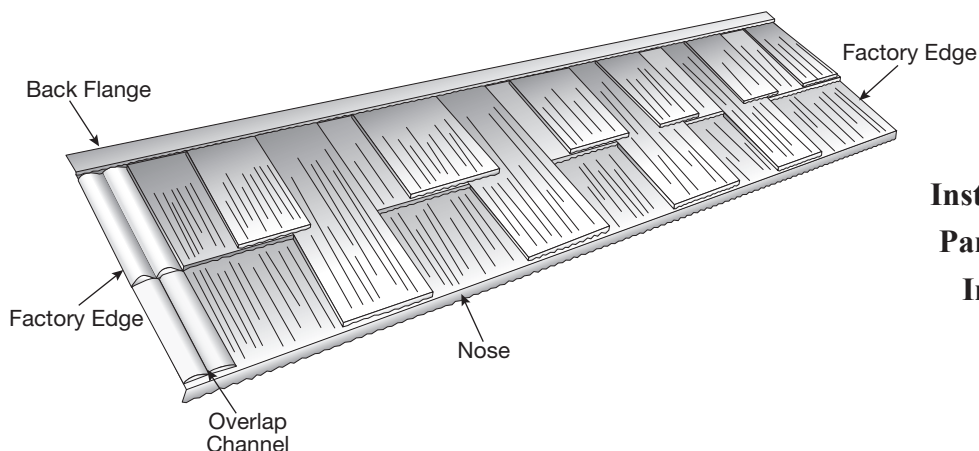
Please continue to page 15 of the guide to complete the installation of the batten system.

Direct-to-Deck Installation without Battens

This section is specific to **Shingle Plus** roof systems installed directly to the roof deck without battens. Please refer to page 4 of this guide for information on installation with battens.

Panels

The DECRA **Shingle Plus** panel is formed from corrosion-resistant aluminum-zinc alloy coated steel with a ceramic-coated stone granules protective coating that provides an attractive appearance. The **Shingle Plus** Hip & Ridge used at the ridge, rake/gable and hip is produced in a similar manner.

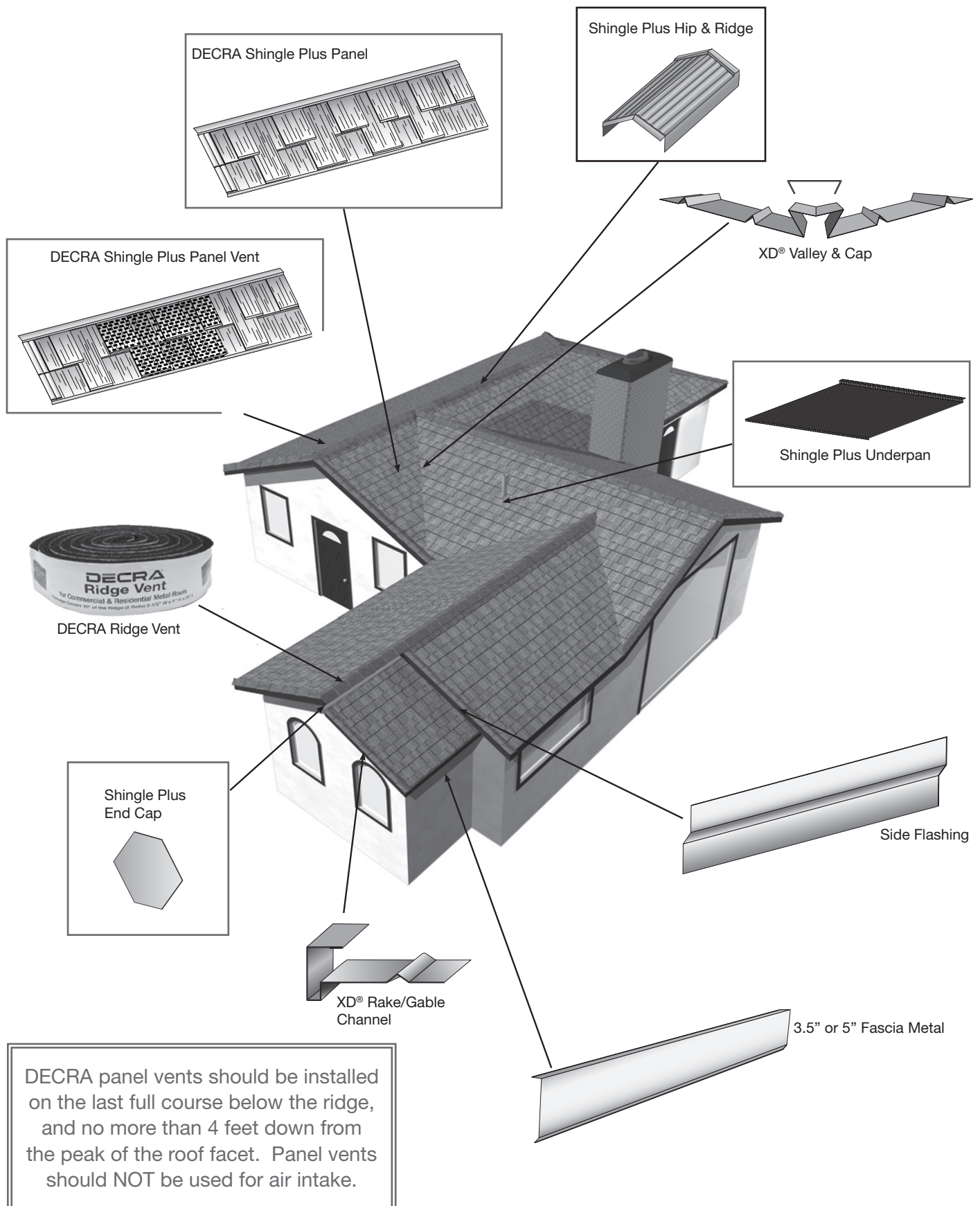


Installed Exposure: 14-1/2" x 50"

Panels per Square: 20

Installed Weight: 125 lbs./sq.

DECRA Shingle Plus (Installed Direct-to-Deck)

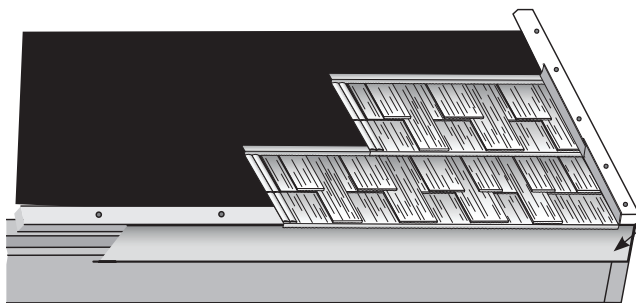
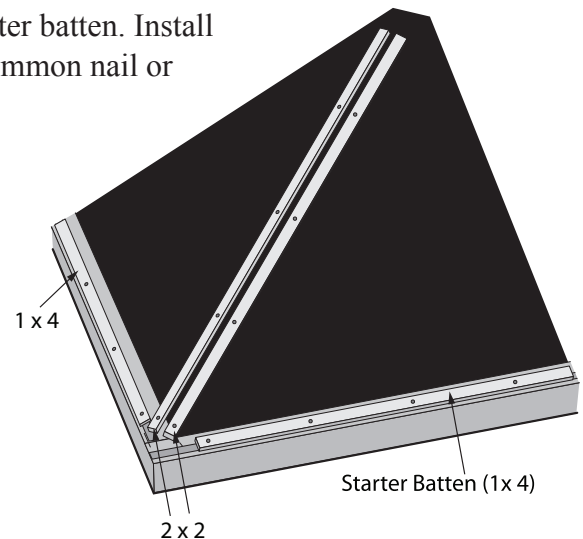


Preparation for Panel Installation without Battens

Over a prepared deck, position a 1 x 4 flush with fascia as a starter batten. Install necessary 2 x 2 battens for hips, ridges and rakes using a 16d common nail or equivalent, at a maximum of 24" on center.

Starter batten should be installed parallel with the ridge.

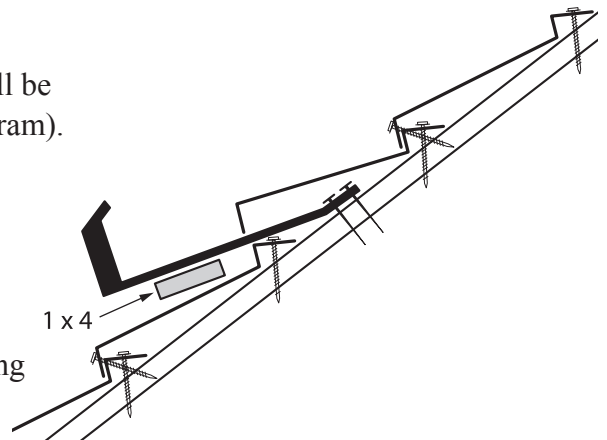
Adjust placement of first batten to accommodate uneven fascia.



Fascia Metal Flashing: Flashing is required along the fascia to cover the build-up at the first batten. Stone coated Fascia Metal is available in 3.5" and 5" exposures that match the **Shingle Plus** panel color (3.5" is typical with direct-to-deck application).

Roof Jacks without Battens: In cases where roof jacks will be installed, apply a 1 x 4 to the bottom of the roof jack (see diagram). Fasten the front (nose) of the panel when the jack is removed.

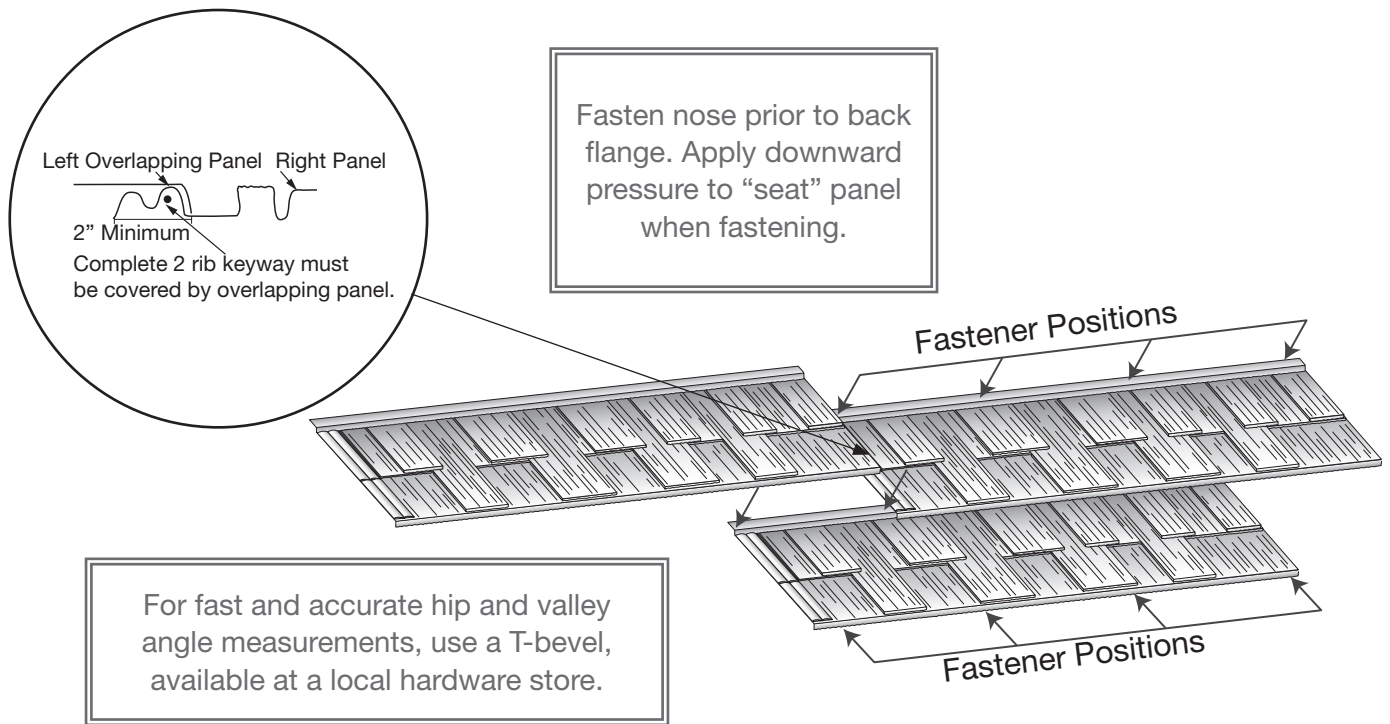
Panel Layout without Battens: Panels will be laid out and fastened as you go along, starting at the fascia and working up the ridge. **Shingle Plus** panels must be laid right to left. The overlapping panel must cover the overlap channel. See Fastening Panels without Battens (page 13).



BEGIN FASTENING PANELS AS YOU GO. REFER TO FASTENING SECTION (PAGE 13).

DO NOT rack panels (DO NOT line them vertically up the roof), or use even panel offsets that will detract from the appearance of the roof. DO NOT make a pattern.

Fastening Panels without Battens: **Shingle Plus** panels are fastened using at least eight, minimum #8 corrosion resistant hex head, 1-1/2" long screws (color coordinated hex heads where exposed on the panel nose). Position four screws through the nose of the panel, at an angle, so as to penetrate the back of the panel below and into the roof deck. Next, apply four screws vertically through the back flange of the panel into the roof deck, as illustrated in the diagram. Fasten the nose of the first panel through the 1 x 4 batten and the back flange as shown. All other panels will be fastened as shown below.



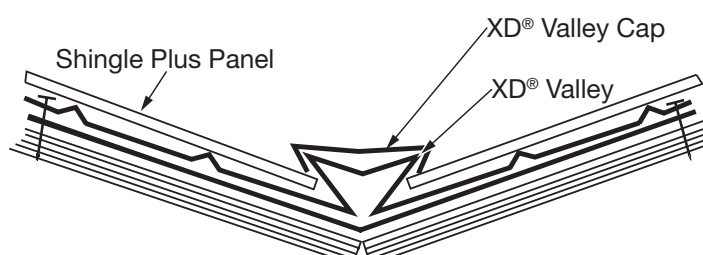
Standard Valley Application without Batten: All valley metal should be minimum 26 gauge pre-finished aluminum-zinc alloy coated steel. Valley metal should be a minimum of 8" wide to each side of the centerline.

In new construction, the metal valley flashing must have one layer of Type 30 felt underlayment, 36" wide – or, apply ice and water shield underneath as required by local code. Install the valley metal overlapping the valley pieces a minimum of 6". Secure the valley metal to the deck every 12". Make sure the ends of the valley metal extend beyond the fascia or onto a lower roof area to ensure proper drainage.

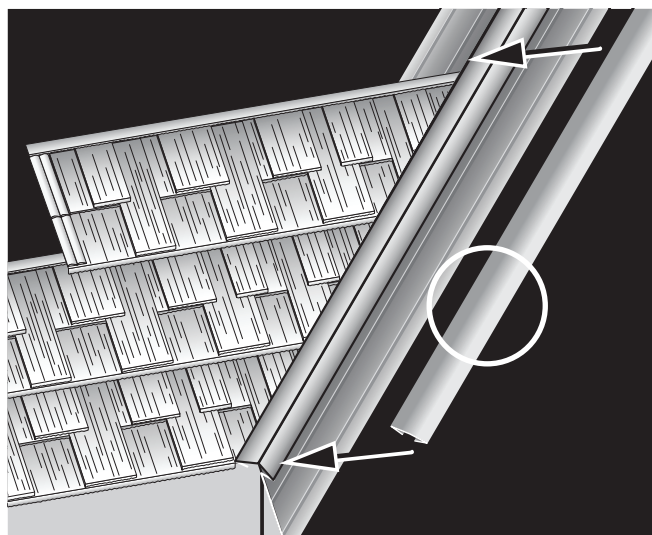
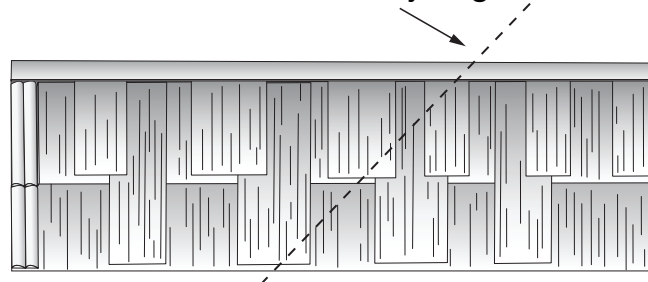
After valley flashing has been fit and secured into the valley area, and full panels have been positioned up to the valley, measure for cut panels. See diagrams in the **Shingle Plus** Valley Section (page 14). Panels are cut and tucked into valleys leaving a completely covered (closed) valley.

All measurements need to be taken from the center of the panel overlap. Refer to diagrams in the Panel Section (page 10).

XD® Valley without Battens: DECRA XD® Valley piece is used here to create the clean look of a closed valley. First, install the XD® Valley piece along the center line of each valley. Fasteners should be positioned outside the last turn-up on each side of the valley piece. Cut **Shingle Plus** panels to length and fit them into the valley (see diagrams right). The **Shingle Plus** panels *must be laid right to left*. When working into a valley, measure and cut panels to fit tight into the valley. When working out of a valley, cut random length panels (with a “factory” left edge) to fill in along the valley. Continue with full panels as you work horizontally away from the valley.

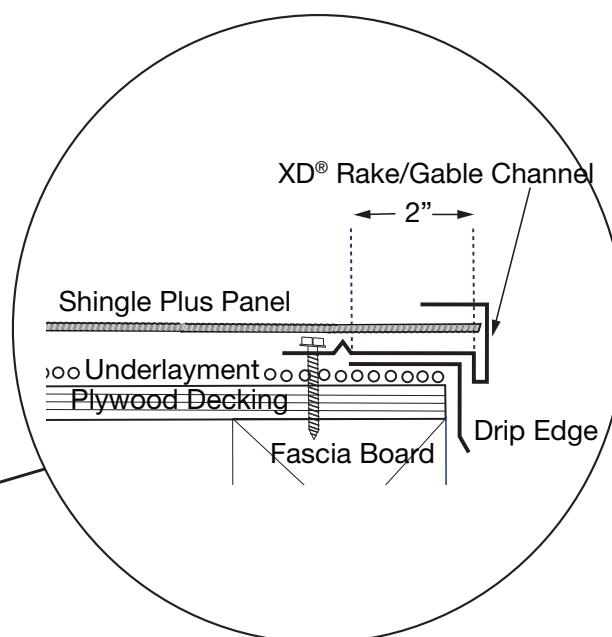
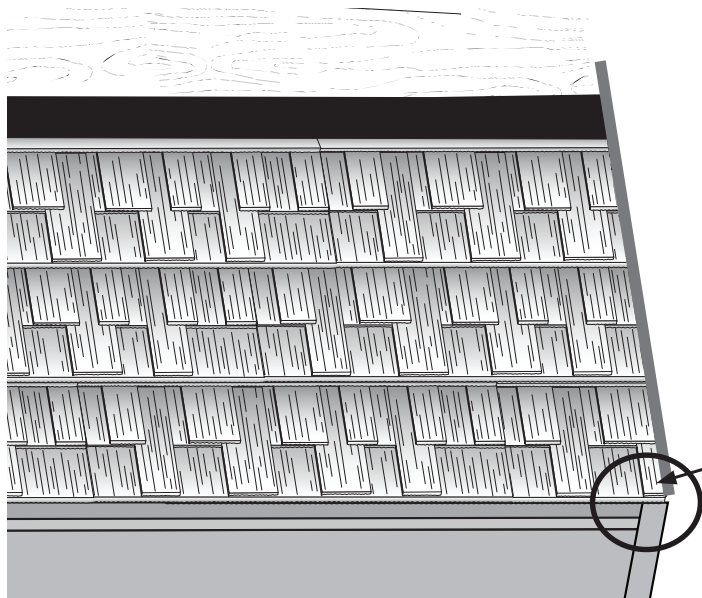


Cut line to match valley angle



Rake / Gable without Battens: When installing **Shingle Plus** panels along the rake / gable and finish it with Hip & Ridge, run a 2 x 2 vertically along the rake. Position the 2 x 2 vertically just back from the edge of the rake to accommodate the proper look and fit of the Hip & Ridge pieces. Bring the panel up to the 2 x 2 and bend the panel up 1-1/2". At the fascia, cover the open end of the Hip & Ridge with the End Cap piece. See Hip & Ridge section (page 19).

DECRA XD® Rake / Gable Channel may be used in place of the 2 x 2 and the **Shingle Plus** Hip & Ridge, when installing the panels without battens.

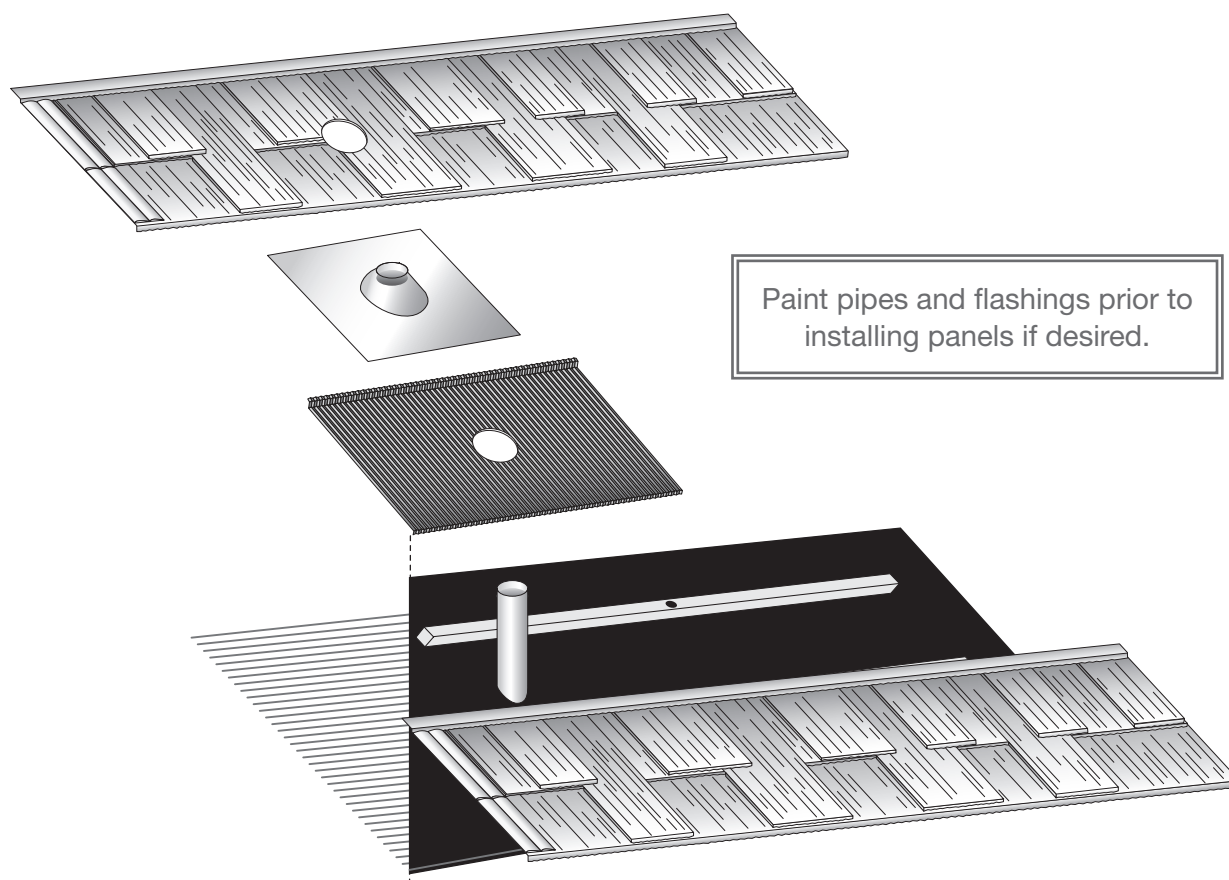


*The following information applies to installations both
with battens and direct-to-deck without battens.*

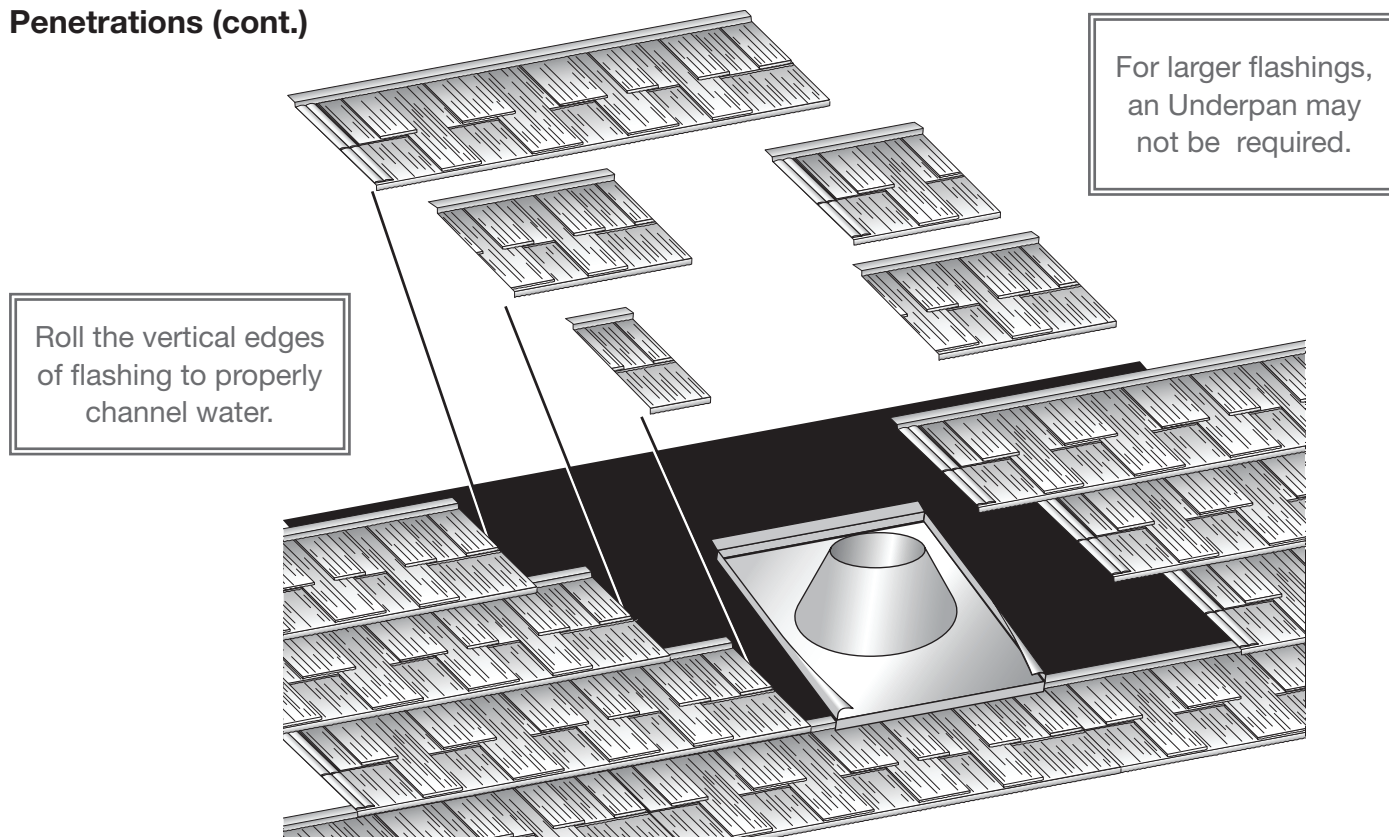
Penetrations

Roof penetrations are to be flashed with aluminum, galvanized, or aluminum-zinc alloy coated steel standard roof jacks and flashings as required by code. **DO NOT USE COPPER OR LEAD WITH THIS ROOFING SYSTEM.** Use the correct Underpan for **Shingle Plus** to properly flash pipe penetrations. Cut the Underpan to fit tightly around the plumbing stack. The Underpan must lap over the lower field panel when positioned around the pipe. Cut the pipe-flashing apron so it will fit onto the Underpan. Apply roofing-grade sealant on three sides (both sides and top portion). Finish with field panel by measuring and cutting panel to fit snugly around the pipe flashing. Cut hole according to the flashing profile. Align roof panel and seal around the opening using a roofing grade sealant – finish with the Touch-Up Kit granules embedded in the sealant.

Care should be taken to adequately weatherproof the flashings and to support them with additional blocking or roof framing as necessary.

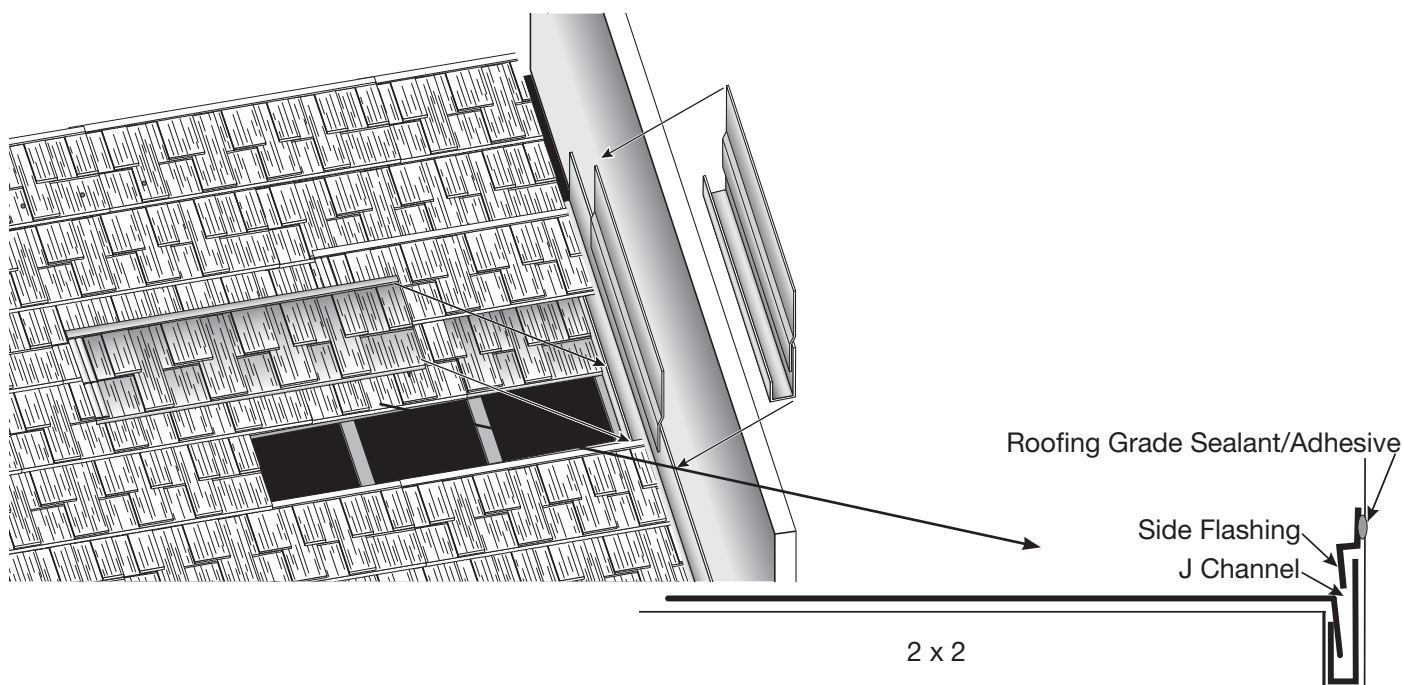


Penetrations (cont.)

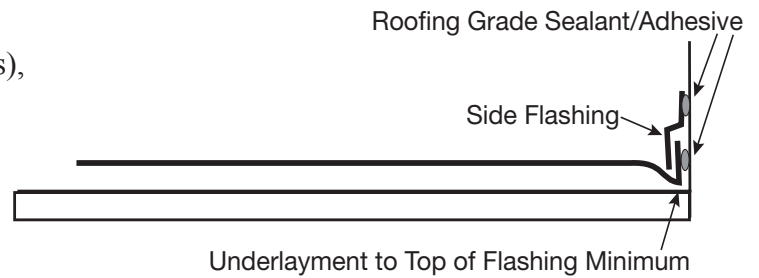


Roof-to-Wall

Roof to Side Wall w/ J Channel (Tile Pan) for Batten and Counter-batten Installation: Slide J Channel under existing sidewall flashing. Turn panel down into J Channel (Tile Pan). If you cannot get the J Channel up under the existing flashing, slide the J Channel up under the existing siding.



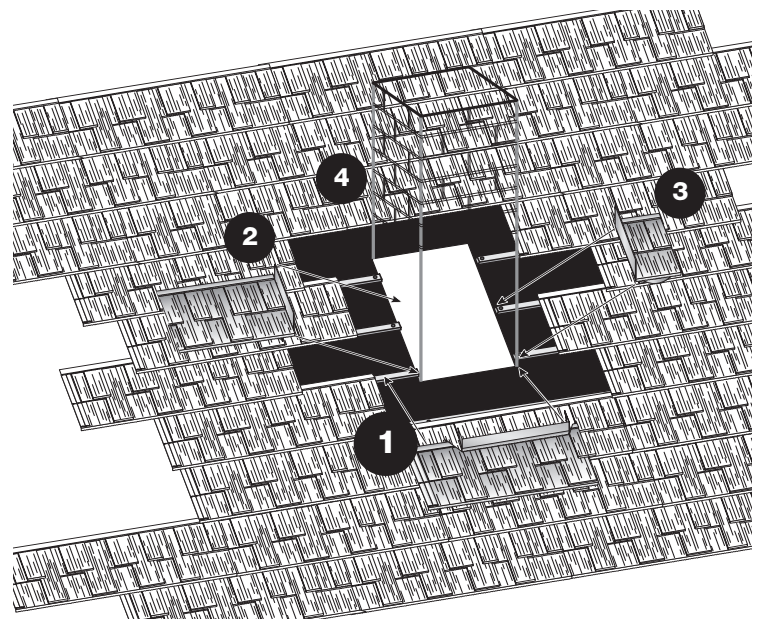
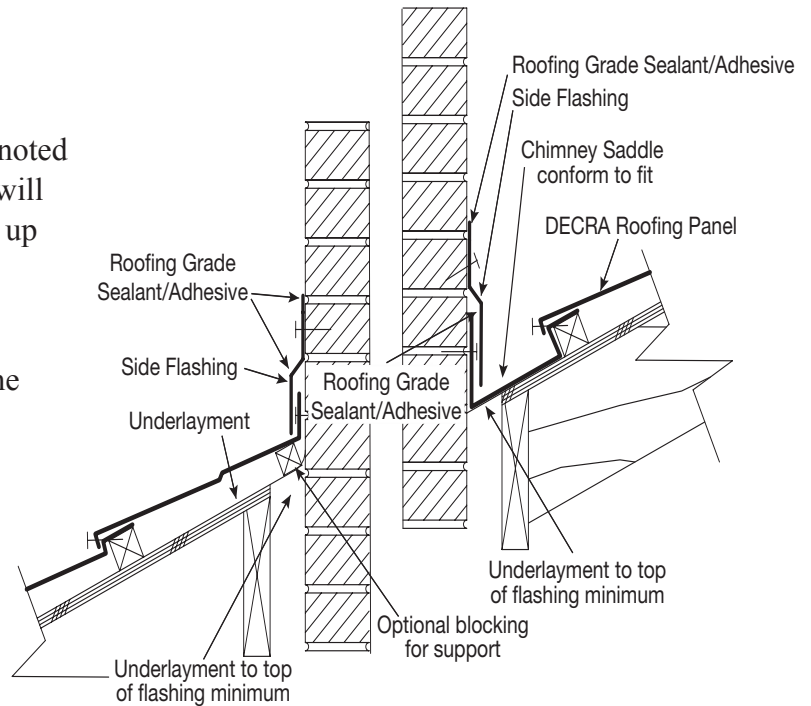
Roof to Side Wall w/ Side Flashing: If no existing flashing is present (with or without battens), turn the panel up 2" and counter-flash with Side Flashing. Seal turn-up against the wall and seal Side Flashing before applying to wall with a roofing grade sealant.



Chimneys

The following steps detail the procedure for installation around a chimney (with or without battens). Run full panels up to the chimney as noted in the chimney illustration. All the open areas will be filled in with cut panels that have been bent up 2" toward the chimney.

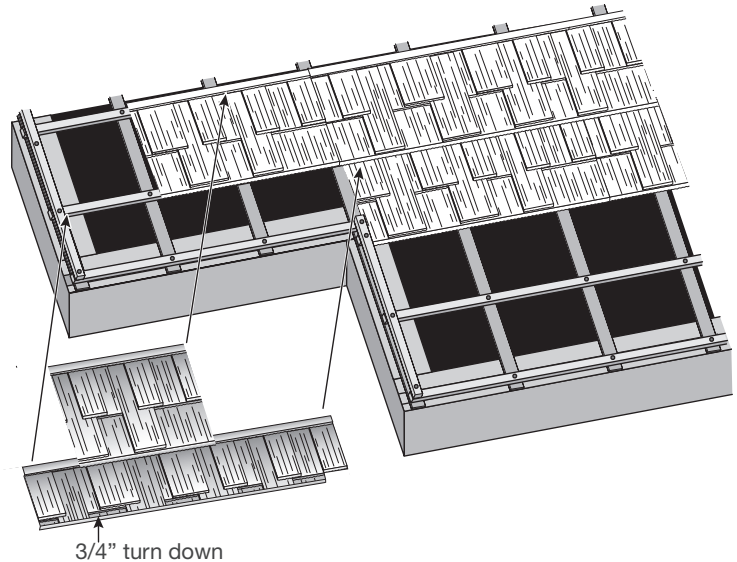
- 1 Start by measuring from the full panel below the chimney up to the base of the chimney. Cut panel(s) to fit this area. Add 2" to all of the measurements to accommodate for the 2" bend up.
- 2 3 Panels to fit the left and right sides of the chimney will be measured and cut the same way.
- 4 Finally, measure the width of the chimney – cut, conform and install the chimney saddle to fit above the chimney. For brick and stucco, counter-flash over the top of the chimney saddle. For siding, tuck the chimney saddle up under the siding. For proper drainage, chimney saddle must drain.



Add 2" to all measurements to accommodate bend up.

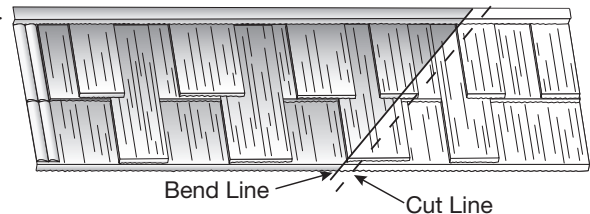
Short Course

In some instances, a short course will be necessary. A short course is needed when a section of the fascia steps out and is not an even panel width difference from the main fascia. Start battening at the fascia with the longest width (or if installing without battens start laying panels), and work up to the course above or down to the course below the stepped fascia. Next, measure the first course of the stepped section and treat it like a ridge. Finish the short course by measuring the panel from the back and cutting the excess from the front of the panel. Be sure to allow for a 3/4" turn-down at the fascia.



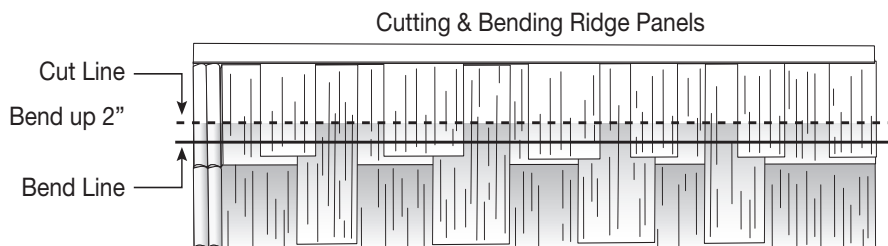
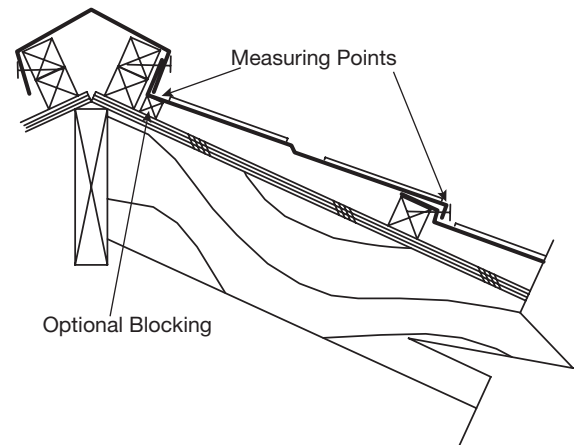
Hip

When installing **Shingle Plus**, run a 2 x 2 vertically up the hip. In direct-to-deck installations (without battens) the 2 x 2 will rest directly on the decking. In batten installations, the 2 x 2 will rest on top of the battens. Bring the panel to the 2 x 2 and turn the panel up 1-1/2". Measurements for hip cuts are made much like the valley cuts.



Ridge

Measure from the front of the back flange of the last full course to the front of the 2 x 2 at the ridge (see diagram right). This will be the bend line. Bend the panel at the bend line. Add 2" to the bend line and cut the panel (see Cutting and Bending diagram below). Install the panels along the ridge and fasten. Next, install the panels along the other side of the ridge. Keep panels straight and level along the ridge as this is the foundation for the Hip & Ridge pieces.



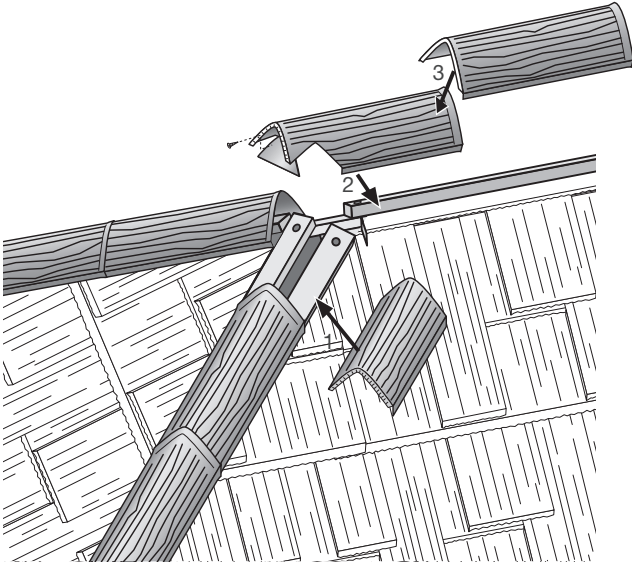
Bend full panels
before cutting.

Hip & Ridge

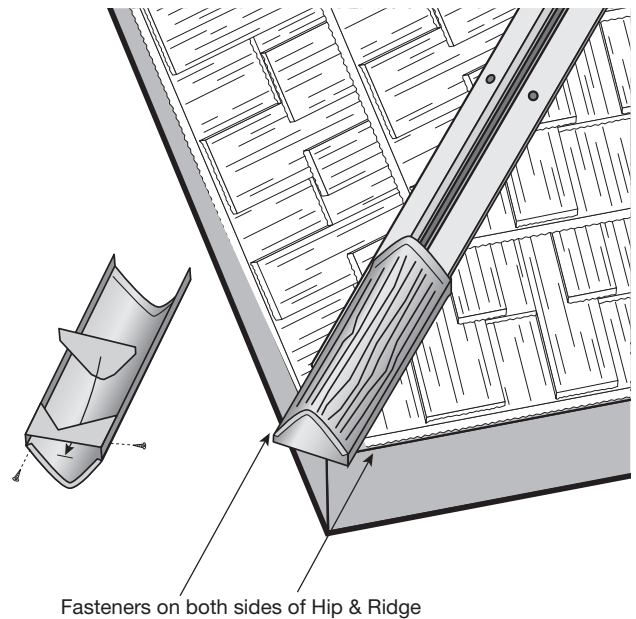
Once panels are in place, install Hip & Ridge cap pieces along hips, ridges and rakes. For **Shingle Plus** roofing systems applied direct-to-deck, you may elect to use XD® Rake/Gable channel in place of using Hip & Ridge pieces to trim out rake edges.

Hip & Ridge pieces are overlapped and fastened in 2x2's on both sides along the ridges, rakes / gables and hip boards with the same color-matched hex head screw fasteners used for securing the panels on the exposed bottom nose edge. Bend and fold exposed ends of Hips & Ridges neatly and finish with an End Cap. At the Hip & Ridge transition, miter into place. Apply roofing grade sealant to joints and finish with the Touch-Up Kit granules embedded into the sealant.

Shingle Plus Hip & Ridge

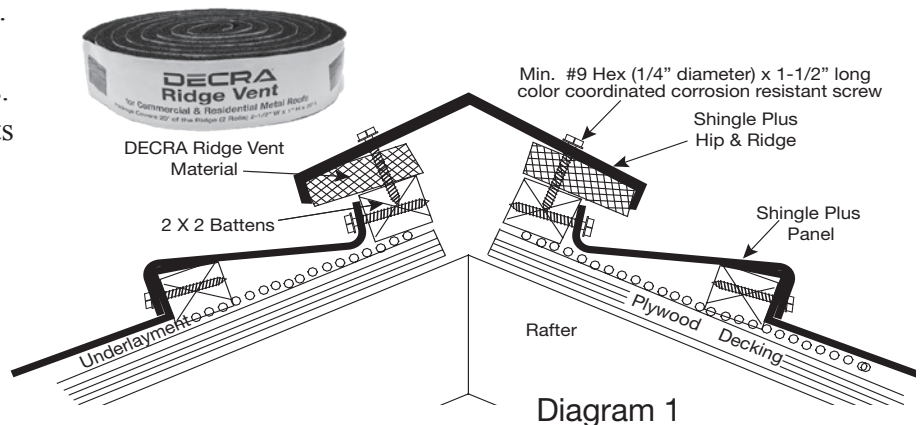


Shingle Plus Hip & Ridge End Cap

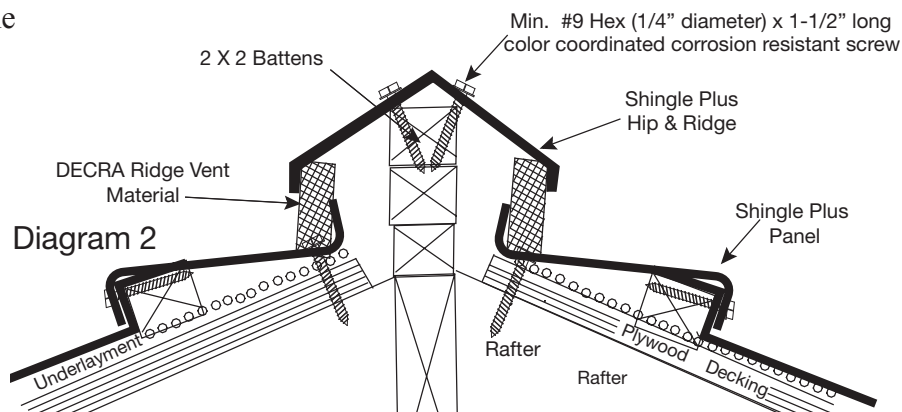


Ridge Venting Options

Ridge Venting – No Center Beam: Install **Shingle Plus** panels up to the last full course (before the ridge) to the edge of the opening that has been cut for the ridge vent. Install 2 x 2 wood battens along the ridge. Align the top edge of the 2 x 2 along the edge of the plywood on both sides of the ridge attic opening. Measure, cut, bend, and install the final course of panels to allow for a 1-1/2" bend. Roll out the vent material along the tops of the battens. Remove the white paper while unrolling to expose the adhesive dots. Apply pressure over the adhesive dots to hold the material in place during installation (see diagram 1). Install **Shingle Plus** Hip & Ridge pieces over the vent material. Fasten the screws through the vent material into the battens.



Ridge Venting – With Center Beam: Install **Shingle Plus** panels up to the last full course before ridge. You may install 1 x 4 wood battens along both sides of the ridge to support the last course of panels. Measure, cut, bend and install the last course of panels. Allow for a 1-1/2" bend. Stack the needed number of 2 x 2 and 1 x 2 lumber to the roof center beam to allow the attachment of the Hip & Ridge pieces. The exact number needed depends on the roof slope and configuration. Ensure that the 2 x 2 and 1 x 2 boards provide enough height for a 3/4" to 1" clearance between the Hip & Ridge piece and top panel. Roll the vent material to the bend up on the last course of panels while removing the white paper to expose the adhesive dots. Apply pressure over the adhesive dots to hold the vent material in place during installation. Install the Hip & Ridge pieces, making sure the vent material is slightly compressed between the bend on the last course of panels and the Hip & Ridge pieces.



On slopes 7/12 and less, plan on three 2 x 2's. On slopes greater than 7/12, plan on two 2 x 2's. Only applicable to roofs "With Center Beam".

High Wind

Direct-to-roof deck installation: In areas prone to high winds, installation must meet local codes. Reference International Code Council (ICC) **ESR-1754** for DECRA direct to roof deck roof system installations, section 4.4 Wind Resistance and Table 1 detail on wind uplift pressures and panel fastening procedures. **ESR-1754** code compliance document is available on **DECRA.com**.

On battens installation: In areas prone to high winds, installation must meet local codes. Reference International Code Council (ICC) **ESR-2901** for DECRA 'on battens' roof system installations, section 4.4 Wind Resistance. Source additional high wind detail for 'on battens' roof system installation detail in DECRA's Florida Building Code compliance document **FL9759-R9**. Code documents are available on **DECRA.com**.

Freeze/Thaw

Use ice and water shield as recommended for cold climatic conditions. Screws should be used in freeze/thaw areas.

Foot Traffic

Avoid walking on side laps. If installing over battens, walk directly over the battens. See further walking instructions at **DECRA.com**

Sealants

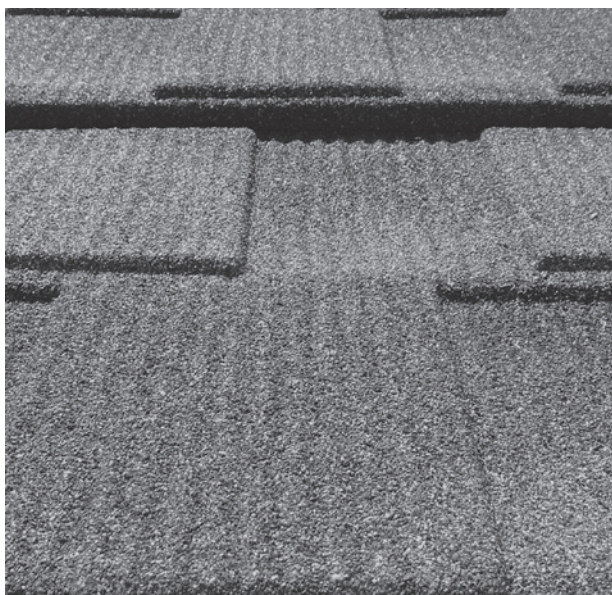
A high grade roofing sealant is recommended for use with this roofing system. Where possible, the sealant should be covered by the roofing system or by embedding color-matched stone granules.

Cleaning & Repairs

After installation is complete, be sure to clean all debris off of the roof, especially any metal shavings.

In cases where it is necessary to touch up or repair a panel, DECRA Touch-Up Kits are available in a color that matches your **Shingle Plus** panel finish color. For answers to questions not covered in this guide, call (877) 463-3272, or go to DECRA.com. Architectural details, product specifications and **Shingle Plus** estimating sheets are available online at DECRA.com.

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