

INSTALLATION

DECKING

DaVinci Slate must be installed on a smooth flat surface (plywood or OSB); minimum 15/32" APA approved plywood or 7/16" approved OSB. It is also necessary that all previous roofing materials be torn off prior to installation of DaVinci Slate. Imperfection in the decking may transmit through to finished roof.

DRIP-EDGE

Metal flashing is required on gable ends and eaves. An overhanging drip edge is recommended on gable ends to help mask the rib-structure on the underside. An overhanging drip edge may also be used on eaves although non-overhanging drip edge is an acceptable option.

SELF-ADHERED MEMBRANE

(Severe Climate Underlayment in accordance with Chapter 15 of the UBC)

In areas where the average daily temperature in January is 25° F or lower or where ice buildup is possible, DaVinci requires self-adhered membrane be installed: from the bottom edge extending two feet above the exterior wall line on all eaves. The self-adhered membrane is required in all valleys regardless of average daily temperatures or the possibility of ice buildup.

CLASS A INSTALLATION

For a Class A installation one layer of ASTM D 226 Type II (No 30) organic felt underlayment is required on the entire roof including areas where self-adhered membrane is required. Underlayment must be installed flat as bumps in underlayment may transfer through the finished roof.

To meet ICC –ES requirements one layer of GAF VersaShield Fire Resistant Roof Deck Protection recognized in ESR-2053 must be used in place of ATM D226 Type II felt when DaVinci Slate is laid at an exposure greater than 6".

FASTENERS

Tiles should be installed with nails long enough that they will penetrate through the roof deck by at least 3/16". In most instances, 1 3/4" roofing nails are acceptable. We recommend copper, stainless steel, or hot-dipped galvanized nails. Ring-shank nails are optional for plywood, but must be used for OSB decks and in high wind areas.

GETTING STARTED

Use approved nails in each slate at or near nailing location shown on the slates (see page 9). Nails may be placed lower than the indicators as long as the tile above it covers the nail. Once the starter is in place, begin installing slates in the lower left corner (or lower right corner for a left-handed roofer).

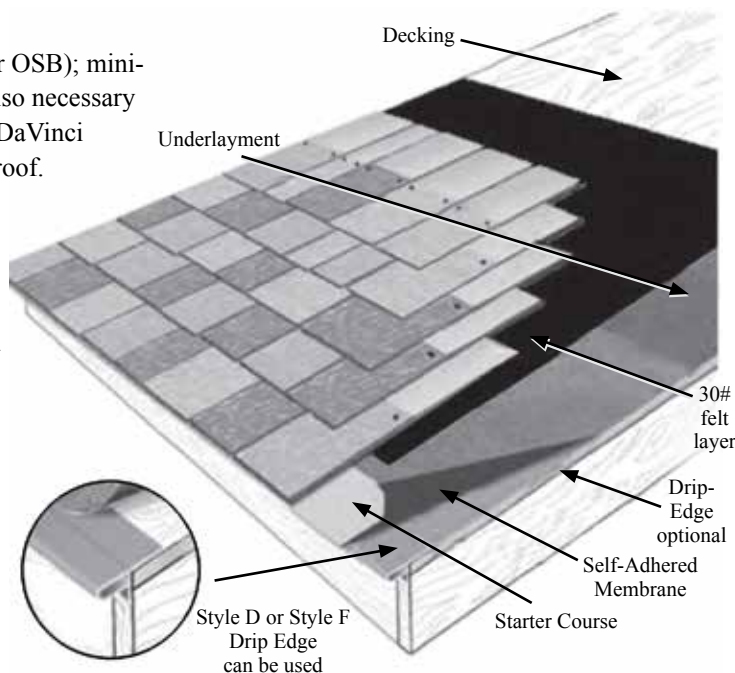
Two methods of installation are available: (see page 3)

1. Straight, in which the exposure of each slate is kept consistent, or
2. Staggered coursing, in which the exposure varies by a maximum 1" on adjacent shingles.

Use the alignment indicator at the top of each slate to help manage the exposure. An exposure between 6" and 8" is acceptable for straight courses and between 6" and 7" for staggered courses. As you progress up the roof, be careful not to damage slates already in place. Put something, perhaps a cut slate, under toe irons (scaffolding brackets) to avoid scratching or marring the finish of the slate already installed below.

Single-Width Slate Installation Tip:

When installing single-width 12" tile cut a minimum of 3" off the first slate or starter as both are 12".



STARTER COURSE

Each starter tile should be installed extending past the drip edge by approximately 1". However, if using an overhanging drip edge, the starter shingle can be allowed to overhang less if it is appropriate for the gutter system. The starter tiles should be installed with the DaVinci logo on top. The starter tiles should be spaced 3/8" apart as tiles will expand when warm. Each starter tile should be nailed with two nails on a line approximately 6" from the butt and 3/4" from outside edge.

INSTALLATION

STRAIGHT COURSING

Install the slates one at a time starting in the lower left hand corner if right handed or lower right hand corner if left handed. The first course of slates should be laid directly on the starter slates. The slates should be installed individually with two nails in the defined areas. The slates should be laid as they come out of the bundle with a rack type system, also known as rack-style, stairstepping, or pyramiding; to prevent same size shingle directly on top of another. The slates should be laid with a 3/8" gap between each slate. The gaps between slates on adjacent courses should offset by a minimum 1 1/2". The use of the alignment indicators on the slates may be used to facilitate installation but chalk lines should be used frequently to assure horizontal alignment.

Chalk lines should be snapped on underlayment with the tips of the slates following the lines. Do not snap lines on DaVinci Slate or use red chalk as the chalk may permanently discolor the slate.

STAGGERED COURSING

If the roof pitch is 6:12 or greater you may stagger the courses with a 7" exposure. The way this is accomplished is laying the slates in 7" courses with every other shingle lowered 1".

For pitches less than 6:12, a 6" exposure is recommended.

An example of how to accomplish this is as follows:

Step 1: Lay the starter course across the eave and then put the first course of slate flush on top of the starter. Then snap a horizontal line 7" above the tips of the slates you just installed or 25" from the eave line (butt of the slate you just laid).

Step 2: Now start laying your second course of slates putting the tip of the first shingle you lay on the chalk line. The next or adjacent slate should be 1" below the line. The third slate should be on the line; the fourth slate should be below the line. This continues in the same pattern all the way across the roof one shingle tip on the line and the next 1" below the line.

Step 3: Snap another horizontal line 7" above the line you chalked in Step 2 or 32" above the eave line. Start laying slates as in step two with the first slate tip on the line and the next slate tip 1" below the line.

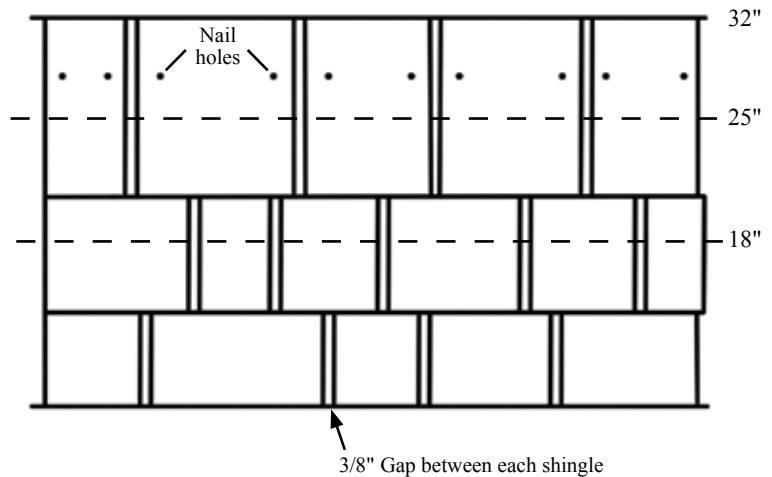
Step 4: Continue up the roof in this manner. Every course does not need to be chalked. As roofers begin to understand the concept, they can use alignment indicators to accomplish the stagger. We do, however, recommend occasional horizontal chalking to assure correct alignment.

Single-Width Slate Installation Tip: 6" or 5" setback pattern

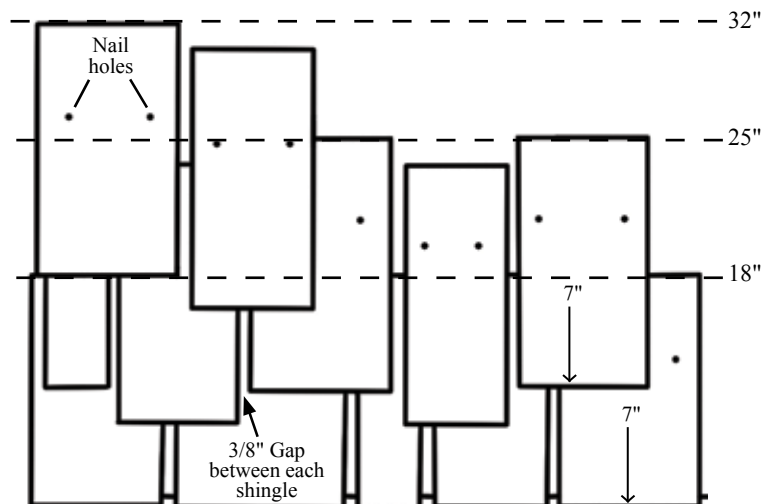
Method 1: A 5" setback pattern is recommended. In this method starting from the bottom course each 12" slate is set back 5" from the slate on the adjacent course. This pattern is most easily established by using a roofing hammer with gauge set at 5". Once the pattern has been established the setback should be checked occasionally.

Method 2: A 6" pattern may also be used. In this method starting from the bottom course each 12" slate is set back 6" from the slate on the adjacent course. This method requires that the pattern be straight vertically as well as horizontally because the breaks between slates on alternate course are aligned. With this method we recommend frequent vertical chalk lines so that the pattern may be checked regularly.

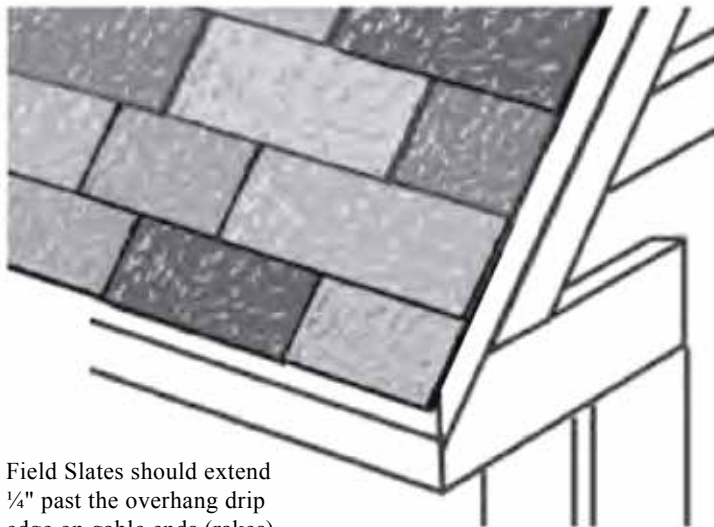
Straight Coursing on DaVinci Slate at a 7" Exposure
(Depending on the pitch, tiles can also be laid at 8" & 6" Exposures.)



Staggered Coursing on DaVinci Slate at a 7" Exposure
(Depending on the pitch, tiles can also be laid at a 6" Exposure.)



INSTALLATION



Field Slates should extend $\frac{1}{4}$ " past the overhang drip edge on gable ends (rakes).

GAP

The recommended gap between slates is $\frac{3}{8}$ " with a minimum $\frac{3}{16}$ " gap required. The number of shingles per square for DaVinci Slate is based on the assumption of $\frac{3}{8}$ " spacing between tiles. If spacing is less, more shingles per square will be required.

AVOID "CRACK ON CRACK"

The gap between two shingles in one course should always line up $1\frac{1}{2}$ " or more from the gap between two shingles in the course below.

Correct



Incorrect



GABLE ENDS / RAKES

When approaching the gable end of a course, it's always best to avoid cutting slates. Cutting DaVinci Slate at gable ends can almost always be avoided by choosing from the five different slate sizes, and spacing between slates. In the rare case when cutting is required, slates should be cut so that the factory edge faces out on the gable end.

Single-Width Slate Installation Tip

The slates are all 12" wide so must be cut at gable ends and any abutments. The 12" slate should be cut so that the factory edge is on the outside.

CUTTING

DaVinci Slate may be cut with a utility knife and straight edge. It may also be cut effectively with a circular saw. Carbide tooth blades are recommended for maximum blade life.



COLOR AND WIDTH VARIATION

DaVinci Multi-Width field slates come in five widths: 12", 10", 9", 7" and 6". Each bundle contains a mixture of 28 slates and includes a pre-collated assortment of widths and colors needed for each color blend. Single-Width Slate comes in a single 12" width with 22 slates per bundle, and each bundle is pre-collated by colors needed for each color blend. DaVinci Roofscapes recommends that slates should generally be installed as they come out of the bundles. Keep in mind there must be $1\frac{1}{2}$ " side lap maintained and installation must be in a rack or pyramid style.

INSTALLATION

HIP AND RIDGE PREPARATION

After installing field slates, hips and ridges should be prepared by installing a minimum 6" wide piece of non-corrosive metal or UV stable EPDM or equivalent over the hips and ridges. This metal or rubber should extend at least 3" from the center point on each side of the hip or ridge. Roofing nails that penetrate the roof deck by 3/16" should be used.

RIDGE VENT APPLICATION

If using a continuous ridge vent we recommend a rigid shingle roll-over type. When installing continuous ridge vent, care should be taken to insure joints in ridge vent are water tight. Once the continuous vent is installed, pre-packaged 6" DaVinci hip and ridge slates should be installed in accordance with the standard hip and ridge installation instructions below. Special caution should be used when cutting the decking on the ridge to assure adequate nailing for the ridge pieces. Roofing nails that penetrate through the roof deck and exceed it by 3/16" should be used.

STANDARD HIP AND RIDGE INSTALLATION

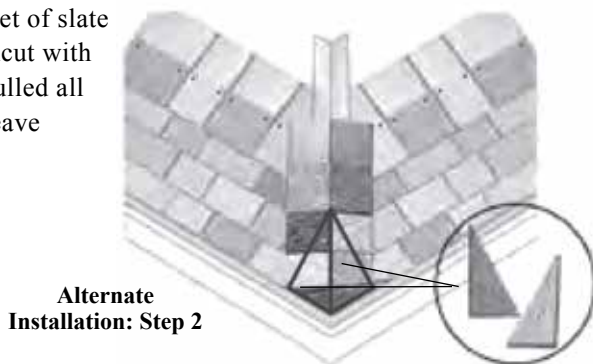
There are two ways to start applying DaVinci Slate hip and ridge at the bottom of a hip. The first way is to install a double course of DaVinci Slate hip and ridge on the bottom of the hip. In this method the top portion of the under-slate should be cut so that it only covers the first course of field slates. The second course is then installed without cutting. The tails of the slates are left uncut and will project past the eave of the roof. Using a chalk line to assure straightness, the prepackaged 7" hip and ridge should be installed one piece at a time so that the butts of two shingles are adjacent and the inside edges touch. These slates that make up a hip and ridge unit should be installed with a 6" exposure. DaVinci recommends using 7" units for hips and ridges unless continuous ridge vent is being used.

ALTERNATE HIP STARTER

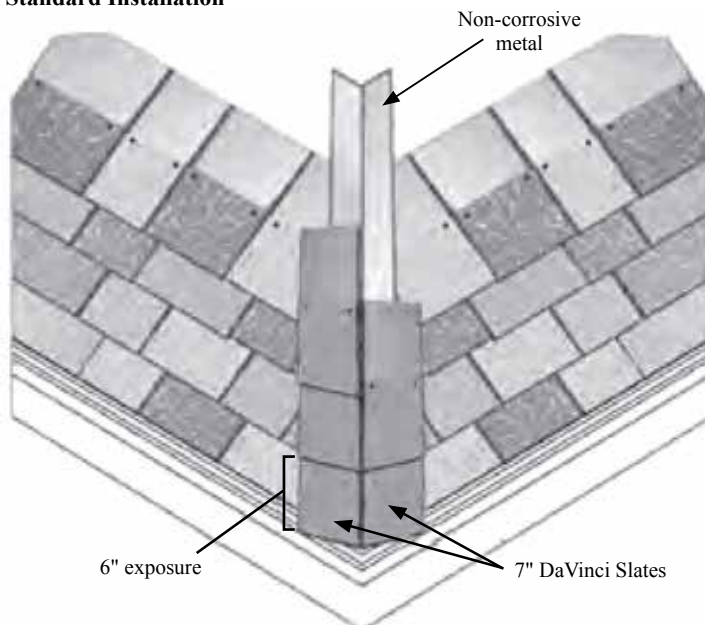
The second method for starting a hip will involve mitering the first two slates installed.

Step 1: Start by taking a single piece of DaVinci Slate hip and ridge and laying the butt of the slate with its corner at the corner of the hip and the butt flush with the eave of the house. Make a cut on the slate at the same angle of the hip. Cut a slate for the other side of the hip in the same fashion and press the two slates tight together.

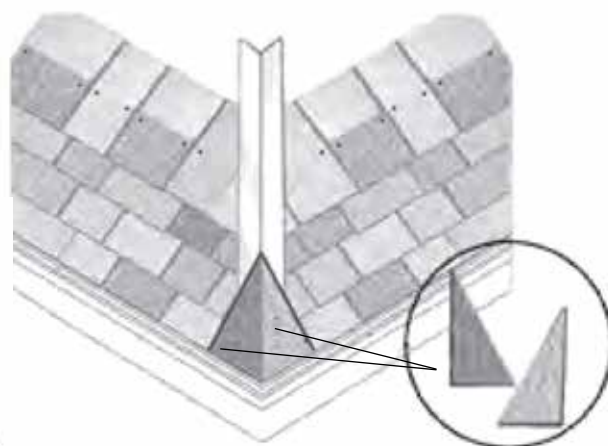
Step 2: The second set of slate should be installed uncut with these outside edges pulled all the way down to the eave of the roof.



Standard Installation



Alternate Installation: Step 1



INSTALLATION

VALLEYS

Because DaVinci Slate has a rib-structure on the underside, special care must be used when installing DaVinci Slate in valleys. Open or closed valley systems may be used with several variants of each system. Whether installing an open or a closed valley system, valley metal should be made from 24" stock of copper, minimum .019 aluminum, or minimum 28-gauge clad steel. DaVinci requires self-adhering membrane be used in all valleys. When installing a DaVinci color blend, DaVinci recommends using different colors and different widths of shingles as the first shingles in the valley for valley cuts.

OPEN VALLEYS

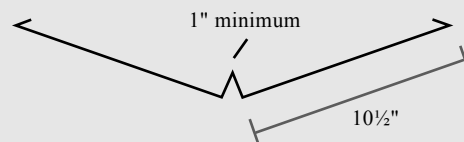
If open valleys are preferred, take special care in determining proper configuration of valley metal as the rib structure of the shingle may show once the slates are cut. Location of the valley, roof pitch and height of roof should be considered in determining if the cuts will be visible.

Option A: In many cases, with steeper pitched roofs, it is acceptable to install a "W" valley and cut the DaVinci Slate on an angle parallel and 2½" from the center diverter. Keep in mind that the cut rib structure of the slates may be visible from the ground with some roof pitches.

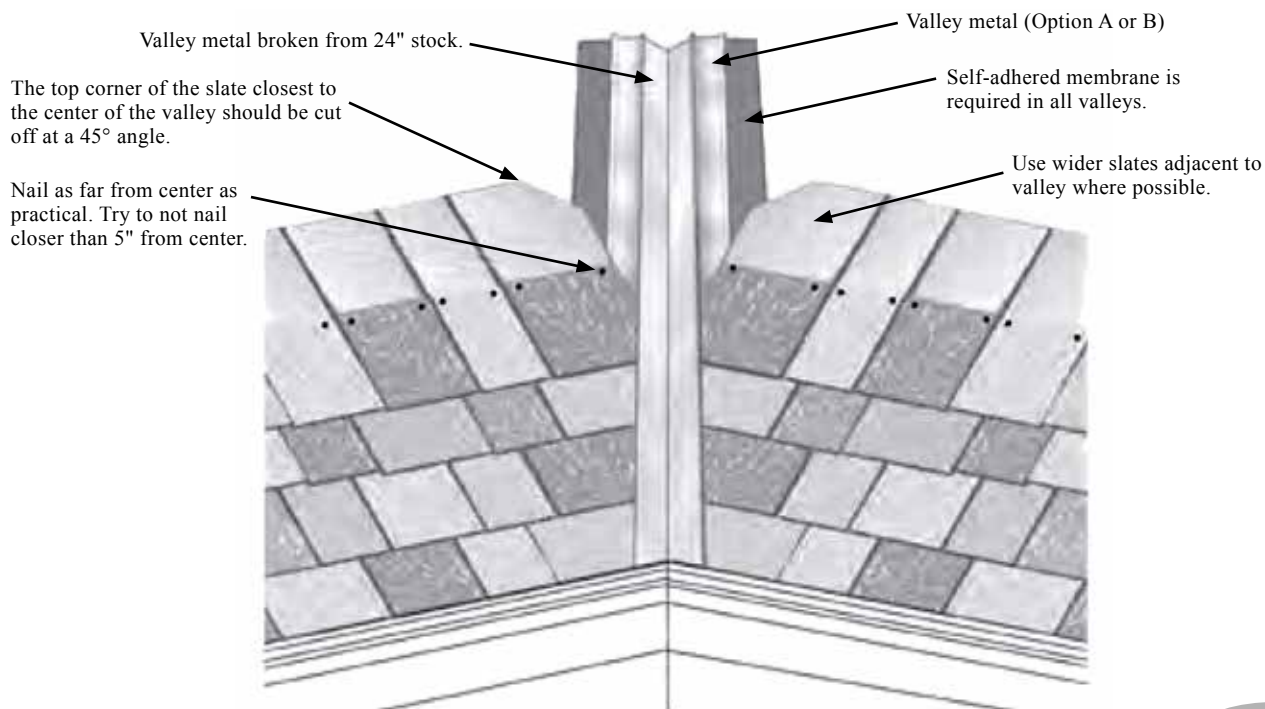
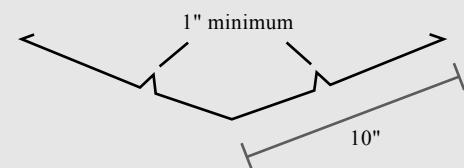
DaVinci offers 12" solid tiles if the rib structure or open area under DaVinci slates is a concern.

Option B: Where Option A is unacceptable, we suggest making the double "W" valley. This should be made from 24" stock that is broken in the middle without diverter to look like a "V". Additionally, there should be a "W" (diverter) on either side 2½" from the center line. (See Diagram) DaVinci Slate should be cut and laid against the diverters on either side to mask the rib structure.

Option A
Single Diverter Valley Metal



Option B
Twin Diverter Valley Metal



INSTALLATION

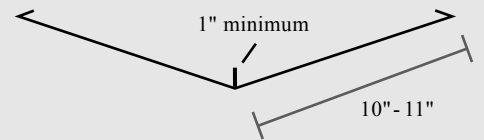
CLOSED VALLEYS

A closed valley can be achieved by using valley metal option (A or B). In our preferred method, option A, valley metal with a single, narrow-based diverter in the middle is used and the DaVinci slates are cut and butted to the diverter. An alternate is to use standard "W" valley with the slates butted against the diverter. Wider slates should be used as valley cuts in order to ensure that nailing be kept at least 5" from center or as far from center as possible.

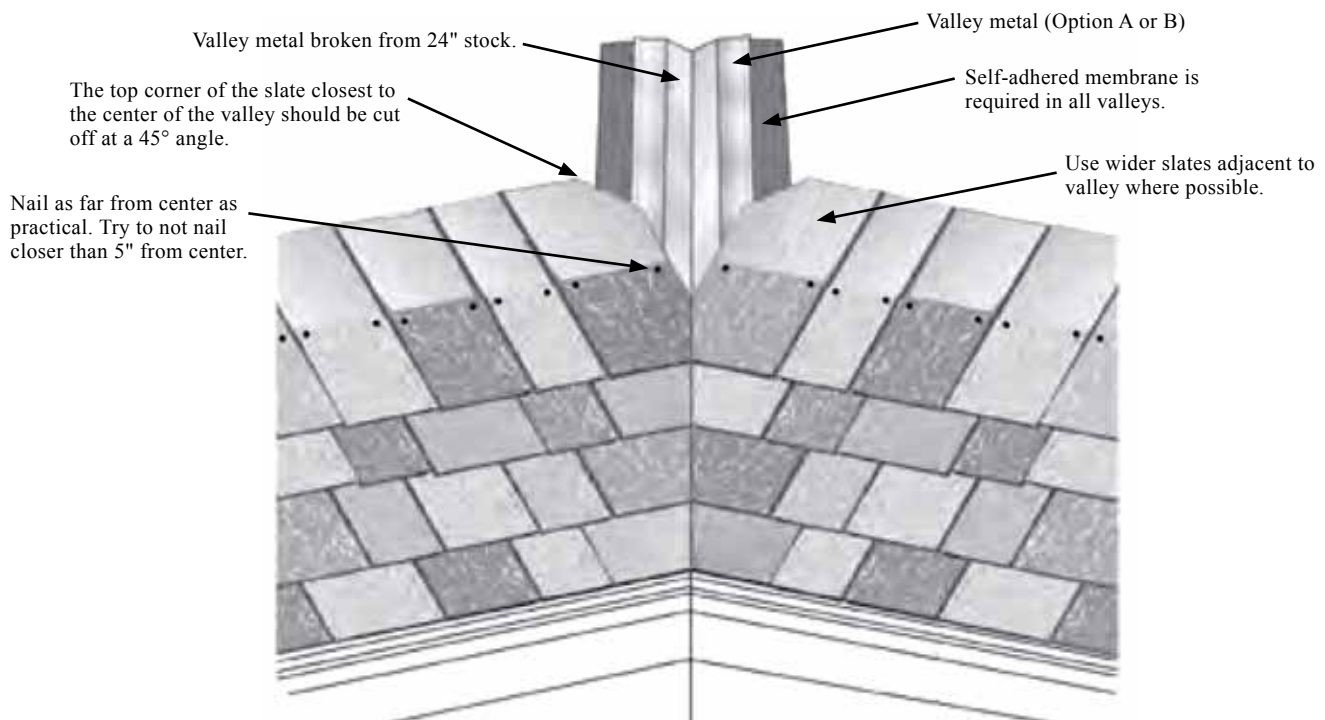
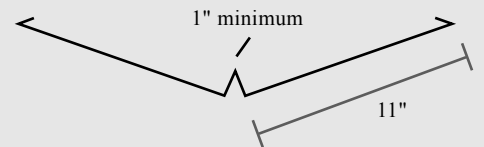
Option A: Install valley with a standing seam in the middle and place already-cut DaVinci Slate against center standing seam.

Option B: It is acceptable to install a "W" valley and place an all ready-cut DaVinci Slate against center diverter. Metal should be broken with a diverter at least 1" tall.

Option A
Standing Seam Valley Metal



Option B
Single Diverter Valley Metal

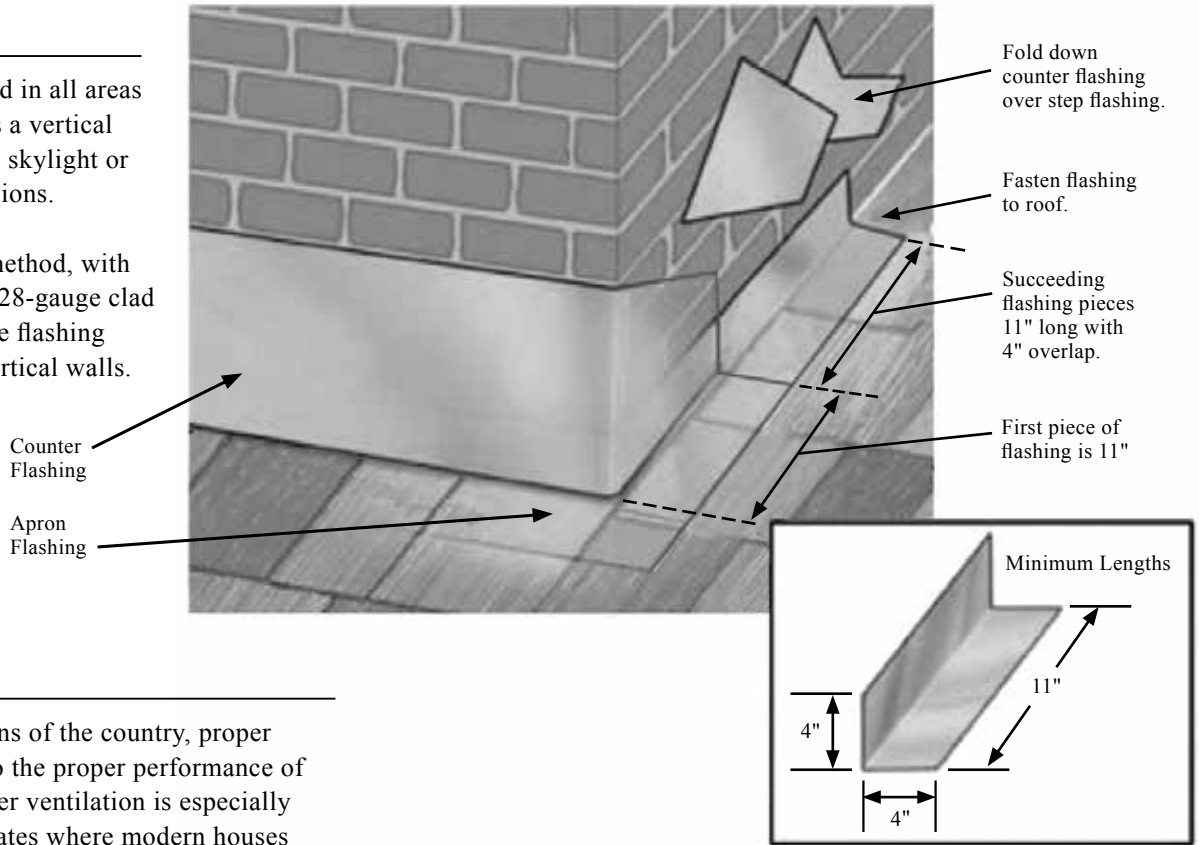


SPECIAL ISSUES

FLASHING

Flashing should be used in all areas in which the roof abuts a vertical wall, dormer, chimney, skylight or other structural protrusions.

Use the step flashing method, with copper, a minimum of 28-gauge clad steel, or aluminum. The flashing should extend 4" up vertical walls.

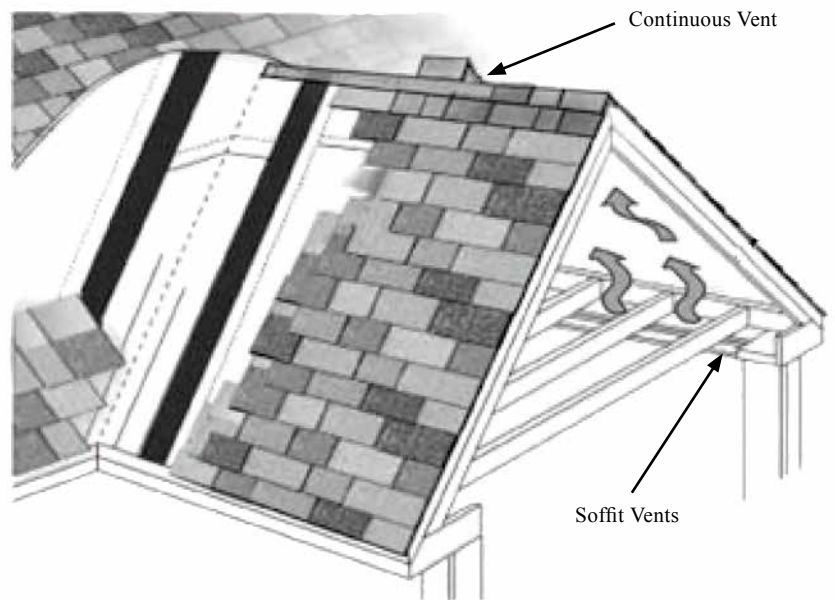


VENTILATION

In some climatic regions of the country, proper ventilation is crucial to the proper performance of a roofing system. Proper ventilation is especially important in cold climates where modern houses are well insulated and weather-tight. We suggest you follow standard building practices in your area and meet all national and local building codes. A continuous ridge vent is an especially effective ventilation system that we highly recommend.

SNOW GUARDS

Snow guards should be considered in all geographic areas where accumulating snow fall is possible. Most kinds of brass, copper, or clad aluminum snow guard systems work well with DaVinci. Rocky Mountain Snow Guards, Inc. is good source for further information about snow guards. Contact them at www.rockymountainsnowguards.com or call 877-414-7606. It is recommended that snow guards be installed during the installation of the DaVinci roof although retro-fit snow guards are available for previously installed DaVinci roofs. Details regarding installation remain the responsibility of the installer and the customer.



For additional information please see Q & A Guide to Snow Guards at <http://dvroof.com/1BEYN1W>.

Consult with your local contractor to determine if snow guards would be appropriate for your project. DaVinci makes no representations or warranties about the propriety of snow guard installation on any given project. Rather, the decision to install snow guards rests solely with the end user.

PRODUCT FEATURES

EXPOSURE

With DaVinci Slate, the allowable exposure depends on two factors:

1. Roof Pitch
2. Whether the slates are laid staggered or straight

Use Exposure Alignment Guides with the top edge of the previous row of slates to control the exposure.

ROOF PITCH	COURSING	EXPOSURE
Less than 3:12	Not Recommended	
* 3:12 to 4:12	Straight or Staggered	6"
4:12 to 6:12	Straight or Staggered	6"
6:12 or greater	Staggered	7"
6:12 or greater	Straight	7½"
6:12 or greater	Straight	8"

*For slopes between 3:12 and 4:12, an ice water shield is required over the entire area.

NAILING

Each shingle should be applied with two copper, non-corrosive stainless steel, or hot-dipped galvanized, 3/8" head x 1½" length nails. Roofing nails that penetrate through the roof deck and exceed it by 3/16" should be used. Slates can be nailed by hand or with a pneumatic nail gun. Don't overdrive nails or nail at an angle. Keep the nail head flush with the surface of the shingle to avoid creating "craters" which can collect moisture and can also prevent the exposed end of the shingles from laying flat.

Use these alignment guides with the top edge of the previous row of slates to control the exposure.

CUTTING

DaVinci Slate can be cut with a utility knife and straight edge. Electrical circular saws (carbide blade, two teeth per inch) or cordless circular saws (a minimum of 18 volts is recommended) may also be used.

Please note: DaVinci Slate is made flat, should be stored flat, and must not be installed unless it is flat and in its original form. If slates are not stored flat and become twisted or curled, lay them flat in a warm place and they will return to their original flatness. Damaged shingles should never be installed.

ELECTRO-GALVANIZED NAILS

DaVinci recommends the use of copper, stainless steel, or hot-dipped galvanized nails. We realize however that in many climatic regions nail corrosion is not a factor in the long-term performance of the roof system. Therefore DaVinci Roofscapes supports the use of Electro-galvanized nails and a system using those nails will be in compliance with the DaVinci Limited Lifetime Material Warranty. The exception to that is that if the nails fail, any portion of the warranty associated with wind performance would be void.

For questions about DaVinci Slate or its application, contact DaVinci Roofscapes®, LLC
913-599-0766 or 800-DaVinci (800-328-4624) or www.davinciroofscapes.com

Please be sure to check DaVinci's website for updates. Installation Guide is subject to change without notice.



QUICK REFERENCE

ISSUE	DAVINCI RECOMMENDS	ACCEPTABLE ALTERNATIVES
Valley	Copper	28-gauge clad metal
Flashing	Copper	28-gauge clad metal
Eaves Flashing	Copper	28-gauge clad metal
Nails	Non-Corrosive Stainless Steel	Hot-dipped Galvanized