

Shingle Installation Guide



Getting Started

Dedicated to improving the environment, NewTech manufactures roofing tiles that are composed of up to 90% recycled post-industrial plastic. The manufacture of NewTech tiles prevents these materials from ending up in landfills. Because of their recycled content, NewTech roofing tiles feature incredible strength and flexibility and provide long-lasting performance.

The use of NewTech products also preserves valuable natural resources, as no trees are used and no stones are quarried in the production of NewTech's products.

When getting started, be sure that you have all the necessary material together with NewTech shingles.

Additional Required Material:

Decking: NewTech shingles must be installed over solid decking. A minimum of 15/32" plywood is recommended. A minimum 7/16" OSB or 1"X4 nominal lumber may be used instead of plywood if preferred. It is also recommended that all previous roofing materials be torn off prior to installation of NewTech Slate.

Underlayment: A minimum of one layer of 30 lb non-perforated asphalt saturated felt or synthetic underlayment, meeting requirements of **ASTM D266** must be installed over the entire roof. Any tar-based underlayment must be able to withstand high temperatures of 180 degrees F. **The use of any other tar-based felt underlayment will void your warranty.**

Ice Water Shield: Ice water shield is not required in most areas. Please check with your county building code. It is not recommended if not necessary. In addition, all ice water shield used must be

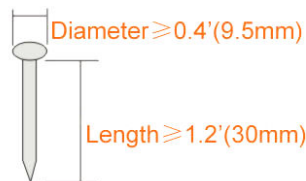
able to withstand high temperatures of 180 degrees F. A layer of synthetic underlayment may be used in place of an ice water shield. **The use of any other tar-based ice water shield will void your warranty.**

I understand fully that these shingles take 135 degree ambient temperature for 3 days on the roof to seal together.

Signature,

Flashing: Copper is the recommended flashing material on eaves and rake edges, although 26-gauge-clad steel can also be used. Flashing is required at all valleys, and the perimeter of the shingle layout.

Nails: NewTech shingles can be secured with copper, stainless steel, or hot-dipped galvanized nails. For NewTech slate shingles, one square of roofing at 7" exposure will require about 344 nails. At 6" exposure would require about 400 nails. Required dimensions are detailed as below.



Color Variation:

Similar to real slate, NewTech™ slates fluctuate in color from pallet to pallet. For an authentic look, all slates should be mixed during installation. This will ensure any color contrast to be evenly spread and balanced throughout the roof; minimizing any blotching of colors for visual appeal. For best results create presorted bundles by selecting one bundle from every pallet, then selecting one slate from every bundle. Create these mixed bundles until the roof installation is finished. Mechanically mixing the slates evenly spreads out each bundle as far as possible.

Important Reminder:

By taking one slate from each bundle and each bundle from a different skid, this will spread any color variation evenly. New Group Asia Construction Material Supply Inc. will not be held liable for improper installation of the slates.

Roof Ventilation:

It is imperative that your roof be vented appropriately. Without proper ventilation your roof is prone to condensation, mold mildew, warping of the roof deck, and/or deteriorating building materials. All roof structures should be vented in order to allow heat buildup and moisture to escape the attic area. Vents are to be placed proportionately at the eaves, i.e., soffits (for cold air in) and at or near the ridge (for hot air out). Cross-flow ventilation should be allowed for in valleys where Stress Skin roof panels or cathedral ceilings are in use. Metal, wood or polymer ridge vents are all acceptable.

Important Reminder:

Always ensure that your roof has adequate roof ventilation regardless of the roofing material being used. If not you may be at risk of serious structural damage

Tools:

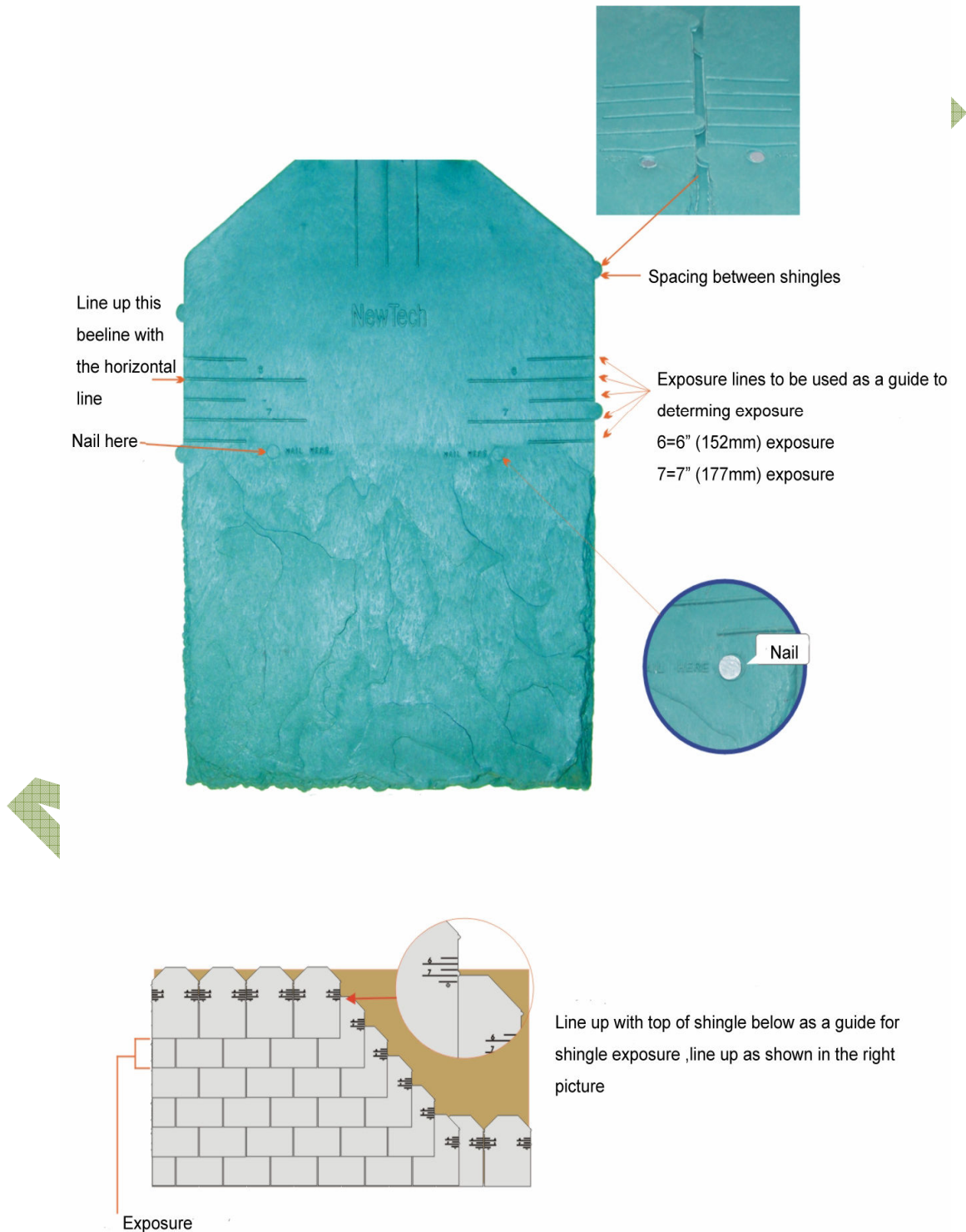
Roof Brackets: Use roof brackets when installing shingles on a roof with slope greater than 6" rise over 12" run. When removing roof brackets, no sealant is required to seal the holes. NewTech shingles have a self-sealing property, and will seal itself over time. If sealant is preferred, Silicone based sealant is recommended.

Hammer/ Nail Gun: Nail guns and all other tools to secure nails could be used with NewTech Shingles.

Chalk Line: Chalk lines are required to ensure proper alignment. It is recommended to use a chalk line. Markings on shingles should be used as a rough guide only.

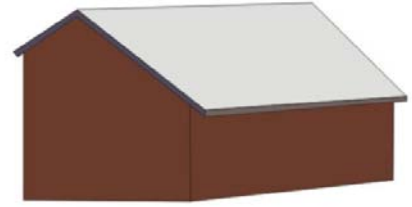
Utility Knife/ Saw: A simple utility knife could be used to cut shingles to the correct shape and size as necessary for gable ends, and valleys. NewTech shingles are solid all the way through, and would not leak even when cut.

Details on NewTech shingles

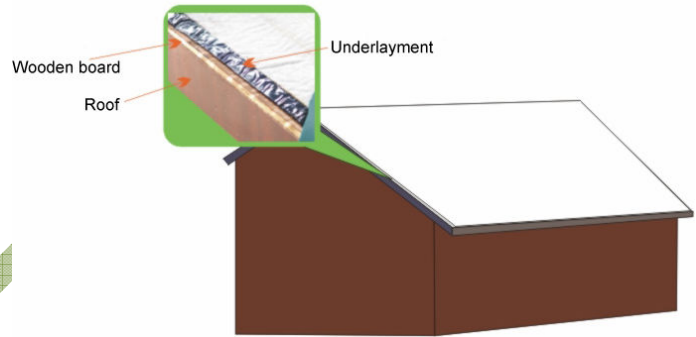


Installation Procedure

Prepare roof deck. Make sure all nails are nailed in, and remove all debris and dirt. If deck is not properly cleaned, the underlayment may not be able to be secured properly. Do all repairs to the roof deck if necessary before beginning.



After the roof deck is ready and cleaned, you may begin to install the felt underlayment. When laying the felt underlayment, make sure that the underlayment is as flat to the deck as possible. Use wood blocks and similar objects to flatten underlayment.



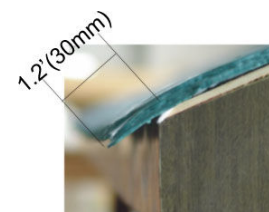
(1) Step one

Installation of all shingle shapes and exposure are the same. Please contact one of our representatives if you require any special installations.

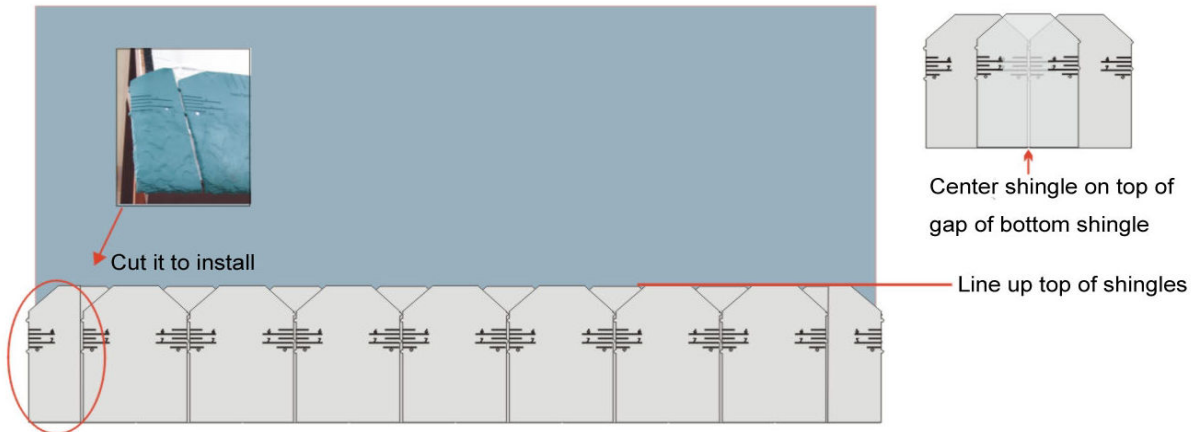


Lay the first row of shingles as a starter course

Actual layout

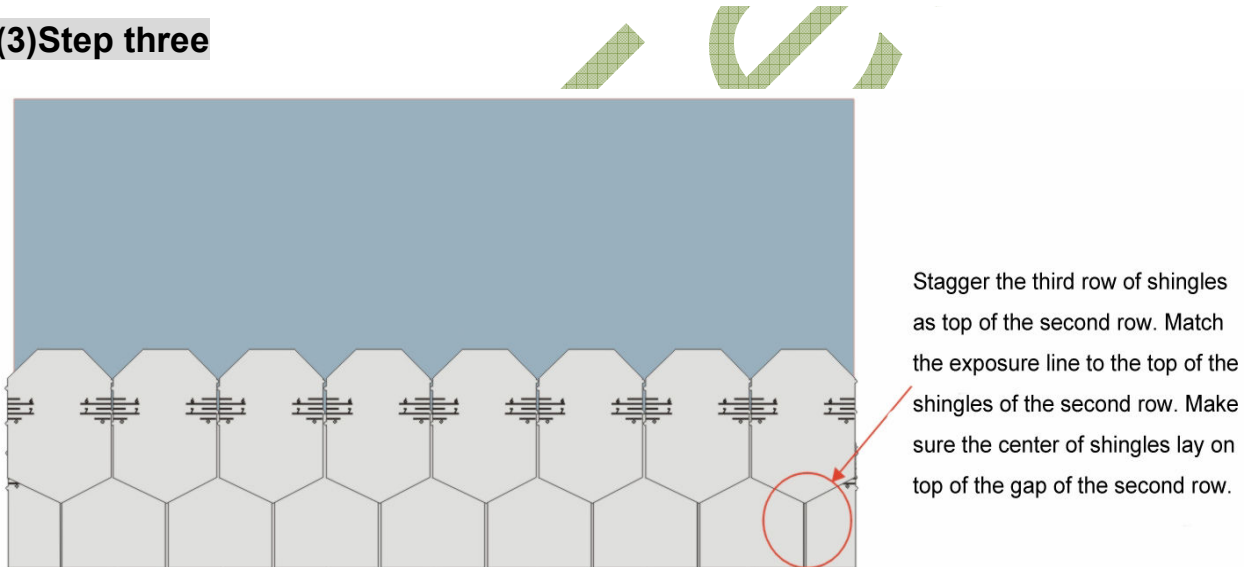


(2)Step two



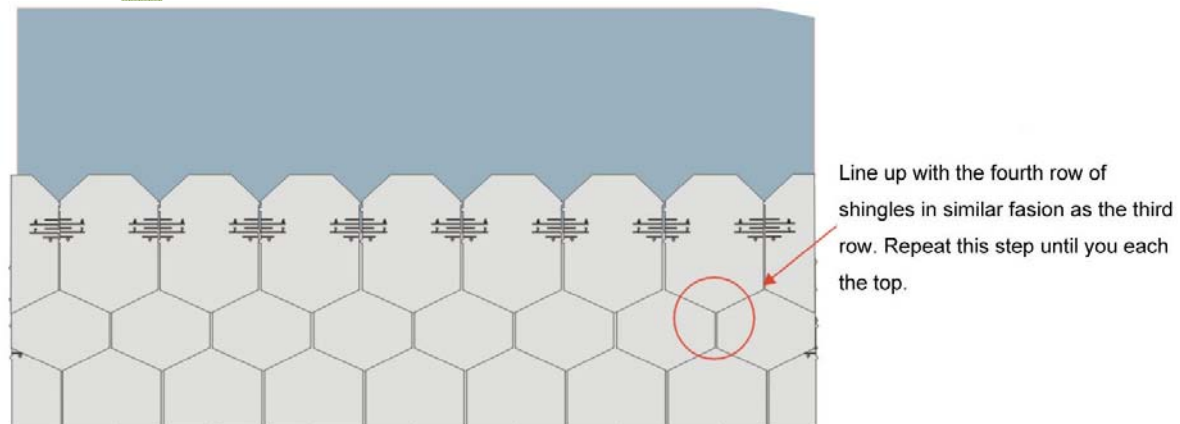
Lay a second row of shingles directly on top of the starter course. Stagger the shingles so that the center of the top shingles lay on top of the gaps of the starter course. At gable end, use a utility knife or saw to cut shingles to size and install as shown in the above picture.

(3)Step three

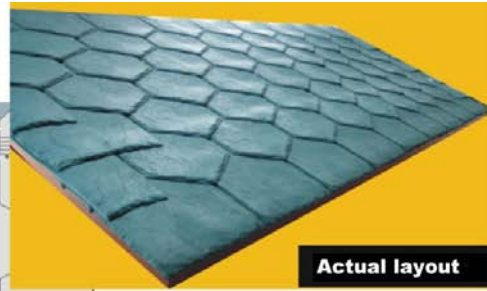
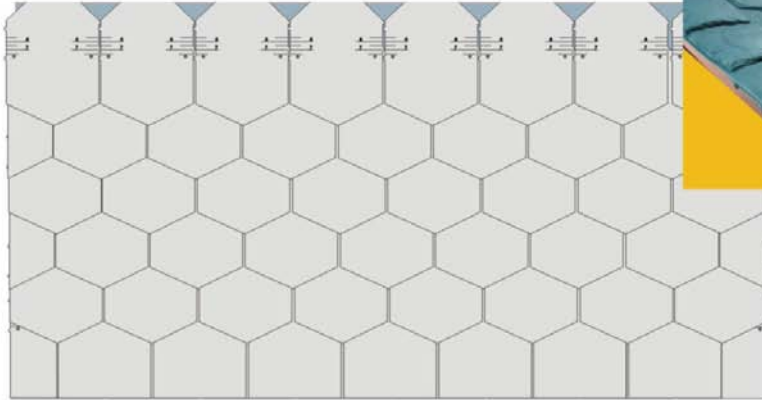


Note: Avoid "crack on crack"--the gap between two shingles on course should never line up less than 1.5"(38mm) from the gap between two shingles on the course below.

(4)Step four



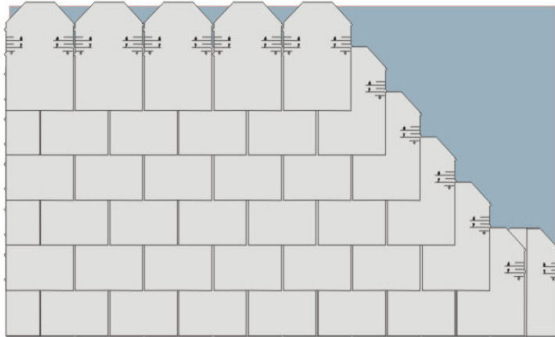
(5) Step five



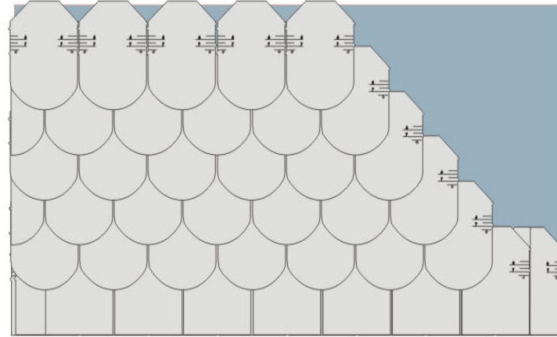
Final layout of shingles when complete

(6) Various shape layouts

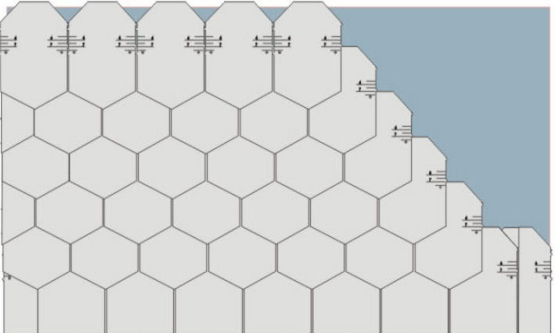
Colonial layout



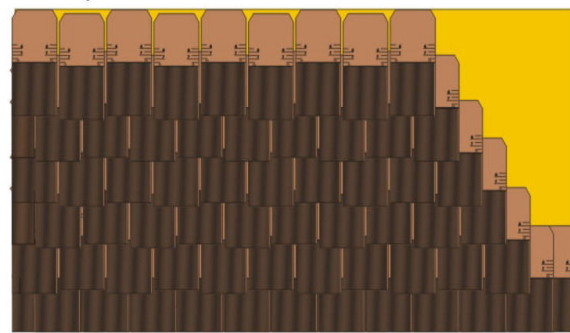
Beaver Tail layout



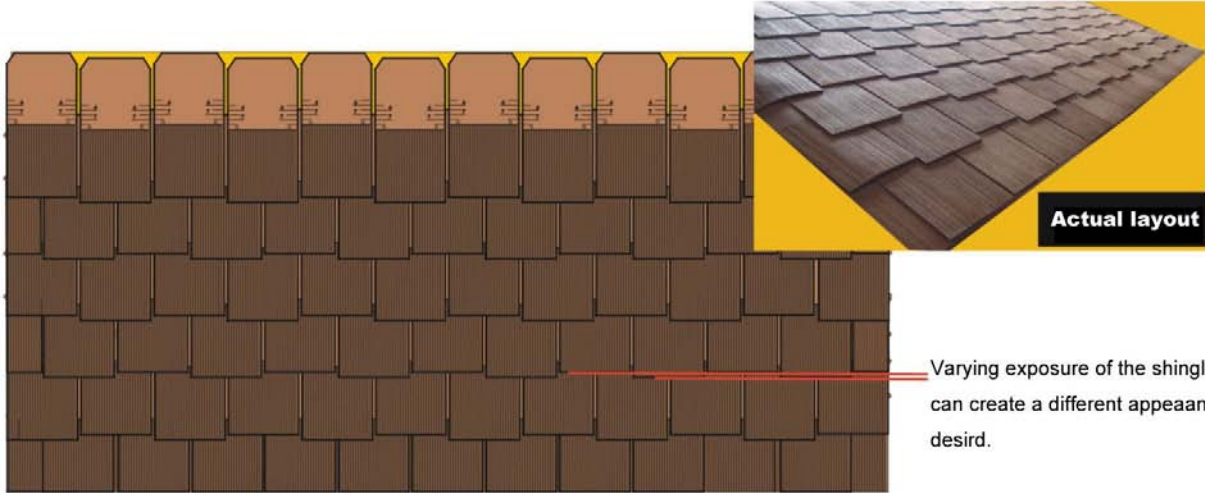
Chisel Point layout



Shake layout

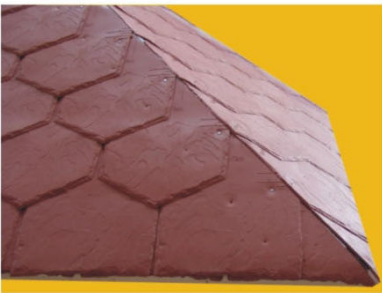


(7) Different effect of wood shake layout



Varying exposure of the shingles can create a different appearance if desired.

(8) Hip



Picture 1: Install shingles on to the sides of the hip as shown above.



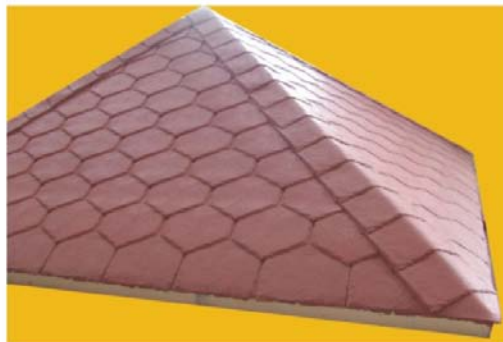
Picture 2: Install the first piece at the bottom of the hip. Cut the top shingle to line up with the other shingles. Mold shingle to the shape of the hip.



Picture 3: Install the next shingle as shown above. Additional nails may be used to firmly secure shingles. Repeat this step until you reach the top.



Picture 4: Typical Ridge is connected to 3--4 hips. At ridges, overlap the top pieces of each hip as shown in above picture.



Picture 5: Final layout

(9) Valleys

- **Closed valleys**

We recommend a closed valley system. Copper valley metal, broken in the middle and crimped on the outside edges, is recommended as part of the closed valley system. A minimum 26-gauge-clad steel may also be used if preferred.

Slate shingles should be cut to fit flush with matching course on the opposite side. Wider slates should be used as valley cuts in order to ensure that nailing be kept as far from centerline as possible (at least 5" from centerline). An alternative version of a closed valley uses valley metal with a single narrow-based diverter in the middle. The diverter helps to keep the valley cuts straight and is hidden, for the most part, by the thickness of the shingles. See the picture on the right.



- **Open valleys**

If you prefer open valleys, the copper valley metal broken with a one-inch diverter in the middle and crimped on the outside edges is recommended. A minimum 26-gauge-clad steel may also be used if preferred. In open valley applications, metal should be broken with a diverter at least 1" tall. Slates should be cut 3" from centerline. Valley metal with twin diverters may also be used as shown below.



--The End--

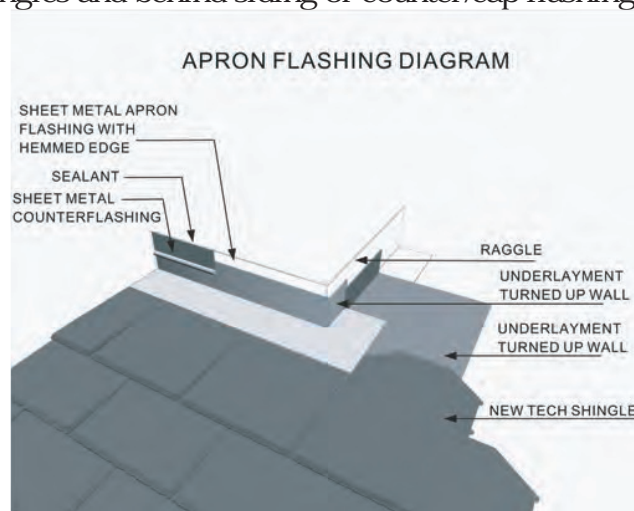
Flashing

Flashing is to be used around all obstructions on the roof. Such as dormers, chimneys, valleys, etc. NewTech suggest copper as one of the most durable material that will last just as long as the shingle itself.

Note: Flashings will not be warranty by New Group Asia.

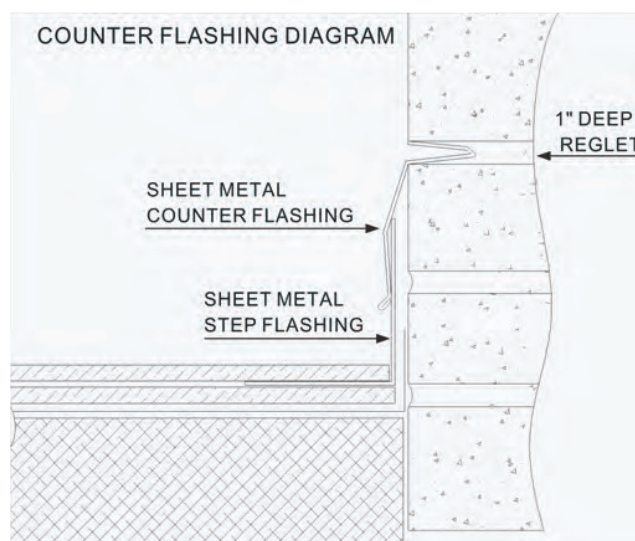
Apron (Roof to Wall) Flashing

Apron flashing is used when a roof terminates to a wall causing a course to be cut and face nailed. It is installed over the shingles and behind siding or counter/cap flashing.



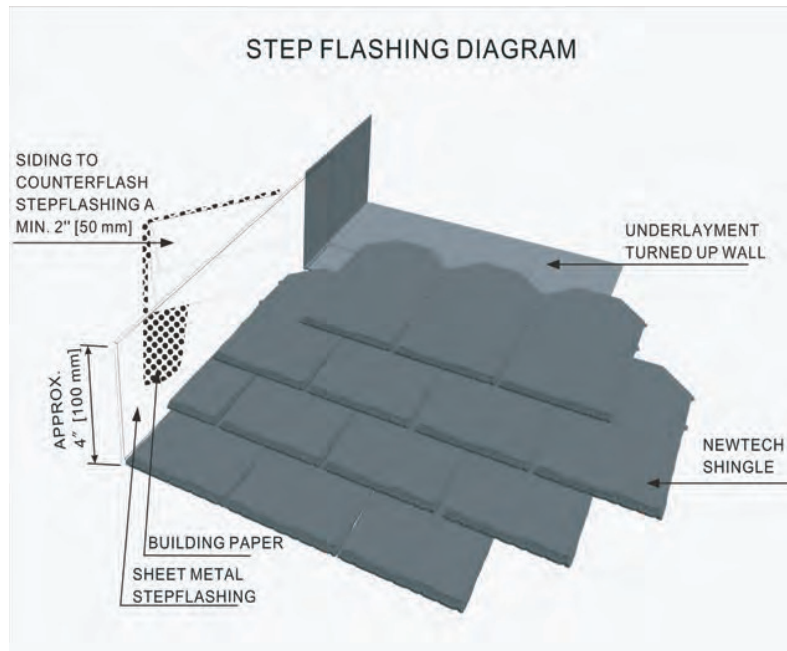
Counter Flashing

1. Cut a minimum 1" deep reglet into the masonry material
2. Custom bend the counter flashing to fit the reglet
3. Start by installing lowest piece first and work upwards for proper water runoff
4. Fasten the counter using either expandable anchors or masonry screws



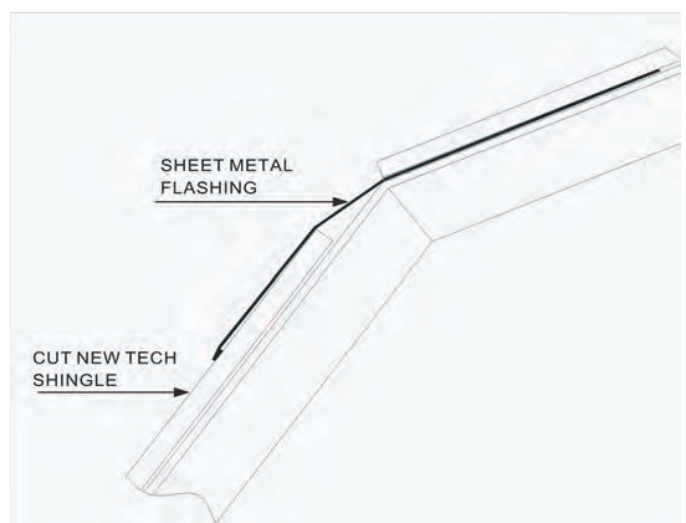
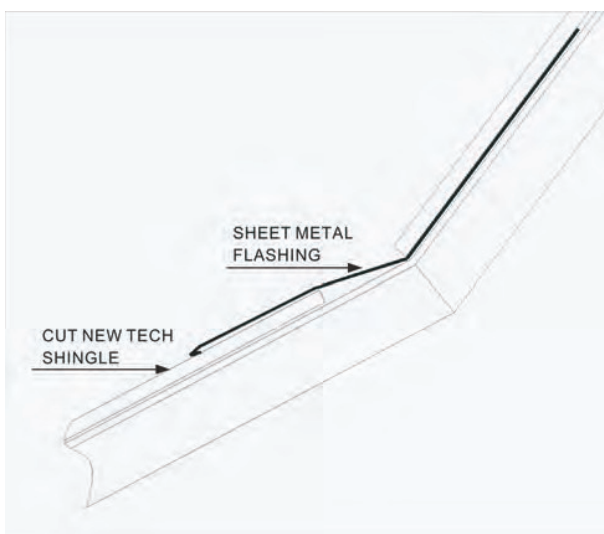
Step Flashing

Step flashing is to be used over or under the roof coverings and are turned up on the vertical surface. Step flashing should extend under the uppermost row of the roof tile the full depth of the roof tile or at least 4" over the roof tile immediately below the metal. The vertical leg of the metal should be turned up a minimum of 4" and extend 4" on the roof tile with $\frac{3}{4}$ " hem. Flashing should have a minimum length of 9" and must overlap a minimum of 2".



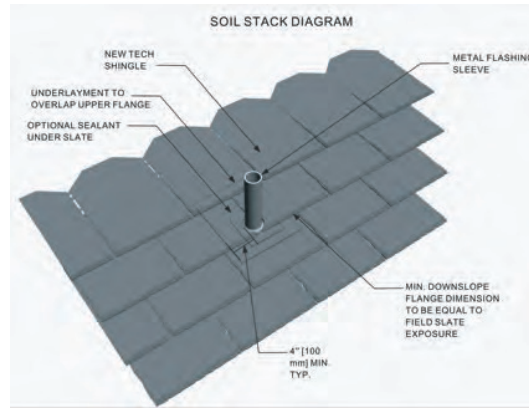
Pitch Changes

NewTech Roofing tiles can be installed onto rolling roofs with a gradual pitch change. However, in the case of some roof designs, drastic pitch changes will require the use of metal flashing where necessary.



Vent Flashing

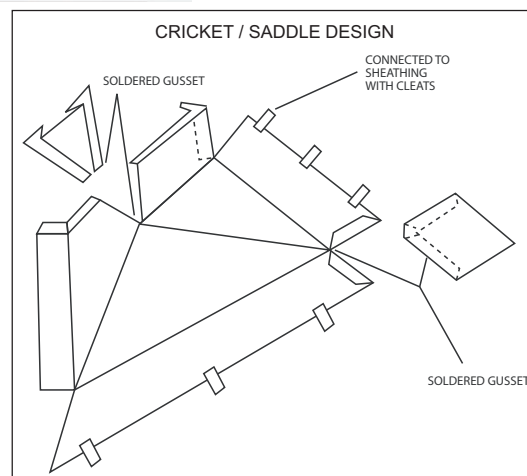
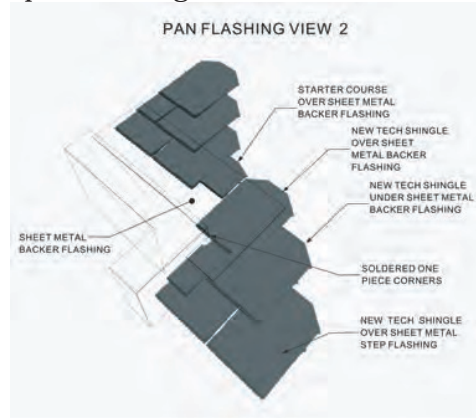
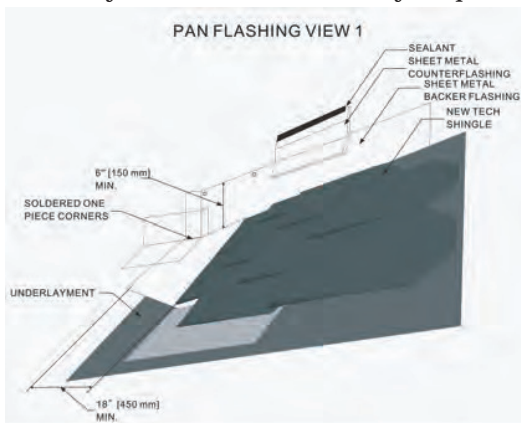
Normal type of roof vents or pipe boot flashing can be used. A lead or PVC stack for plumbing pipes is recommended. Materials with extended-life should always be used.



Chimney Saddles

With chimneys more than 2 feet wide it is recommended that a cricket or saddle be installed to divert water from the back of the chimney.

Chimneys less than 2 feet may require only a simple pan flashing.



New Group Asia is not responsible for correct or incorrect installations of any flashing materials.