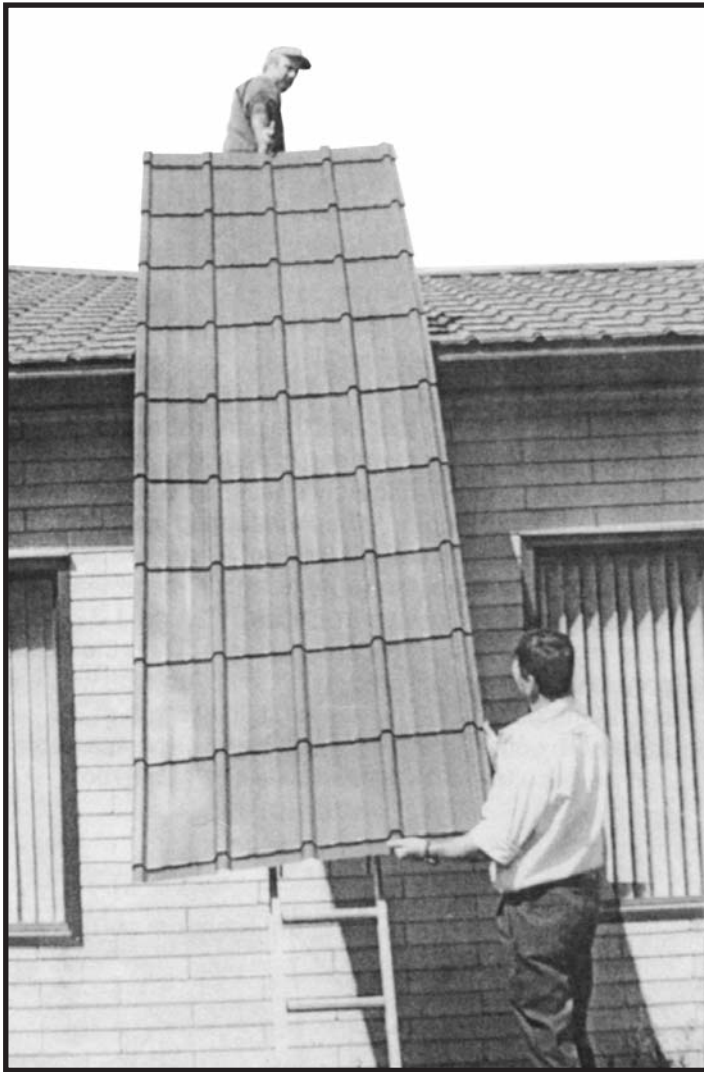


STEEL TILE TM **co.**

METAL ROOFING MANUFACTURERS



**It's More Than
Just a Roof
Over Your Head!**

**ELITE
KATECH
MUSKOKA
SLATE SHAKE
SUMMIT**

3487 Thomas St. Innisfil, Ontario L9S 3W4

Tel: (705) 436-1723

Fax: (705) 436-6329

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e-mail: tileinfo@steeltile.com

**PRODUCT INFORMATION
INSTALLATION INSTRUCTIONS**

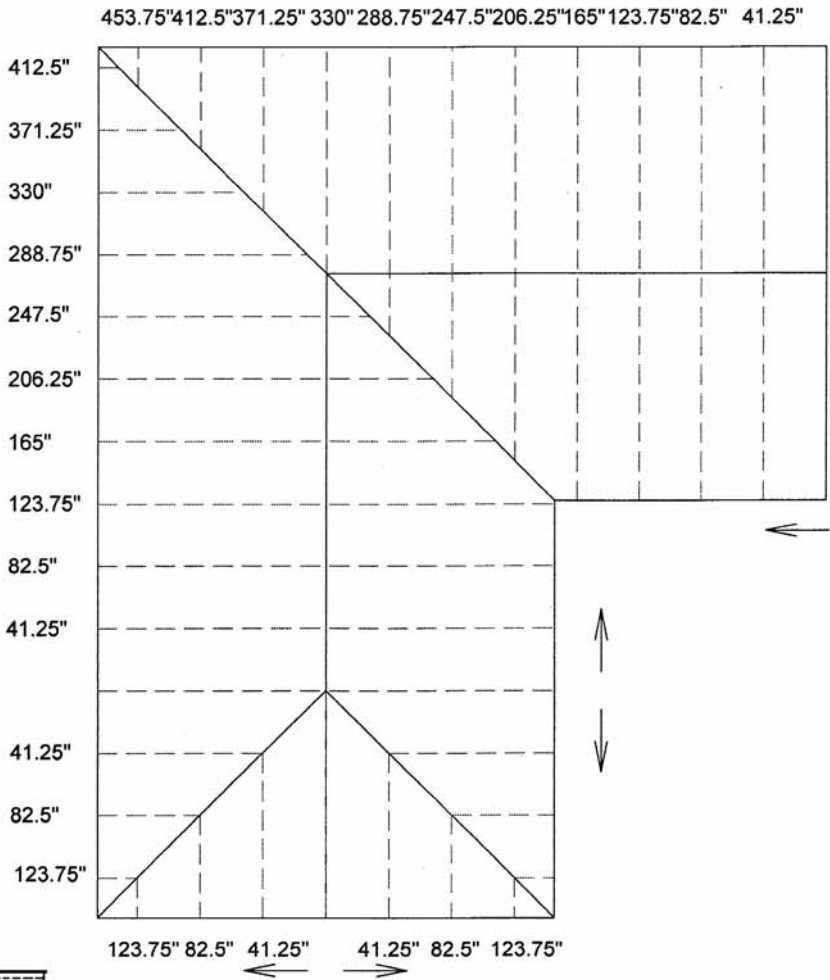
Measuring:

To estimate a roof, make a sketch of the roof (looking from the top down) and measure every straight line, including the ridges, gables, eaves, valleys, and hips. Then calculate how many panels, and what lengths are needed. Each **Katech** panel covers 39 1/2" net width, each **Elite** panel covers 41 3/8" net width, and each **Slate Shake** and **Muskoka** panel covers 43 1/2" net width. Panels are cut to the inch, from 4'0" to 40'0". Keep in mind special transportation or space requirements before ordering long panels. It may be necessary to use two panels. If using two panels, overlap the panels one step.

Number of panels:

Measure in the direction of the arrows in Detail 1.1 (starting from gable ends, then from hips, but always measure into valleys), in multiples of the net width of the panel.

DETAIL 1.1:

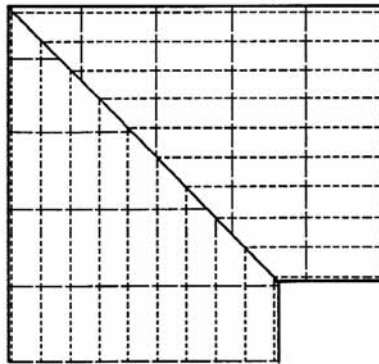


Length of panels:

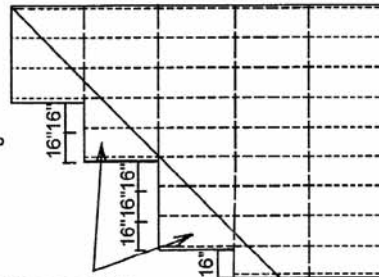
Measure the length of the panel from the eaves to the ridge; maintaining an overhang of approximately 3/4" past the fascia board. On cottage style hips, be careful to measure the actual panel length. When measuring panels for a valley, **the horizontal steps must line up**. Therefore, measure the exact length wanted, then subtract in 16" increments from the longest panel, as shown in Details 1.2 and 1.3. The solid lines represent panel lengths required. Then the tops of the panels will line up, the steps will line up, and the waste will be cut off the bottom. On gable ends the length of the gable is the length of the panel. Any part sheets from the gable ends can be used to start the other side of a gable roof.

DETAIL 1.2:

TO GET VALLEYS TO LOOK LIKE THIS:

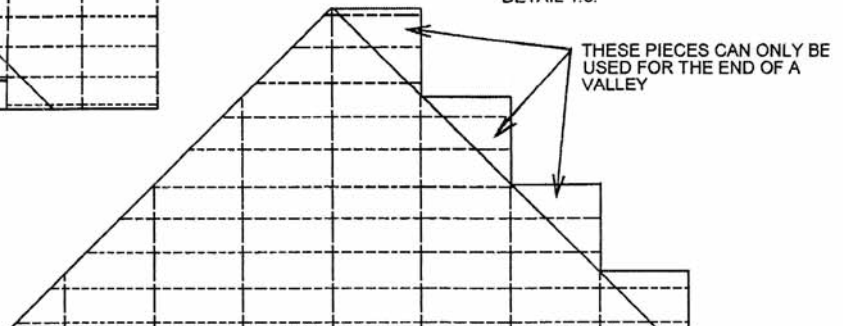


SUBTRACT FROM THE BOTTOM OF THE LONGEST PANEL IN 16" INCREMENTS THEREFORE, ALL STEPS LINE UP



THIS WASTE CAN BE USED ONLY FOR HIPPS

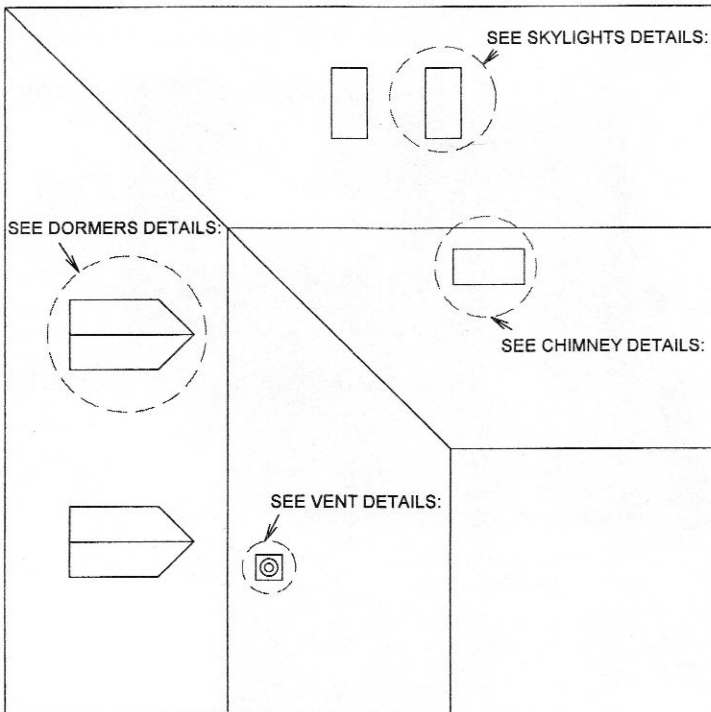
DETAIL 1.3:



Installation of Steel Tile:

Start on the backside of the building, so panels are not dragged over installed panels. Ladders used to drag panels up should be at the same angle as the roof and reach from the ground to the eave. Steep pitched roof installations sometimes need to be done from a ladder hung from the ridge. Always remember safety when working with power tools and high buildings. "It is not how high you fall from, but it is that sudden stop." **Always check with the building inspector, and follow the local building codes.**

DETAIL 2.1: LEGEND



1) Install Plywood/Strapping:

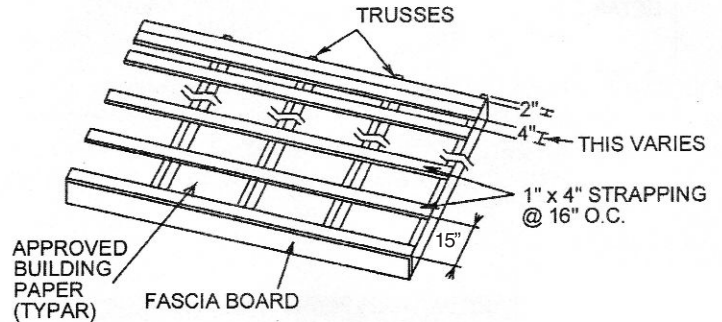
If reroofing, Steel Tile roofing panels can be installed on top of old shingles, saving time and money on removal and dumping fees. Trim all shingles flush with the fascia board. Inspect the plywood condition and joint locations. If the plywood is not in good condition, 1" x 4" strapping may be required over the existing roof. Screws should not hit joints between plywood sheets. If they do hit a joint, move the screw down a little to miss the joint.

If new construction, Steel Tile roofing panels can be installed on 1/2" plywood, or approved building paper and 1" x 4" rough sawn wood strapping @ 16" o.c.

Plywood: Install 1/2" plywood over the roof framing, leave a 2" gap at the ridge for ventilation. In areas where ice or snow dams are possible, or where the local building codes demand, eave protection or underlay must be provided.

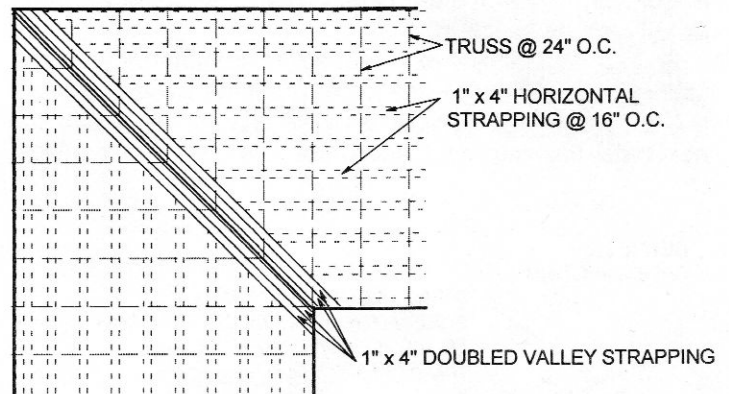
Strapping: Install approved building paper on top of roof framing. Then install 1" x 4" rough sawn strapping @ 16" o.c. (NOT 16" spaces, but 16" from front edge of strapping to front edge of strapping), starting flush with the fascia board. The last 1" x 4" should be 2" down from the ridge with a second 1" x 4" nailed tightly against it, as shown in Detail 2.2. The building paper should also be slit in this 2" gap, because this 2" gap provides proper ventilation at the ridge. Strap around all vent pipes and turbines. Double up strapping at all hips and valleys, as shown in Detail 2.3. Follow Details 2.2 and 2.3.

DETAIL 2.2:



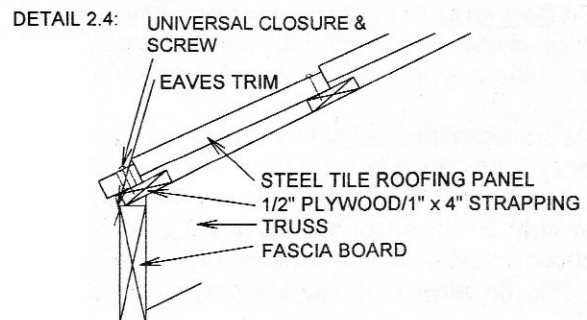
DETAIL 2.3:

DOUBLED VALLEY STRAPPING IS SIMILAR TO HIP STRAPPING.

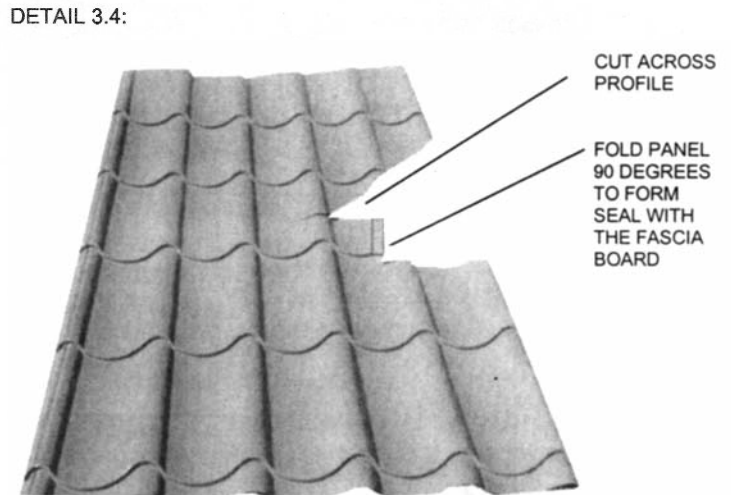
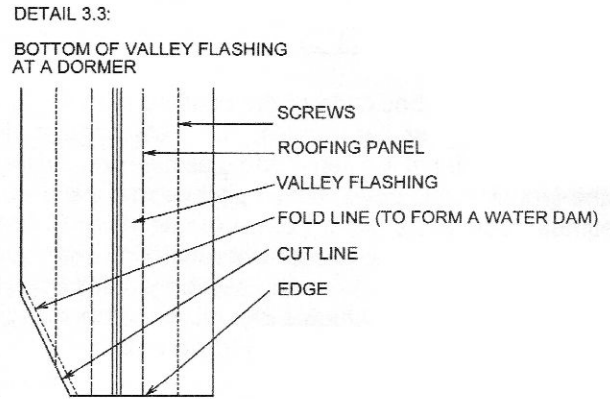
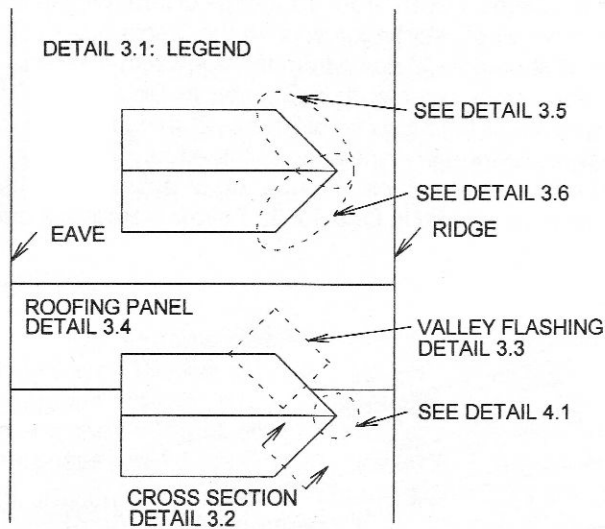


2) Install Eave Trim:

Follow Detail 2.4.

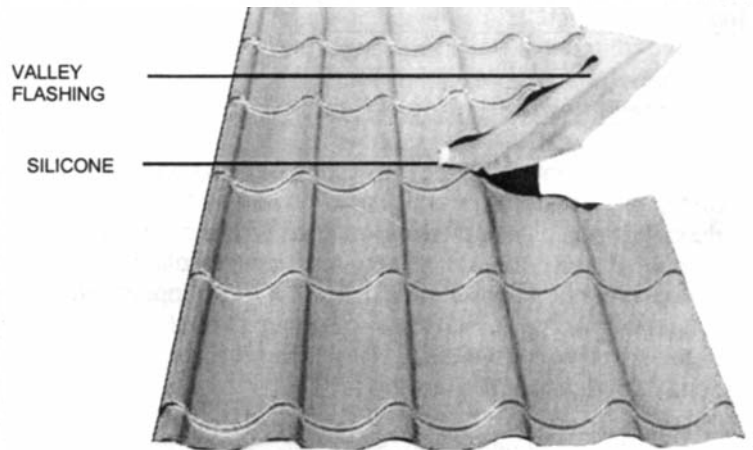
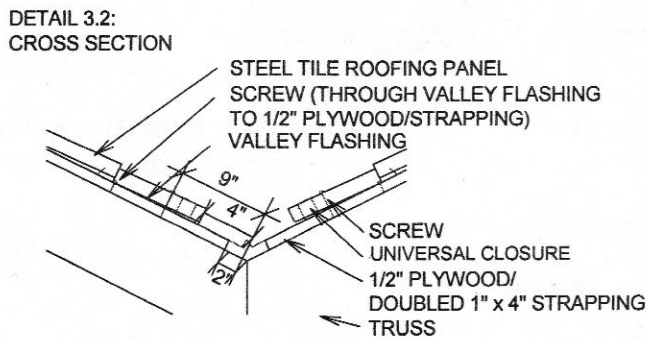


3) Install Valley Flashings:



Start placing the valley flashing from the bottom of the valley. Push the valley flashing down to form to the slopes of the roofs. Screw the sides of the valley flashing to the 1/2" plywood or 1" x 4" strapping. Keep screws in the valley flashing as far from the centre as possible, as shown in Detail 3.2. **NEVER** cut the bottom of the valley flashing to form to the eaves, except if there is an eavestrough to carry water away from the building.

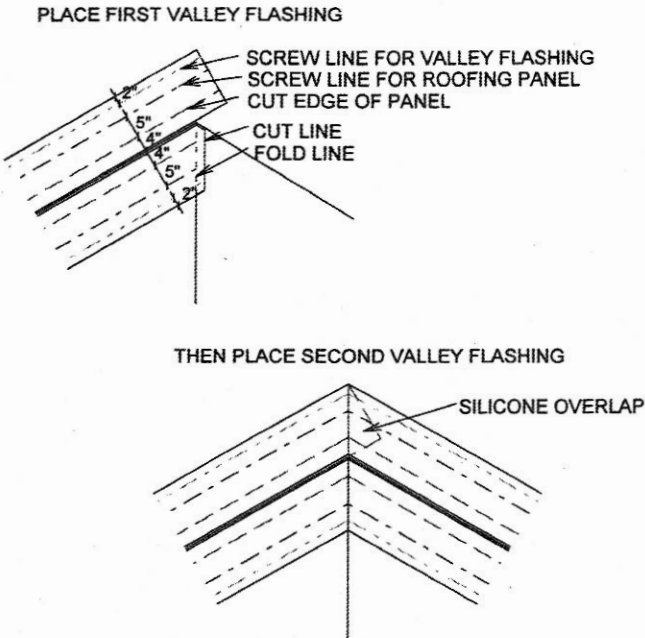
If overlapping is required to lengthen the valley flashing, overlap approximately 6"-7". If the slope of the roof is low then there should be more of an overlap. Insert the next valley flashing on top and silicone between the flashings.



At Dormers: At the bottom of the valley cut and fold the flashing, as shown in Detail 3.3. Cut and fold the roofing panel and fit the flashing into the panel, as shown in Detail 3.4.

At the top of the valley flashing, draw a straight line on the valley flashing along the ridge. Cut a line 2" over, as shown in Detail 3.5. Then fold the valley flashing over the ridge. Similarly, cut the second valley flashing along the ridge line, as shown in Detail 3.6, and install it over the first valley flashing. Silicone between the overlapping flashings. Follow Detail 4.1.

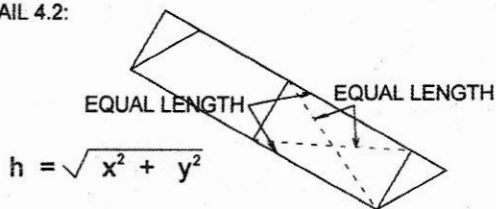
DETAIL 4.1:
TOP OF VALLEY FLASHING
AT A DORMER



4) Install Roofing Panels:

Install *Katech* and *Elite* panels from right to left, and *Slate/Shake* and *Muskoka* panels from left to right (looking up from the ground). It is possible to "backsheet", by partially lifting the fastened panel up and placing the next one underneath. This may be necessary when on a steep pitched roof, as panels tend to slide down and cause the edge to creep past the eaves. Start laying panels from gable ends, then from hips, but always into valleys, because buildings are not always square. Always line up the panels with the eaves, and not the gable. It is important to start square by using a chalk/straight line, or cross measuring (as in Detail 4.2), or simply stitching 3-4 panels together. When stitching panels together, fasten the first panel to the roof as square as possible with the eaves. Then stitch three panels to the first panel (screw the panels together, but penetrate only the two sheets and do not go to the plywood or strapping) and move the panels to line up and follow the eaves. When the panels are square with the eaves, fasten panels to the plywood or strapping. Screw the panels from the top to the bottom, and screw down every panel completely as shown before fastening the next panel. Maintain a 3/4" overhang, past the eaves trim.

DETAIL 4.2:



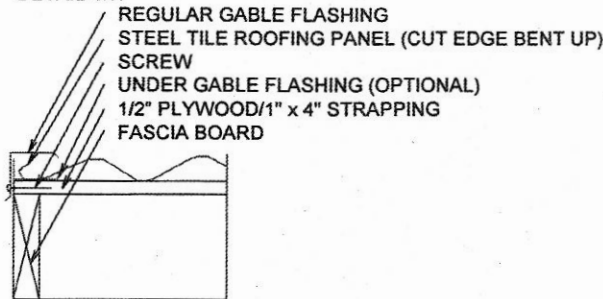
At Dormer Valleys: Leave approximately 4" space between the cut end of the panel and the middle of the valley flashing as shown in Detail 3.2. Cut the roofing panel as shown in Detail 3.4, be extra careful cutting sideways into the panel. Always stop the cuts across the profile on top of a wave. Silicone, with Tremco's Tremsil 600 sealant, the valley flashing and the main roofing panel, as shown in Detail 3.4. Place the universal closure between the centre of the valley and any screws, and as far up as possible to avoid getting the universal closure wet during heavy weather conditions (as shown in Detail 3.2). See **Install Seals**.

To install the ridge cap on top of a dormer, bring the cap under the main roofing cap as far up as possible and seal it with Tremsil 600 silicone. See **Install Ridge Caps**. The panel waste cut from a valley can be used for a hip, and the waste from a hip can be used for a valley. Panels can not be turned upside down because of the profiles' look.

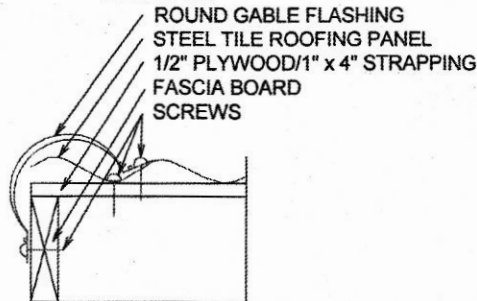
5) Install Gable Trim:

There are three different types of gable trims available. The most popular types: regular gable flashing and round gable flashing are shown in Details 4.3 and 4.4. The F-gable trim with built-in gutter is ideal for graduating gables, as shown in Detail 4.5. The underflashing with the regular gable trim is another option for graduating gables, as shown in Detail 4.3. Follow Details 4.3-5. If the last roofing panel ends at a low part of the wave, bend the edge of the roofing panel up with a hand bender before installing the gable trim.

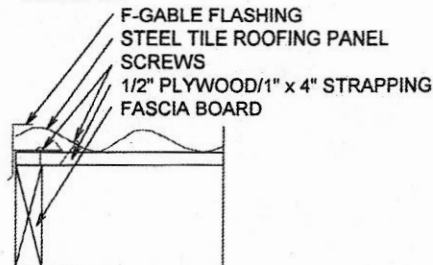
DETAIL 4.3:



DETAIL 4.4:

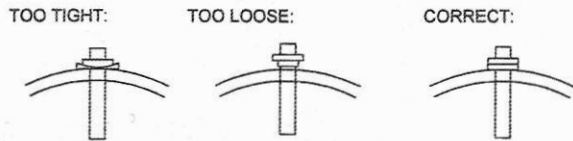


DETAIL 4.5:



Fastening:

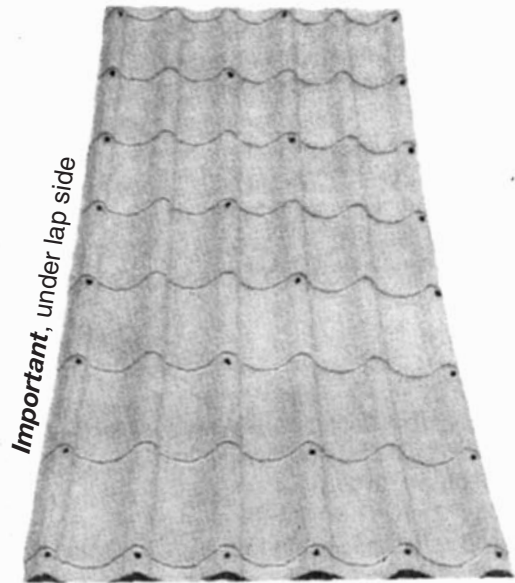
Our screws are double dipped galvanized steel with a zinc layer and an organic layer. They have a special bonded EPDM rubber washer. The EPDM washer has a metal cap over it that is powder coated to colour match the roof. They are self tapping when a bit of pressure is applied. The recommended screws are #10. For **Elite**, 2 1/2" for new construction and 3 1/4" for reroofing. For **Slate Shake**, 2" for new construction, 2 1/2 for 1 layer and 3 1/4" screws for reroofing. For **Katech**; 3 1/4" for new construction and 3 1/4" screws for reroofing. If strapping is used always make sure to screw down to strapping. Fasten screws with washers properly. Avoid deforming the roofing panels and the washers. If the washer is deformed it is too tight, if the washer is not visible it is too loose, see detail below.



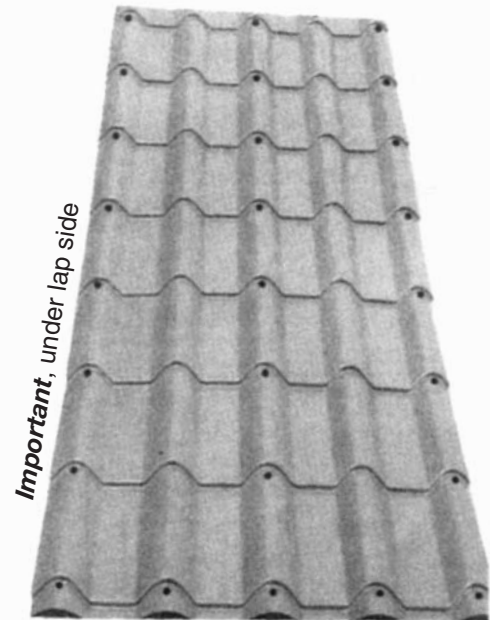
Screw down the entire panel according to these details. Always place the screws on the top of a wave and just below a step on the panel. On the overlap, screw down the entire seam at every step. Screw through the closures at each wave at the top and the bottom of each panel. For fastening to heavy metal purlins, call about "Driller Screws".

Muskoka panels should be screwed at the overlaps and at every rib horizontally, and at a maximum of 16" o.c. vertically always into strapping/plywood. It should also be screwed at each rib at the bottom and at the top of the panels.

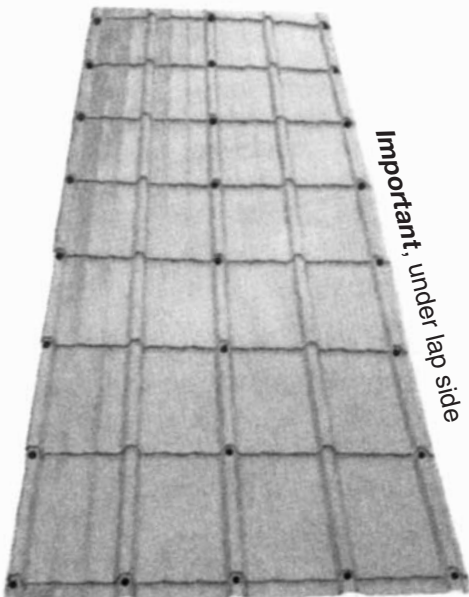
Elite:



Katech:



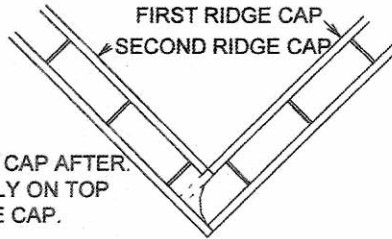
Slate/Shake:



6) Install Ridge Caps:

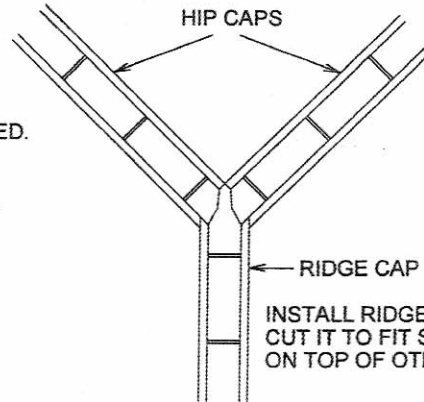
DETAIL 5.1:

INSTALL THIS RIDGE CAP FIRST.
ONLY THE LENGTH HAS TO BE TRIMMED.



INSTALL THIS RIDGE CAP AFTER.
CUT IT TO FIT SNUGLY ON TOP
OF THE FIRST RIDGE CAP.

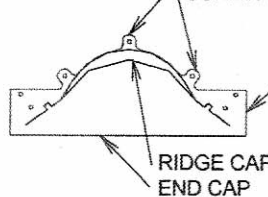
INSTALL HIP CAPS FIRST



Ridge capping is required on all hips and ridges. Make sure the universal closure does not go too far under the capping. The same applies to hips. There are three typical ridge caps, as shown in Details 5.2-4. When screwing the capping down, place screws through the high part of the wave, so the caps do not bend up and down. Always start installing ridge caps at the bottom of a hip. Use a chalk line to install the ridge cap in a straight line. At a three-way intersection, fit the two hip caps together first and then fit the top ridge cap to them, as shown in Detail 5.1

DETAIL 5.5:

FOLD FLAPS OVER RIDGE CAP.
SCREW FLAPS DOWN TO RIDGE CAP.

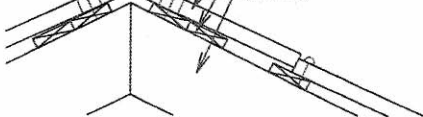


FOLD SIDE FLAPS OVER RIDGE CAP
AND FORM A TIGHT FIT.
SCREW FLAPS DOWN TO RIDGE CAP.

Install the end caps for ridge and hip caps. Fold the sides down, and fasten with small screws or pop rivets. Follow Detail 5.5.

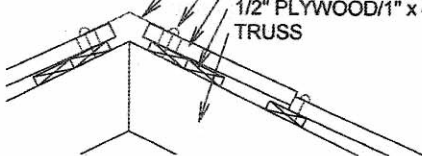
DETAIL 5.2:

ROUND RIDGE CAP
UNIVERSAL CLOSURE & SCREW
STEEL TILE ROOFING PANEL
1/2" PLYWOOD/1" x 4" STRAPPING
TRUSS



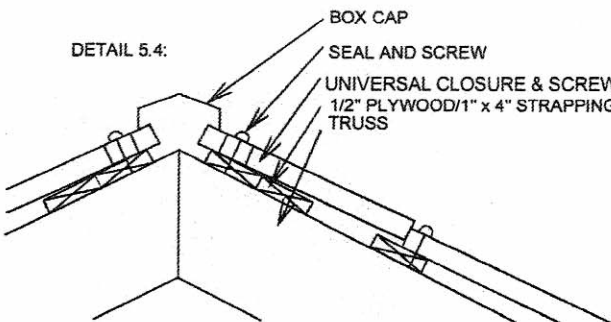
DETAIL 5.3:

STRAIGHT RIDGE CAP
UNIVERSAL CLOSURE & SCREW
STEEL TILE ROOFING PANEL
1/2" PLYWOOD/1" x 4" STRAPPING
TRUSS



DETAIL 5.4:

BOX CAP
SEAL AND SCREW
UNIVERSAL CLOSURE & SCREW
1/2" PLYWOOD/1" x 4" STRAPPING
TRUSS

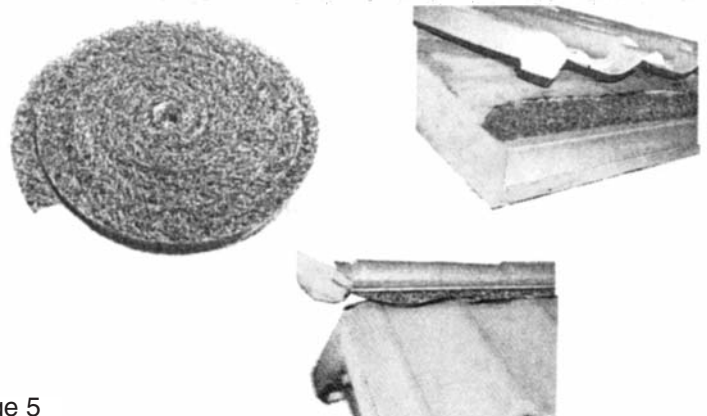


7) Install Closures:

Screw through the closures to keep them in place. The **Slate/Shake** profile should have universal closures at the ridge and the eaves. However you may eliminate the eaves closure to increase air flow in reroofing applications. The **Katech** and **Elite** profiles should have universal closures at the ridge and at the eaves. There should also be universal closures on both sides at all of the valleys and the hips. It is easiest to silicone the universal closure (mesh side to the trim) to the eave trim before installing the panels, and silicone the universal closure to the capping before installing it over the panels.

DETAIL 5.6:

OUR UNIVERSAL CLOSURE IS APPROXIMATELY
2"x2" AND WILL COMPRESS TO ANY PROFILE

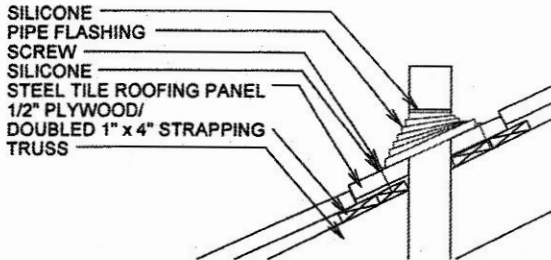


Flashing:

Install pipe flashings around vent pipes, hydro stacks, etc. Silicone Tremco Tremsil 600 between the pipe flashing and the roofing panel. Screw the pipe flashing to form to the profile of the roofing panel. Seal edges with Tremco Tremsil 600 silicone, as shown in Detail 7.1.

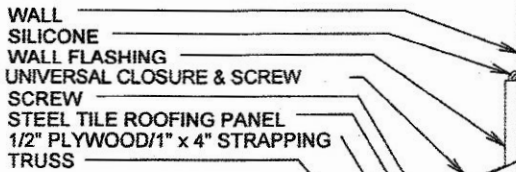
DETAIL 7.1:

NOTE: IF STRAPPING IS USED
MAKE SURE TO STRAP AROUND THE PIPE.

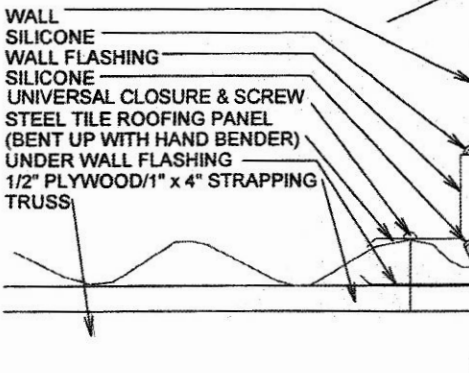


When fitting panels against a wall, chimney, skylight, or cutting the last sheet, always turn the edge of the roofing panel up about 1/2" with a hand bender to ensure water can not get behind or under the panel, and then install the appropriate flashing on top. Follow Details 7.2-4.

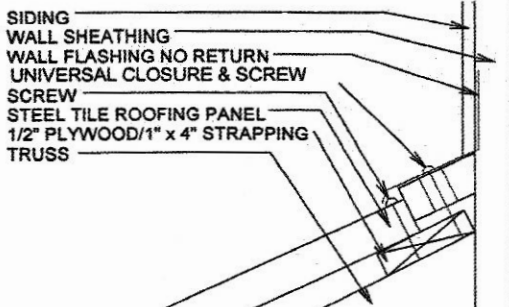
DETAIL 7.2:



DETAIL 7.3:

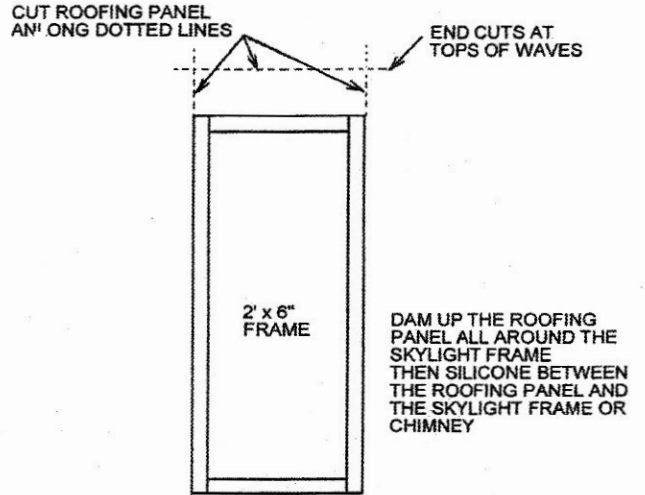


DETAIL 7.4: NEW CONSTRUCTION



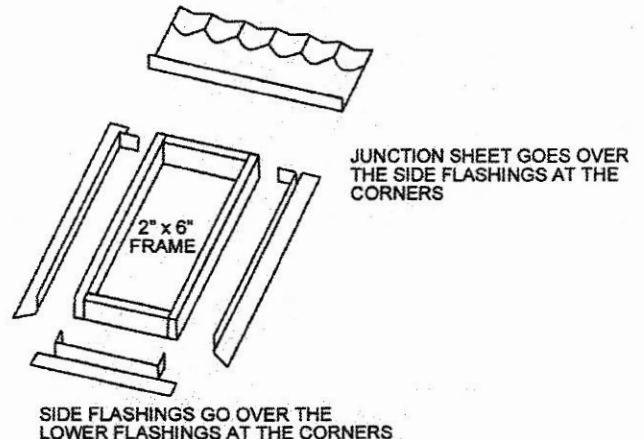
At Skylights and Chimneys: Skylights should be curb mounted on a 2" x 6" frame. On the two sides and bottom use skylight/chimney flashings. Install the lower flashing first. Cut and bend the lower flashing around the sides of the skylight/chimney. Then install the side flashings, so they will overlap the lower flashing. Cut the ends of the side flashings. Silicone Tremco Tremsil 600 all overlaps.

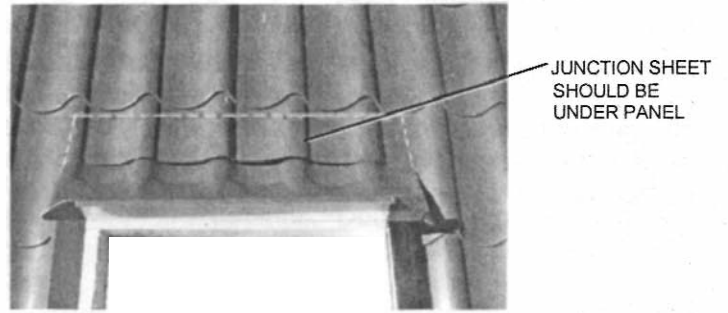
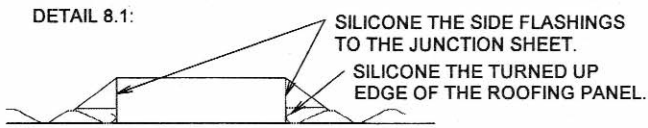
DETAIL 7.5 CUTTING ROOFING PANEL FOR JUNCTION SHEET AT A SKYLIGHT OR CHIMNEY:



Always use junction sheets on top of chimneys and skylights. Install the junction sheet to go underneath the roofing panel (it must be bent at a $\pm 90^\circ$ angle). If the skylight or chimney is wider, 2 or more junction sheets may be needed. If this happens, overlap the junction sheets over one wave and use approved silicone between the junction sheets. Cut sideways into the roofing panel carefully, make sure that any sidecut always ends at the top of a wave. Cut the vertical ends of the junction sheet at an angle. Use Tremco Tremsil 600 silicone between the roofing panel and the junction sheet and the flashings, then screw them down to form a tight fit. Always be sure to install a closure between the lower flashing and the roofing panel. Follow Details 7.5-8.2.

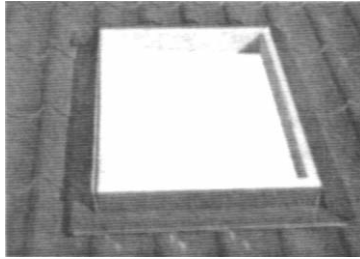
DETAIL 7.6: SKYLIGHT OR CHIMNEY





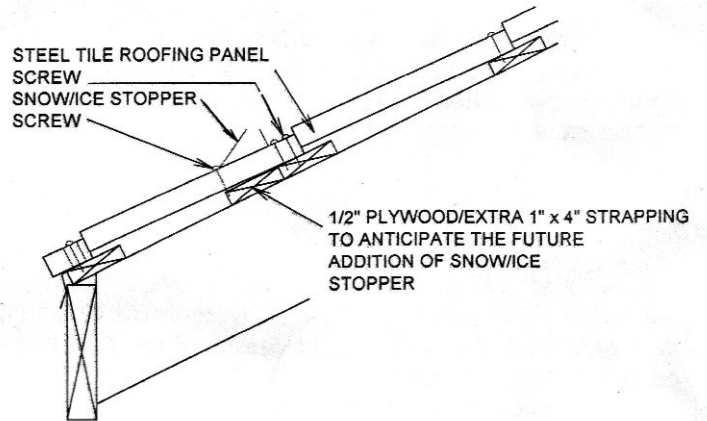
DETAIL 8.2: PLACE THE JUNCTION SHEET LAST

THE JUNCTION SHEET SHOULD BE UNDER THE ROOFING PANEL. CUT THE STEEL TILE ROOFING PANEL SO THAT THE JUNCTION SHEET SLIDES UP UNDER THE ROOFING PANEL, MATCHING THE WAVE PROFILE. THE JUNCTION SHEET SHOULD BE BENT UP ON SITE. CUT THE SIDES OF THE JUNCTION SHEET SO THAT THE SIDES END AT THE TOP OF A WAVE. SILICONE AND SCREW BETWEEN THE JUNCTION SHEET AND ROOFING PANEL

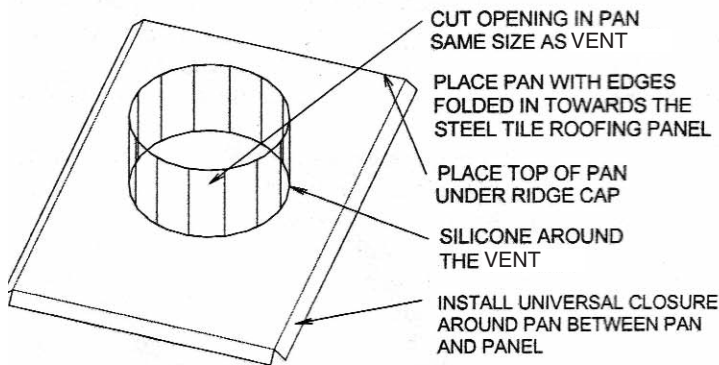


Max Vents: (see package installation instructions)

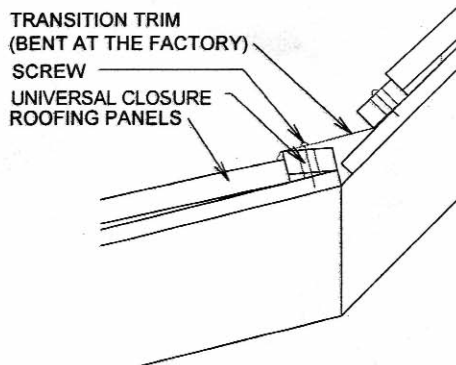
Snowlok or Snow/Ice Stop



BEFORE POSITIONING THE VENT ON ITS BASE, INSTALL OUR PAN



Transition Trim: used for changes in roof pitches



Storage:

Store the sheets in a dry place away from fertilizers, alkalis, salts, and other corrosive agents. Prevent the stack of sheets from getting wet for extended periods of time. Any dampness between the sheets might start to cause discolouration of the painted surface. If the sheets get wet, separate them with 1" x 2" strapping, and let dry.

Handling:

Use extreme caution when handling roofing panels on windy days. The wave design of the Steel Tile roofing panel strengthens the sheets, but care must be exercised when moving them. Hang onto the panels at the step to avoid creasing the exposed overlap. When setting a panel on its side up against a wall, put the water stopper side down. Support the panels as much as possible over as large a distance as possible. When moving the sheets up to the roof, it is best to drag them with a clamp and rope, over a ladder or planking. Each time a panel bends, it could stretch or shrink because the water stopper side is stronger, and as a result the steps will not fit properly. If this happens see **Trouble Shooting**.

Cutting Panels:

Use a chalk line to get a straight line, especially for long lengths. Cutting can be easily done on the ground. For a valley area fasten a number of panels together on the ground and chalk a line and cut exactly. Another way is to rough cut panels on the ground, and do exact cuts up on the roof. **NEVER** use a circular saw, or any other saw with a rotating blade, to cut the panels. These types of saws produce heat which could cause the paint and zinc coatings to lose adhesion. There are some power shears and nibblers that are acceptable. The simplest way to cut the panels is with a good quality offset hand shear. They won't create heat, and will tend to seal the galvanized layers together.

Walking on Panels:

The panels can be walked on; however, step only in the bottom of the wave, below a step. Avoid walking on roofing panels when they are wet or covered with snow. Panels are very slippery when wet.

Cleaning Panels:

In areas where heavy dirt deposits dull the surface, a solution of water and detergent may be used: 100ml (1/3 cup) of a typical laundry powder detergent per 4.5 litres (1 gallon) of water. A soft bristle brush should be used for scrubbing followed by a clear water rinse.

Installation Tips:

Tools Required:

These are the recommended tools for installation of Steel Tile roofing:

- AV snips (**NEVER** use circular saw)
- C clamps (to pull panels onto roof)
- ladder (should reach from ground to eave at same angle as roof)
- hammer
- wide flanged pliers/hand benders
- chalk line
- rope
- drill (preferably min. 4 amps) with a 1/4" socket
- wear running shoes

Trouble Shooting:

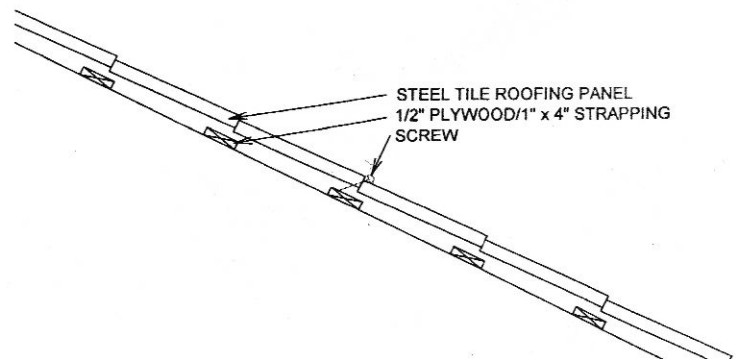
If panels do not fit properly:

Shrink panels: Screw the bottom of the panel, as shown in fastening details. Then lift the overlap of the panel until the top step is tight, and fasten the top down. Then fasten the panel into place.

Stretch panels: Fasten the top of the panel down, and then press and fasten down one step at a time toward the eaves.

If panels are **Elite** and have a long tail (16" - 20" above the last step) they may tend to fan out sideways at the top: Lift panel up at the middle of the top and fasten both sides. Then work to the middle pressing the panel into place.

If panels start to go downwards and there is too much overhang: Stitch 3 panels together and direct them together to their proper place. Put a 3" screw in the water stopper on the overlap of the third panel on a 45° angle, and screw upwards to draw the panels up. Follow detail below.



Trims Available: Trim dimensions and finished trim sizes may vary, trims are subject to change without notice.

ROUND GABLE FLASHING



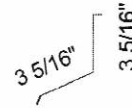
REGULAR GABLE FLASHING



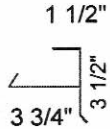
TRANSITION TRIM (BENT AT THE FACTORY)



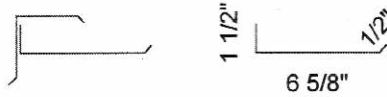
WALL FLASHING



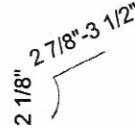
F-GABLE FLASHING



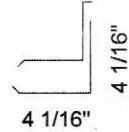
REGULAR GABLE FLASHING AND UNDER GABLE FLASHING (OPTIONAL)



EAVES TRIM



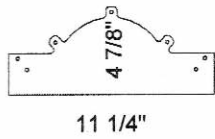
WALL FLASHING AND UNDER WALL FLASHING



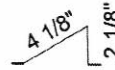
ROUND RIDGE CAP



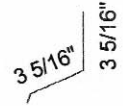
END CAP



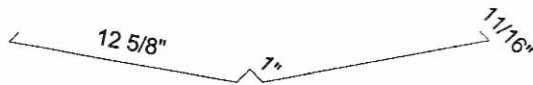
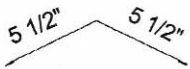
SNOW/ICE STOP



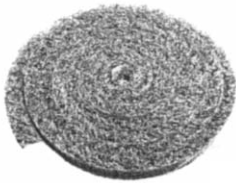
WALL FLASHING NO RETURN



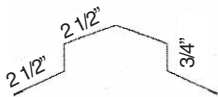
STRAIGHT RIDGE CAP



VALLEY FLASHING

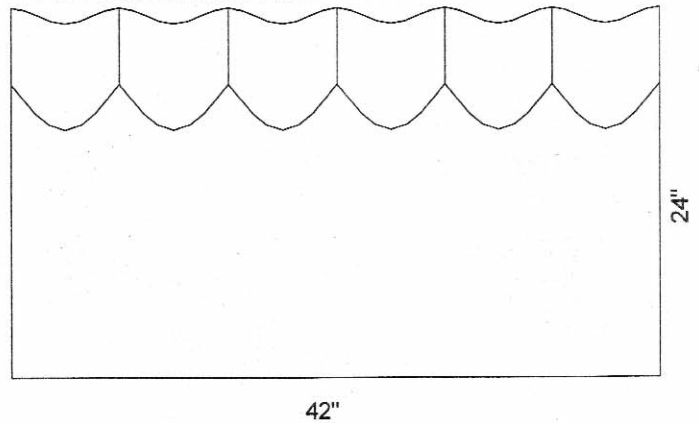


BOX CAP



JUNCTION SHEET

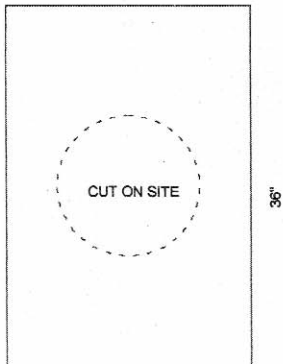
WAVES MATCH PROFILE OF ROOFING PANELS FOR SLATE/SHAKE PROFILE: 24" x 48" FLAT SHEET



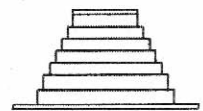
UNIVERSAL CLOSURES
PRICED/FT

PKG IN 30FT LENGTHS

TURBINE PAN 24"

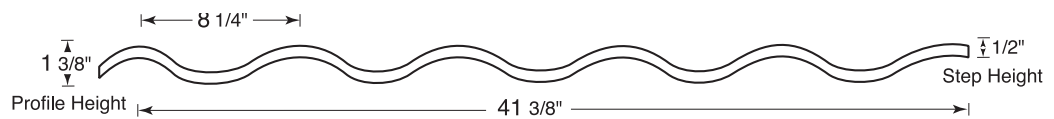


PIPE FLASHINGS
COME IN 3 SIZES:
REGULAR PIPE FLASHING 3-4"
LARGE PIPE FLASHING 4-6"
SUPER PIPE FLASHING UPTO 14"

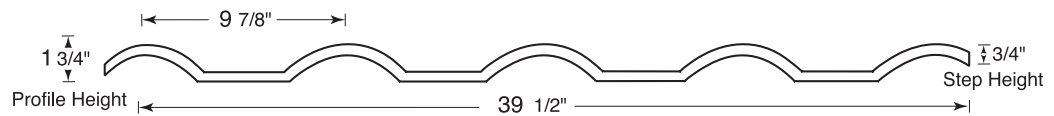


STANDARD PROFILES:

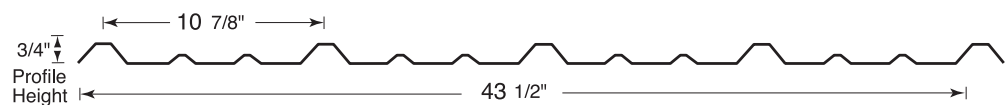
ELITE



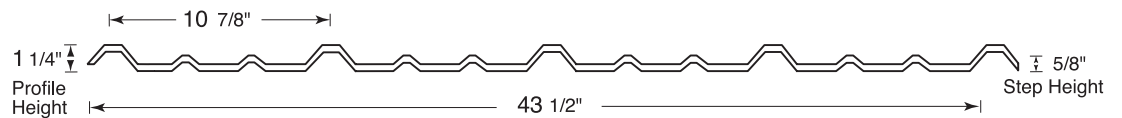
KATECH



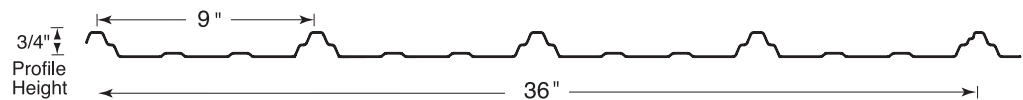
MUSKOKA



SLATE SHAKE



SUMMIT



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