

INSTALLATION MANUAL

METAL ROOF SYSTEM VARITILE

ROMANA

This manual provides general guidelines and procedures relating to the estimating and installation of Varitile roof products. It is not a training guide for installers and it does not address the specific requirements of applicable building codes and other laws and regulations of the locale where the Varitile product is being installed. It is the installer's and homeowner's responsibility to ensure that all building codes and other laws are being strictly adhered to.

As well, this manual does not depict every possible roofing situation or technique, or local weather conditions and practices. The installer must choose the most suitable installation method for the location and particular design, construction and quality of the home on which the Varitile roof product is being installed. The installer must ensure that the structure complies with all applicable codes and laws, is sound and of sufficient quality and design to accept the Varitile roof product.

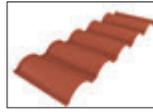
This manual is not a warranty or guarantee. Quality installation is a product of proper technique, attention to detail and ultimately is the responsibility of the installer. For installation questions not covered in this guide, please contact Varitile.

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1 MATERIALS REQUIRED

ROMANA PANEL [R.6...-PA]



Overall size	45.47"x15.55"	1155x395mm
Useful Cover	42.72"x14.57"	1085x370mm
Linear Cover	42.72"	1085mm
Weight	6.61 lb	3,0 kg

BARGE COVER LEFT/RIGHT [R.-...-BBC.L]



Overall Length	53.35"	1355mm
Length of Cover	49.35"	1255mm
Width	7.28"	185mm
Weight	7.28 lb	3,30 kg

ROMANA EAVE [R.-...-EA]



Overall Length	43.31"	1100mm
Useful Length	42.31"	1074mm
Weight	3.53 lb	1,60 kg

ROMANA COVER FLASHING [R.-...-CF]



Overall Length	43.31"	1100mm
Useful Length	33.31"	846mm
Weight	3.53 lb	1,60 kg

ROMANA HIP SPACER [R-RB.SPACER]



Overall Length	47.25"	1200mm
Useful Length	43.24"	1100mm
Weight	7.28 lb	3,3 kg

ROMANA VALLEY [0.E...-VA.5V.US]



Overall Length	78.74"	2000mm
Useful Length	68.74"	1750mm
Weight	12.57 lb	5,70 kg

Z-FLASHING [0.E...-EF.Z.US]



Overall Length	78.74"	2000mm
Useful Length	74.74"	1900mm
Weight	3.1 lb	1,4 kg

TRIPLE RIDGE BARREL [0.6...-3RB]



Overall Length	41.81"	1140mm
Useful Length	43.24"	1100mm
Weight	3.31 lb	1,50 kg

Related accessories

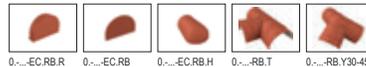


RIDGE BARREL [0.6...-1RB]

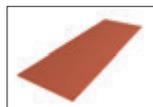


Overall Length	16.00"	410mm
Useful Length	14.56"	370mm
Weight	1.54 lb	0,70 kg

Related accessories



FLAT SHEET [0.-...-FS]



Overall Length	53.15"x17.72"	1350x450mm
	78.74"x17.72"	2000x450mm
	118.11"x17.72"	3000x450mm

REPAIR KIT [0.-...-RK]



PLUMBING FLASHING



FASTENERS

Either nails or screws may be used with Varitile panels. Corrosion resistant, minimum 1000 salt spray hours. For coastal and salt water environments, stainless steel fasteners required.

NAILS

Panel to Batten: 2.25" x 0.113 Ring Shank (57mm x 2.87mm)

Batten to Rafter: Must penetrate rafter minimum 1 inch. 3.25" or 3.5" x 0.131 (83mm or 89mm x 3.3mm)

SCREWS

Panel to Batten: #9-10 x 2" with 1/4" Hex Head (#9-10 x 50mm 6.3mm)

INSTALLATION TOOLS

GUILLOTINE



The guillotine shear makes vertical, horizontal, and angled panel cuts.

Floor space	47.24" x 15.75"	1200 x 400mm
Length	28"	700mm
Weight	46 lbs.	21 kg

BENDER



The bending tool makes horizontal, vertical and angled bends.

Floor space	20" x 18"	1070x 600mm
Length	21"	1200mm
Weight	55 lbs.	47 kg

BATTEN SPACER



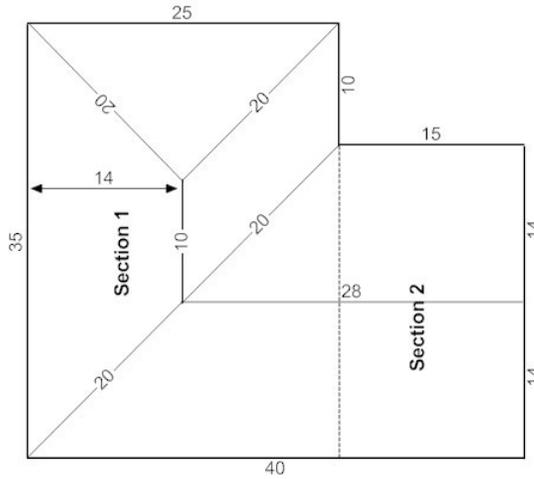
Designed to space battens accurately and swiftly. Turned sideways it also spaces the valley battens. Batten spacers should be purchased in sets of 2.

OTHER TOOLS



2 ESTIMATING

2.1 CALCULATION IN IMPERIAL



Profile	Rafter	Eave	Hip/Valley
Bond	1.2	4.1	0.3
Bond 7PA	1.2	4.1	0.3
Classic	1.2	4.1	0.3
Gallo	1.2	3.8	0.3
Mistral	1.2	4.0	0.3
Romana	1.2	3.5	0.4
Shake	1.2	4.1	0.4
Viksen	1.2	4.1	0.4

Based on each profile, use the division factors above to find the amount of tile to cover both width (gable to gable) and height (eave to ridge) of the roof. Make sure to always round up to the next full tile.

The Hip / Valley multipliers are used to convert the lineal feet of hip or valley into full panels needed for cuts / waste.

Panels
[PA]



Divide the roof into square / rectangular sections. In this case we have two:
Section 1: 35 feet (eave) by 14 feet (rafter)
 $35 / 3.5 = 10$ This is the amount of full panels needed to cover the width
 $14 / 1.2 = 11.6$ round up to 12, this is the amount of full panels needed to cover the height
 $10 \times 12 = 120 \times 2$ (for both sides of roof) = 240 full Romana panels
Section 2: 15 feet (eave) by 14 feet (rafter)
 $15 / 3.5 = 4.28$ round up to 5
 $14 / 1.2 = 11.6$ round up to 12
 $5 \times 12 = 60 \times 2 = 120$ full Romana panels
 Hip and valley: take the total lineal feet of hips and valleys: $80 \times 0.4 = 32$ full Romana panels.
 Tally panels from sections 1,2 and hip / valley: $240 + 120 + 32 = 392$ full Romana panels

Ridge barrel
[1RB]



Total lineal footage of hip, ridge and rake: $126 / 1.2 = 105$
 Add one extra trim cap per termination point and the beginning of each run. In the drawing above we would add 14 additional caps for a total of 119 ridge barrel caps

Eave
[EA]



Total lineal footage of eave:
 $125 / 3.53 = 35.4$ round up to 36 Romana eave apron

Valley
[VA]



Total lineal footage of valley:
 $20 / 5.5 = 3.63$ round up to 4 Romana valley pieces

Hip Spacer
[RB.SPAC]



Total lineal footage of RB.SPAC =
 $60 / 3.6 = 16.67$ round up to 17 Romana Hip Spacer

Cover flashing
[CF]



Total lineal footage of ridge =
 38×2 (for both sides) = $76 / 2.75 = 27.6$ round up to 28 Romana Cover Flashing

Barge board
[BBC.L]



total lineal footage of gable left =
 $14 / 4 = 3.5$ round up to 4 Romana barge cover left

Barge board
[BBC.R]



total lineal footage of gable right =
 $14 / 4 = 3.5$ round up to 4 Romana barge cover right

Battens

Allow 1 lineal foot / roof square footage

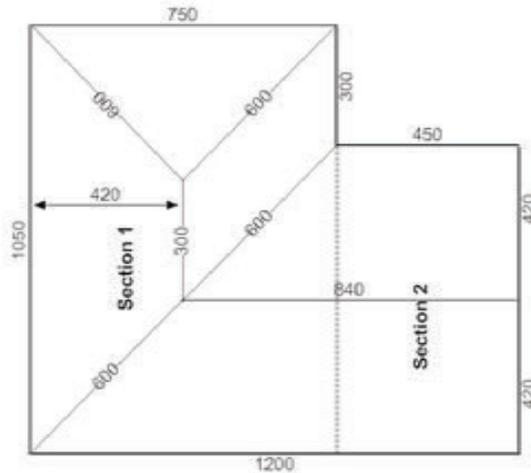
Counter battens

Allow 0.75 lineal feet / roof square foot

Nails / Screws

For standard installation, figure 4 fasteners per Romana tile, 2 fasteners per Barrel trim cap, 4 fasteners per flashing piece and 10% additional waste.

2.2 CALCULATION IN METRIC

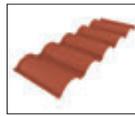


Profile	Rafter	Eave	Hip/Valley
Bond	37	127	100
Bond 7PA	37	126	100
Classic	37	126,5	100
Gallo	37	118,5	100
Mistral	37	124	100
Romana	37	109	75
Shake	37	126	75
Viksen	37	126	75

Based on each profile, use the division factors above to find the amount of tile to cover both width (gable to gable) and height (eave to ridge) of the roof. Make sure to always round up to the next full tile.

The Hip / Valley dividers are used to convert the lineal cm of hip or valley into full panels needed for cuts / waste.

Panels
[PA]



Divide the roof into square / rectangular sections. In this case we have two:

Section 1: 1050 cm (eave) by 420 cm (rafter)

$1050 / 109 = 9,63$ round up to 10, this is the amount of full panels needed to cover the width.

$420 / 37 = 11,35$ round up to 12, this is the amount of full panels needed to cover the height

$10 \times 12 = 120 \times 2$ (for both sides)=240 full panels

Section 2: 450 cm (eave) by 420cm (rafter)

$450 / 109 = 4,12$ round up to 5

$420 / 37 = 11,35$ round up to 12

$5 \times 12 = 60 \times 2 = 120$ full Romana panels

Hip and valley: take the total lineal cm of hips and valleys: $2400 / 75 = 32$ full Romana panels

Tally panels from sections 1,2 and hip/valley: $240 + 120 + 32 = 392$ full Romana panels

Ridge barrel
[1RB]



Total lineal cm of hip, ridge and rake: $3780 / 36 = 105$

Add one extra trim cap per termination point and the beginning of each run. In the drawing above we would add 14 additional caps for a total of 119 ridge barrel caps

Eave
[EA]



Total lineal cm of eave:

$3750 / 107 = 35,04$ round up to 36 Romana eave apron

Valley
[VA]



Total lineal cm of valley:

$600 / 175 = 3,4$ round up to 4 Romana valley pieces

Hip Spacer
[RB.SPAC]



Total lineal cm of hip:

$1800 / 110 = 16,3$ round up to 17 Romana hip spacer

Cover flashing
[CF]



total lineal cm of ridge =

1140×2 (for both sides) = $2280 / 84 = 27,2$ round up to 28 Romana cover flashing

Barge board
[BBC.L]



total lineal cm of gable left =

$420 / 124 = 3,38$ round up to 4 Romana barge cover left

Barge board
[BBC.R]



total lineal cm of gable right =

$420 / 124 = 3,38$ round up to 4 Romana barge cover right

Battens

Allow 3,3 lineal meters / roof m²

Counter battens

Allow 2,5 lineal meters / roof m²

Nails / Screws

For standard installation, figure 4 fasteners per Romana tile, 2 fasteners per Barrel trim cap, 4 fasteners per flashing piece and 10% additional waste.

3 PREPARATIONS

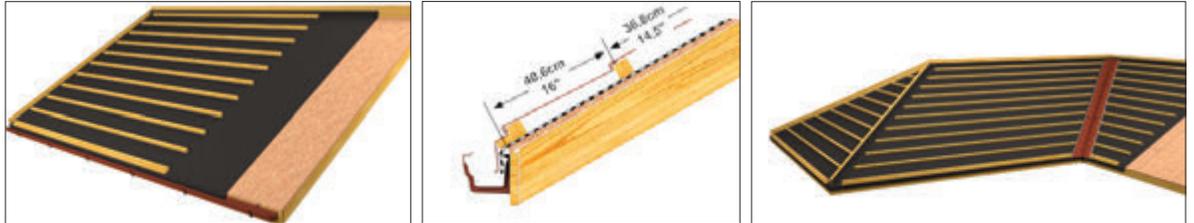
3.1 UNDERLAYMENT

Underlayment should meet or exceed local building code. Our minimum requirement is ASTM D226 type 2 (30#).

Always install underlayment per manufacturer's specifications and instructions.

3.2 BATTEN FRAMING

Measuring upslope from the outside edge of fascia, set a line at 16.0" (40,6 cm). Check along the line measuring back down to the fascia in several areas to confirm measurement from the line to fascia does not exceed 16.0" (40,6 cm). If the fascia is bowed and the distance between the fascia and the line exceeds 16.0" move the entire line toward the fascia until you compensate for the bow.



Once you have an established line, nail the batten on the UPHILL side of the line. Nail the eave batten along the fascia taking care not to exceed 16.0" spacing between the line set batten and the eave batten.

i Depending on pitch and whether there is a plumb cut or square cut eave you may need to adjust these dimensions.

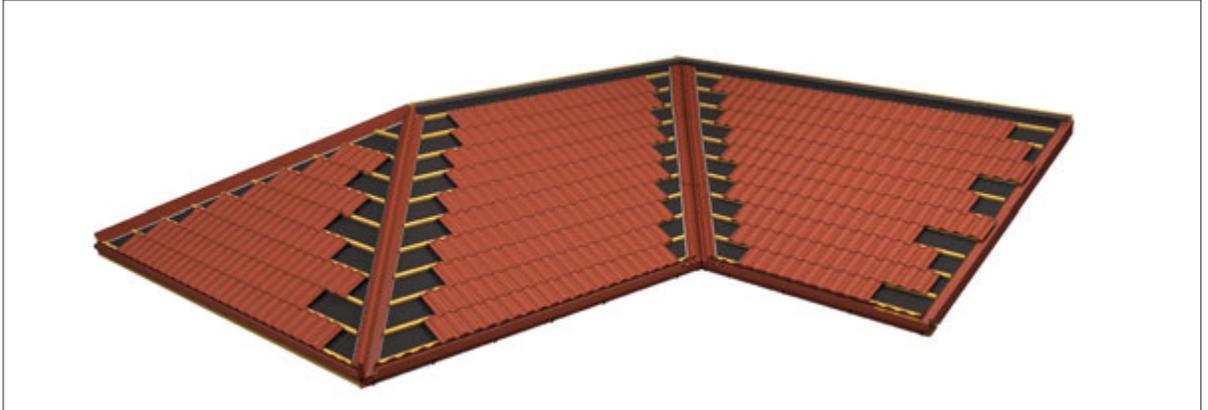
i Check with local building code to ensure proper batten fastening.

Measure back down toward the eave from the nose of the batten 14.5" (36,8 cm). Strike a line and set batten on the UPHILL side of the line. Between this batten and the outside edge of the fascia, install a 1.5" (3,8 cm) by 0.5" (1,25 cm) board. The Romana Eave apron will rest on this nailer board.

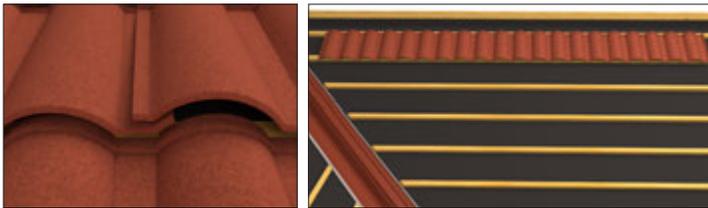
The remaining battens are installed at 14.5" (36,8 cm) centers. This spacing is crucial to obtain a tight, proper panel fit. Continue spacing the battens until you reach the ridgeline. Keep in mind the last course may not land exactly at 14.5".

4 ROMANA INSTALLATION PROCEDURES

4.1 PANEL INSTALLATION AND FASTENING



Romana is overlapped from left to right. Start at the first full course below the ridge. Lay this course of panels fastening through the back flange into the top of the batten. Do not install full panels tight to the gable, hip, valley, wall or any protrusion such as a skylight or chimney.

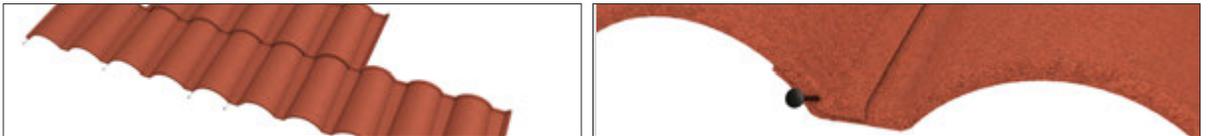


Lay the next two courses by lifting the course above and sliding the panels into position. Now, ensure all three courses are locked together and in proper position. Begin fastening the first course you laid through the nose of the panel, through the back shelf of the panel below, all the while applying downward pressure on the panels so they fit tightly. Lay your fourth course then fasten the second course through the nose.



Continue this pattern always maintaining two courses below your most recent nose fastened course. This will allow you to easily slide the panels up and under the previous course.

Panels are secured by nailing through the front flange (nose) of the panel into the batten. Minimum 4 fasteners per panel. Nails should be positioned outside of water courses and centered in the downturned flange. The correct position for nailing is shown below.



See exhibit 01 for fastening instructions in high velocity hurricane zones.

i Always stand on the nose of the tiles, directly above the batten when walking on the roof. Avoid standing on the middle of the tile or on the raised corrugations.

i We recommend soft soled footwear when installing/ walking on the panels.

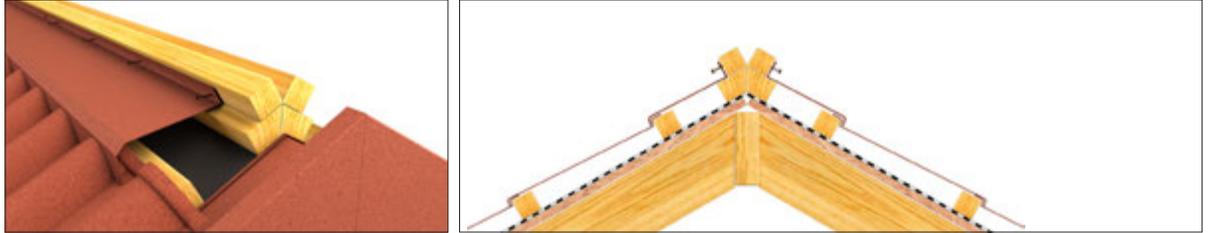
4.2 RIDGE

4.2.1 NON-VENTILATED

4.2.1.1 COVER FLASHING

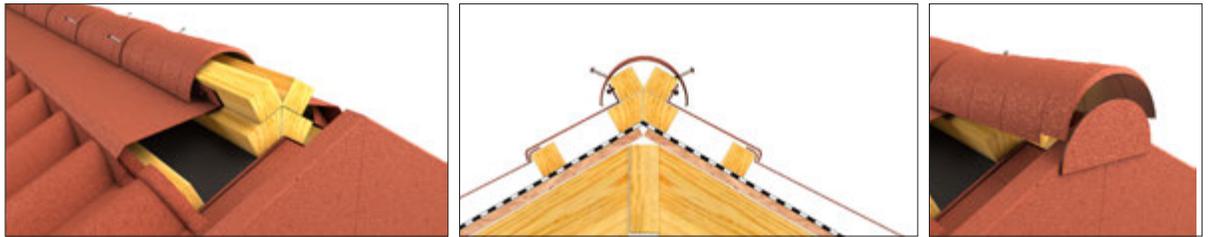
Cover flashing is used to transition from the last full course of Romana panels to the ridge. It is profiled to match the panel curvature. Measure from the back shelf of the tile to the ridge batten. Transfer these measurements to the cover flashing and bend up a minimum 1.5" (3,8 cm). Place cover flashing so it fits snugly and fasten into the ridge batten and the last panel batten below the ridge.

Overlap cover flashing pieces facing away from prevailing weather a minimum of 10" (25 cm) and seal the overlap.



4.2.1.1 BARREL CAPS

When installing barrel caps, fasten through the overlapping area, into the ridge board(s).



 Install the ridge overlaps facing away from prevailing weather.



4.2.2 VENTILATED

4.2.2.1 COVER FLASHING

NOTE: Check with local building codes for proper venting calculations and requirements. Ventilation should be equally balanced between intake and exhaust. Failure to follow proper ventilation techniques may result in unsatisfactory performance.

Cut an air gap in the roof sheathing 1" (2,5 cm) on each side of the ridge board. Stack 2x2's on center of ridge. The height of the 2x2's should allow for a consistent plane with panels and cover flashing. Install coverflashing allowing for a 1" gap between the flashing up turn and the ridge nailer. Install venting material over coverflashing, fastening into ridge nailer. Making sure a 1" gap is maintained on each side of the ridge, install barrel caps.

4.2.2.1 BARREL CAPS

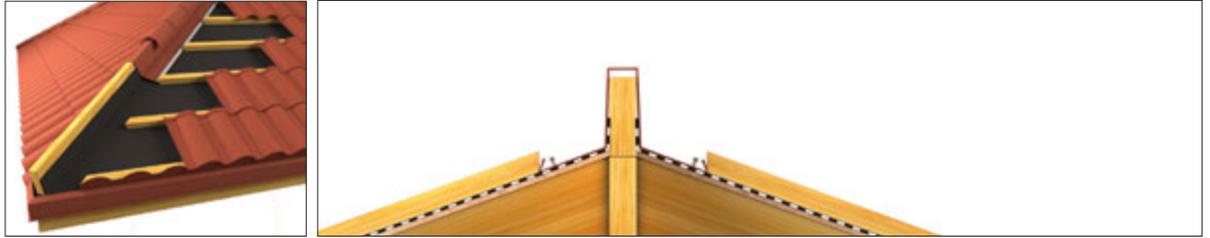
When installing barrel caps, fasten through the overlapping area, into the ridge board(s).



4.3 HIPS

4.3.1 HIP SPACER

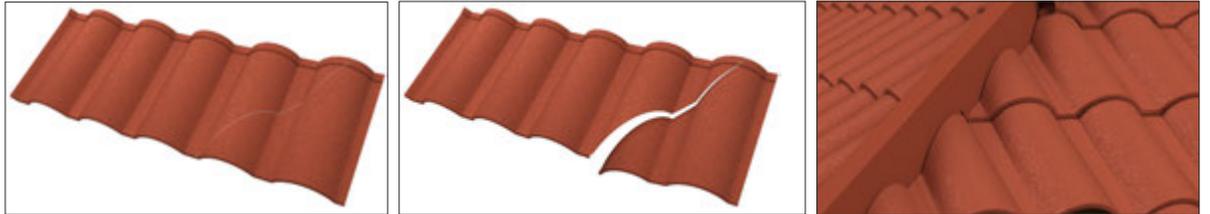
Ensure the hip spacer extends past the fascia a minimum $\frac{3}{4}$ " (2 cm). All fasteners that penetrate the hip spacer water channel must be sealed. Notch the eave apron to allow drainage of the hip spacer. Hip spacers should be overlapped a minimum of 4" (10 cm). Measure, and cut the roof panels tight to the flashing upstand.



4.3.2 CUTTING PANELS

Measure straight along the top and bottom panel battens to the termination point formed by either the gable or hip batten. Transfer and mark these two measurements on the panel. Scribe a line between the top and bottom points.

Use the guillotine or shears to cut along the cut line.



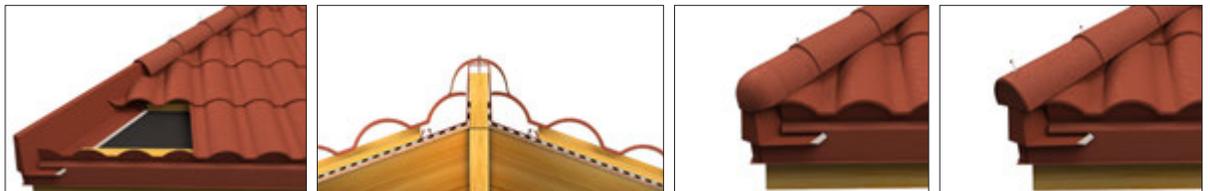
Place panel and fasten accordingly.

4.3.3 BARREL CAPS

Beginning at the eave, place the cap so it fits tightly to the fascia and attach an end disc to cover the hip framing.

Continue laying the caps from bottom to top, fastening into the hip batten as shown.

Once you reach the peak, the caps will need to be cut and mitered together for a finished appearance.

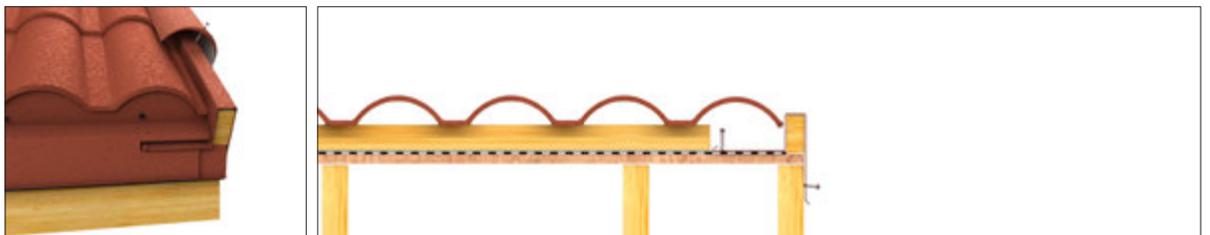


4.4 GABLE

4.4.1 BARGE COVER

Romana uses a 2 part flashing system for gables.

First install Romana barge cover. Ensure the barge cover extends past the fascia a minimum $\frac{3}{4}$ " (2 cm). All fasteners that penetrate the barge cover water channel must be sealed. Notch the eave apron to allow drainage of the barge cover. Barge covers should be overlapped a minimum of 4 inches (10 cm). Measure, and cut the roof panels tight to the flashing upstand.

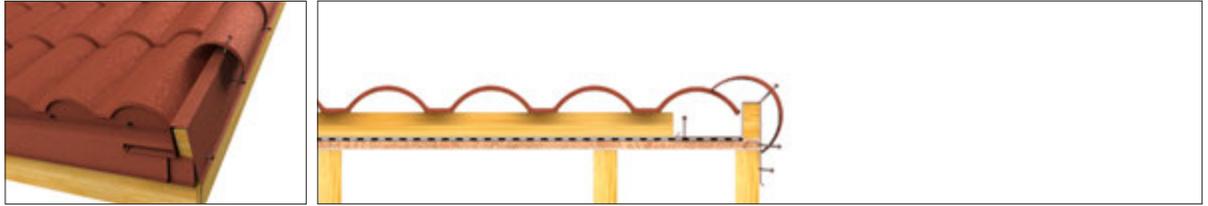


4.4.2 BARREL CAPS

Install barrel caps over the Romana panels and barge cover as shown. The gable caps are installed from the bottom up, matching with the panel courses.

 Place the first cap flush with the eave fascia. It may be necessary to notch the back of the cap around the nose of the second roof panel. This will allow the cap to set down onto the panel.

Fasten the cap through the top into the gable 2x2. Continue placing caps up the gable taking care to keep them straight with the 2x2 and gable fascia.



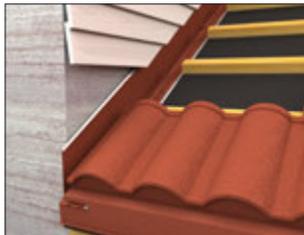
4.5 EAVE

Romana eave is profiled to integrate with the Romana tile. We recommend installing 2 eave battens with this flashing piece.



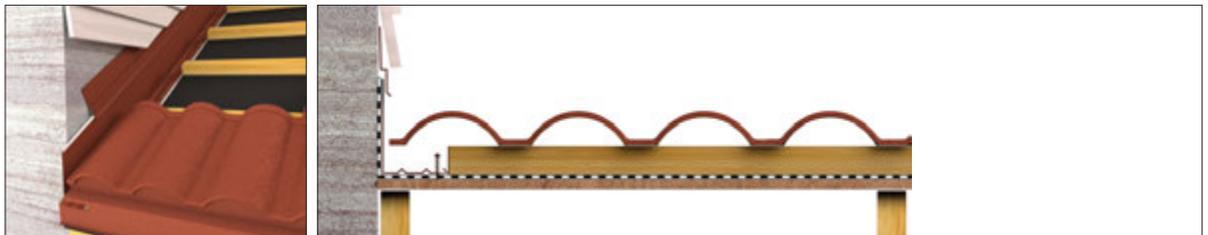
4.6 SIDEWALL

Ensure that the sidewall flashing extends past the fascia a minimum $\frac{3}{4}$ " (2 cm). All fasteners that penetrate the sidewall flashing water channel must be sealed. Notch the eave apron to allow drainage of the sidewall flashing. Sidewall flashing should be overlapped a minimum of 4 inches (10 cm). Measure, and cut the roof panels tight to the flashing upstand.



4.6.1 Z-FLASHING

Z-flashing may be used as a transitional piece between siding and sidewall flashing. In retrofit situations dealing with stucco or other types of solid cladding, Z-flashing can be used as a termination bar. Bend a slight kick along the top of the Z-flashing, fasten into the wall every foot (30 cm) and caulk along the top kick with a high quality urethane caulk. In areas of heavy rain, bedding the termination bar in sealant is recommended. Z-flashing should be overlapped a minimum of 4 inches (10 cm).



4.7 VALLEY

4.7.1 VALLEY FLASHING

Center the valley and fasten every 18" (45 cm) as shown. All fasteners that penetrate the valley must be sealed. Only fasten the valley next to the outermost hem. Valley flashing should extend past the fascia a minimum of 1" (2,5 cm). In areas of heavy ice and snow it may be necessary to bed the valley in sealant at the fascia. Valley flashings should be overlapped a minimum of 10" (25 cm). Notch the eave apron to allow valley to drain.



4.7.2 CUTTING PANELS

Measure straight along the panel battens to the termination point formed by the valley's center "V". Transfer and mark these two measurements on the panel. Scribe a line between the top and bottom points.

Use the guillotine or shears to cut along the cut line.



4.7.3 INSTALLING VALLEY CUTS

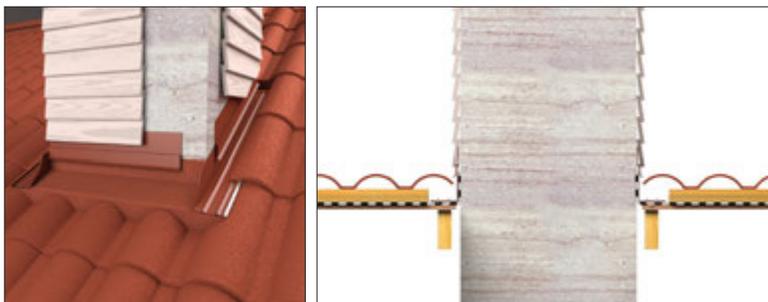
Panels should be fastened into the battens. If small pieces of Romana are needed to close off the valley, and you are unable to fasten adequately into the batten, stitch the Romana panels together with 1" (2,5 cm) stitching screws, taking care not to penetrate the valley.

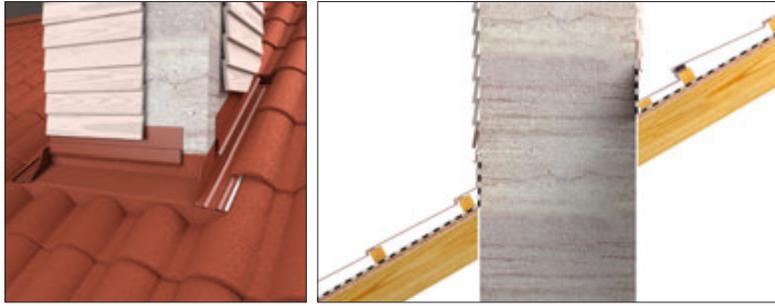
Valleys should be mitered, overlapped and set in sealant when they meet at the top of a dormer (ridge). Any valley that originates at a vertical wall should be turned up the wall a minimum of 2" (5 cm) and sealed.



4.8 CHIMNEY

Use cover flashing as headwall of the chimney, sidewall flashing for the sides of the chimney and flat stock for the back saddle. Always ensure flashings extend past the edges of the chimney to allow for proper drainage and all corners are sealed. Alternatively, flexible self adhering flashings may be used as headwall and sidewall.





4.9 PIPE FLASHING

Waterproof under lay to pipe using a base flashing. Mark and cut the panel to fit over the pipe. Place a panel over the pipe. Mark and cut the Masterflash to fit the pipe. Slide Materflash over pipe, seal and fasten according to Masterflash guidelines.



EXHIBIT 01

Fastening panels in High velocity and hurricane zone (HVHZ)

The panels are secured by nailing through the front flange (nose) of the panel into the batten. Minimum 6 fasteners per panel. Nails should be positioned outside of water courses and centered in the downturned flange. The correct position for nailing is shown below.

