

Battenless Installation Guide

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 home owner's responsibility to ensure that all building codes and other laws are strictly adhered to.

As well, this manual does not depict every possible roofing situation or technique or local weather conditions. The installer must choose the most suitable installation method for the location and particular design, construction and quality of the building on which the Varitile 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.

<u>Dissimilar Metals</u>: Use of copper and lead in conjunction with Varitile products will void the Varitile product warranty. This includes direct contact products such as accessories or situations where copper/ lead drains onto a Varitile roof.

<u>Pressure Treated Lumber</u>: Pressure treated lumber products labeled "CCA" (chromium copper arsenate), "ACQ" (alkaline copper quaternary) and "CA-C" (copper azole) treated lumber and/ or any variation thereof are not to be used in conjunction with Varitile products or it will void the Varitile product warranty. Borate or Borax treated lumber does not contribute to the corrosion of Varitile roofing products and their use will not void the warranty. The most proven lumber products utilized are untreated "SPF" (spruce-pine-fir) or "SYP" (southern yellow pine).

<u>Industrial and Agricultural installations</u>: Physical contact or heavy airborne concentrations of any industrial or agricultural corrosive materials should be treated as potentially corrosive to the steel base of Varitile products.

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1. MATERIALS REQUIRED -

1.1 PANELS

BOND 7 PANEL [1.-...-PA]



Overall size	52.36" x 16.3
Useful Cover	50.00" x 14.5
Linear Cover	50.00"
Weight	6.61 lb

34" 1330 x 415mm 57" 1270 x 370mm 1270 mm 3,1 kg

CLASSIC PANEL [5.-...-PA]



Overall size	52.36" x 16.34"	1330 x 415mm
Useful Cover	49.80" x 14.57"	1265 x 370mm
Linear Cover	49.80"	1265 mm
Weight	6.61 lb	3,1 kg

MISTRAL PANEL [M.-...-PA]



51.38" x 16.34" 1305 x 415mm Overall size Useful Cover 48.82" x 14.57" 1240 x 370mm Linear Cover 48.82" Weight 6.61 lb 3,1 kg

1240 mm

SHAKE PANEL [7.-...-PA]



Overall size Useful Cover Linear Cover Weight

52.36" x 16.34"	1320 x 415mm
49.80" x 14.57"	1255 x 370mm
49.80"	1255 mm
6.61 lb	3,1 kg

VIKSEN PANEL [6.-...-PA]



Overall size Useful Cover Linear Cover Weight

52.17" x 16.14"	1320 x 410mm
49.61" x 14.57"	1255 x 370mm
49.61"	1255 mm
6.61 lb	3,1 kg

RIVIERA PANEL [V.-...-PA]



Overall size Useful Cover Linear Cover 48.23" Weight 6.61 lb

50.79" x 16.34" 1290 x 415mm 48.23" x 14.57" 1225 x 370mm 1225 mm 3,1 kg

GALLO PANEL [G.-...-PA]



Overall size 51.7 Useful Cover 46. 46. Linear Cover Weight 6.6

77"x 16.46"	1315 x 418mm
.65" x 14.57"	1185 x 370mm
.65"	1185 mm
51 lb	3,1 kg

1.2 ACCESSORIES



END DISC ROUND





GRANULES







1.3 FASTENERS



#9-10 x 2.5" with 1/4" Hex Head (#9-10 x 50mm 6.3mm) screws are used with Varitile panels. Corrosion resistant, minimum 1000 salt spray hours. For coastal and salt water environments, stainless steel fasteners required. **Please check local codes and approvals!**

1.4 INSTALLATION TOOLS



2. ESTIMATING

2.1 CALCULATION IN IMPERIAL



Profile	Rafter	Eave	Hip/Valley
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
Shake	1.2	4.1	0.4
Viksen	1.2	4.1	0.4
Riviera	1.2	4.0	0.3

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 / 4 = 8.75 round up to 9: 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 $9 \times 12 = 108 \times 2$ (for both sides of roof) = 216 full Mistral panels SECTION 2: 15 feet (eave) by 14 feet (rafter) 15 / 4 = 3.75 round up to 4 14 / 1.2 = 11.6 round up to 12 $4 \times 12 = 48 \times 2 = 96$ full Mistral panels Hip and valley: take the total lineal feet of hips and valleys: $80 \times 0.3 = 24$ full Mistral panels Tally panels from sections 1,2 and hip / valley: $216 + 96 + 24 = 336$ full Mistral 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	Total lineal footage of eave:
[EA]	125 / 6.3 = 19.84 round up to 20 fascia pieces
Valley	Total lineal footage of valley:
[5V]	20 / 5.7 = 3.5 round up to 4 Valley pieces
Valley	Total lineal footage of valley cap:
Cap	20 / 5.7 = 3.5 round up to 4 Valley Cap pieces
Screws	For standard installation, figure 10 fasteners per 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 7PA	37	126	100
Classic	37	126,5	100
Gallo	37	118,5	100
Mistral	37	124	100
Shake	37	126	75
Viksen	37	126	75
Riviera	37	122,5	100

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 🥢	Divide the roof into square / rectangular sections. In this case we have two:		
[PA]	SECTION 1: 1050 cm (eave) by 420 cm (rafter)		
	1050 / 124 = 8,46 round up to 9: 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		
	$9 \times 12 = 108 \times 2$ (for both sides of roof) = 216 full Mistral panels		
	SECTION 2: 450cm (eave) by 420cm (rafter)		
	450 / 124 = 3,62 round up to 4		
	420 / 37 = 11,35 round up to 12		
	$4 \times 12 = 48 \times 2 = 96$ full Mistral panels		
	Hip and valley: take the total lineal cm of hips and valleys: 2400 / 100 = 24 full Mistral panels		
	Tally panels from sections 1,2 and hip / valley: $216 + 96 + 24 = 336$ full Mistral panels		
Ridge barrel	Total lineal cm of hip, ridge and rake: 3780 / 36 = 105		
	Add one extra trim can 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		
Fave	Total lineal cm of eave:		
	27E0/100 = 10.72 round up to 20 faccia piacos		
	37307 190 – 19,73 Tourid up to 20 lascia pieces.		
Valley	Total lineal cm of valley:		
[5V]	600 / 177 = 3,4 round up to 4 Valley pieces		
Valley	Total lineal cm of valley cap:		
Сар	600 / 177 = 3,4 round up to 4 Valley Cap pieces		
Screws	For standard installation, figure 10 fasteners per 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 STARTER, GABLE AND HIP BATTENS

Battens should be standard or better nominal 1x4 or 1x3 for eaves and standard or better nominal 2x2 for hips, ridges and gables.

For all profiles other than RIVIERA, set a 1x4 or 1x3 along all eaves directly at the roof edge. For Riviera, set the eave apron first, directly on the deck and then install a 1x3 or 1x4 immediately behind the eave apron upturn.



RIVIERA



OTHER PROFILES

Install 2x2's along each gable and line both sides of hips and ridges. Fasten all battens into rafters making sure to penetrate the rafter a minimum of 1".

Note: Unlike batten systems that install from the ridge down, battenless systems install from the eave up. Make sure all your fascia metal is installed prior to laying panels.

4. INSTALLATION PROCEDURES -

4.1 PANEL INSTALLATION AND FASTENING





All profiles in this manual can be laid from right to left or left to right. Viksen and Riviera are exceptions as they must be laid right to left. Not all Varitile profiles are the same overall height. When setting your first course measure the overall height of the tile and transfer that dimension to the left and right hand sides of the roof deck. Snap a line between the marks and check back across the eave to ensure the nose of the tile will overhang the eave. Adjust the line accordingly in the case of a bowed eave. Set the top of the tile to the line making sure you keep the tiles straight.

Note: As with batten systems, do not lay full tiles tight to gables or hips. Once all the full tiles are installed, fall back and install cut pieces.

Standard installation requires 5 screws per back shelf and 5 screws per nose of each tile. Screws must penetrate sheathing by a minimum of $\frac{1}{2}$ ". We recommend using 2."screws for Viksen and 2.5" screws for all other profiles.



- (i) Bond, Classic, Mistral and Gallo panels must be staggered a minimum of one pan/ scallop width. Shake panels are staggered 13"(33 cm) measuring from right to left and 12"(30,5 cm) measuring left to right. These are the only two stagger points for Shake. Viksen panels can be staggered based on installer preference. We recommend a minimum of 7" (18 cm) for maximum performance and visual appeal.
- (i) We recommend soft soled footwear when installing/ walking on the panels.

The correct position for fasteners are shown below.



CLASSIC



4.2 RIDGE, HIP AND GABLE PANEL INSTALLATION

4.2.1 INSTALLING THE TOP COURSE

4.2.1.1 NON-VENTED

Measure from the last full course below the ridge up to the ridge batten. Deduct 0.5"(1,27 cm) from this measurement. This number is the bend line. Add a minimum of 1.5"(3,8 cm) to the bend line measurement. This is the cut line. Transfer and mark these measurements on the panel. Place the panel in the long bender along the bending line, lock into position and bend the panel upward. Remove panel from bender and cut along the cut line with the guillotine or shears.

(i) Always bend top course panels (long bends) before cutting.



Set panel in place and fasten one side. Pull the center of panel upwards so it bows away from the roof deck and the unfastened end of the panel lines up with the course below; fasten. Press down on the center of the panel and fasten. Panels need to be fastened into the ridge batten through the turn up so they stay in plane with the panels below.

4.2.1.2 VENTED





① 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. Depending on the roof/ attic structure the measurements below may need to be modified.

Cut an air gap in the roof sheathing 1"(2,5 cm) on each side of the ridge. Stack and fasten 2x2's or dimensional lumber center of ridge to create a ridge nailer. The height of the ridge nailer should allow for a consistent plane with field panels and the top course panel as well as sufficient air gap between the top course panel and ridge cap. Measure, bend and cut top course panels so they allow for a 1"(2,5 cm) gap between the panel up turn and the ridge nailer. Install venting material over panel turn up and fasten into the ridge nailer. Make sure a 1" (2,5 cm) air gap is maintained between the top course panels and ridge nailer.

4.2.1.3 COVERFLASHING



Cover flashing is an optional piece used to transition from the last full course of Riviera 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 course below the ridge.

Overlap cover flashing pieces facing away from prevailing weather and seal the overlap.

4.2.2 HIP AND GABLE

Measure straight along the top and bottom of the panel to the termination point formed by either the gable or hip batten.

Hips: Deduct 0.5"(1,27 cm) from this measurement. Gables: Ded

Gables: Deduct 0.25"(6 mm).

Transfer and mark these measurements on the panel. Create the bend line by scribing the panel between the top and bottom points. To create the cut line add a minimum of 1.5"(3,8 cm) to the bend line and scribe.

Use the guillotine or shears and cut along the cut line. After cutting the panels, bend accordingly.









4.2.2 CONT.

Place the cut and bent panels.





4.3 RIDGE, HIP AND GABLE TRIMS

(i) Install the trim overlaps facing away from prevailing weather.

When installing trim pieces, fasten through the overlapping area into battens or nailers. For trim pieces exceeding 14.5"(36,8 cm) exposure, space fasteners a minimum of every 14.5"(36,8 cm).



4.3.1 RIDGE TRIMS



VENTED





4.3.2 HIP TRIMS

Beginning at the eave, place trim piece so it fits tightly to the fascia. Insert an end closure (disc) into the leading edge of the trim piece and fasten. Continue laying trim from bottom to top.



Trim pieces can be cut and mitered at ridges.



4.3.3 GABLE TRIMS

Gable trims are installed from the bottom up, with a closure at the eave.





4.4 EAVE

Eave panels are fastened through the top (face) of the panel straight down into the eave batten. Follow the same fastener spacing as the field panels.



4.5 SIDEWALL

Sidewall panels are cut and fit in the same fashion as gable panels. A minimum 2"(5 cm) upturn is recommended.

Z-flashing may be used as a transitional piece between siding and up turned panels. 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 12"(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"(10 cm).



4.6 VALLEY

4.6.1 VALLEY FLASHING



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 6"(15,25 cm) and sealed.

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.

4.6.2 CUTTING PANELS

Measure straight along the top and bottom of the panel to the corner of the valley that is formed by the center up-stand. Transfer and mark these two measurements on the panel. Scribe a line between the top and bottom points, this is the bend line. Add 1.25"(3,18 cm) to this mark for your cut line.

Use the guillotine or shears and cut along the cut line. After cutting the panels, bend accordingly.





4.6.3 INSTALLING VALLEY CUTS

(i) Do not fasten panels through the valley upstand.





4.7 CHIMNEY

Panels are bent using the same techniques as ridge and sidewall to create the headwall and sidewall flashings of the chimney. For the saddle, flat stock may be used, or a panel may be cut and bent to fit. Always ensure flashings extend past the edges of the chimney to allow for proper drainage and all corners are sealed.



4.8 PIPE FLASHING

Install a base flashing on pipe integrated with the underlayment. Mark and cut the field panel to fit over pipe. Place panel over pipe. Seal panel to pipe. Install boot flashing over pipe. Mark and cut a partial panel (enough to fully cover the pipe flashing from side to side) and install over the pipe flashing. Seal the partial panel to the pipe flashing.

