



# Assembly instructions

2024 | Roof Tiles

Plannja Royal, Plannja Regent and  
Plannja Regal plus flashings and fittings



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# Some words of advice

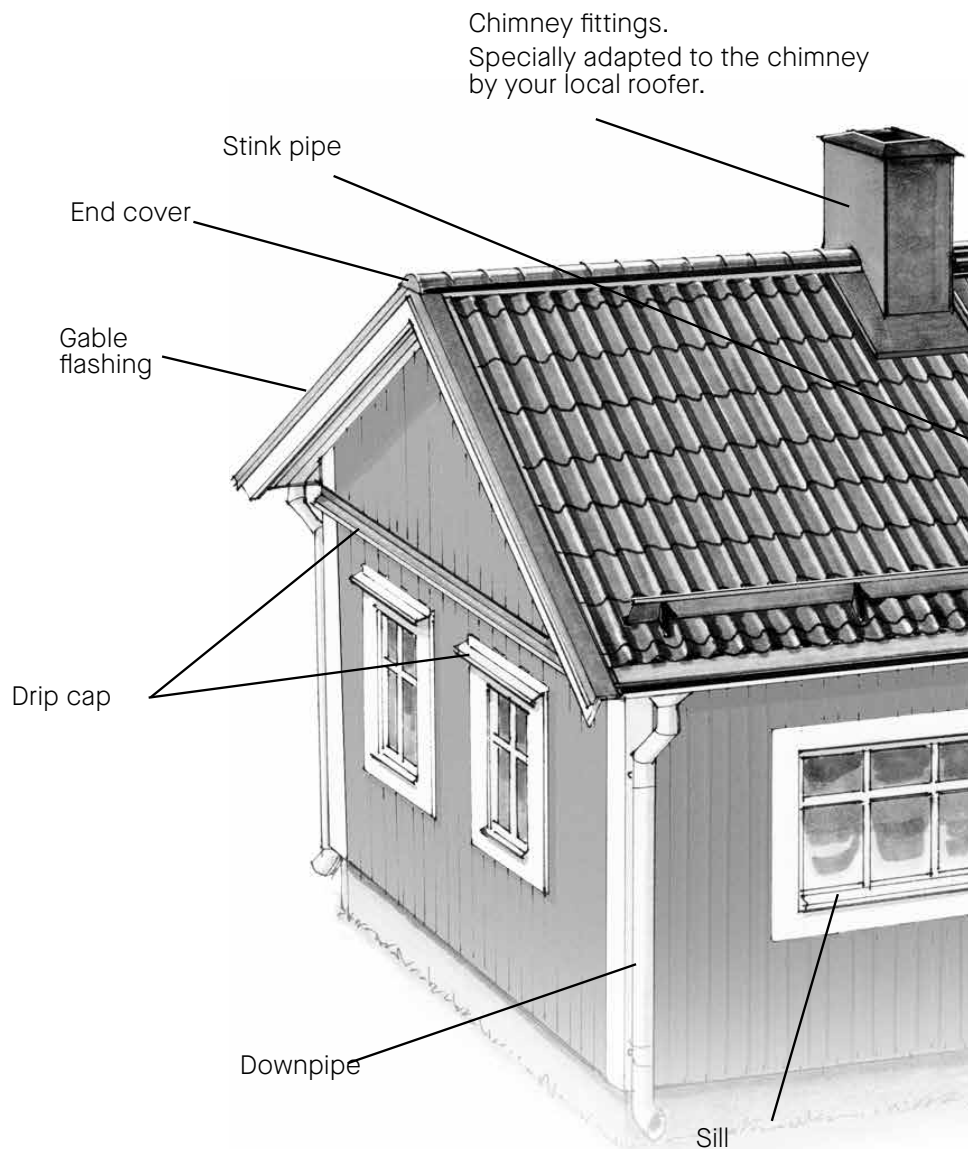
Plannja's assembly instructions were created to help both the private individual and the professional.

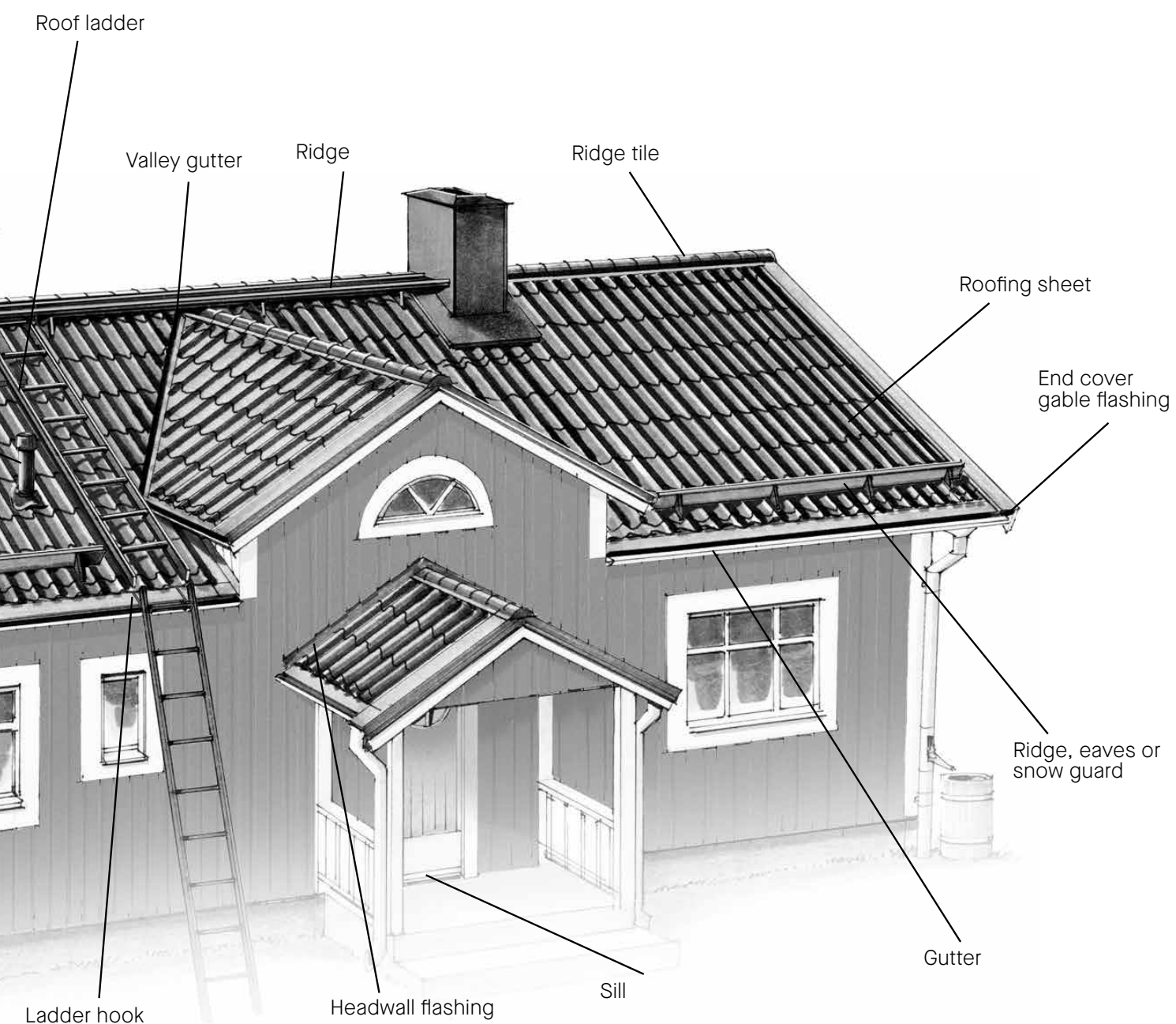
In order to make it easier for everyone to immediately find the instructions and the help they need, we have divided the assembly instructions into distinct sections. The first chapter – General preparations, roofing – is extremely important for those who have never laid a roof before.

Don't forget to stay calm and think through every step before you get to grips with the actual assembly. Good preparation and a methodical approach are the key to a perfect result. The assembly instructions must be followed for our warranty to be valid.

Plannja is Europe's leading manufacturer of thin sheet building materials. Our wide range of products means that we can provide product systems and total thin sheet solutions for almost any building project.

## Roof components







General preparations

# Roofing



## SHEET METAL ROOF



### **When taking delivery of roofing sheet**

As far as possible, store Plannja construction paneling indoors. Cover the materials with tarpaulin when storing outdoors. If there is a risk of condensation store packages inclined. Make sure good ventilation is achieved. This applies to both steel and aluminium.

### **Avoid damage to the panelling!**

Carry Plannja Roofing Tiles longer than 5 metres on edge or on a wooden frame. If they are carried flat the sheets will bend by their own weight and stretch. During subsequent assembly problems may be encountered with the fit between different sheets.

### **Sheet durability and walkability**

The walkability of thin sheet profile panels is difficult to define. In general a certain degree of care must be taken when walking and working on thin sheet roofs. Walkable sheeting refers to profiled panels that will allow careful access without being damaged or suffering ugly indentations.

### **Walkability and strength are dependent on thickness**

Thicker sheeting allows greater spacing between battens and provides improved walkability. For safety's sake always try to walk above or beside a batten. In the case of Plannja Roofing Tiles and Plannja Pannplåt, always step in the profile valley when walking on the roof.

## ALUMINIUM ROOF



### **Aluminium roofs are more sensitive**

Aluminium is softer than steel. Therefore exercise extreme caution when walking on an aluminium roof. Note that Plannja 20-75 in aluminium is not walkable at all if batten spacing is the maximum 500 mm c/c.

### **IMPORTANT – ALUMINIUM ROOFS**

A few things to remember when selecting an aluminium roof.

a) Aluminium moves more than steel with temperature changes. If the pitch of the roof is more than 6 metres expansion and contraction can be handled by pre-drilling the top sheet at each end overlap with an  $\varnothing$  8 mm bit before fastening the sheet. Avoid pitches longer than 12 metres!

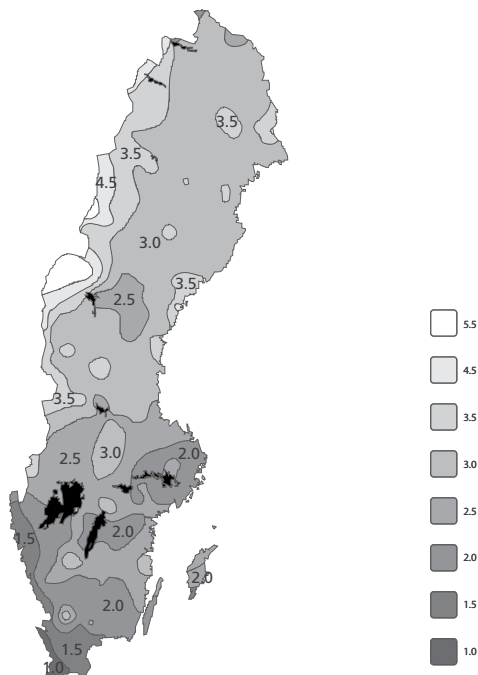
b) When using wooden battens, affix a strip of felt paper (see options selections) above the joists to avoid hearing a clicking noise during temperature changes. Not necessary when using Plannja Kombi battens or Renovation battens.

c) In order to prevent contraction/expansion movements, it is necessary for all flashings to be fastened without sharing screws in overlaps, i.e. screws may not pass through both flashings.





## SNOW LOAD MAP

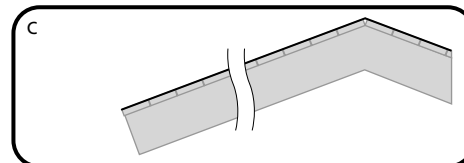
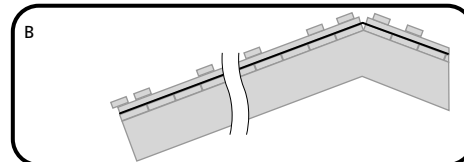
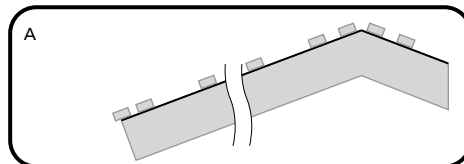


The snow load map shows snow volumes where you live. It also determines how the underlayment should look. If you live on the boundary between two different zones, choose the one with the most snow to guarantee durability. A more detailed map is available on Boverket's website. This applies to Sweden. Check the snow load for the area where your property is located.

## 1

### UNDERLAYMENT FOR SHEET

The most common underlayments



#### A. ON TRUSSES

When building a new roof, it's usual to choose a light underlayment such as Plannja Anticon Coverall or tongue-and-groove planks/plywood, at least 17 mm thick with a felt paper underlay with a minimum quality of YAP2200 or Plannja Anticon Coverall. Read more under *Installing battens* for each type of product.

#### B. ON TONGUE-AND-GROOVE PLANKS/PLYWOOD

Remove the old roofing. If the existing battens and counter battens are used, the battens must be moved so that the spacing corresponds to the dimensions in the assembly instructions for the roofing tile concerned. Replace defective battens.

#### C. ON SHINGLES, FELT PAPER, FLAT TILES

Allow the old roof to remain as underlayment. Seal any holes in the simplest manner. Roofing sheet can be laid directly on the old roof on the condition that the roof is watertight, even and that tongue-and-groove planking is in good enough condition for fasteners to hold the sheet down onto the underlayment, which must be at least 17 mm thick. However, we recommend the use of Plannja Kombi Battens, Plannja Renovation Battens or battens and counter battens.



## HOW TO MEASURE THE ROOF

### Types of roofs

Enter the dimensions indicated for your roof type. These are needed as support data for an offer or order for your roof. If your type of roof is missing and you need help, please contact Plannja for support.

We recommend a visit to Calculate My Roof at <http://beraknamittak.plannja.se>

You can get help there with a price estimate for a complete roof including rainwater system and all the accessories to suit the dimensions of your roof.

<p>This is my type of roof: <input type="checkbox"/></p> <p>Saddleback roof, roof sides 1+2</p> <p>Single-pitch roof, roof side 1:</p> <div style="display: flex; align-items: center;"> <input type="checkbox"/> <div style="border: 1px solid black; padding: 2px; margin: 0 5px;">1</div> <div style="border: 1px solid black; padding: 2px; margin: 0 5px;">2</div> </div>	<p>This is my type of roof: <input type="checkbox"/></p> <div style="display: flex; align-items: center;"> <input type="checkbox"/> <div style="border: 1px solid black; padding: 2px; margin: 0 5px;">1</div> <div style="border: 1px solid black; padding: 2px; margin: 0 5px;">2</div> </div>	<p>This is my type of roof: <input type="checkbox"/></p> <div style="display: flex; align-items: center;"> <input type="checkbox"/> <div style="border: 1px solid black; padding: 2px; margin: 0 5px;">1</div> <div style="border: 1px solid black; padding: 2px; margin: 0 5px;">2</div> </div>
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● = Always downpipe  
 ● = Downpipe if eaves > 10 metres, otherwise every 10 metres.  
 NOTE! All dimensions in mm.

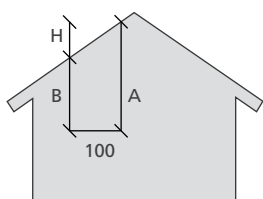


# 3

## PITCH



Pitch angle should be checked to ensure selection of the right roofing product. Pitch angle may also affect the choice of underlayment, roof assembly and the assembly of flashings and fittings.



Calculating pitch.  
Use the table on the right to calculate pitch, or use a smartphone app for the calculation.

Dimension A minus dimension B gives H, which is the height difference for calculating pitch. See table.

Rise in cm (≈)	Pitch	Rise in cm (≈)	Pitch
25	14	75	37
30	17	80	39
36	20	84	40
40	22	90	42
45	24	100	45
49	26	104	46
53	28	111	48
58	30	119	48
62	32	133	53
67	34	143	55
73	36	173	60

### POSSIBLE ROOFING PRODUCT SELECTIONS DEPENDING ON PITCH

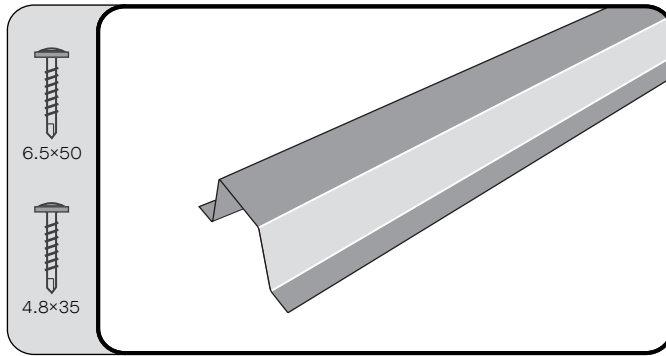
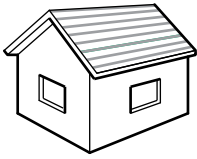
Product	Pitch in degrees				> = 14
	3.6-5.7*	5.7-8	8-10	10-14	
	Seal in side and end overlap				
Plannja 20-105		X	X	X	X
Plannja 20-75		X	X	X	X
Plannja Sinus 18				X	X
Plannja 45 / 45R	X	X	X	X	X
Plannja Sinus 51				X	X
Plannja Pannplåt				X	X
Plannja Royal					X
Plannja Regent					X
Plannja Regal					X
Plannja Trend			X	X	X
Plannja Modern				X	X

\* With attachment strip



## 4a

### KOMBI BATTEN



#### choosing battens

Plannja roofing sheet can be installed on different types of batten. Choose either Plannja Kombi Batten, Plannja Renovation Battens or wooden battens.

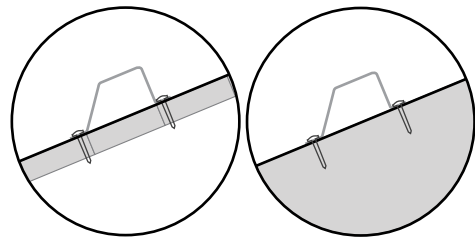
Plannja Kombi Batten is intended for new constructions and renovations. It is designed to handle a truss spacing of 1200 mm. The standard length is 2700 mm and the profile height is 40 mm. We recommend the use of wooden battens at eaves. Attachment to truss c/c 1200 mm. Use two 6.5x50 screws for attachment; two screws in each truss.

#### Overlapping joints

Join Kombi Battens using 100–300 mm overlaps. Locate the joints above the trusses.

#### Fastening to wooden panels

Minimum thickness 17 mm. Screws 4.8x35, spacing max 300 mm in zigzag pattern. Tighten screws carefully so that they do not spin freely.

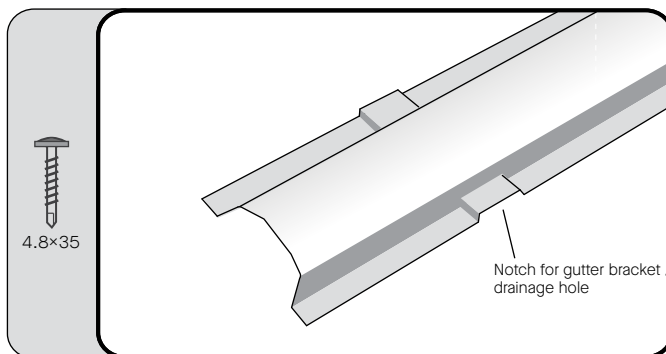


Attachment, wooden panel

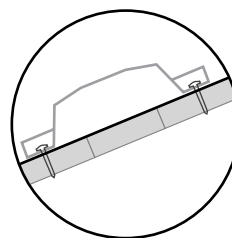
Attachment to truss c/c 1200

## 4b

### RENOVATION BATTENS



Plannja Renovation Battens are primarily intended for renovation and have cut-outs for gutter brackets/drainage holes which means they can be used as eaves strips and that they eliminate the need for counter battens. They are designed to support between trusses without forming a structural support. The standard length is 3000 mm and the profile height is 20 mm. Attachment to wooden panels with a minimum thickness of 17 mm. Screws 4.8x35 mm, spacing max 300 mm in zigzag pattern. Tighten screws carefully so that they do not spin freely.



Attachment, wooden panel



## MAINTENANCE



Plannja roofing tiles and wall cladding normally require very little maintenance. Deposits that are not washed away by rain should be removed with a soft brush and water. Cut edges and paint damage that occur during assembly should be immediately touched up with Plannja touch-up paint. After assembly, be careful to remove all drill swarf so that the profiles do not become discoloured.



Assembly instructions

## Royal | Regent

Changed  
assembly for  
Royal with  
new front  
edge.

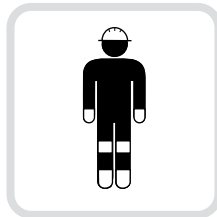


**Plannja** 



#### PREPARATION

Before you begin the assembly of your Plannja Roof it is important to read through the "General Preparations, roof laying" section. The section provides information and advice on how to measure your roof, what underlying materials are suitable, and much more besides.



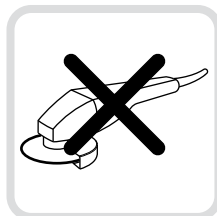
#### WORK SAFETY

Always follow applicable work safety legislation.



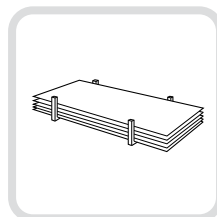
#### LABOUR

Assembly can be done by one person. For safe assembly, we always recommend that at least two people perform the work.



#### TOOLS

No special tools are required for roofing sheet assembly. Nevertheless, a screwdriver can make the work considerably easier. Cut sheets using sheet metal shears, a nibbling machine or a circular saw. Never use a grinding disc. Sheet metal coatings can be damaged by swarf from the disc.



#### TRANSPORT, STORAGE AND HANDLING

As far as possible, store the roofing tile profiles indoors. Cover the materials with tarpaulin when storing outdoors. If there is a risk of condensation store packages inclined. Make sure good ventilation is achieved.



#### WALKABILITY

The walkability of thin sheet profile panels is difficult to define. In general a certain degree of care must be taken when walking and working on thin sheet roofs. Walkable sheeting refers to profiled panels that will allow careful access without being damaged or suffering ugly indentations. For safety's sake always try to walk above or beside a batten. In the case of Plannja roof tiles, always step in the profile valley when walking on the roof.



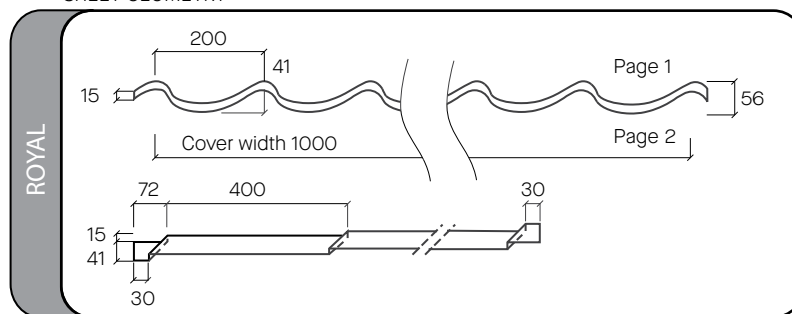




#### TECHNICAL INFORMATION

ROYAL	Material	Steel / Aluminium
	Coating	GreenCoat Pro BT / Hard Coat 50 / Hard Coat 25
	Profile / Max height	56 mm
	Min length	500 mm
	Max length	7000 mm
	Step length	400 mm
	Sheet thickness	0.55 mm / 0.60 mm
	Weight	4.9 kg/m <sup>2</sup> / 2.1 kg/m <sup>2</sup>
	Cover width	1000 mm
	Min pitch	14° (1:4)

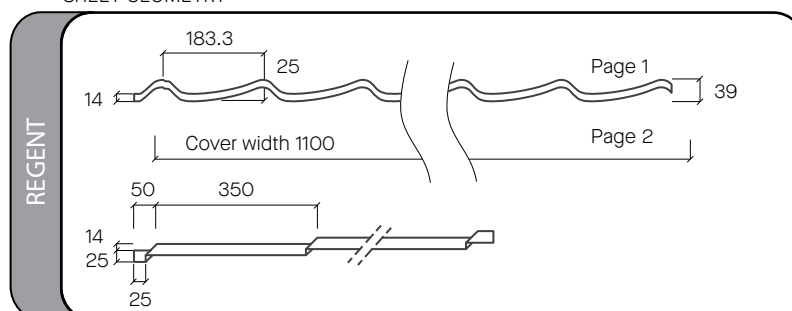
#### SHEET GEOMETRY



#### TECHNICAL INFORMATION

REGENT	Material	Steel / Aluminium
	Coating	Hard Coat 25
	Profile / Max height	39 mm
	Min length	450 mm
	Max length	6000 mm
	Step length	350 mm
	Sheet thickness	0.50 mm / 0.60mm
	Weight	4.7 kg/m <sup>2</sup> / 1.9 kg/m <sup>2</sup>
	Cover width	1100 mm
	Min pitch	14° (1:4)

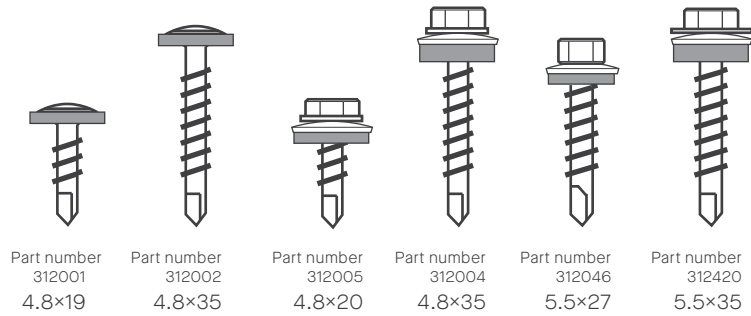
#### SHEET GEOMETRY





#### INSTALLATION SCREWS

4.8×19 in steel on steel battens, galvanized and painted screws  
 4.8×35 in steel on wooden battens, galvanized and painted screws  
 4.8×20 in steel on steel battens, galvanized and painted screws  
 4.8×35 in steel on wooden battens, galvanized and painted screws  
 5.5×27 in aluminium on steel battens, galvanized and painted screws  
 5.5×35 in aluminium on wooden battens, painted aluminium screws



It's a good idea to use low-head screws for a more discreet impression.



#### RECYCLING

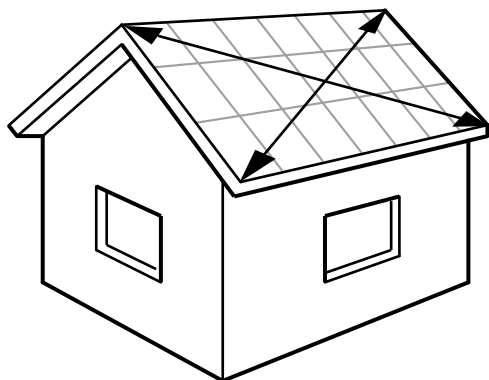
Take care to remove sheet clippings and screws from the roof, gutters and the ground on completion of assembly. The materials are 100 per cent recyclable and can be disposed of at recycling stations. Remember to pick up or sweep up nibbling chips from the roofing sheets as they can otherwise cause damage to the coating.



## 1

**ROOF MEASUREMENT**

Diagonal measuring and symmetry

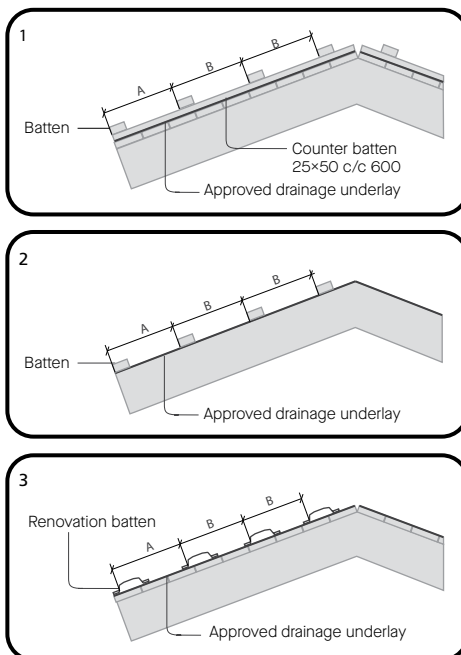
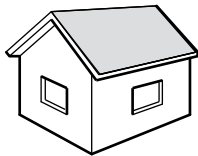


Begin by checking roof measurements by measuring the diagonals from corner to corner. If the distances are unequal, the roof is skewed. Minor deviations around 20–30 mm can be concealed with gable flashings.

In this case, lay the Plannja roofing sheets so that their lower edges align with the eaves.

2a

## UNDERLAYMENT FOR PLANNJA ROYAL



The assembly instructions mainly show alternative 1.

Batten spacing for Plannja Roofing Tiles must always follow tile overlays. The spacing between the first batten (the eaves strip) and the second batten (dimension A) and other batten spacing (dimension B) is shown in the table below. Always use approved drainage underlay e.g. Plannja Anticon Coverall.

1. Underlayment of wooden panels, minimum thickness 17 mm.
2. Light underlayment e.g. Plannja Anticon Coverall. Truss spacing c/c 1200 mm.
3. Renovation batten on existing wooden panel.

Fasten the battens using 2 × galvanized 100×3.4 nails at each truss. Plannja renovation and kombi battens using 6.5×5.0 screws.

Installing Plannja roofing tiles on on type-approved light underlayment.

Snow load	1,0-2,5	3,0-4,0	4,0
	Batten 45×70	Batten 45×95	Plannja Kombi batten
Royal A	375	375	390
B	400	400	400

Installing Plannja roofing tiles on underlayment of wooden panels minimum thickness 17 mm.

Snow load	1,0-2,5	3,0-4,0	4,0
	Batten 25×50	Batten 34×70	Plannja Steel batten*
Royal A	390	375	390
B	400	400	400

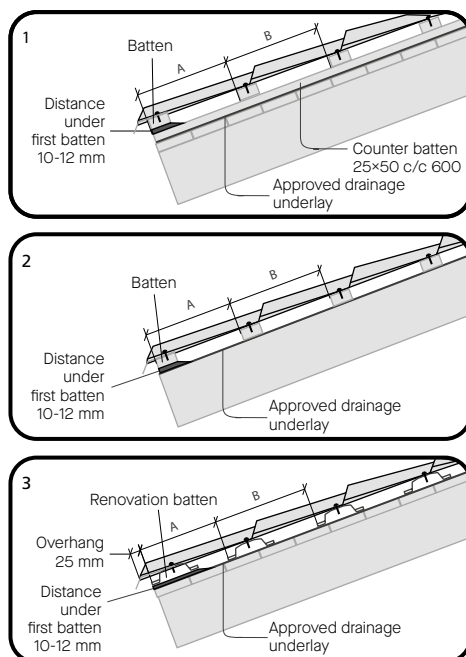
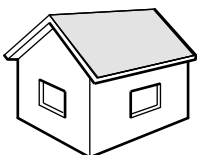
\* Plannja Renovation or Kombi batten.



2b

## INSTALLATION FOR NEW ROYAL

Form cut front edge



Batten spacing for Plannja Roofing Tiles must always follow tile overlays. The spacing between the first batten (the eaves strip) and the second batten (dimension A) and other batten spacing (dimension B) is shown in the table below. Always use approved drainage underlay e.g. Plannja Anticon Coverall.

1. Underlayment of wooden panels, minimum thickness 17 mm.
2. Light underlayment e.g. Plannja Anticon Coverall. Truss spacing c/c 1200 mm.
3. Renovation batten on existing wooden panel.

Fasten the battens using 2 × galvanized 100×3.4 nails at each truss. Plannja renovation and kombi battens using 6.5×5.0 screws.

Installing Plannja roofing tiles on on type-approved light underlayment.

Snow load	1,0-2,5	3,0-4,0	4,0
	Batten 45×70	Batten 45×95	Plannja Kombi batten
Royal A	320	310	310
B	400	400	400

Montering av Plannja takpannor på underlagstak av träpanel minimitjocklek 17mm.

Snow load	1,0-2,5	3,0-4,0	4,0
	Batten 25×50	Batten 34×70	Plannja Steel batten*
Royal A	340	320	*305-(285)
B	400	400	400

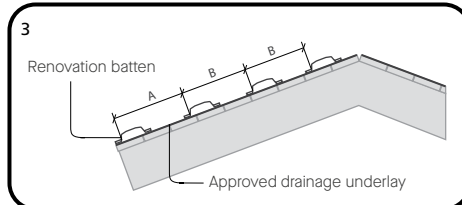
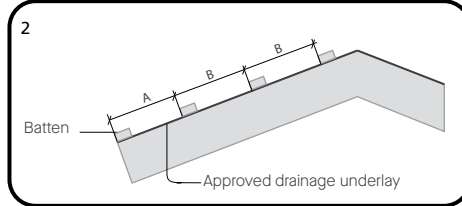
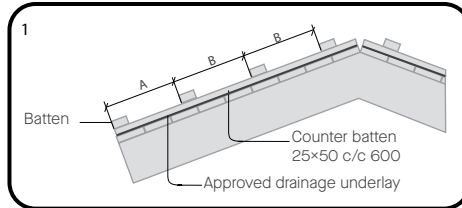
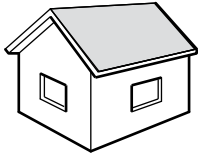
\* Plannja Renovation or Kombi batten.





### 3

## UNDERLAYMENT FOR PLANNJA REGENT



The assembly instructions mainly show alternative 1.

Batten spacing for Plannja Roofing Tiles must always follow tile overlays. The spacing between the first batten (the eaves strip) and the second batten (dimension A) and other batten spacing (dimension B) are shown in the table below. Always use approved drainage underlay e.g. Plannja Anticon Coverall.

1. Underlayment of wooden panels, minimum thickness 17 mm.
2. Light underlayment e.g. Plannja Anticon Coverall. Truss spacing c/c 1200 mm.
3. Renovation batten on existing wooden panel.

Fasten the battens using 2 × galvanized 100×3.4 nails at each truss. Fasten Plannja renovation and Kombi battens using 6.5×50 screws.

Assembly of Plannja Roofing Tiles on type-approved light underlayment.

Snow load	1.0-2.5	3.0-4.0	4.0
	Batten 45×70	Batten 45×95	Plannja Kombi batten
Regent A	325	325	340
B	350	350	350

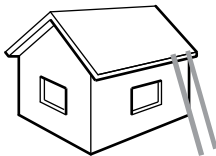
Installing Plannja roof tiles on underlayment of wooden panels, minimum thickness 17 mm.

Snow load	1.0-2.5	3.0-4.0	4.0
	Batten 25×50	Batten 34×70	Plannja Steel batten*
Regent A	340	325	340
B	350	350	350

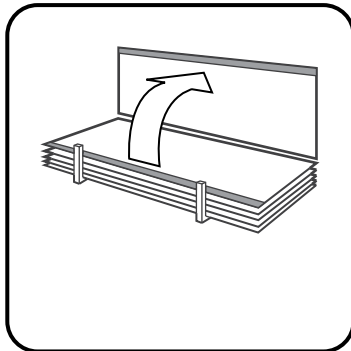
\* Plannja Renovation or Kombi Batten

### 4

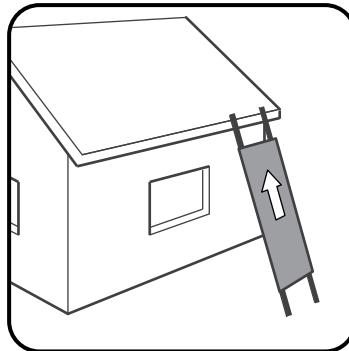
## LIFTING SHEETS TO THE ROOF



Remember that long sheets may not be lifted by their ends. The best method is to carry them up-right. The sheets can be slid up to the roof along a pair of beams, a ladder or similar.



Hold the sheets by the edge and carry them vertically.

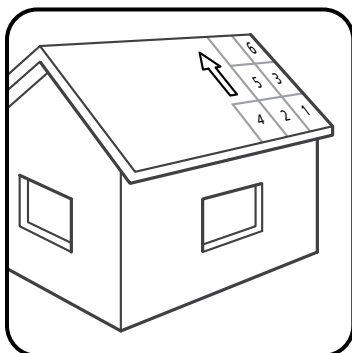


Use planks, a ladder or similar as a support on which to slide the sheets up onto the roof.



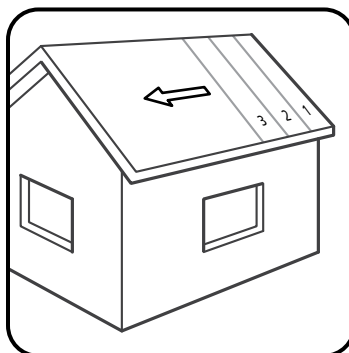
# 5

## DIRECTION OF INSTALLATION



### Standard lengths

The sheets are laid in rows diagonal from the eaves to the ridge. Make sure to lay the first sheet with its lower edge parallel to the eaves. Slide the other sheets in the row up so that any gap at the end overlap is as small as possible before fastening. The next row is laid with the first sheet's lower edge in line with the previously laid sheet. Slide the rest of the sheets in the row up as described above before fastening.



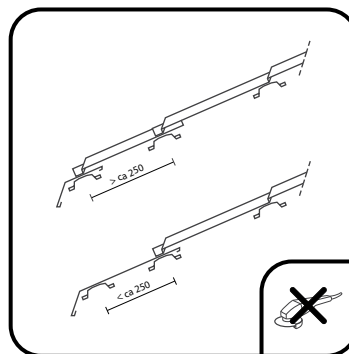
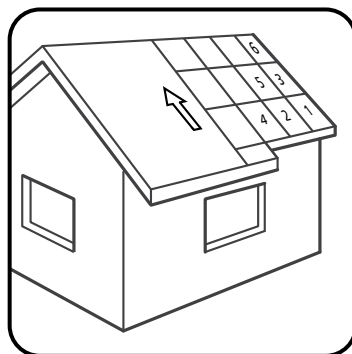
### Special lengths

As a rule, install special length sheets (not in combination with standard length) from right to left. Assembly may also be done from left to right. Note that side overlap requires sheets to be slid beneath sheeting already laid.

# 6

## DIRECTION OF INSTALLATION

### Staggered eaves



If the roof has staggered eaves (different roof lengths on the same half of the roof) the lowest tiles may be cut. If the spacing between battens is 250 mm or more, slide the tiles under the tiles above. Should the spacing be less than 250 mm, it is preferable to have an extended eaves flashing made as illustrated. It might also be possible to adjust the length of the pitch instead by moving the protruding eaves.

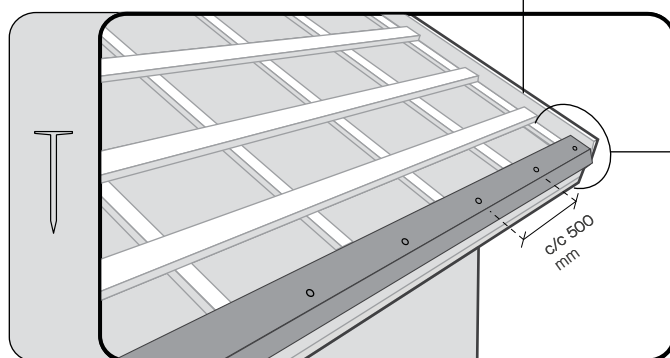


# 7

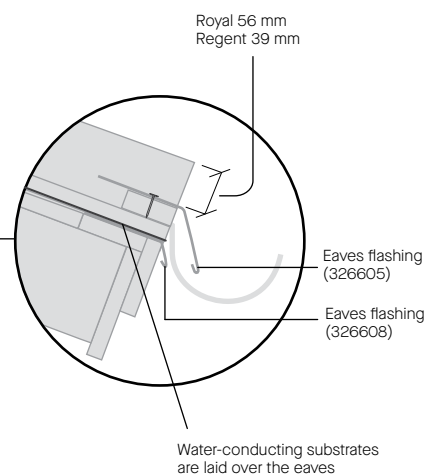
## EAVE FLASHING



Install the bargeboard with the top edge level with the sheet profile tops.



Attach the eve flashing using galvanized nails (or screws) in the substrate at intervals of 500 mm. Bear in mind you may have to install gutter brackets before the eave flashing. Overlapping joints of min 100 mm.



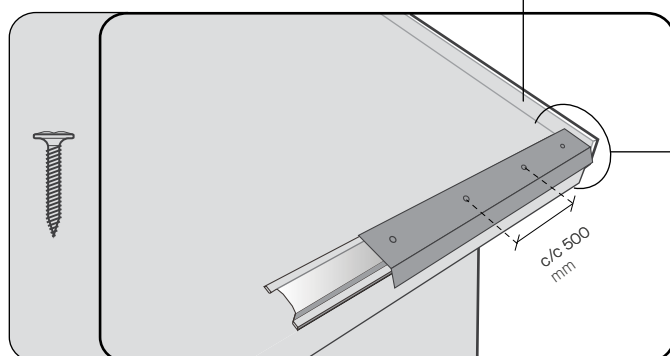
# 8

## EAVE FLASHING

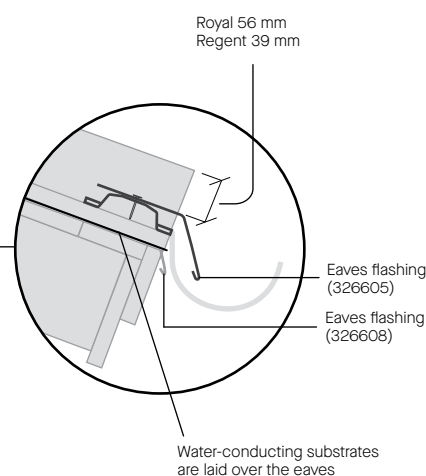
Installing renovation battens



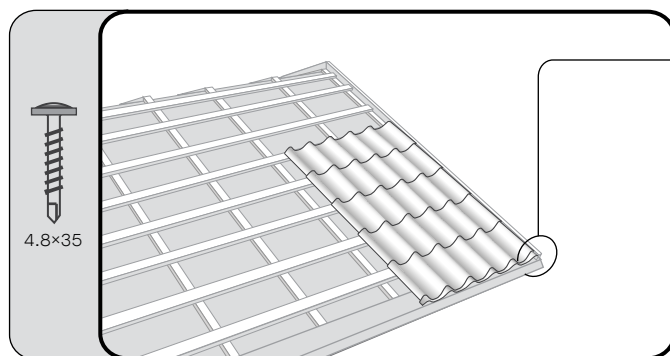
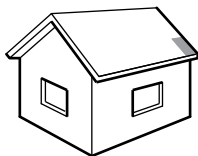
Install the bargeboard with the top edge level with the sheet profile tops.



Renovation battens are not designed to provide support between trusses but require a structural support.





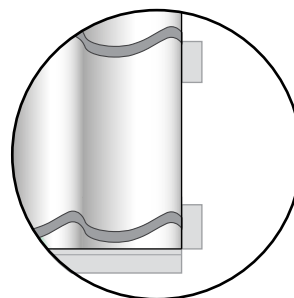
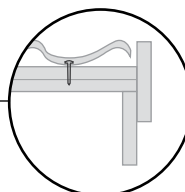


4.8x35

**IMPORTANT!**

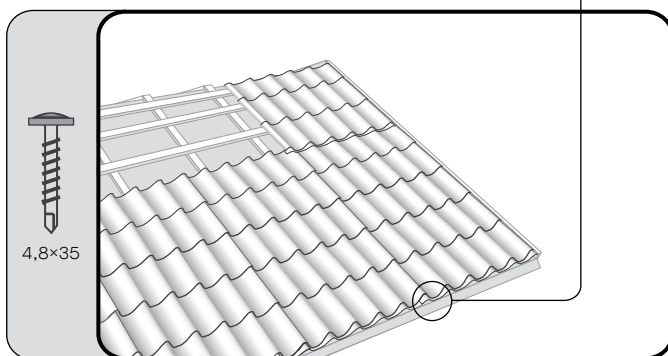
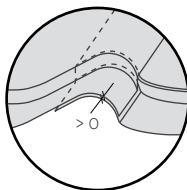
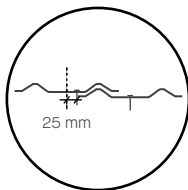
Make sure the first sheets are laid along the eaves and that they do not extend over the edge of the eaves flashing. Approximately 1-2 cm from the edge to cover any angular deviations.

The roofing tiles are fastened with self-drilling screws. Plannja has special sockets for assembly in power drills that make screwing extremely simple. Lay the sheet along the eaves and begin screwing down the side that abuts the bargeboard.

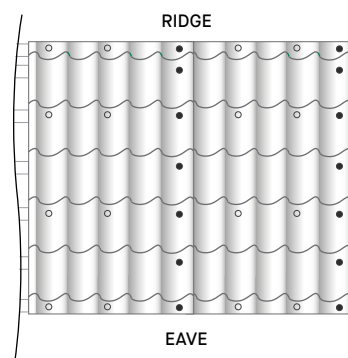


## 10a

### SUBSEQUENT SHEETS



Fasten according to the sequence below. Fasten the screws shown as solid dots in the figure below (side overlap) first. Fasten every other profile valley every other row of tiles. Put a screw in the side overlap in every profile valley. As a rule of thumb, use 6–7 screws per m<sup>2</sup>. To make sure the side overlap seals, we recommend that the sheet be displaced 25 mm toward the overlap (see fig.). Use a screw in every profile valley to fasten the short side's overlap (not illustrated in the fastening diagram below).



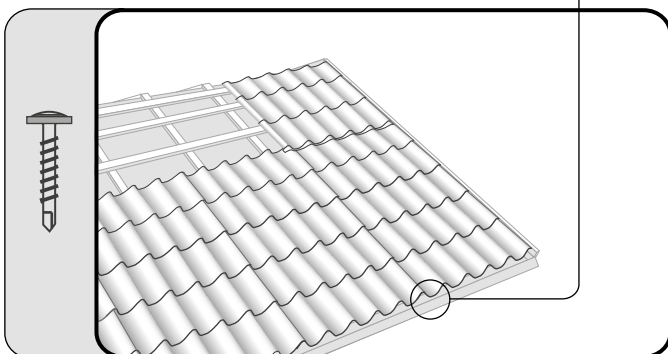
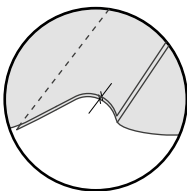
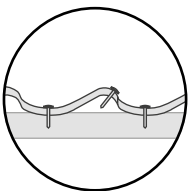
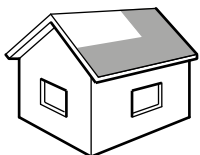
• Begin with these screws



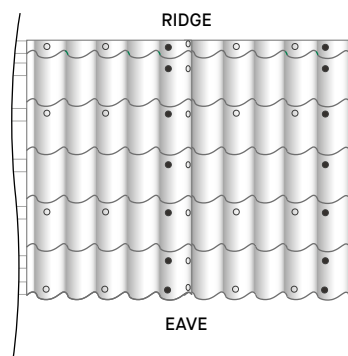
## 10b

### SCREW SCHEDULE FOR NEW ROYAL

Form cut front edge



Screw according to the diagram below. Screws marked with filled dots in the figure below (the edges) must be attached first. Screw in each other profile bottom, on every other forehead row. At the side-over patch a screw is inserted in each profile bottom. In wind-exposed locations we recommend to also screw in the edge of the side overlap to then have a more secure seal. For the overlap of the short side is fastened screw in each profile bottom (not illustrated in the below screwing diagram).



• Begin with these screws

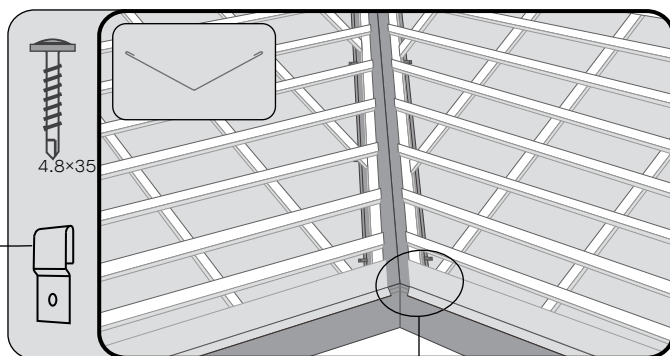
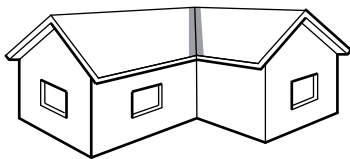




## 11a

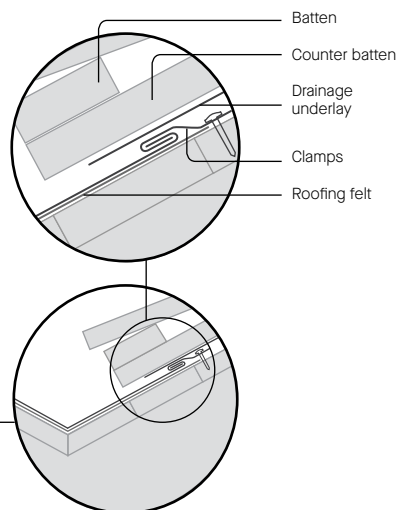
### VALLEY GUTTER

#### Alternative 1



Clamps are easily made by shaping a piece of sheet.

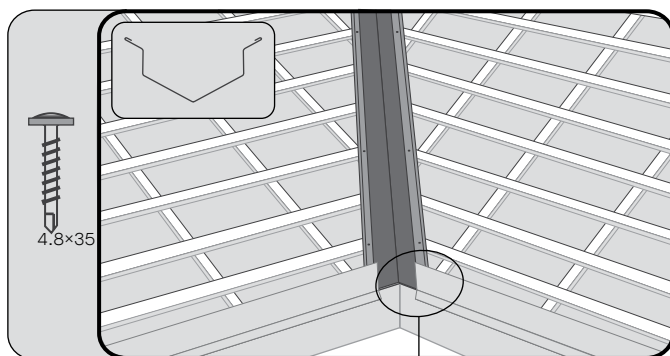
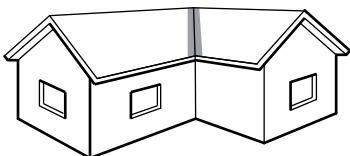
Fasten the valley gutter to the batten using brackets or step brackets. The roof tile profile must protrude at least 150 mm beyond the valley gutter edge. Fasten all sheets next to the valley gutter using screws on the outside of the gutter. Overlap gutter joints by at least 200 mm.



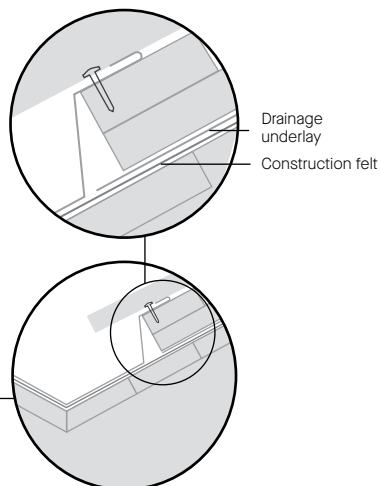
## 11b

### VALLEY GUTTER

#### Alternative 2

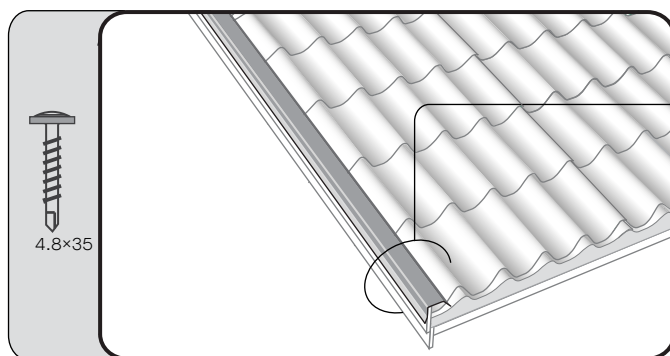
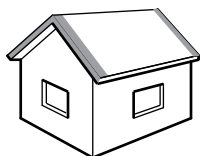


The roof tile profile must protrude at least 150 mm beyond the valley gutter edge. Fasten all sheets next to the valley gutter using screws on the outside of the gutter. Overlap gutter joints by at least 200 mm.

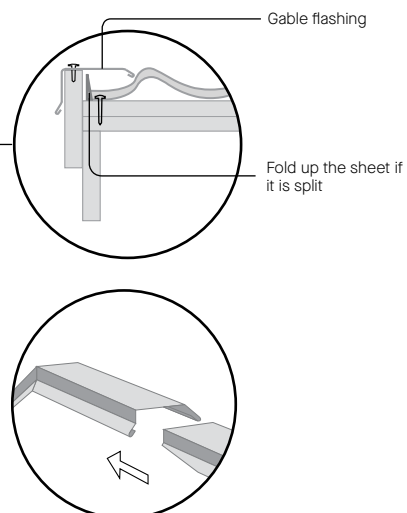


## 12

### GABLE FLASHING

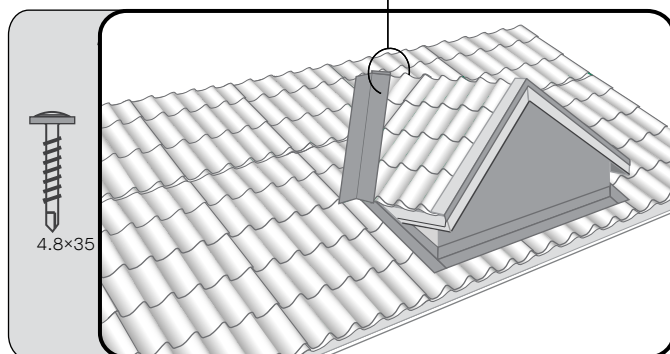


Position the gable flashing and screw it to the bargeboard, c/c 300 mm. If the roofing sheet is cut, fold the profile valley up. Overlap the flashing joints 100 mm. Clip the bottom flashing as illustrated.

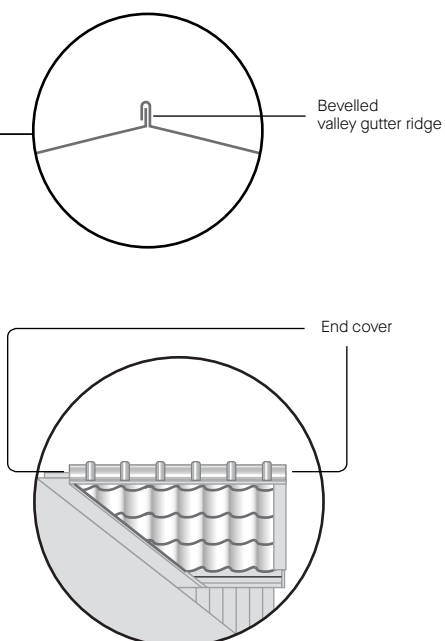


## 13

### DORMER



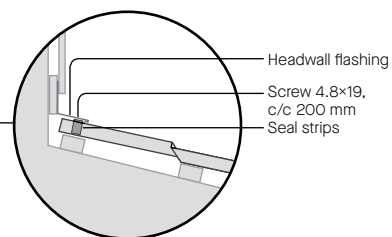
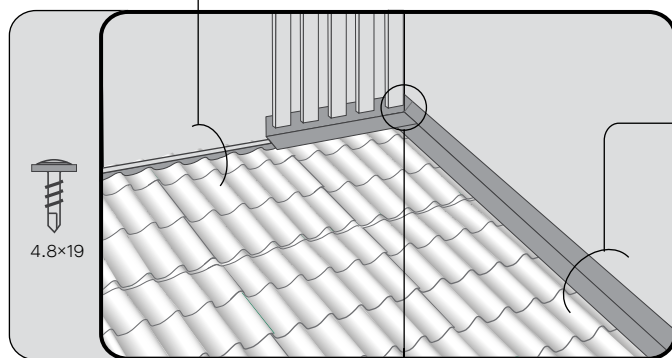
Cut and fold valley gutters together where they meet at the top.



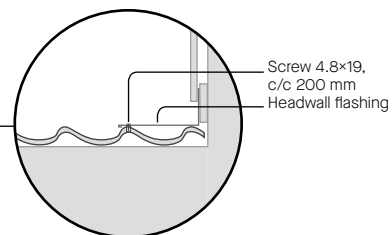
14

**DORMER**

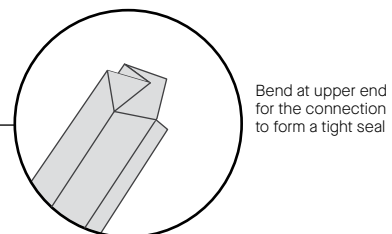
Connection to high section



Headwall flashing  
Screw 4.8×19,  
c/c 200 mm  
Seal strips

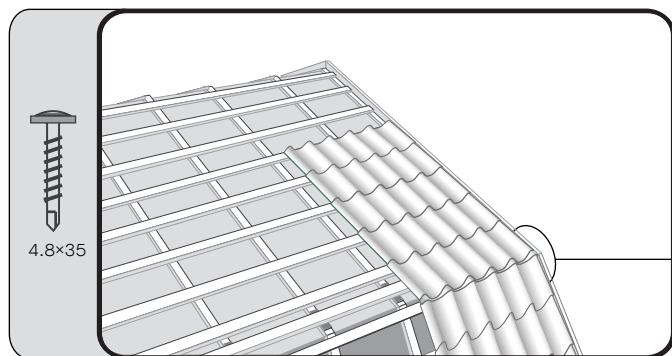
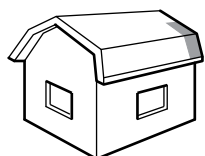


Screw 4.8×19,  
c/c 200 mm  
Headwall flashing

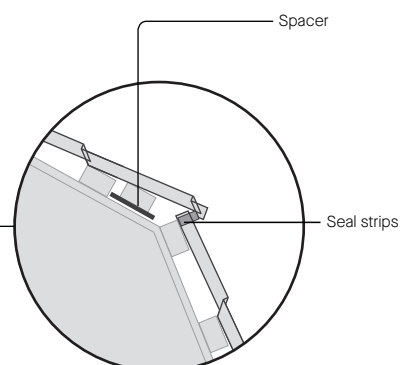


Bend at upper end  
for the connection  
to form a tight seal

15

**MANSARD ROOF**

When laying a mansard roof, it is important to install the sheet with a protrusion corresponding to the bottom short step on the sheet; see illustration. The bottom batten must be moved up and complemented with a suitable spacer. If there is a risk of water penetration, glue or seal strip in the joint between the sheets.



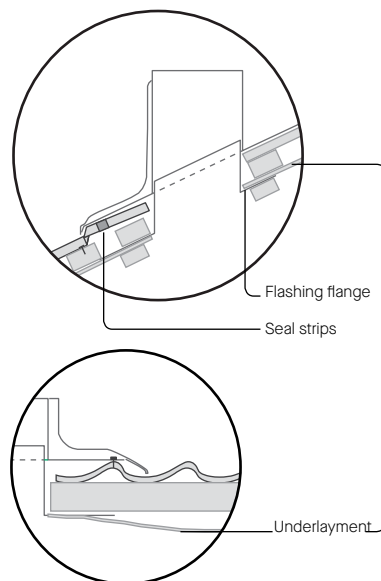
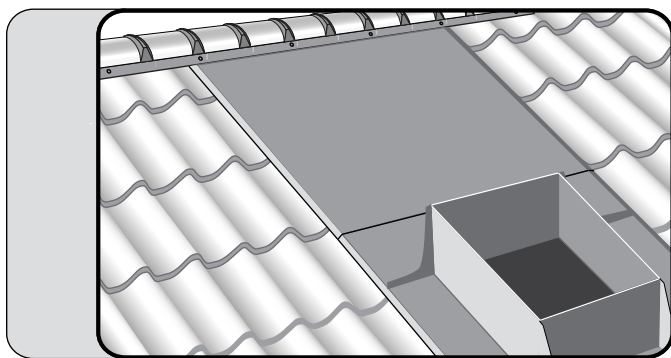
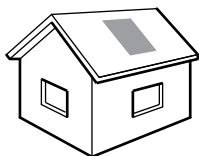
Spacer

Seal strips



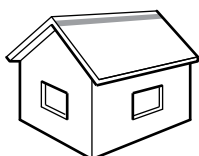
16

## HOLES

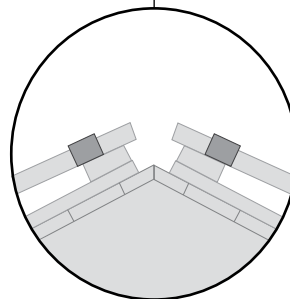
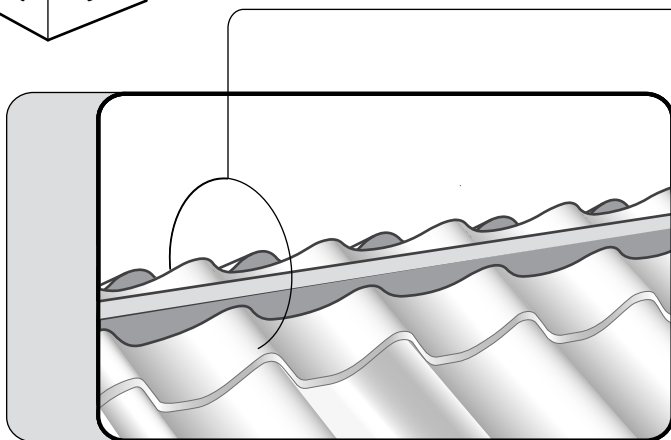


17

## SEAL STRIPS AT RIDGE

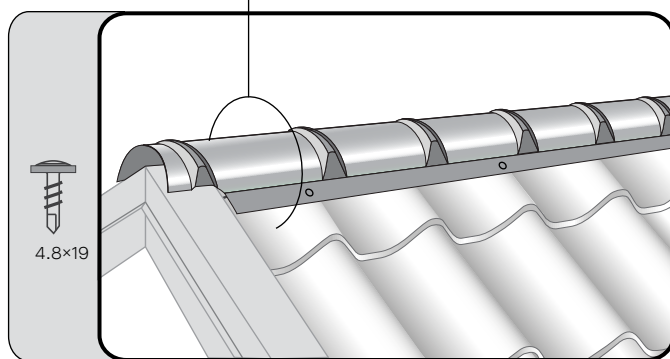


Lay the seal strip immediately below the edge of the top sheet. It will be subsequently hidden by the ridge flashing.

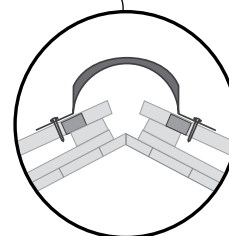


18

## RIDGE TILE



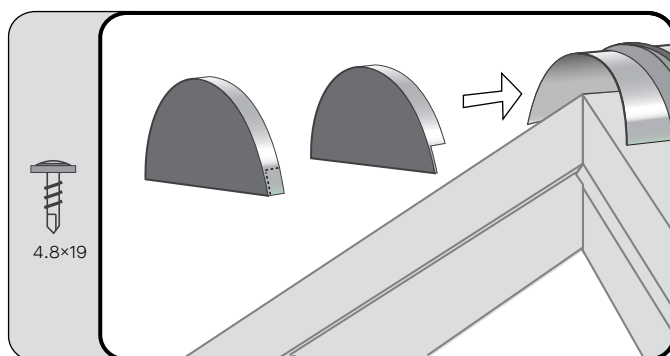
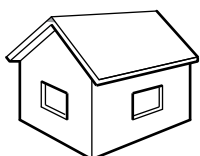
Clip the end of the ridge tile so that it fits over the gable flashing and screw it into the sheets at every other profile apex.



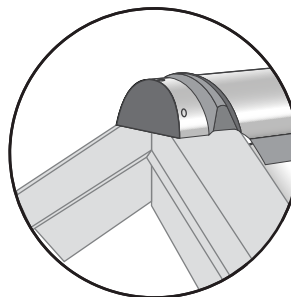
Seal strips  
at ridge

19

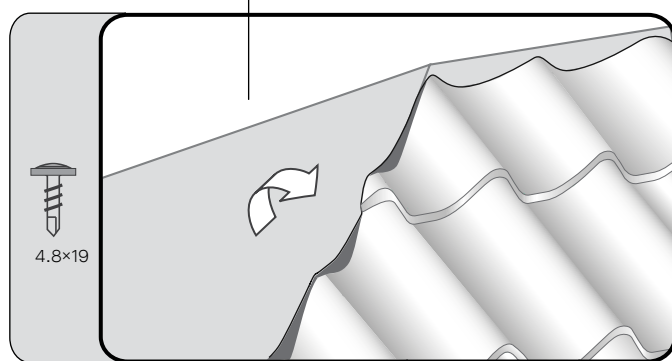
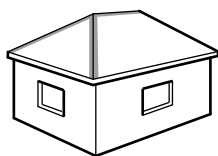
## END COVER



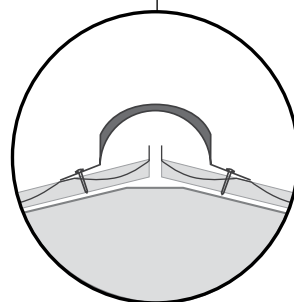
If necessary, cut the end cap, slide it into position and fasten it through the ridge tile.







If the roof has a capped ridge, always fold up the angle-cut edge of the sheet. Before the ridge flashing is installed, cover the joints with ridge tape.





Assembly instructions

# Regal



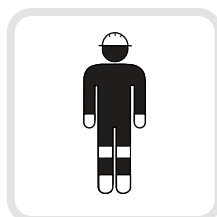
**Plannja** 



#### PREPARATION

Before you begin the assembly of your Plannja Roof it is important to read through the "General Preparations, roof laying" section in the brochure.

Assembly instructions 2014 The section provides information and advice on how to measure your roof, what underlying materials are suitable, and much more besides.



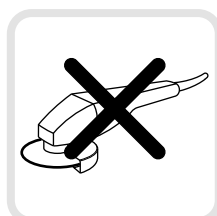
#### WORK SAFETY

Always follow applicable work safety legislation.



#### LABOUR

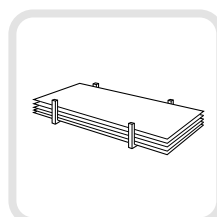
Assembly can be done by one person. For safe assembly, we always recommend that at least two people perform the work.



#### TOOLS

No special tools are required for roofing sheet assembly. Nevertheless, a screwdriver can make the work considerably easier.

Cut sheets using sheet metal shears, a nibbling machine or a circular saw. Never use a grinding disc. Sheet metal coatings can be damaged by swarf from the disc.



#### TRANSPORT, STORAGE AND HANDLING

As far as possible, store Plannja Regal indoors. Cover the materials with tarpaulin when storing outdoors. If there is a risk of condensation store packages inclined. Make sure good ventilation is achieved.



#### WALKABILITY

The walkability of thin sheet profile panels is difficult to define. In general a certain degree of care must be taken when walking and working on thin sheet roofs. Walkable sheeting refers to profiled panels that will allow careful access without being damaged or suffering ugly indentations.

For safety's sake always try to walk above or beside a batten. In the case of Plannja Regal, always step in the profile valley when walking on the roof.

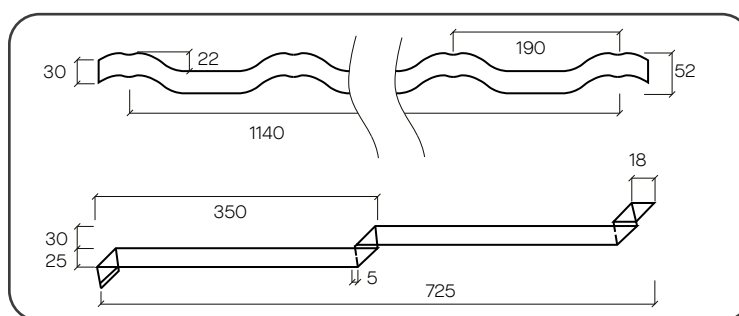




#### TECHNICAL INFORMATION

Material	Steel
Coating	GreenCoat Crown BT
Profile height	22 mm
Max height	52 mm
Sheet thickness	0.50
Panel weight	3.90 kg
Cover width	1140 mm
Total width	1190 mm
Cover length	660 mm
Total length	725 mm
Min pitch	14° (1:4)

#### SHEET GEOMETRY



#### INSTALLATION SCREWS



Part number  
312002  
4.8×35



Part number  
312001  
4.8×19



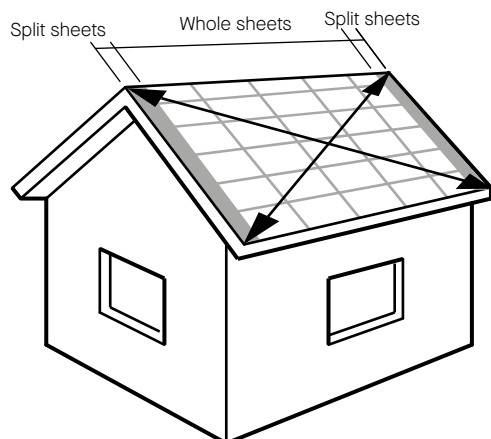
#### RECYCLING

Take care to remove sheet clippings and screws from the roof, gutters and the ground on completion of assembly. The materials are 100 per cent recyclable and can be disposed of at recycling stations. Remember to pick up or sweep up nibbling chips from the roofing sheets as they can otherwise cause damage to the coating.



# 1

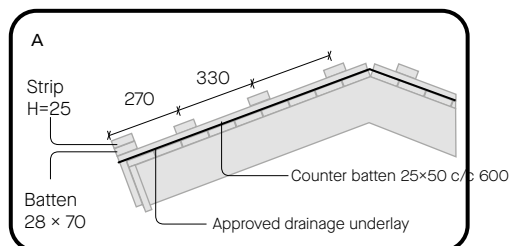
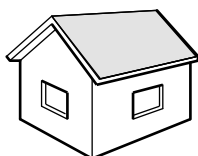
## ROOF MEASUREMENT Diagonal measuring and symmetry



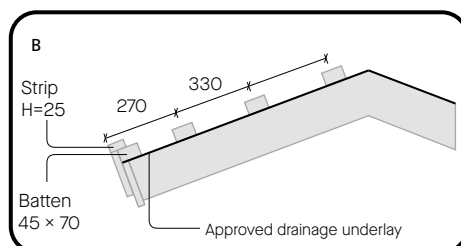
Begin by checking roof measurements by measuring the diagonals from corner to corner. If the distances are unequal, the roof is skewed. Minor deviations around 20–30 mm can be concealed with gable flashings. If you want the profiles to be symmetrically distributed across the roof, first measure the length of the roof in order to determine the widths of the first and last sheets.

# 2

## UNDERLAYMENT The assembly instruction illustrate alt. A



Batten spacing for Plannja Regal should be 330 mm and follow roofing tile steps. The distance between the bottom of the batten closest to the eaves and the centre of the second batten must however always be 270 mm. Also note that the batten closest to the eaves must be supplemented with a strip, height 25 mm. Always use approved drainage underlay e.g. Plannja Anticon Coverall.



A. Batten spacing when installing Plannja Regal on tongue-and-groove planks/plywood, thickness minimum 17 mm, with underlayment felt and 25x50 mm laths, c/c 600 mm.

Snow zone 1.0-2.5	28x70 mm
Snow zone 3.0-4.0	34x70 mm

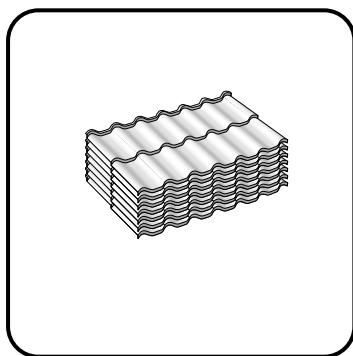
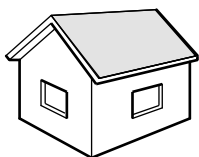
B. Dimension of the batten when laying Plannja Regal on light underlayment e.g. Plannja Anticon Coverall. Truss distance 1200 c/c

Snow zone 1.0-2.5	45x70 mm
Snow zone 3.0-4.0	45x95 mm

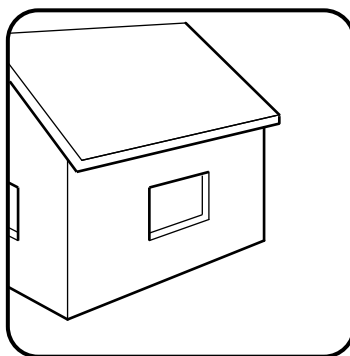


### 3

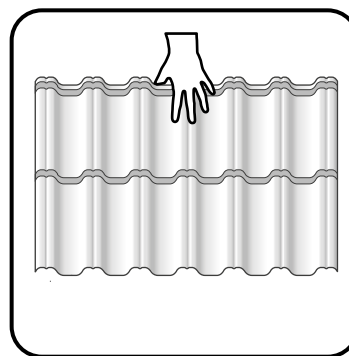
## HANDLING ROOFING SHEET



Leave the sheets in their packaging until ready for assembly. Carry the sheets by the long side.



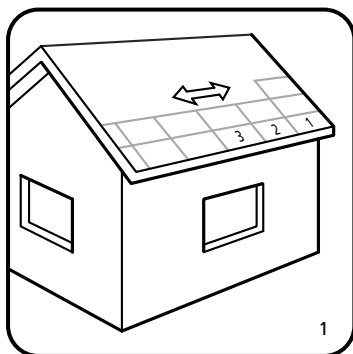
Remember to take great care when lifting the sheeting onto the roof as a falling sheet can cause a great deal of damage and injury.



Preferably, carry the sheet using the long side as the profile step affords a good grip.

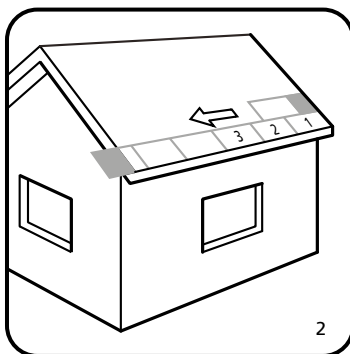
### 4

## DIRECTION OF INSTALLATION



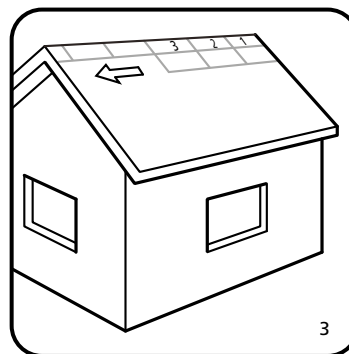
Alternative 1

Plannja Regal is available for laying either from the left or the right. Begin at the eaves and work toward the ridge; stagger the sheets row by row and allow them to overlap alternately over and under. Lay sheet number 3 under sheet number 2 and so forth as illustrated. If you want the Plannja Regal profile tops to be spread symmetrically across the roof, first measure roof length in order to determine the starting dimension so that it is the same at both gables.



Alternative 2

It is also possible to install Plannja Regal with a staggered side overlap. Begin either by using left-over sheet (single colour) as the first sheet on the next row, which will probably have to be cut again to fit, or start with a half sheet on every other row.



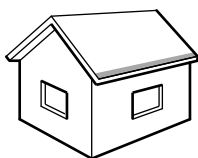
Alternative 3

It can be difficult to walk on the sheets on steep roofs. It is a good idea to start installing Plannja Flex at the ridge and continue downward, as this means there's always a batten to stand on. In this case, the first row of sheets must be cut to correspond to the battens. Remember that the next row of sheets must be able to slide under the row above. Otherwise perform assembly as per Alternative 1.

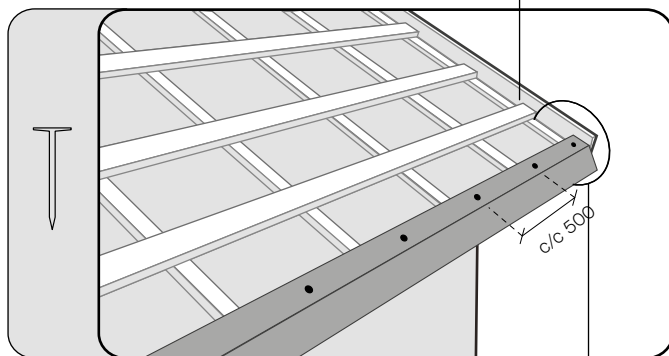


# 5

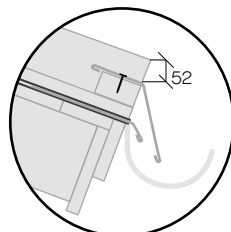
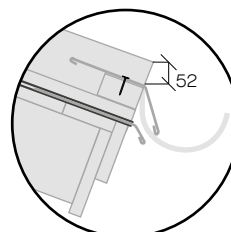
## EAVE FLASHING



Install the bargeboard with its top edge level with the tops of the Regal sheet profile, 52 mm above the eave flashing.

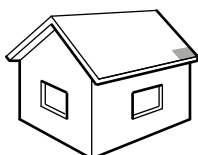


Attach the eave flashing using galvanized nails (or screws) in the substrate at intervals of 500 mm. Bear in mind you may have to install gutter brackets before the eave flashing. Overlapping joints of min 100 mm.

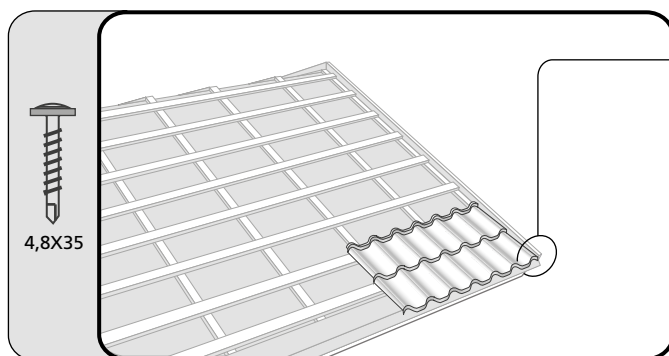


# 6

## INSTALLING THE FIRST SHEETS

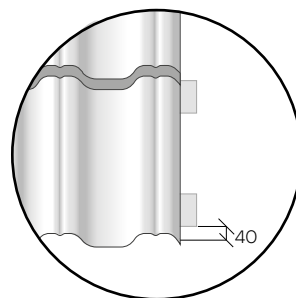
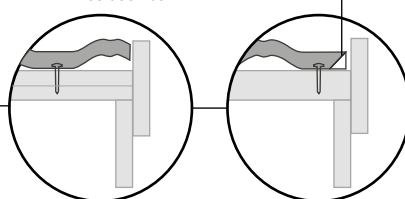


Lay the first sheet and check the start measurement = 40 mm. Fasten the top right corner in the profile valley and then the bottom right corner. Lay the other sheets so that they overlap with a wave. Use two screws in the profile apex in the side overlap. Check that the dimension is 40 mm and if necessary remove the screw from the top right corner on the first sheet and adjust the two sheets along the eaves.



**IMPORTANT!**  
Make sure the first sheets are laid along the eaves.

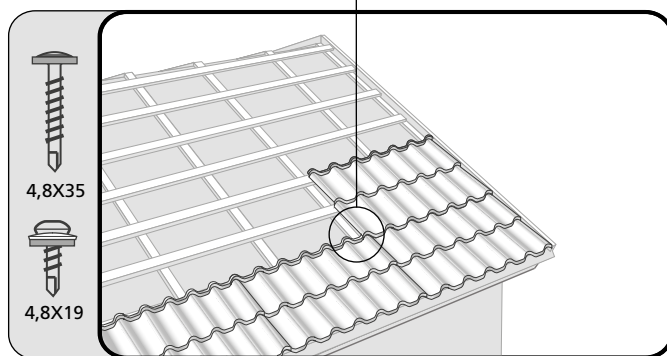
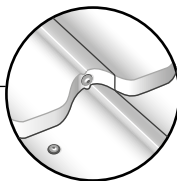
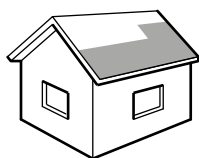
Fold up the sheet if it has been cut



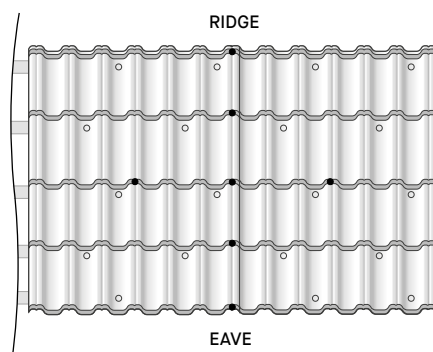


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## SUBSEQUENT SHEETS

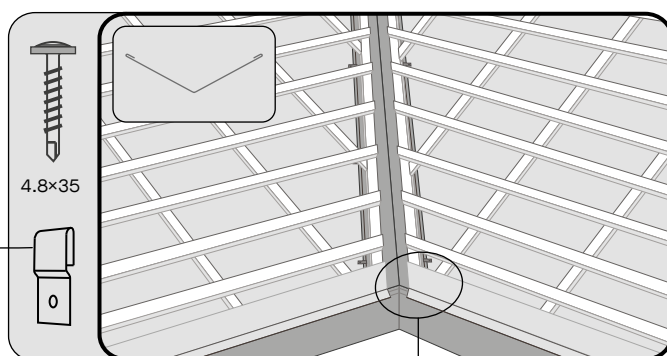
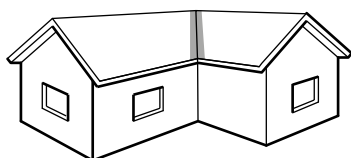


Continue installing the row (over-under-over-under and so forth). If the eaves are uneven, join several sheets together before fastening them to the substrate. When starting the next row, ideally begin with the screws in the profile step downfold. The basic rule is sheet-to-sheet rather than sheet-to-underlayment. Once all the sheets are laid, go back and fasten all the remaining screws. Follow the fastening sequence below.



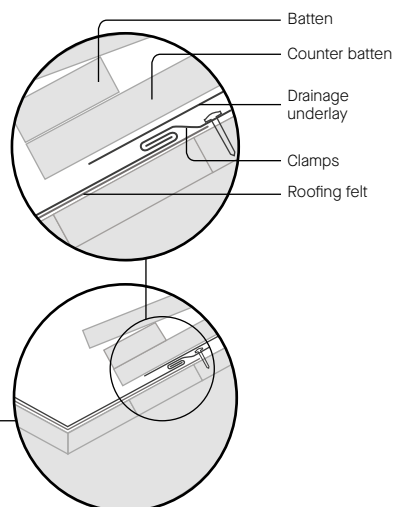
- Fastener in profile valley, screw 4.8×35
- Screw 4.8×19 for overlap joint  
Must be installed in the profile step downfold

8a

VALLEY GUTTER  
Alternative 1

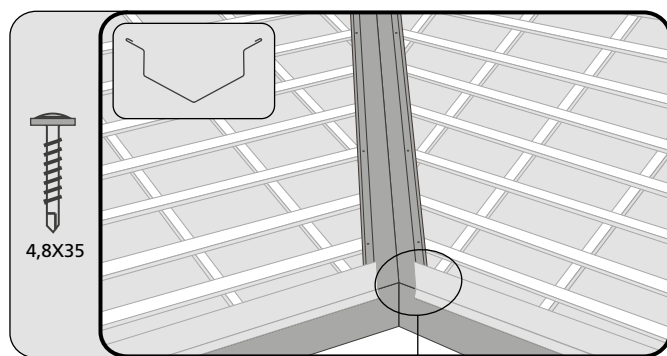
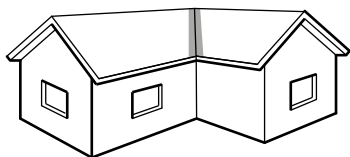
Clamps are easily made by shaping a piece of sheet.

Attach the valley gutter to the batten using brackets or step brackets. Plannja Regal sheet must protrude at least 150 mm beyond the edge of the valley. Fasten all sheets next to the valley gutter using screws on the outside of the gutter. Overlap gutter joints by at least 200 mm.

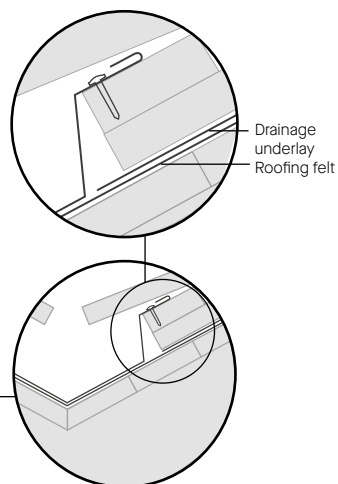


8b

## VALLEY GUTTER Alternative 2

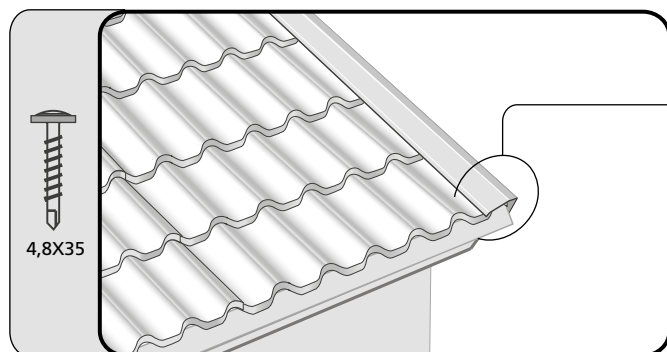


Plannja Regal sheet must protrude at least 150 mm beyond the edge of the valley. Fasten all sheets next to the valley gutter using screws on the outside of the gutter. Overlap gutter joints by at least 200 mm.

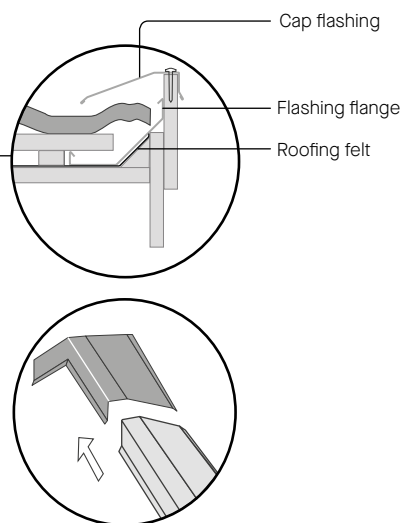


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## GABLE FLASHING

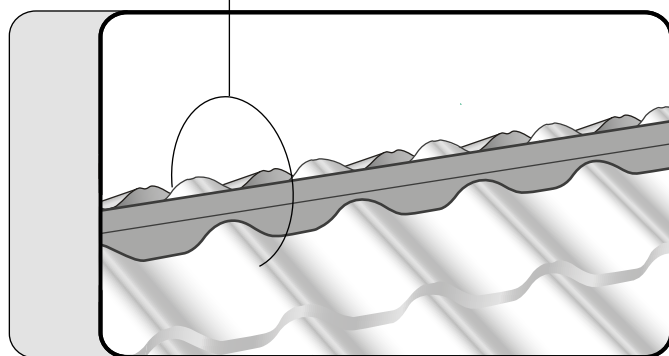
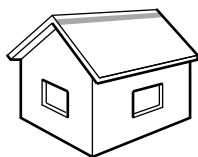


The gable flashing is installed above the sheet edge and screwed to the bargeboard with 300 mm c/c spacing. When joining, clip as illustrated and overlap joints by 100 mm.

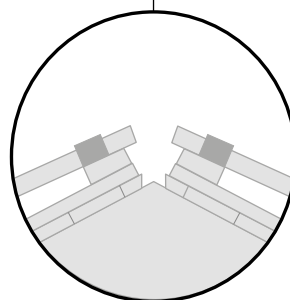


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## SEAL STRIPS AT RIDGE

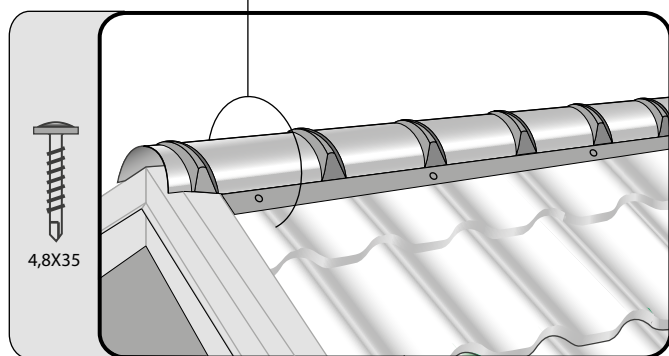
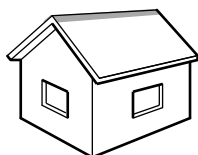


Lay the seal strip immediately below the edge of the top Regal sheet. It will be subsequently hidden by the ridge flashing.

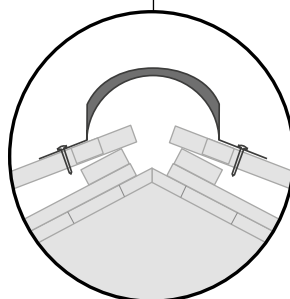


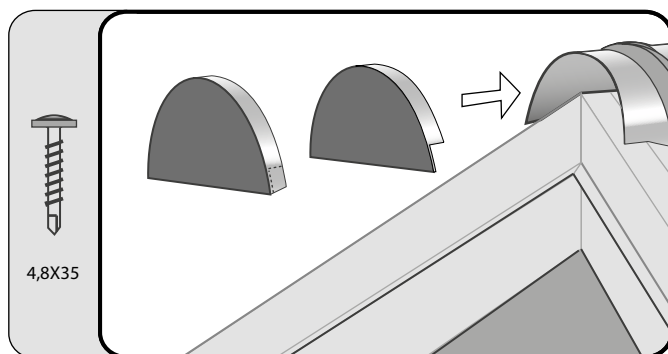
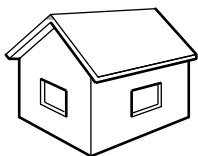
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## RIDGE TILE

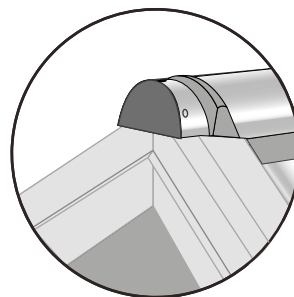


Clip the end of the ridge tile so that it fits over the gable flashing and screw it into the Regal sheets at every other profile apex.





Cut the end cover as necessary, slide it into position and fasten it through the ridge tile.



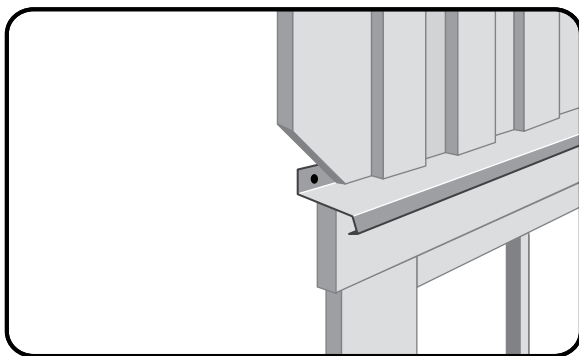
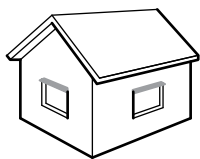
Assembly instructions

## Flashings and fittings



## INSTALLING WINDOW FLASHINGS

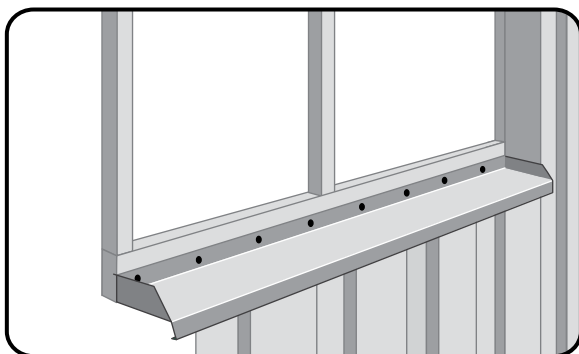
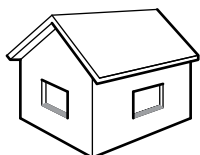
### Drip cap



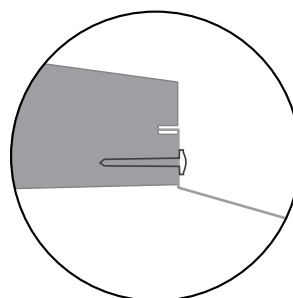
Installed above the window case. Prevents water forcing its way into the structure. Screw or nail down the drip cap every 10 cm.

## INSTALLING WINDOW FLASHINGS

### Sill

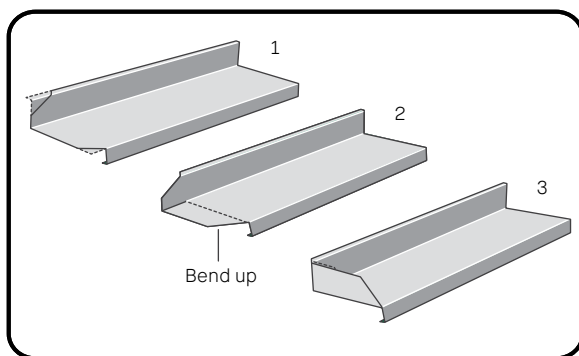
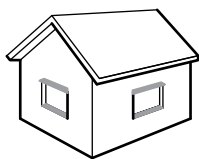


Install it in the window frame's routed groove. Prevents water and snow forcing their way behind the façade cladding.



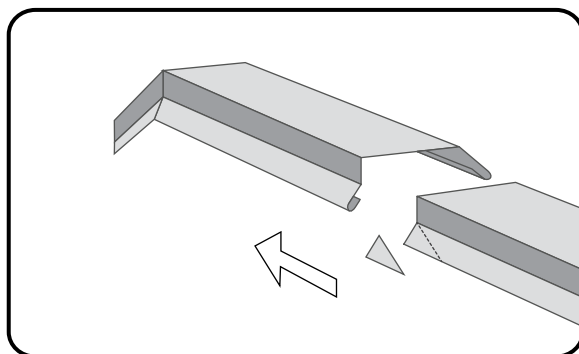
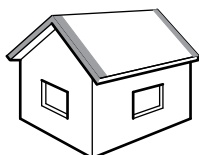
## INSTALLING WINDOW FLASHINGS

### Assembly tips



Cut to correct length, 30 mm longer than the groove in the window frame. Clip out an angled notch at the front and back edges. Bend up an approx. 10 mm tab at both ends and fold in the back edge as illustrated. Press the back edge into the frame groove. Screw or nail the sill every 10 cm.

## INSTALLING GABLE FLASHINGS



When joining gable flashings, cut away the corners of the underlying flashing so that the lower can be slid under the upper. The joint will then form a better seal and be less visible.





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