

Roofing - corrugated sheets

Installation manual

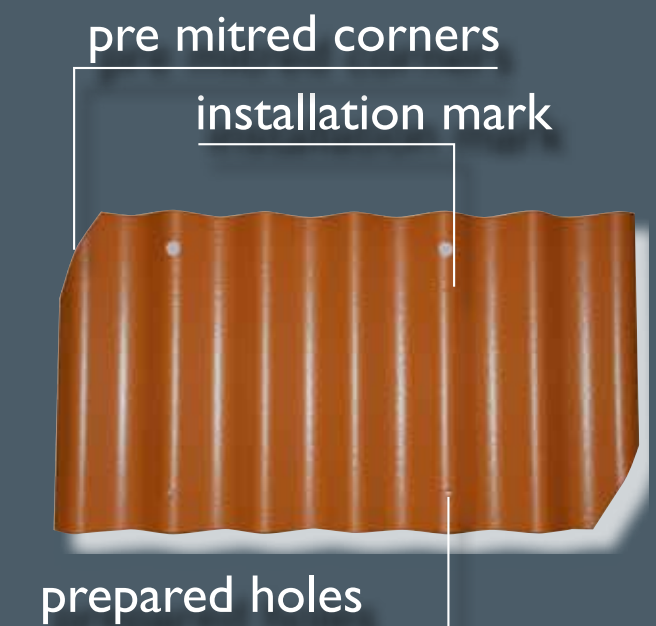
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Roofing Corrugated sheets B7



I. Products range

Roofing corrugated sheets are products based on cement and silicon additives, armed by organic fibres. They are used for covering agriculture, housing and industrial buildings and for facades and gables. Corrugated sheets are available in nature gray colour or coated with acrylic colour, that is applied on a coating line according directed technology conditions. After heating to required temperature the corrugated sheet is sprayed with anti-blocker on the rear, an undercoat on the surface and edges and finally a coloured top coat and the cooling process.

Corrugated sheets are ideal for large roof areas. They are produced in large space formats, which together with low weight make them optimal for easy and fast installation. Corrugated sheet roofs contribute to the long service life of the building.

Corrugated sheets - B55				gray	brick red	red	mokka	black
Basic dimensions	mm	1 250 × 918		2 500 × 918				
Overlap	mm	150	200	150	200			
Covering area	m ²	0.96	0.92	2.05	2			
Spacing of battens	mm	1 100	1 050	1 175	1 150			
Usage	ks/m ²	1.04	1.09	0.48	0.49			
Weight of corrugated sheet	kg	13.95		27.90				

Corrugated sheets - B9				gray				
Basic dimensions	mm	1 250 × 1 095		2 500 × 1 095				
Overlap	mm	150	200	150	200			
Covering area	m ²	1.15	1.1	2.46	2.41			
Spacing of battens	mm	1 100	1 050	1 175	1 150			
Usage	ks/m ²	0.87	0.9	0.4	0.41			
Weight of corrugated sheet	kg	18.07		36.14				

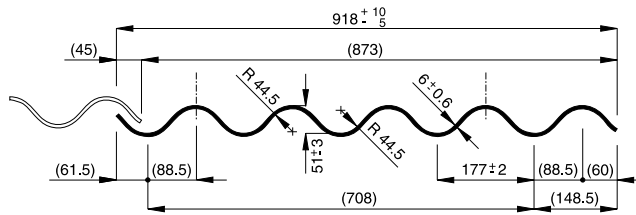
Corrugated sheets - B9, B9 Expres				gray				
Basic dimensions	mm	1 220 × 1 025						
Overlap	mm	150						
Covering area	m ²	0.95						
Spacing of battens	mm	1 070						
Usage	ks/m ²	1.06						
Weight of corrugated sheet	kg	16.55						

Corrugated sheets - B7 CO-HO, B7 FS				brick red	mokka	grazit	black
Basic dimensions	mm	610 × 1 100					
Overlap	mm	150					
Covering area	m ²	0.56					
Spacing of battens	mm	460					
Usage	ks/m ²	2.13					
Weight of corrugated sheet	kg	9.00					

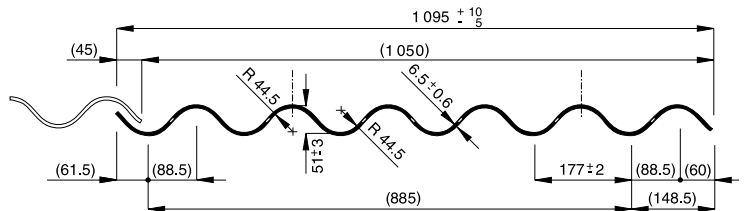
Corrugated sheets - B58				gray	brick red	red	mokka	black
Basic dimensions	mm	1 250 × 1 020		2 500 × 1 020				
Overlap	mm	150	200	150	200			
Covering area	m ²	1.045	0.95	2.12	2.081			
Spacing of battens	mm	1 100	1 050	1 175	1 150			
Usage	ks/m ²	1,00	1.05	0.47	0.48			
Weight of corrugated sheet	kg	14,94		29,87				

Technical parameters of products

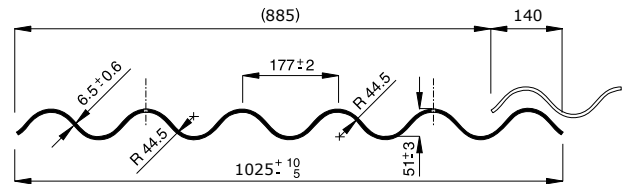
Corrugated sheets - B55			
Basic dimensions	mm	1 250 × 918	2 500 × 918
Weight of corrugated sheets	kg	13,95	27,90
Volume weight	g/cm ³	1,35	
Classification acc. durability		C2 - 3,5 kN/m	
C2X - EN 494		X - 55 Nm/m	



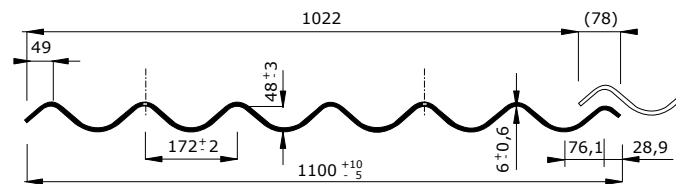
Corrugated sheets - B9 RC *			
Basic dimensions	mm	1 250 × 1 095	2 500 × 1 095
Weight of corrugated sheets	kg	18,07	36,14
Volume weight	g/cm ³	1,40	
Classification acc. durability		C1 - 4,25 kN/m	
C2X - EN 494		X - 55 Nm/m	



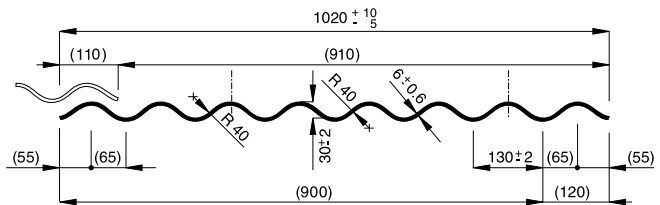
Corrugated sheets - B65, B65 Express	
Basic dimensions	mm 1 220 × 1 025
Weight of corrugated sheets	kg 16,55
Volume weight	g/cm ³ 1,40
Classification acc. durability	C1 - 4,25 kN/m
C2X - EN 494	X - 55 Nm/m



Corrugated sheets - B7 CO-HO, B7 FS	
Basic dimensions	mm 610 × 1 100
Weight of corrugated sheets	kg 9,00
Volume weight	g/cm ³ 1,55
Classification acc. durability	C (short boards) - 30 Nm/m
C2X - EN 494	



Corrugated sheets - B58			
Basic dimensions	mm	1 250 × 1 020	2 500 × 1 020
Weight of corrugated sheets	kg	14,94	29,87
Volume weight	g/cm ³	1,40	
Classification acc. durability		B2 - 2 kN/m	
C2X - EN 494		Y - 40 Nm/m	



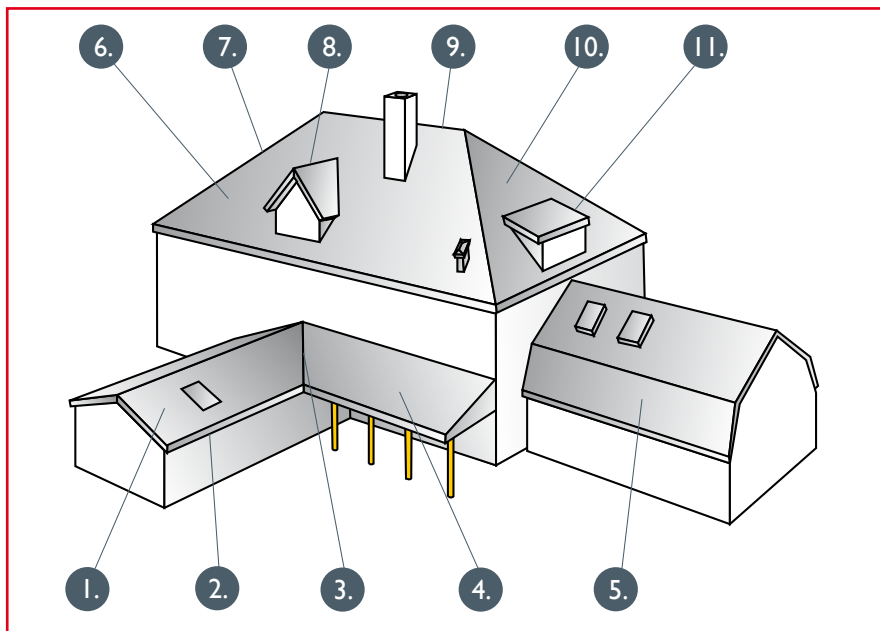
Technical parameters chart		
Moisture absorbtion level	10 - 13%	PN 01/00
Water impermeability	No droplet formation, darkening may	EN 494
Acidity	pH 10 - 12	
Fire reaction class	A1 (A5,A6,5,A6,) A2-s1,d0 (B7, B58)	EN 13501 - I
Frost resistance	R _L = min 0,7 (100 cycles)	EN 494
Wind load	cca 5 kN/m ²	PN 01/00
Composition	Organic fibres, cement, mineral fillers	PN 01/00

Coloured products can show difference in shade in comparison with the products colours presented in printed materials, therefore please ask for samples before ordering material. The roofing corrugated sheets products received: The European Statement of consistence No. CCZ/EC/01 and CCZ/EC/02, CCZ/EC/04.

* RC – corrugated sheets enforced by polypropylene strip. It ensures the compactibility of sheets in case of shock load, which increase the safety of the sheets.

2. Mandatory installation requirements

2.1 Legislative requirements



- 1. Ridge roof
- 2. Eave
- 3. Valley
- 4. Monopitch roof
- 5. Mansard roof
- 6. Hip roof
- 7. Hip
- 8. Dormer
- 9. Ridge
- 10. Hipped roof
- 11. Flat roofed dormer

This installation manual includes basic rules for handling of all roofing materials. It is the manufacturer's recommendations and will be the basis of complaint resolution

The above described technical information reflects present technical state and our experience. The roof construction must be in accordance with local building practice and legislations for design of roofs. Consideration must be given to the design of the building and the site exposure.

- The roofing sheets must have minimum slope recommended by producer and by local legislative requirements.
- Roofing sheets are installed on battens 30 × 50 mm or 40 × 60 mm.
- The roof construction must be in accordance with local legislative requirements. The roof construction must be designed with respect to environment influence, so it is able to create required status in protected or interior environment. The impacts are characterized by: altitude, relative degree of humidity, rain intensity and wind, snow, ice and frost loads.
- The roofing sheets are easy to process to required shape and it is possible to create custom-type shapes of roofs.
- The roofing sheets are very light, weight is 13,4–19,5 kg/m², in comparison with roof frame with clay or concrete tiles. When re-

- constructing older roofs, it is not necessary to renovate rafters. Every roof construction must be reviewed according to local legislative requirements (Euro code 1: Load of constructions).
- The space under roofing sheets must be ventilated from eaves up to roof ridge.
- When installing the roofing sheets it is necessary to follow safety procedures which are crucial for construction workers. The installation of sheets is performed from scaffolding. The roofing works supplier is bound to ensure all safety procedures during the work according to the local legislative requirements.
- Catch system to hold down tools necessary for control, maintenance and repair of devices and constructions accessible from roof area must be designed for inclined and steep roofs.

- Snow catch systems must be placed on roofs to protect pedestrians and eaves according to necessity. (local legislative requirements).
- Built-up sheets in general are not leak-proof against powder snow, dust and water taking effect of hydrostatic pressure; therefore it is recommended to add adequate hydro insulation.
- When preparing the complete solution of the roof the designer or realization company must consider local conditions, functionality of surrounding buildings, traffic safety around the building (snow fall from the roof) and division of the roof according to the actual climatic area.

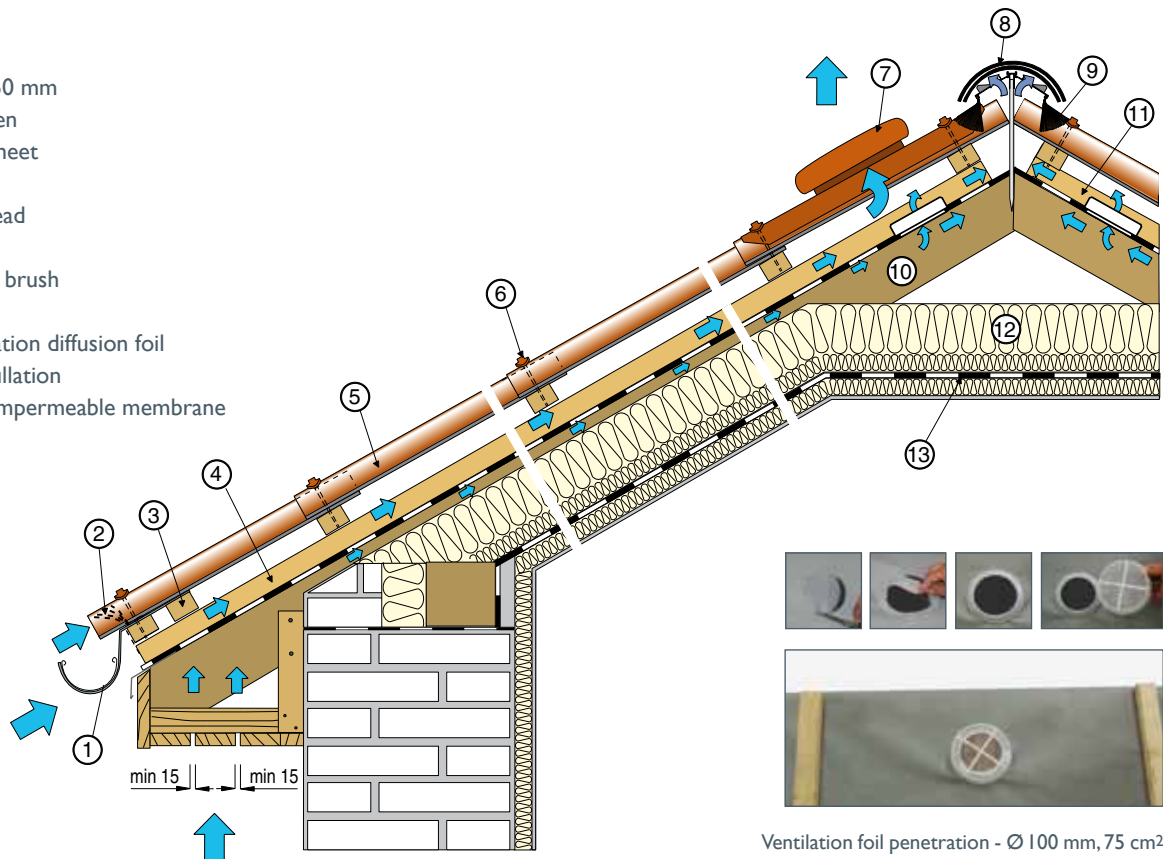
2.2 Roof ventilation

Why to ventilate roof ...

It is necessary to prevent the condensation of water vapour (dew) on the rear of sheets, through adequate ventilation. Especially in buildings with warm roof spaces it is crucial to design the roofs as fully ventilated. This is achieved by air circulation caused by the temperature difference at eaves and ridge. It is necessary to correctly specify the ventilation opening eaves. These constructions must be verified by thermo technical calculation according to local legislative requirements -Thermal protection of buildings.

Bill of materials:

1. eaves
2. eaves catch
3. batten 80 x 50 mm
4. counter batten
5. corrugated sheet
6. screw
7. ventilation head
8. conical ridge
9. impermeable brush
10. rafter
11. hydro-insulation diffusion foil
12. thermo insulation
13. Protective impermeable membrane



Ventilation foil penetration - Ø 100 mm, 75 cm²

Protective impermeable membrane

Foil preventing penetration of air vapour from under roof space into thermo insulation layers (protective hydro-insulation diffusion foil) must always be placed above thermo insulation material and in outside position towards the dew point spot. This enables penetration of possible dampness from thermo-insulation area to air space. The section "Layers of roof frame" describes the basic variants of protective hydro-insulation use in roof frame. If we use non contact foil, we must realize aired

space above and under foil.

This kind of foil can't touch the thermal insulation in the point of slacking and it must be cut about 50 mm at the roof ridge. If the space under protective insulation is not aired (two layers declination roof), protective diffusive opened insulation must be used, so there doesn't occur water vapours condensation on its back side. As diffusively opened protective hydro-insulation materials we consider protection insulations with equivalent diffusive thickness smaller

than 0,3m. These materials can be installed on thermo-insulation materials, or can be freely hanged between rafters.

Protective insulations made of diffusively opened materials must be always used in double layer pitched roofs. The space under foil and at roof ridge must be aired, this can be reached by cutting of the foil about 55 mm or we can use ventilation foil penetration. These ventilation penetrations can be used also around roof windows.

2. Mandatory installation requirements

2.3 Roof ventilation recommendation

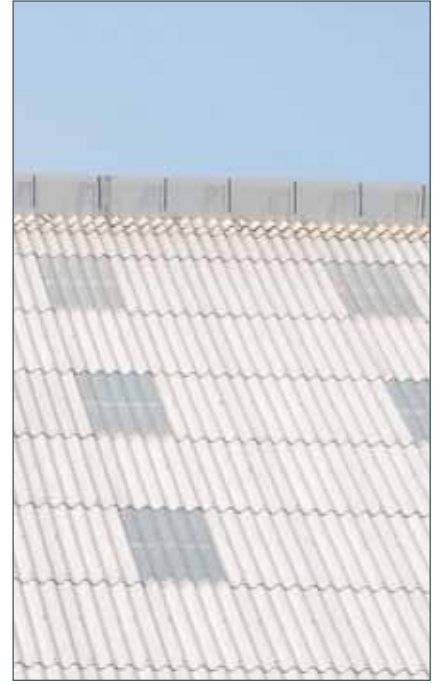
Double layer ventilated roof is based on the principle of natural air circulation influenced by temperature difference at eaves and ridge. Therefore it is necessary to correctly design the dimensions of eave and ridge ventilation gaps. The roof construction must be in accordance with local building regulations and roofing practise.



Ventilation of roof frame is realized by the roof ridge. The capacity of ventilation is given by the profile of corrugated sheets (for B55 - 250 cm²/rm). The ventilation hole will be created between the flat area of roof ridge and profile of the corrugated sheets.



The size of exit hole is set by the capacity of ventilation head LG 200, which is 200 cm² /1pc.



The problematic of ventilation of roof layer in agriculture is very specific. Beside the roof ventilation it is also necessary to dimension the ventilation of interior conditions. This picture shows stable where ventilation gap was used.

Recommended dimensions of roofs ventilation			
S (°)	T (mm)	T ₁ (mm)	P (mm)
15° - 25°	60	150	1/200
25° - 45°	40	100	1/300
> 45°	40	50	1/400

Comments: S – slope of air layer – roof slope

T – the smallest thickness of ventilated air layer, determine for water vapour drain off, diffusing in roof construction

T₁ - the smallest thickness of ventilated air layer, determine for water vapour drain off, diffusing in roof construction as well as for drain off technology and rain water built into the construction during realization

P – the area of lead in airing holes to the area of aired roof

Notes: 1) the smallest thickness of ventilated air layer is increased of 10% of the value set for the smallest thickness and the respective slope for each 1m of air layer length overlapping 10m.

2) dimension of roof ventilation must be in accordance with local building regulations and roofing practise.

2.4 Composition of pitched roof - impermeability of protective membranes

Three layer roof

protective impermeable membrane without contact with decking or slates loosely fastened with above and below membrane

1. battens ventilation
2. counter battens
3. protective hydro-insulation
4. air space
5. thermo insulation
6. vapour control membrane
7. thermo insulation

Two layer roof

protective contact impermeable membrane on thermo insulation with ventilation above protective vapour permeable membrane

1. battens
2. contra-battens
3. protective impermeable membrane (PHI 2.grade, class A – protective foil, class C – protective foil welded-glued)
4. thermo insulation
5. vapour control membrane
6. thermo insulation

Two layer roof

protective contact impermeable membrane decking with ventilation above impermeable membrane

1. battens
2. counter battens
3. protective hydro-insulation diffusively opened (PHI 2.grade, class A – protective foil, free overhang)
4. decking
5. thermo insulation
6. vapour control membrane
7. thermo insulation

Three layers roof

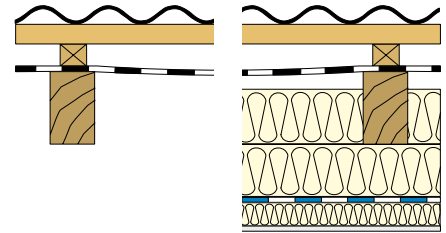
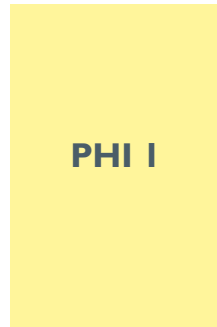
protective contact impermeable membrane on decking with ventilation above and below membrane

1. battens
2. contra-battens
3. protective impermeable membrane (PHI 2.grade, class A – protective foil, free overhang) (PHI 3.grade, class A – bitumen belt under contra-battens on decking)
4. decking
5. air space
6. thermo insulation
7. vapour control membrane
8. thermo insulation

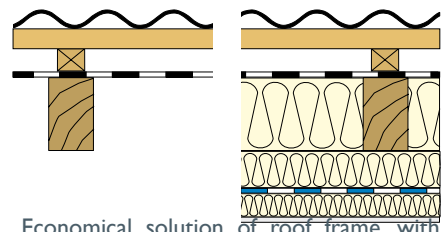
Notes: PHI – protective impermeable membrane.

Designer or contractor must take into consideration local climatic conditions when preparing the complete roof solution. The roof construction must be in accordance with local rules and legislation for design of roofs, especially requirements for impermeability of protective membrane.

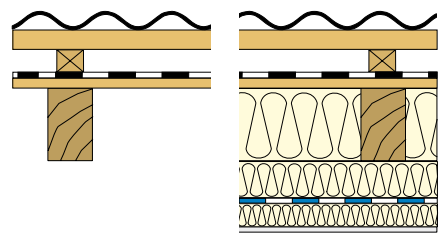
Increased requirement for impermeability of membranes can be due to: roof slope being below minimum recommended pitch, construction and division of roof, use of attic, local climatic conditions, placing of snow protection system on roof shape (folded ridge, arch hatch, etc.), special shapes of roof (folded ridge, arch hatch, etc.)



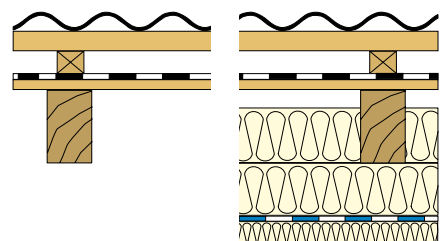
Less costly solution, which can be used for simple valley roofs with steeper roof pitches.



Economical solution of roof frame, with medium impermeability of roof frame.



It is possible to use this solution when reconstructing boarding roof. It is applicable for low declinations of roofs.



It is possible to use even materials which are not sufficiently diffusively opened with this solution.

3. Installation of corrugated sheets

3.1 Installation procedures

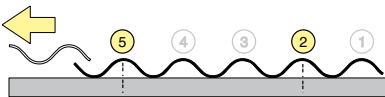
Preparation of corrugated sheets:

The corners of corrugated sheets are adjusted. Opposite corners of corrugated sheet are mitred ("A"). Such prepared corners prevent the occurrence of so called knots, when cross joints of corrugated sheets are created by more than three layers.

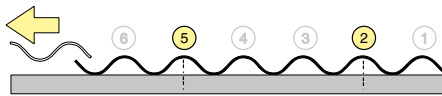
Installation of corrugated sheets:

1. Fastening of eaves protections
2. Installation of the sheet No. 1
3. Drilling of holes
4. Screwing of fastening material
5. Installation of the sheet No. 2
6. Drilling of holes in sheets No. 1, No. 2

Type B55



Type B65



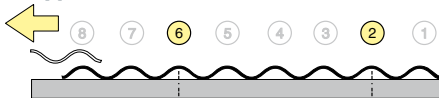
Type B59



Type B7



Type B58

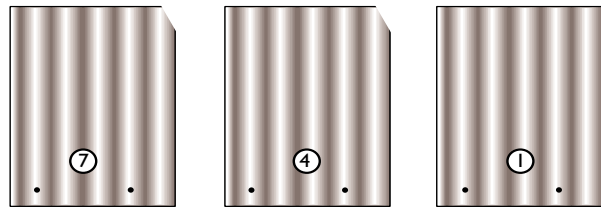
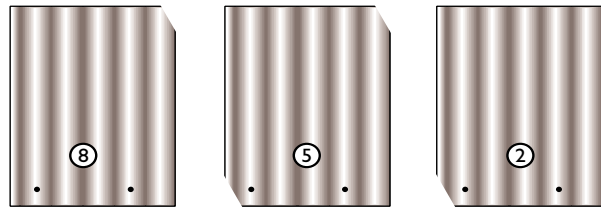
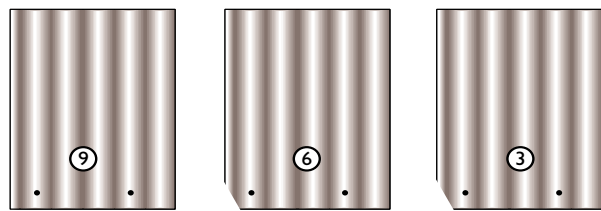
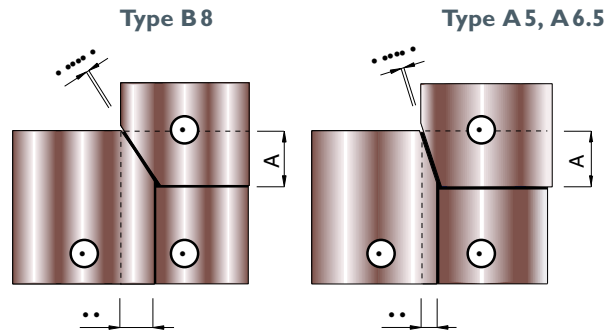


The installation direction is set by the type of sheets. Types B55, B65 are prepared with marked corners to be installed from right. Types B59 Express and B7 CO-HO are already produced with cut corners to be installed from left.

Type B58 is installed from both sides.

The installation of corrugated sheets starts at the eaves, where we fasten the first whole sheet. Next sheet is installed on the first, already prepared, one in the length of longitudinal overhangs with adjusted corners.

These corrugated sheets are drilled through and fastened by screws. The last sheet under the roof ridge is adjusted to required length according to used type of ridge part.



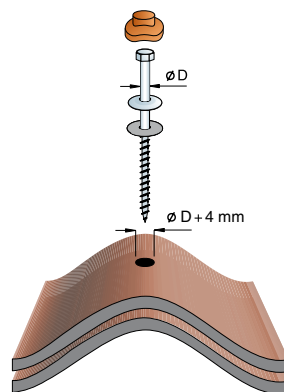
Direction of covering – right to left



Fastening of corrugated sheets:

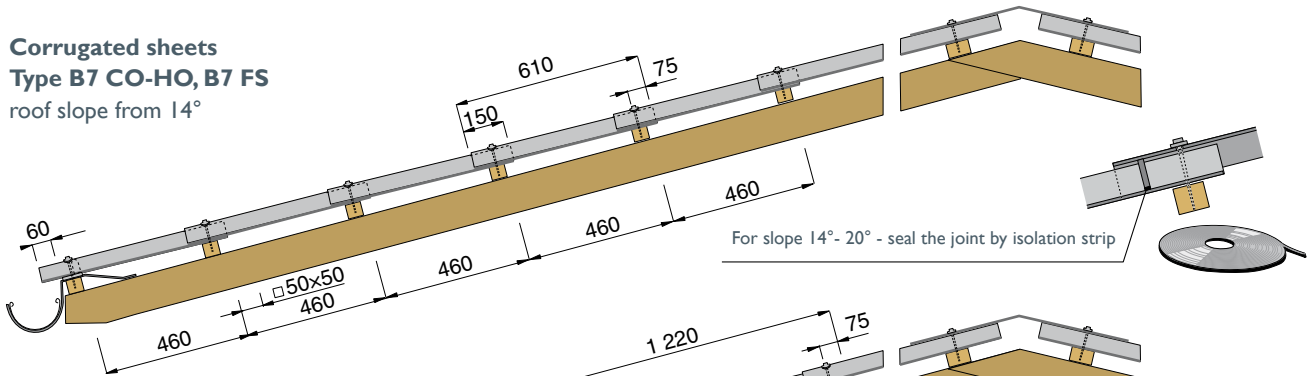
Fastening is done by screws with sealing ring. To drill the holes we use electric hand machine and drill bit for steel. The holes for screws are always drilled at the top of waves, in the place of longitudinal overhangs.

The holes for corrugated sheets are always larger than the screw of 4 mm. The sheets must have the possibility to dilate. Fastening screw with ring is screwed vertically into drilled hole. The screw is fastened by hand by lateral key or by box key with bit brace drill. When installing the corrugated sheets it is necessary to regularly check for the uprightness of vertical rows towards the roof ridge. Corrugated sheets must be installed in such a way that each individual sheet is fastened to prevent its longitudinal deformation (bending or swelling) from level interlined by board of more than 5 mm.

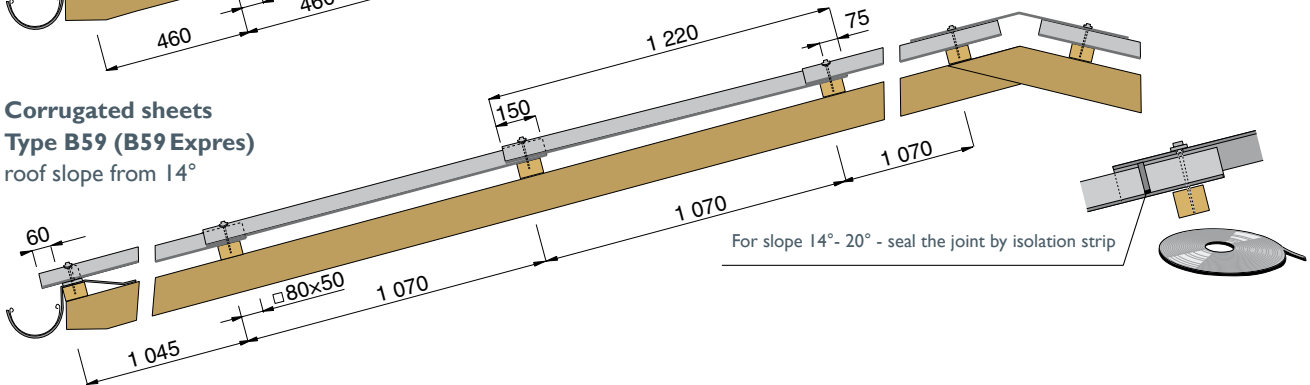


3. Installation of corrugated sheets

Corrugated sheets
Type B7 CO-HO, B7 FS
 roof slope from 14°



Corrugated sheets
Type B59 (B59 Express)
 roof slope from 14°



Corrugated sheets
Type B55, Typ B65, Typ B58
 roof slope from 10°

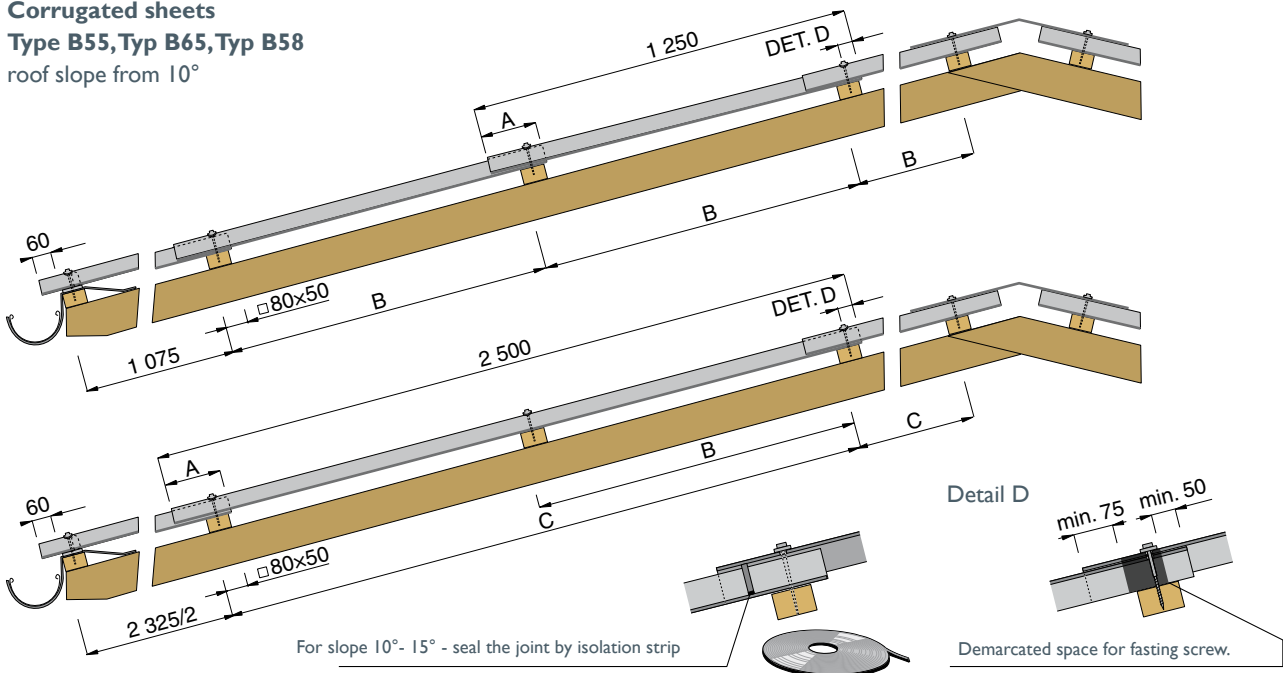


Chart of longitudinal overhangs „A“				
For sheet type and dimension		B55, B65, B58 - l 250mm		B55, B65, B58 - 2 500 mm
Roof declination		10° - 20°	> 20°	10° - 20°
Longitudinal overlap of sheet	(A)	200 mm	150 mm	200 mm
Spacing of rafters	(B)	l 050mm	l 100mm	l 150 mm
Spacing of rafters (C)			2 300mm
				2 350 mm

Installation of corrugated sheets:

Longitudinal overlaps are set by the roof slope. The spacing between battens is set by the length of used corrugated sheets and by longitudinal overhang. The spacing of under construction can be influenced by the calculation depending on climatic load.

3. Installation of corrugated sheets

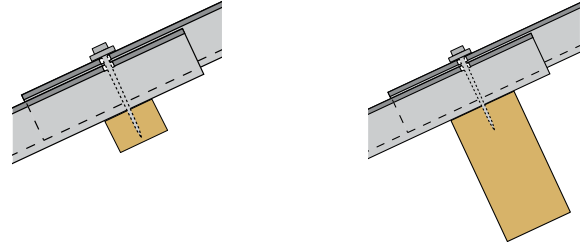
3.2 Connecting material for different types of trusses

Corrugated sheets are suitable for covering of large areas roofs with small slope. The advantages of corrugated sheets are easy handling and installation, long durability and fire resistance. We recommend installing corrugated sheets on steel constructions and wooden under constructions (frame, monopitch, braced, etc.) in following way:

Wooden rafters

Corrugated sheets are fastened on wooden battens (rafters) by steel screws with metal and seal ring.

The most used profile of batten (rafter) is 80 × 50 mm. We must choose the profile of rafter according to roof construction load EN 1991, Euro code 1: Constructions load.

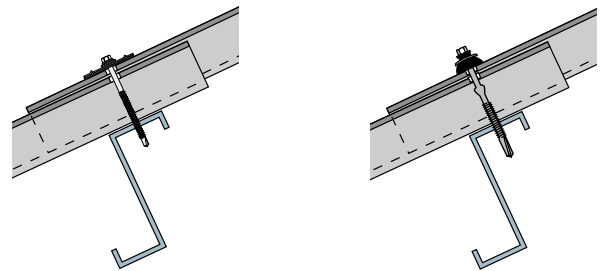


Hollow metal moulding rafters

Recommendation is to use self drilling screws with seal ring. Drilling peak is part of the screw, by which we drill the hole into the hollow metal moulding rafter “Z”

At the end of fastening we use spanner with the moment of torsion 2Nm. The fastening must be optimal.

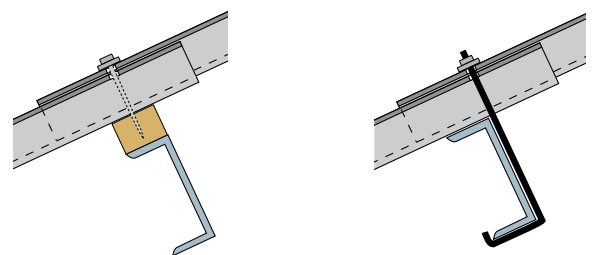
There can occur slight move of corrugated sheets, therefore we install the first row of corrugated sheets on wooden rafters. Corrugated sheets 2 500 mm long are always fastened in the centre of the sheet (always by four screws).



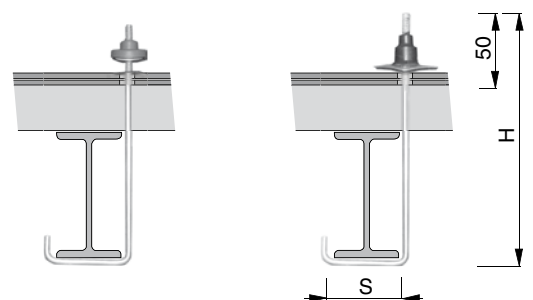
Steel rafters

When installing corrugated sheets on steel rafters (profile I, Z, U), it is possible to fasten the sheets in combination of bearing part and wooden battens or by hooks on steel construction. In the second case we use steel hook with bolt nut and fastening unit (ring, hat). The size of the hook is set by the size of steel rafter. It is possible to use aluminium and rubber ring as an isolation unit or tin ring with isolation rubber. In both cases the screws goes through plastic hat.

In contrast to the two above mentioned ways of installation here the hook must be pushed through the drilled hole from the bottom side of the sheet.



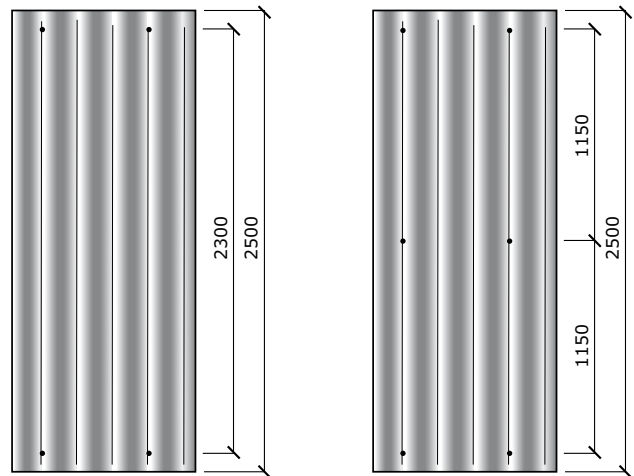
Dimensions chart of fastening hooks				
Type of the hook	IPE 80	IPE 100	IPE 120	IPE 140
S (mm)	50	60	65	75
H (mm)	170	190	210	230



3.3 How to proceed at the installation

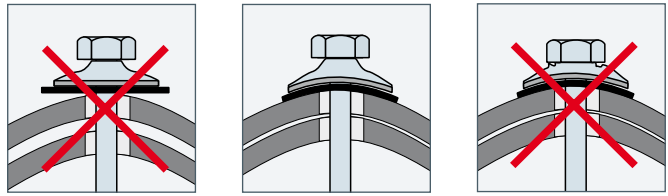
Installation of screws (hooks) on corrugated sheet

- 1) Each corrugated sheet must be fastened at least by two screws.
- 2) Corrugated sheet 2 500 mm can be also fastened in the centre of the sheet, it means to use four screws to fasten the sheet, this is especially in following cases:
 - a) the sheet is placed at eaves or edge of the roof area
 - b) the building is placed in the area of higher wind load (eg. detached building on the hill).
 - d) always when using hollow metal moulding rafters.



Fastening of corrugated sheets

Fastening screw with ring is screwed vertically into drilled hole. The screw is fastened by hand by lateral wrench. During installation we must control the correct tightening of the screw and ring. Over-tightening causes deformation of ring, the sheet doesn't dilate and the plastic hat doesn't hold on the top of screw.



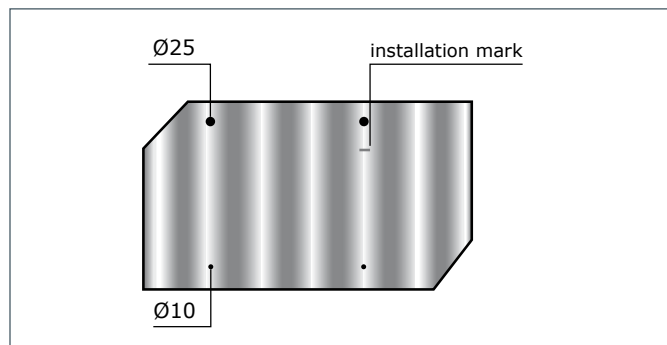
Marked corners – easier installation

The corners of corrugated sheets of types B55, B65 are marked during production. Geometry of these corners is in all cases set for overhang of sheets of 200 mm and only for installation from right to left. It is possible to break off the marked corners by breaking tool. If you choose different overlap, you can adjust the sheets by cutter.



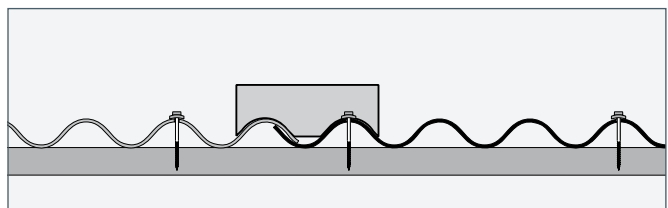
Prepared corners and holes

Corrugated sheets B59 Express and B7 CO-HO are pre mitred and pre drilled. Beside these aids, the installation mark helps to faster installation. It defines the overhang of the sheet. At eaves and roof ridge we use corrugated sheets B59 and B7 FS without prepared holes with full corners, which are adjusted according to the installation requirements.



Format delineator – tool for installation of corrugated sheets type B55, B65

Corrugated sheets are installed in combination of opened (turned-up) and closed (turned-down) end wave. Format delineator tool is used for exact foundation of corrugated sheets.



4. Corrugated sheets accessories

Plain wing angle ridge

Plain wing angle ridge is used to finish the roof ridge with corrugated sheets types B55, B65, B59, B58 and B7.

Technical parameters

description: Plain wing angle ridge
 dimensions: 1200×300 mm,
 roof slope: od 10° - 45°
 material: fibrecement

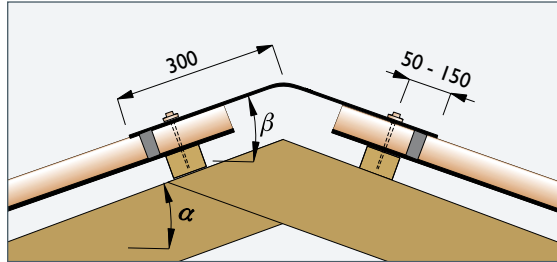
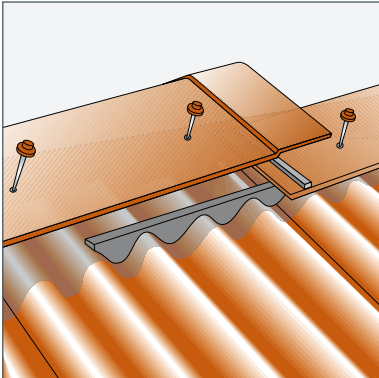
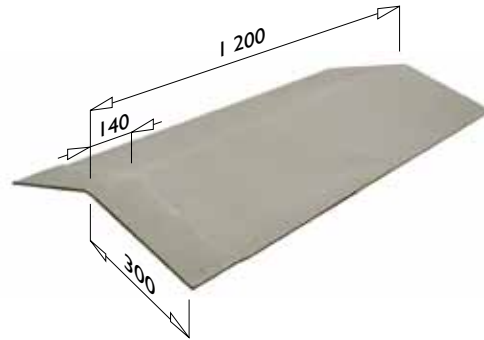
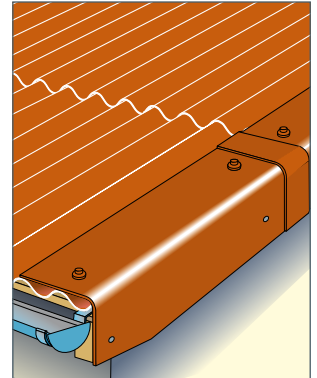


Chart slope of plain wing angle ridge						
Angle of roof	10°-15°	16°-20°	21°-25°	26°-30°	31°-35°	40°-45°
Angle of plain wing angle	15°	20°	25°	30°	35°	45°



Installation of plain wing angle ridge:

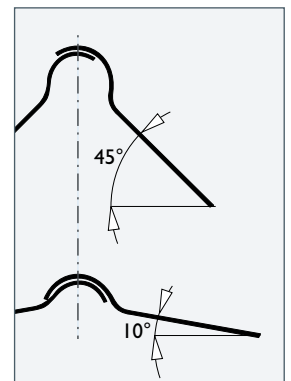
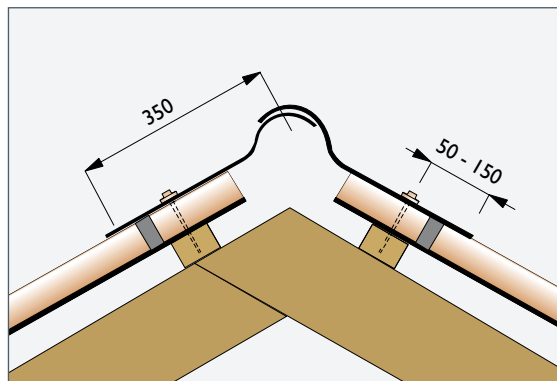
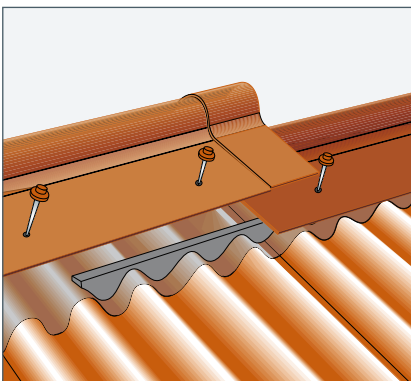
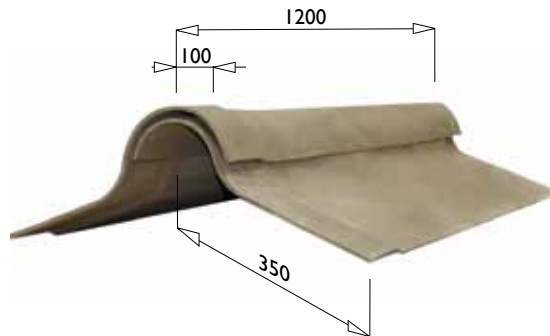
Plain wing angle ridge is installed on wooden battens with four steel screws with ring. Before the installation we must seal off its collar by flexible sealant or sealing tape and we lay under it both sides sealing items corresponding with the corrugated sheets profile. If we don't use sealing item, it is possible to air under roof space by created hole (snow may come through his hole). Roof ridge angle bar 45° can be used for edging of the roof.

Two piece plain wing ridge

Two piece plain wing ridge is used to see above with corrugated sheets types B55, B65, B59, B58 and B7.

Technical parameters

description: Two piece plain wing ridge
 dimensions: 1200×350 mm,
 roof slope: od 10° - 45°
 material: fibrecement



Installation of two piece plain wing ridge:

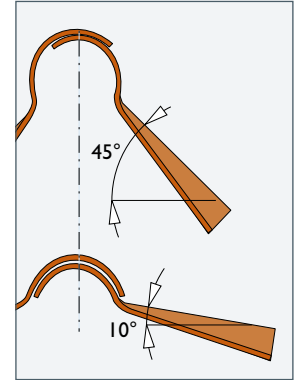
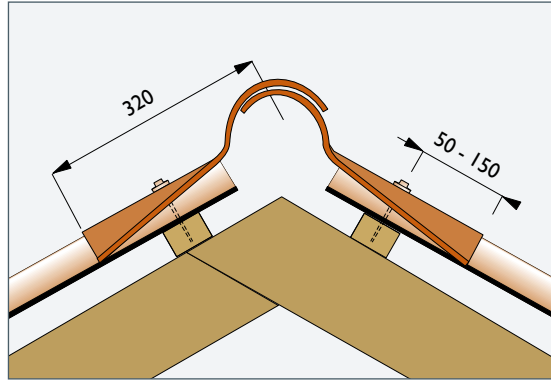
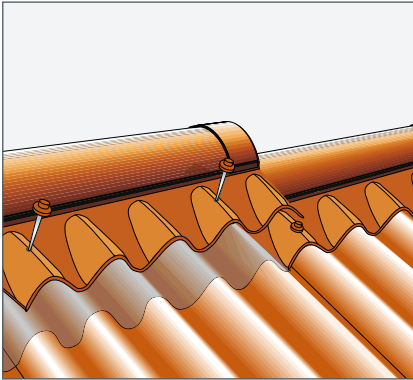
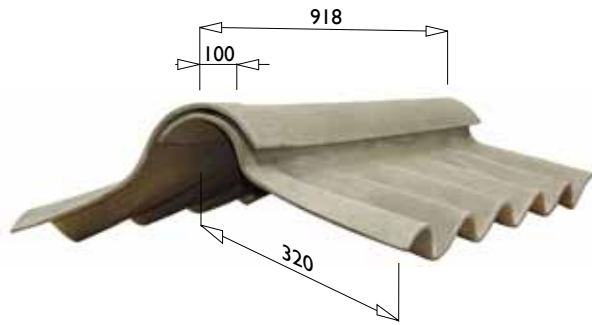
Two piece plain wing ridge is installed on wooden battens with four steel screws with ring. Before the installation we must seal off its collar by flexible sealant or sealing tape and we lay under it both sides sealing items corresponding with the corrugated sheets profile. If we don't use sealing item, it is possible to air under roof space by created hole (snow may come through his hole). Two piece plain wing ridge is universal and can be used for roof slope 10° - 45°.

Two piece close fitting ridge B55

Two piece close fitting ridge B55 is used to finish the roof ridge with corrugated sheets type B55.

Technical parameters

description:	Two piece close fitting ridge
dimensions:	918×320 mm
roof slope:	from 10° - 45°
material:	fibrecement



Installation of two piece close fitting ridge:

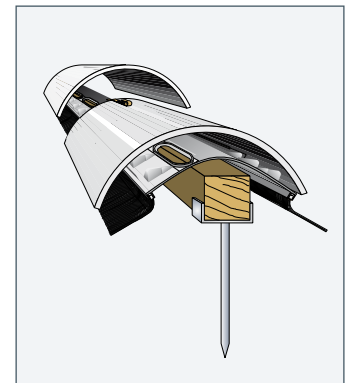
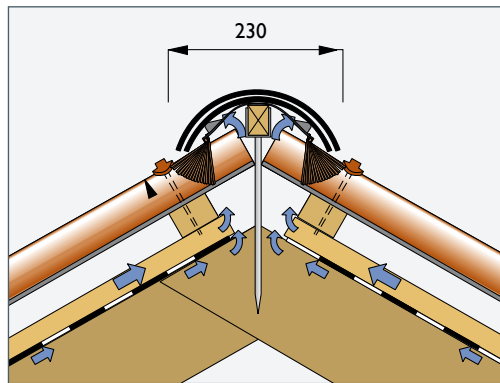
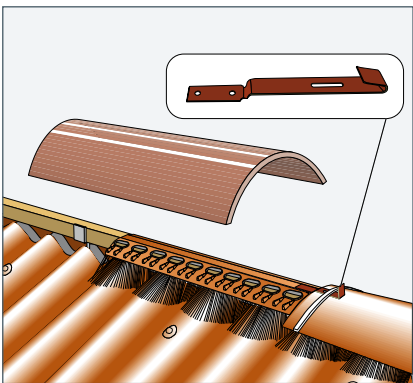
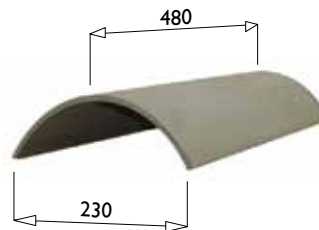
Two piece close fitting ridge is installed on wooden battens with four steel screws with ring. Before the installation we must seal off its collar by flexible sealant or sealing tape. Two piece close fitting ridge is universal and can be used roof slope 10° - 45°. Two piece close fitting ridge is not used for ventilating of the roof in ridge.

Conical ridge

Conical ridge is used to finish the roof ridge with corrugated sheets types B58, B7, possibly B55, B59.

Technical parameters

description:	Conical ridge
dimensions:	480×230 mm
overhang:	90 mm
roof slope:	from 15° - 45°
material:	fibrecement



Installation of conical ridge:

Ridge anchors together with ridge batten 50 x 50 mm or 50 x 30 mm are installed on the top of rafters. The ventilation strip with supporting batten is nailed on ridge batten, on this ventilation strip we install conical ridge. The conical ridge are fastened by anchor with screws. (Instead of ventilation strip with supporting batten we can use flexible sealing belt). All the versions mentioned above are for ventilated roofs.

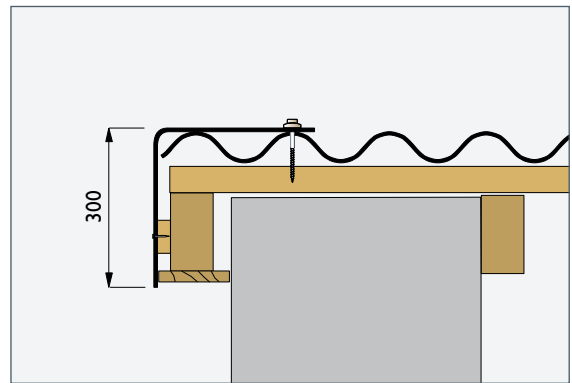
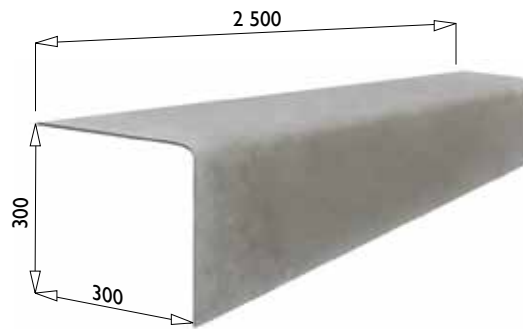
4. Corrugated sheets accessories

Barge board

Barge board is used on verges with corrugated sheets types B55, B65, B59, B58 and B7.

Technical parameters

description: Barge board
 dimensions: 2 500 x 300 × 300 mm
 material: fibrecement



Installation of barge board:

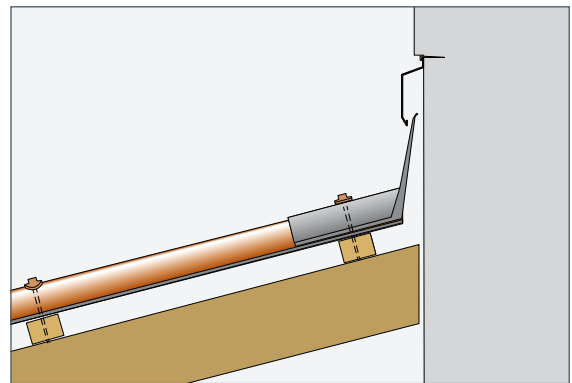
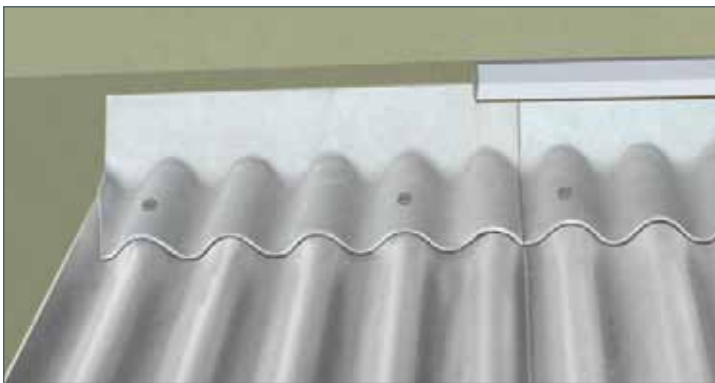
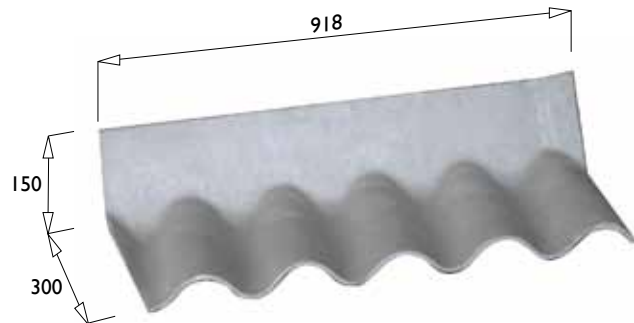
Barge board is installed on wooden battens with six steel screws with ring. Barge boards are produced without socket, we have to keep the overhang 100 mm. Before the installation we must seal off the overhang space with flexible sealant or sealing tape.

Apron flashing

Apron flashing is used to end corrugated sheets type B55 at the wall.

Technical parameters

description: Apron flashing
 dimensions: 918 × 300 x 150 mm
 material: fibrecement



Installation of apron flashing:

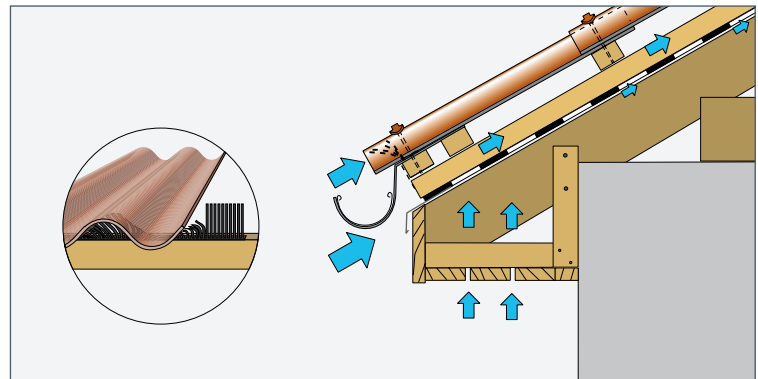
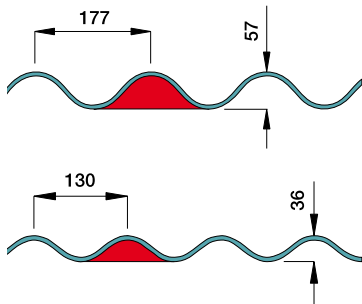
Wall connector is installed on wooden battens with two steel screws with ring together with corrugated sheet.

Eaves protection TK 55

This product prevents the entry of birds and dirt in to roof frame, it is used for corrugated sheets types B55, B65, B59, B58 and B7.

Technical parameters

description: Eaves protection TK 55
 dimensions: 5 m
 material: plastic



Installation of eaves protection:

Eave protection is installed on the first bearing batten. When installing eave protection we must keep in mind the entry of ventilation air to roof frame at the eaves construction and ceiling. The picture shows profiles of corrugated sheets. The airing space for types B55, B65 and B59 is 250 cm²/rm and for B58 146 cm²/rm.

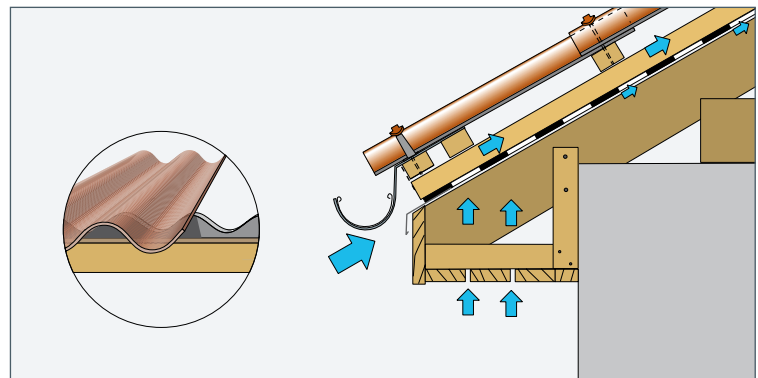
The cross-section of corrugated sheets type B55, B65, B59 and B58 doesn't ensure sufficient airing of roof frame and can't compensate the function of air space. It is always important to install corrugated sheets in such a way, so the open air space is ensured.

Eaves fillers

This product prevents the entry of birds and dirt in to roof frame, it is used for corrugated sheets types B55 or B58.

Technical parameters

description: Eaves fillers
 dimensions: B55 880 mm, B58 900 mm
 material: plastic



Installation of eaves fillers:

The eaves fillers are installed on the first bearing batten of the first row of corrugated sheets. The profile of corrugated sheet corresponds with the profile of the eave protection. The entry of air into roof frame is ensured by space under roof rafter.

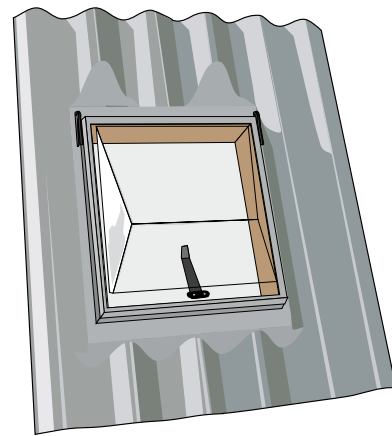
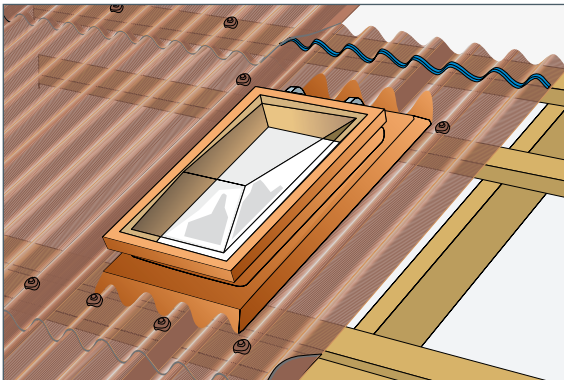
4. Corrugated sheets accessories

Penetration window

Penetration window is used for exit to roof and for illumination of under-roof space for corrugated sheets types B55 and B58 (B7).

Technical parameters

description: Penetration window
 dimensions: B58 – 1 000 × 1 250 mm,
 B55 – 920 × 1 250 mm
 hole: 450 × 550 mm
 material: shock-proof polystyrene



Installation of penetration window:

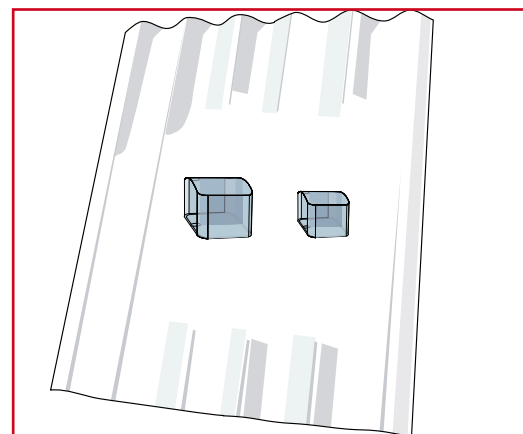
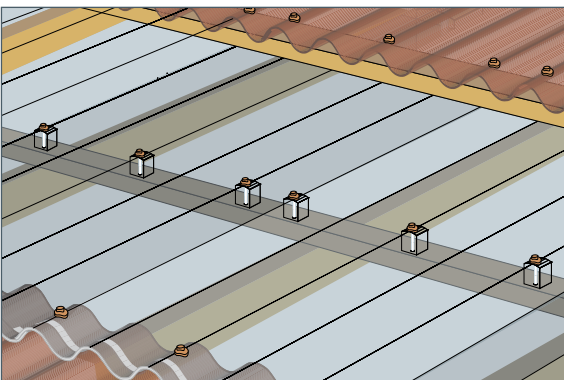
The installation of penetration window is the same as that of corrugated sheets. The fastening is one by the same fastening set. Profile B55 is fastened at the top of 1st, 3rd and 5th wave. Profile B58 is fastened at the top of 1st, 3rd, 5th and 7th wave. Connecting areas must be sealed off by flexible sealant or sealing tape. The middle part of the window is supported by additional battens.

Translucent sheets

Translucent sheets is used for lighting of no-insulated roofs of industrial and agricultural production objects for corrugated sheets types B55 and B58.

Technical parameters

description: Translucent sheets
 dimensions: B58 – 1 000 × 1 250 mm or 2 500 mm
 B55 – 920 × 1 250 mm or 2 500 mm
 material: glass laminate



Minimal spacing transverse supports		
Type of sheets	Spacing transverse supports by load	
	1,1 m	0,8 m
B58 130/30	0,97 kN/m ²	1,36 kN/m ²
B55 177/50	1,78 kN/m ²	2,3 kN/m ²

Installation of translucent sheet:

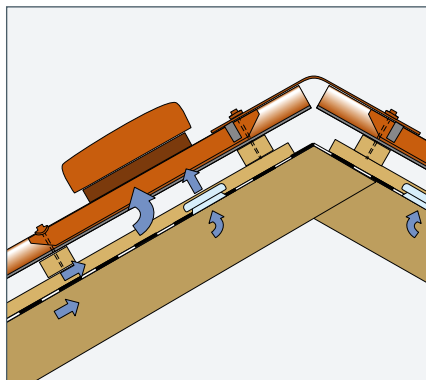
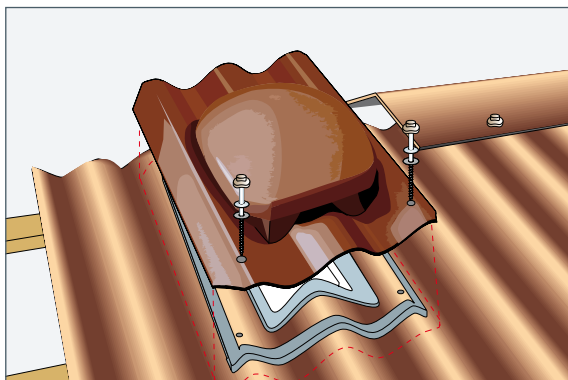
The installation of translucent sheet is similar as that of corrugated sheets, corners of waves are not adjusted. The fastening is one by the same fastening set. Profile B55 is fastened at the top of 1st, 3rd and 5th wave. Profile B58 is fastened at the top of 1st, 3rd, 5th and 7th wave. At the spot where illuminating wave doesn't lay on fibrecement wave (or under it), it is supported by brace of illuminating wave in the place of screw.

Ventilations head LG 200

Ventilation heads LG 200 in the shape of B55, B59, B65, B58 (B7) are used for airing of roof cover.

Technical parameters

description: Ventilation head LG 200
 dimensions: 500 × 450 mm, 200 cm²
 material: shock-proof polystyrene



Installation of ventilation head LG 200

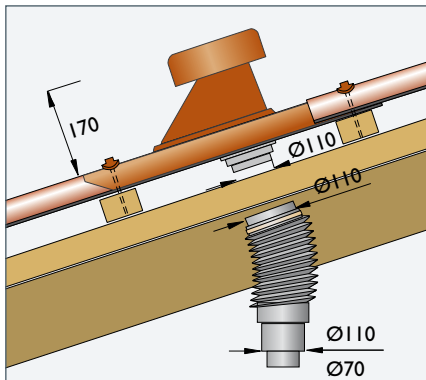
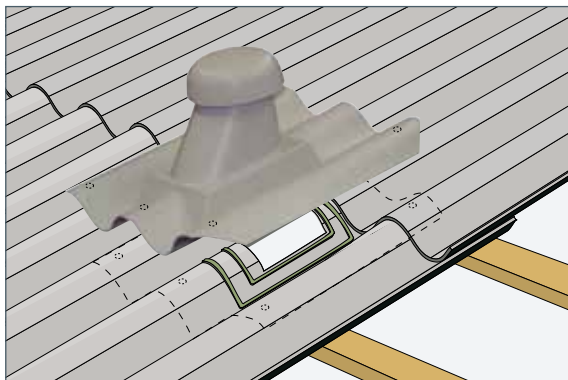
The ventilation heads are placed at the ridge of the roof. The heads are installed on cut hole in corrugated sheets. Its size corresponds to ventilation hole of the head. The hole in corrugated sheet is placed in such a way that the top part of ventilation head is covered by ridge unit or by sheet. Sealing of the contact areas is done by flexible sealant. The head is installed on wooden battens by four steel screws with ring. The under construction is supported by additional batten in the place of the ventilation head.

Ventilations penetration SL

Ventilation penetrations in the shape of B55, B59, B65, B58 (B7) are used for airing of sanitary areas.

Technical parameters

description: Ventilation penetration SL
 dimensions: 500 × 450 mm, Ø 100 mm
 roof declination: 10° - 45°
 material: shock-proof polystyrene



Installation of ventilation penetration SL

The ventilation penetration SL is placed above the respective conduct pipes. The penetration is installed on cut hole in corrugated sheets. Its size corresponds to ventilation hole of the penetration. The hole in corrugated sheet is placed in such a way that the top part of ventilation penetration is covered by the sheet. Sealing of the contact areas is done by flexible sealant. The penetration is installed on wooden battens by four steel screws with ring. The under construction is supported by additional batten in the place of the ventilation penetration..

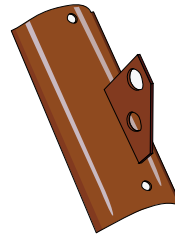
4. Corrugated sheets accessories

Snow stop fixing

Snow stop fixing is designed for holding the snow catch bars for corrugated sheets types B55, B59, B65, B58.

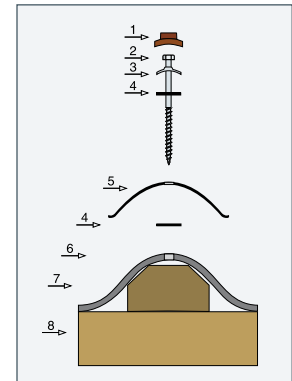
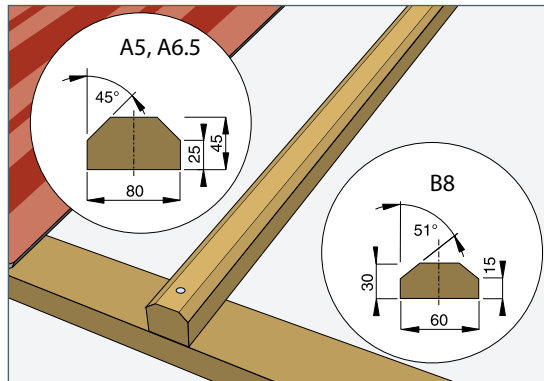
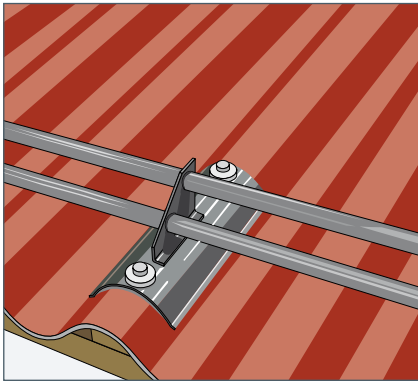
Technical parameters

description: Snow stop fixing
 dimensions: 250 × 110 mm
 material: metal + zinc coated + colour



Index:

1. plastic hat
2. screw
3. aluminium ring
4. isolating ring
5. fitting piece
6. corrugated sheet
7. base vertical batten
8. horizontal batten



Installation of snow stop fixing:

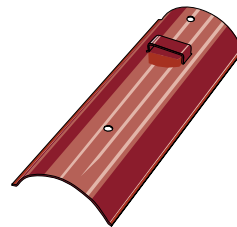
We have to install vertical base batten of the corrugated sheet profile in the place of fastening of the holder for snow catch bar holder. We connect the holes in fitting piece with the holes in corrugated sheet by screws.

Universal fitting piece

The universal fitting piece is designed for stepping deck, foot step (parts described for slates) for corrugated sheets types B55, B59, B65, B58.

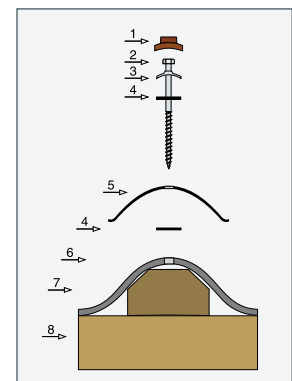
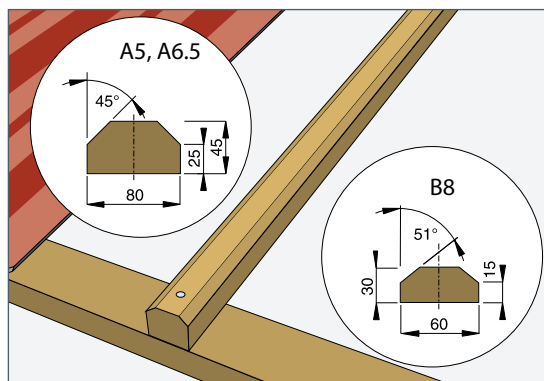
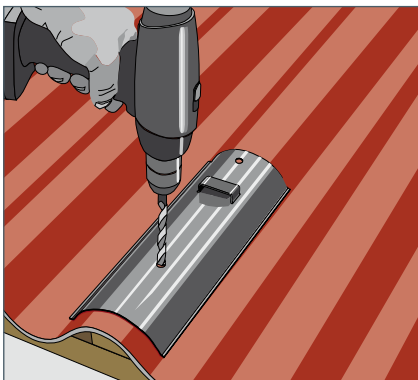
Technical parameters

description: Universal fitting piece
 dimensions: 330 × 110 mm
 material: metal + zinc coated + colour



Index:

1. plastic hat
2. screw
3. aluminium ring
4. isolating ring
5. fitting piece
6. corrugated sheet
7. base vertical batten
8. horizontal batten



Installation of fitting piece:

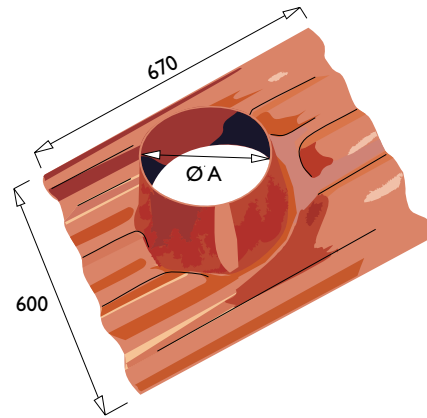
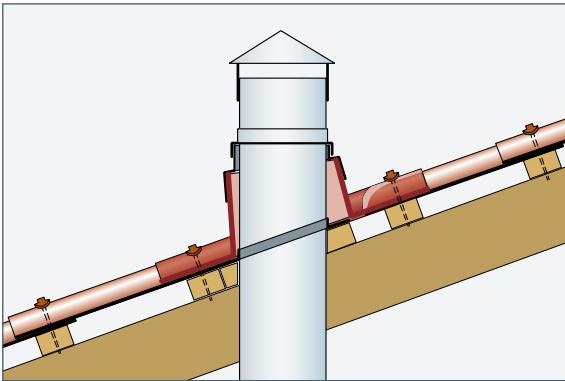
We have to install vertical base batten of the corrugated sheet profile in the place of fastening of the fitting piece. We connect the holes in fitting piece with the holes in corrugated sheet by screws.

Conical terminal

Conical terminal is designed for the penetration through corrugated sheets types B55, B59, B65, B58 with respective diameter of pipes.

Technical parameters

description:	Conical terminal
dimensions:	670 × 600 mm
hole A:	ø 130, ø 160, ø 250



Installation of conical terminal:

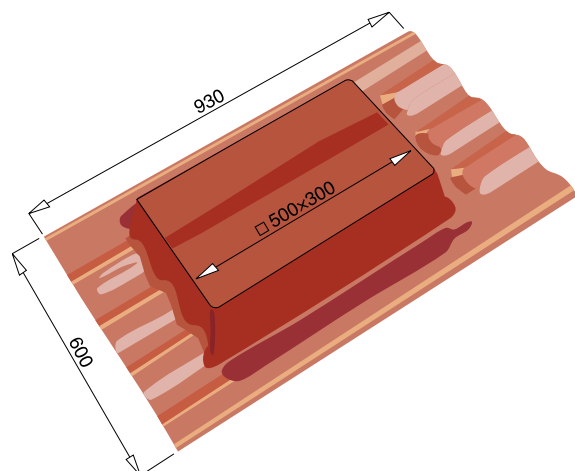
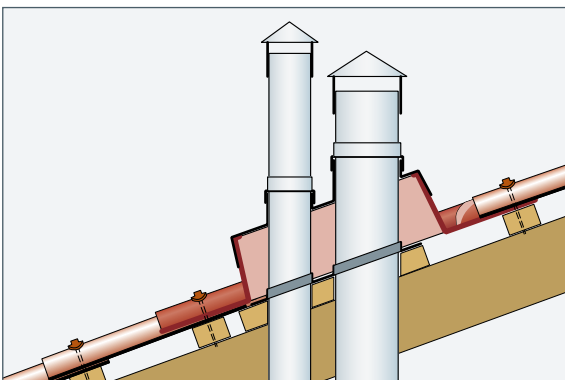
Conical terminal is placed above the respective conduct pipes. The penetration is installed on cut hole in corrugated sheets. The hole in corrugated sheet is placed in such a way that the top part of ventilation penetration is covered by the sheet. If we must place the penetration head into the space of corrugated sheets, we must keep perfect sealing of top part. Sealing of the contact areas is done by flexible sealant. The penetration is installed on wooden battens by steel screws with ring. The under construction is supported by additional batten in the place of the ventilation penetration.

Rectangular terminal

Rectangular terminal is designed for the penetration through corrugated sheets types B55, B59, B65, B58 with respective diameter of pipes.

Technical parameters

description:	Rectangular terminal
dimensions:	930 × 600 mm
hole:	500 × 300 mm
material:	glass laminate



Installation of rectangular terminal:

Rectangular terminal has blinded rectangular penetration. After the placement of the head above the respective conduct pipes, the hole of required size is cut on the top space of penetration head. The hole in corrugated sheet is placed in such a way that the top part of ventilation penetration is covered by the sheet. Sealing of the contact areas is done by flexible sealant. The penetration is installed on wooden battens by steel screws with ring. The under construction is supported by additional batten in the place of the ventilation penetration.

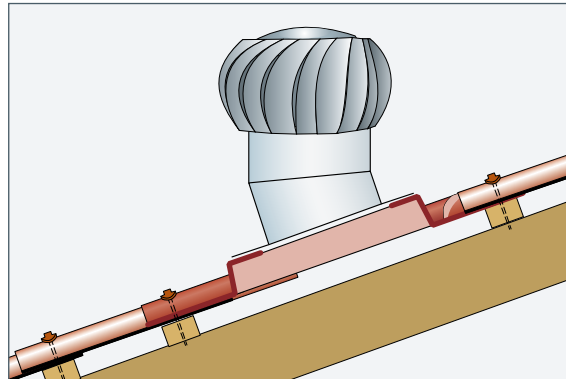
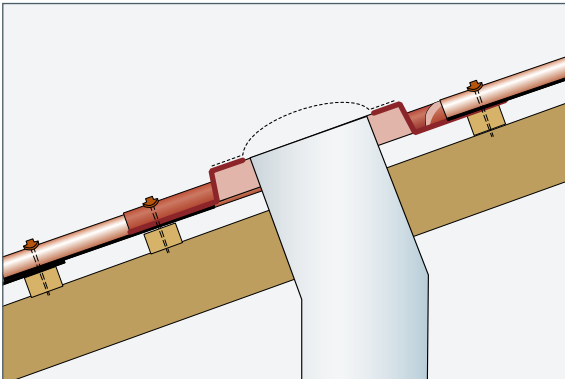
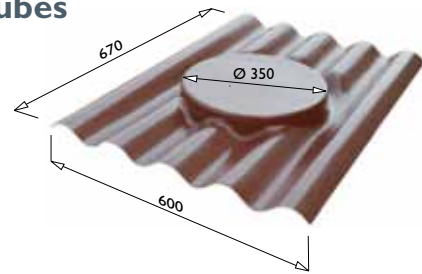
4. Corrugated sheets accessories

Penetration terminal for rotating cowls and light tubes

It is designed for the rotating cowls and light tubes penetration through corrugated sheets types B55, B59, B65, B58.

Technical parameters

description:	Penetration terminal for rotating cowls and light tubes
dimensions:	670 × 600 mm
hole:	ø 350 x 60 mm
material:	glass laminate



Installation of penetration terminal:

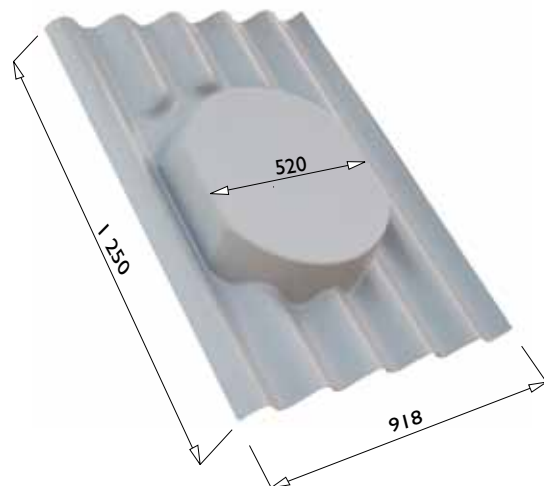
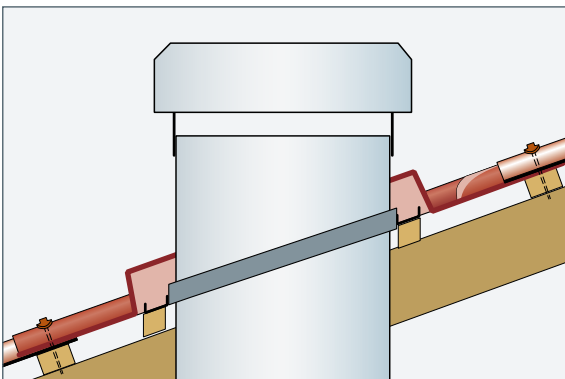
The penetration terminal has blinded round penetration. After the placement of the head above the respective conduct pipes, the hole of required size is cut on the top space of penetration head. The hole in corrugated sheet is placed in such a way that the top part of ventilation penetration is covered by the sheet. If we must place the penetration head into the space of corrugated sheets, we must keep perfect sealing of top part. Sealing of the contact areas is done by flexible sealant. The penetration is installed on wooden battens by steel screws with ring. The under construction is supported by additional batten in the place of the ventilation penetration.

Large penetration terminal

It is designed for the penetration through corrugated sheets type B55.

Technical parameters

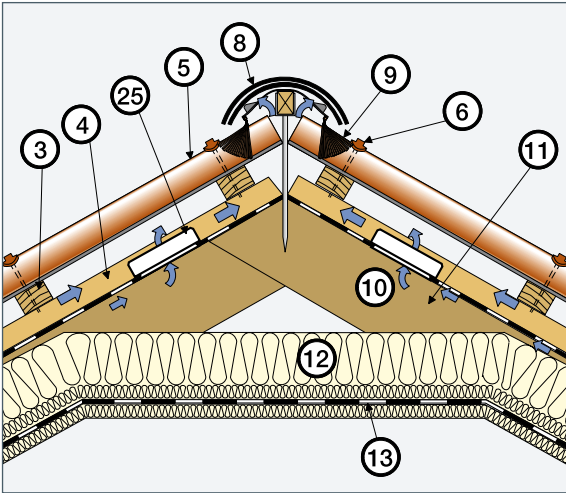
description:	Large penetration terminal
dimensions:	1 250 × 918 mm
hole:	ø 500 x 140 mm
material:	glass laminate



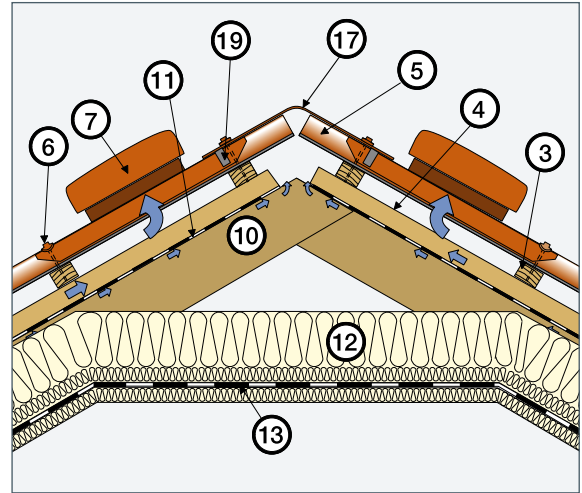
Installation of large penetration terminal:

The size of base sheet is the full format of corrugated sheet B55 × 1 250. The penetration terminal has blinded penetration ø 500 mm (max 520 mm). After the placement of the terminal above the respective conduct pipes, the hole of required size is cut on the top space of penetration head. Sealing of the contact areas is done by flexible sealant. The penetration is installed on wooden battens by steel screws with ring.

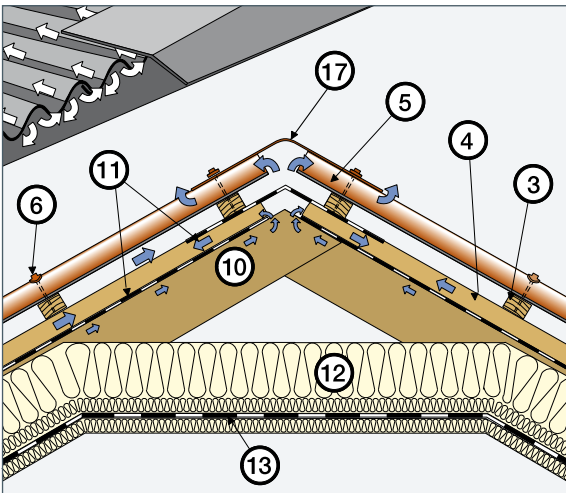
5. Solution of roofing details



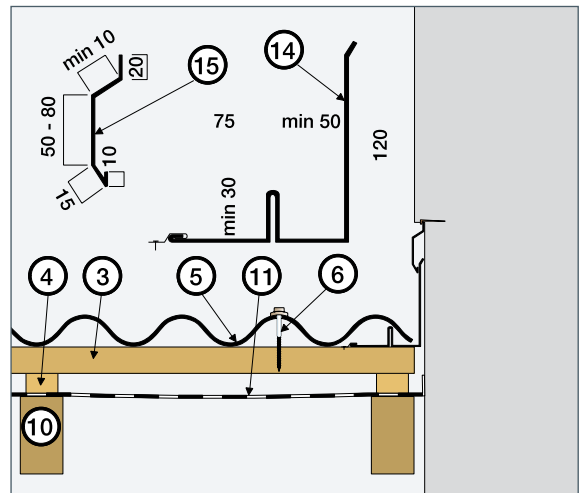
Ventilation of the roof at ridge, used ventilation by foil, penetration 100 cm²/m.



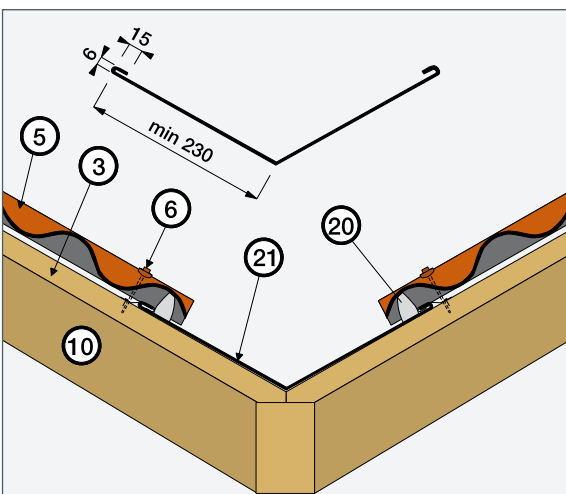
Ventilation of the roof by plastic terminal



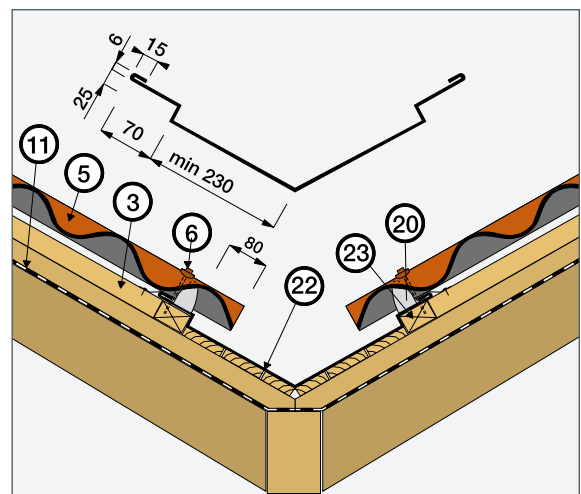
Ventilation of the roof by plain wing angle ridge, 250 cm²/m – B55



Abutment soaker

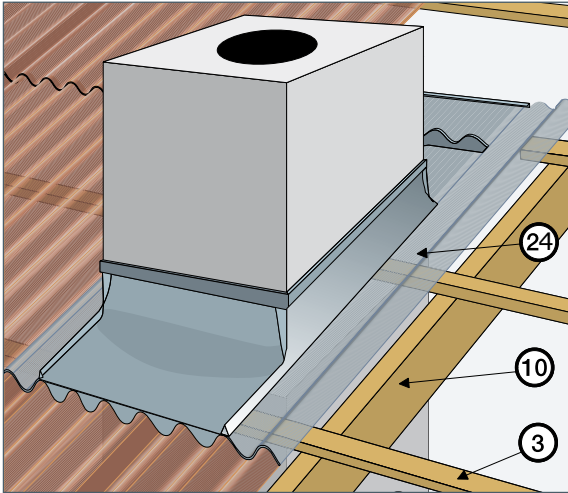


Simple steel valley

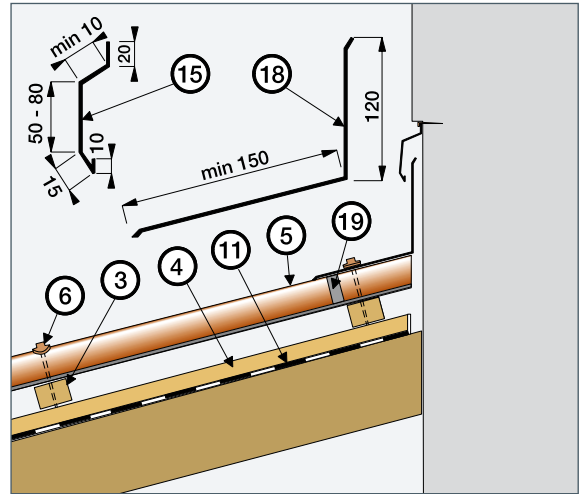


Simple steel valley

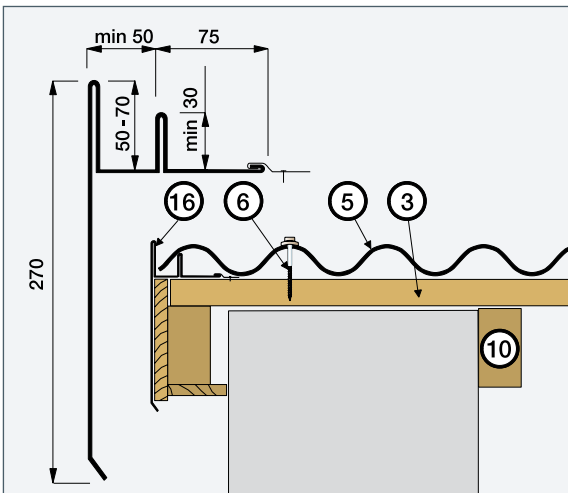
5. Solution of roofing details



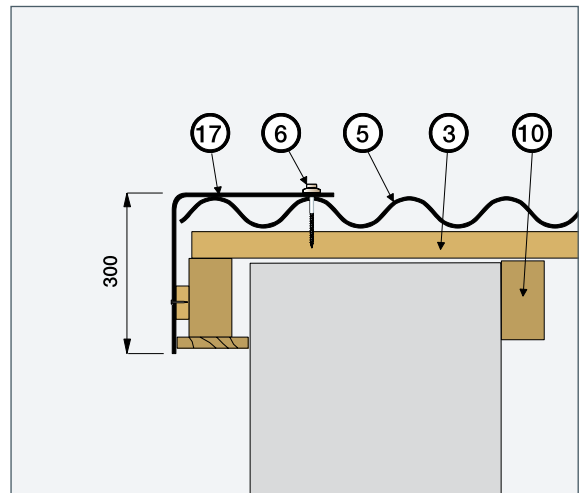
Chimney soaker



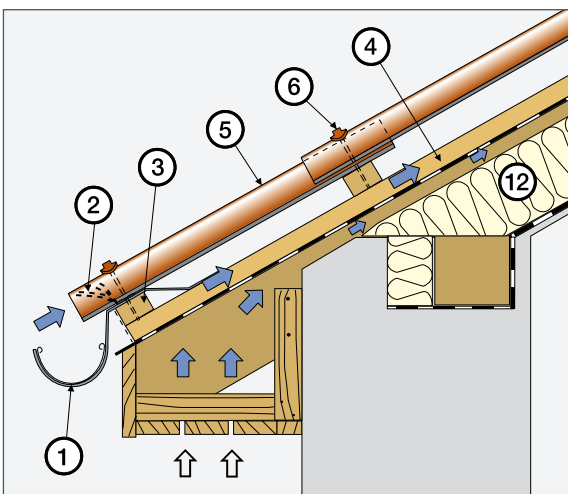
Apron flashing



Verge flashing



Verge closer



Roof eaves

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Business regions of company Cembrit



The above described technical information reflects present technical state and our experience. The roof construction must be in accordance with local rules and legislations for design of roofs. It is necessary to respect uniqueness of each individual use.

This installation manual issue annul the validity of all previous ones.

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