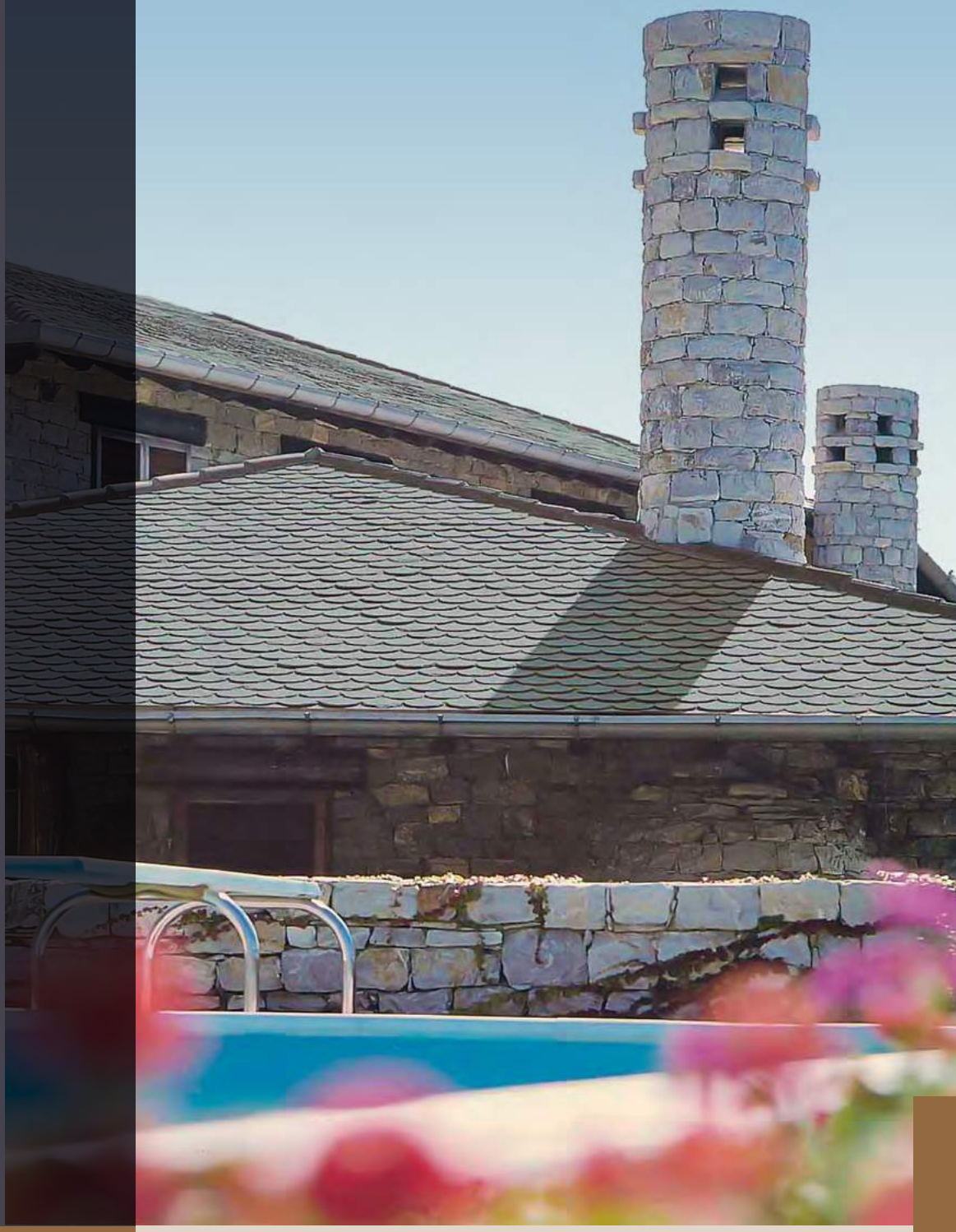
ARTECTA



The ancient art of roofing in slate

ARTECTA®

The centre of the Earth is a hot, or rather red-hot, core that has been burning for millions of years. And it is contained, from layer to layer, by the depths of the mantle up to the stone crust.

On our planet it has always been the stone that protects the heat.

Naturally. This is how men also did it, learning from nature.

The cavern, the primordial cave.

And then the fire, the iron stone that melts and becomes a tool, claw, tip, blade, to conquer - again the other more fragile stones, and tame them.

Over the millennia, learning to look for them, to dig, to mould them first crudely and then with art so that they become noble material for temples, columns, major roads. Each stone has a destiny, some more humble, others more solemn.

The most natural one to slate:
To peel off like an elegant and invincible veil over men's homes, gently, protecting their heat, guarding their shadow

A slate roof mimics, in miniature, the miracle of an inhabited land.

Artecta qualities

A Natural Product
Formed over the millennia and extracted from the heart of the earth, the stone is broken by hand by flaking while respecting its natural morphology.

Secular Duration
The particularities of slate guarantee long life, far superior to any other type of roofing.

High aesthetic value
A valuable product that considerably increases the value: of the building on which it is installed and embellishes it making it unique.

It does not absorb and does not stain
Thanks to its metamorphic geological origin, slate has a very low absorbency coefficient which can reach up to 0.10 in percentage

Insulating
A product that has the characteristic of thermally insulating while maintaining the heat or cool inside depending on the case.
Disperses high- and low-frequency wave emissions and static electricity produced daily by home appliances.

It is not afraid of chemical agents
Our range of colors is highly resistant to chemical agents so much so that it does not present any variations when used for roofing in highly polluted areas.

Frost resistant
It has a low absorption rate, a characteristic that protects it from cracks in cold climate areas.

Ecological material produced with respect for the environment
Artecta is a completely natural product and its extraction takes place in controlled quarries with low environmental impact.
No chemical process is involved in the manufactuning process and no fumes are released into the environment. The dust produced is eliminated and the water used in processing is purified and reused in processing.

The waste from the various production phases is not dispersed into the environment but roused.

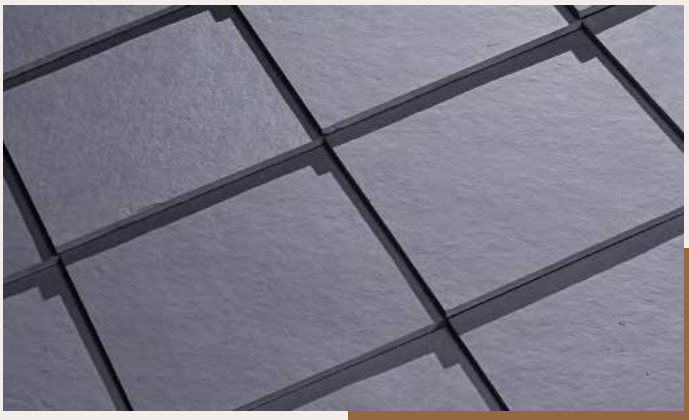
The Artecta range

The ancient art of working slate

The skilled effort of expert men who, chasing the best currents, steal from mountains the beauty of their most natural and hidden colours, the nobility of the hardest and most resistant stones. The slate selected from the best quarries in the world is transformed into Artecta thanks to the innovative production capacity of a company which, continuing to invest in men and cutting-edge technologies, now offers an assorted range of colours and formats that best suit the different climatic areas and landscapes.

01 Black

02 Cenere



03 Grafite

04 Multicolour

05 Andes

The Installation

The installation is the most important phase of product application. To make the most out of the properties of slate roofing, various interrelated factors must be taken into account such as the climate zone, the slope and the length of the hipped edges. The elaboration of this technical support guides in a valid and safe way to the correct application of the product.

Symbols relating to the elements of a slate roof

S = Overlap: upper part of the slab, does not receive water directly.

P = Pitch: visible part of the slab, receives water directly.

H = Height of the slab.

L = Width of the slab.

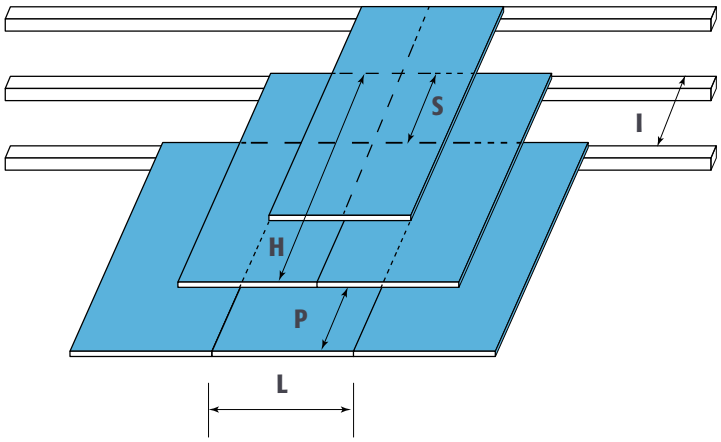
C = Length of the fixing hooks.

D = Diameter of the fixing hooks

I = Interaxis of the slats.

N = Number of slabs per square meter.

d = Diagonal of the slab.



The Slabs

a) **Rectangular slabs for installation along lines of maximum steepness:**

- International type
- Swiss type
- Mountain or Rustic type

b) **Slabs for diagonal installation:**

- French type.

The Dimensions

The dimensions of the slabs vary as follows:

a) Rectangular shaped slabs:
sizes: cm 57 x 30, cm 50 x 30, cm 50 x 25, cm 45 x 30
cm 45 x 25, cm 40 x 30, cm 40 x 25.

b) Slabs for diagonal installation:
sizes from: 40 x 40 cm to 60 x 60 cm.

Slabs for Swiss type:
Size: 40 x 20 cm.

Climate Zones

The climate zone where the slate slabs are used corresponds to a variation in the values of some elements of the roofing.

The following climate zones must be considered:

Climate Zone I
It includes all areas of the valley floor, plains or hills up to 984 feet above sea level, which are not exposed to strong winds and subject to occasional snowfall.

Climate Zone II

It includes all coastal areas, all Alpine, pre-Alpine and Apennine areas above 984 feet above sea level, all areas exposed to strong winds and/or frequent snow.

Overlay

The overlay of the slabs depends on the following factors:

- Slope of the hipped edge: the greater the slope of the hipped edge, the smaller the necessary overlap of the slabs.
- Climate zone: the greater the exposure of the area, the greater the overlap of the slabs must be.
- Length of the hipped edge: the greater the length of the hipped edge, the greater the overlap of the slabs must be.

Overlap Value

The overlap value is determined so that the water cannot rise to the upper edge of the slab due to capillarity or wind action.

Such value is of extreme importance, in fact all the other elements of the coverage are related to it.

The value of the overlap O was calculated with tests carried out in a wind tunnel and is therefore considered universally accepted.

Table 1 on the next page illustrates the minimum Overlap Value.

Pitch and Dimensions of the Slabs

The size of the slabs referred to the value of the overlap O determines the pitch P (which is equal to the Interaxis / of the slats)

Rectangular shaped slabs $\mathbf{P} = \frac{H-S}{2} = 1$

Slabs laid diagonally $\mathbf{P} = \frac{H\sqrt{2}-S}{2}$

PITCH STEEPNESS		OVERLAY IN CENTIMETERS					
		CLIMATIC ZONE I			CLIMATIC ZONE II		
Degrees	cms per meter	Horizontal Projection Of the pitches in cms			Horizontal Projection of the pitches in cms		
		0 - 5,5	5,5 - 11	11 - 16,5	0 - 5,5	5,5 - 11	11 - 16,5
11° 1/3	20	17	-	-	-	-	-
14°	25	14	16	-	20	-	-
16° 2/3	30	12	14	16	17	19	-
19° 1/3	35	11	12	14	16	18	19
21° 2/3	40	10	11	12	14	16	17
24°	45	10	10	11	13	14	15
26° 1/2	50	9	9	10	12	13	14
29°	55	9	9	9	11	12	12
31°	60	8	9	9	10	11	11
35°	70	8	8	8	9	10	10
38° 2/3	80	8	8	8	9	9	10
45°	100	7	7	7	8	9	9
54° 1/2	140	6	7	7	8	8	8
63° 1/2	200	6	6	6	7	7	8
71° 1/2	300	6	6	6	7	7	7
-	Vertical	6	6	6	7	7	7

Number of slabs per unit area

The number of slabs per square meter varies according to the format used and according to the P step. The number of slabs per square meter in roofs where rectangular slabs are used is obtained as follows:

$$\mathbf{N} = \frac{1}{PL} \times 10^4$$

The number of slabs per square meter in roofs where diagonally laid slabs are used is obtained as follows:

$$\mathbf{N} = \frac{1}{(P\sqrt{2})^2} \times 10^4$$

Special Edge Pieces

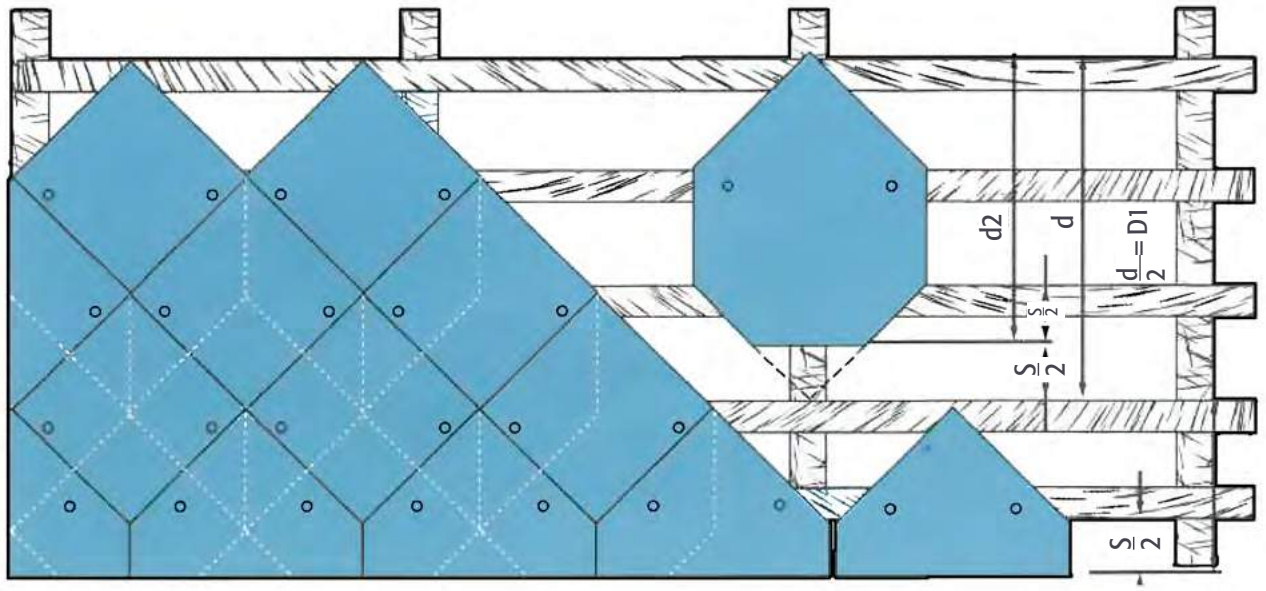
In roofs where rectangular slabs are used, the special starting pieces are only available on the first row; the width of the aforementioned special pieces must be equal to the width of the normal slabs and the height must be equal to the sum of the pitch P and the Superposition S; therefore H= P+ S.

In roofs with diagonally laid slabs there are two starting orders of special pieces: on the first row the slabs must have a size (measured on the diagonal) d equal to half of a normal slab:

$$d_1 = \frac{H\sqrt{2}}{2}$$

Consequently, on the second row the slabs must have a dimension (measured on the diagonal) d, equal to a normal slab minus half the overlap O, therefore:

$$d_2 = H\sqrt{2} - \frac{S}{2}$$



SLAB THICKNESS IN MM	MINIMUM SECTION OF THE SATS IN CMS	
	CLIMATIC ZONE I	CLIMATIC ZONE II
From 4 to 6	2 x 3	2,5 x 3
From 7 to 8	2,5 x 3	3 x 4
From 8 to 10	3 x 4	4 x 4
From 11 to 15	4 x 4	6 x 4

Support Strips

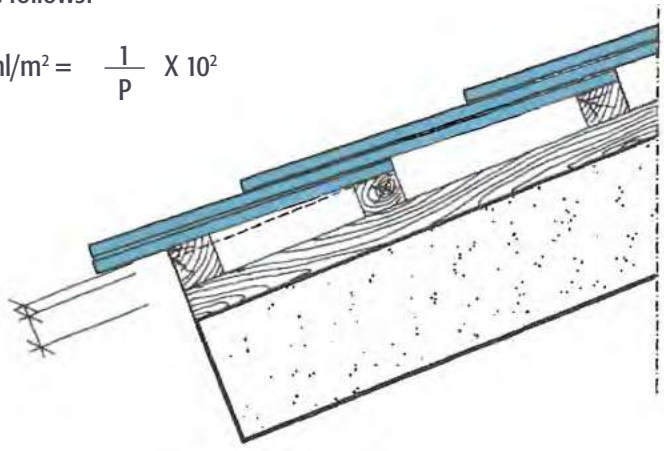
Arrangement of support strips and them dimensions

The slats, made of wooden material, are arranged parallel to the eave line, with Pitch P determined as previously reported. The slats must be anchored to beams placed at a distance between centers equal to or less than 23". At valleys, hips and junctions, the slats must be trimmed with great care, so that the heads of the slats of the two hipped edges are aligned on a single straight line.
The minimum section of the slats depends on the weight of the applied sheets and the climate zone. Table summarizes the sections we recommend:
The first strip of each hipped edge will be placed at the lower end of the edge itself.
The thickness of said strip must be increased compared to the thickness of the subsequent strips by as many millimeters as the thickness of the slabs used to perform the roofing. The distance between the first and second strips is equal to the height H of the first special starting piece after deducting the width of the first strip and deducting the projection that you want to give to the slabs. The above formula also applies to roofs laid diagonally, provided that H means the maximum diagonal of the slab.
The last strip of each pitch will be placed at the extreme point of the pitch itself: the distance between the last two strips will be equal to or less than the pitch. The distance between the centers of the subsequent strips is obtained as follows:
The above formula also applies to roofs laid diagonally, provided that H means the maximum diagonal of the slab.
The linear meters of strips needed per square meter are determined as follows:

$$I = \frac{H-S}{2}$$

The above formula also applies to roofs laid diagonally, provided that H means the maximum diagonal of the slab. The linear meters of strips needed per square meter are determined as follows:

$$ml/m^2 = \frac{1}{P} \times 10^2$$



Hooks for fixing the slabs

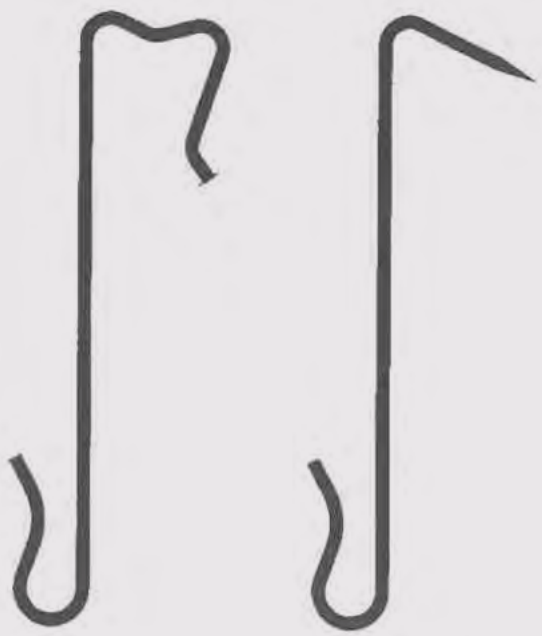
They can be used for the International type and can to be:

- Pointed or double hook
- Made of raw copper or stainless steel

The minimum wire diameter is indicated as 2 mm

The length of the hooks C in cm is obtained by adding the value of the diameter D to the overlap value O and also adding 2 mm in order to ensure that the slab, once fixed, does not protrude in length beyond the support strip.

We thus obtain the formula: C = S + D + 2 mm.



Nails for the installation of the slabs

The nails must be hot-dip galvanized or copper.
The head must be broad. The diameter of the holes in the slabs laid with nails must be 2 mm greater than the diameter of the nail.
The length of the nails:

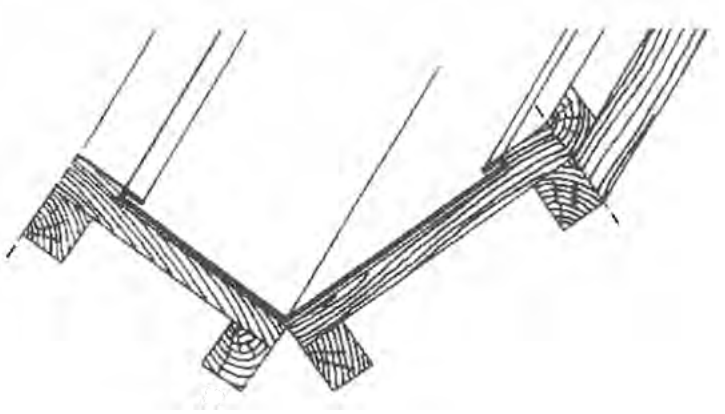
a) Rectangular shaped sheets:
The length of the nails must be equal to the thickness of the slab plus 2/3 of the thickness of the support strips.

b) Slabs laid diagonally:
The length of the nails must be twice the thickness of the slab plus 2/3 of the thickness of the support strips.

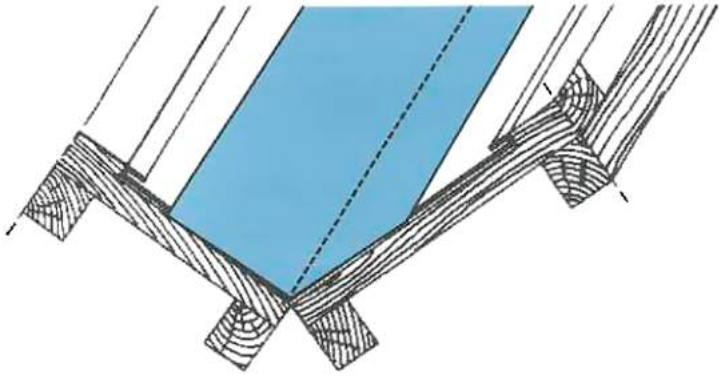
Roof valley

Continuous roof valley

the continuous valleys perform the function of collecting the water that converges there from the hipped Edges.



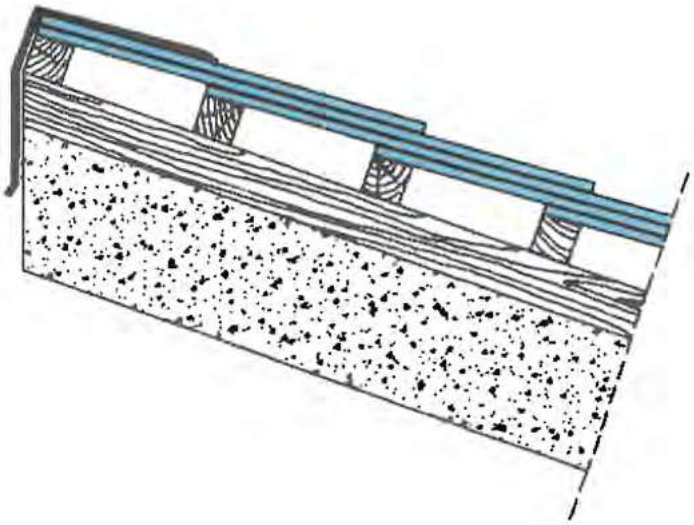
- **placed at the junction of two hipped edges of equal slope:**
  in this case the valley must have a minimum development equal to twice the value of the overlap O.
  The outer edge must have a minimum height of 0,4".



- **placed at the junction of two hipped edges of different slopes:**
  in this case the roof valley, in addition to having the characteristics referred to in the previous point, must have an adequate central water break that prevents the water, coming from the pitch with greater slope, from overflowing from the opposite side.

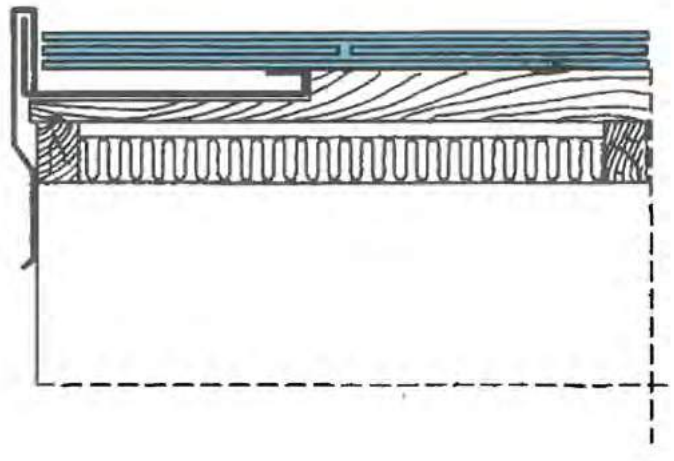
Valley along the free side of a hipped edge

They are of two types: on top of the slab and underneath it.



• Underneath the slab:

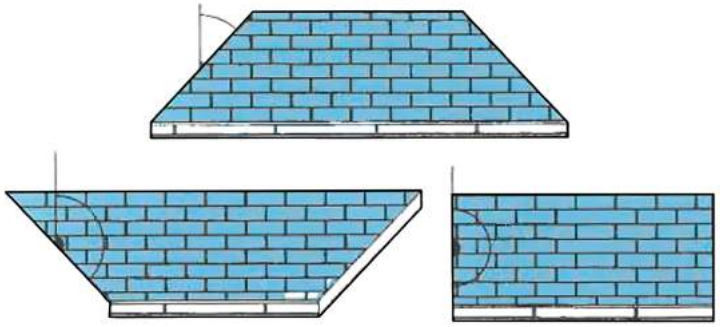
They have the function of collecting and removing rainwater that can overflow from the hipped edge due to gravity or wind.



• On top of the slab:

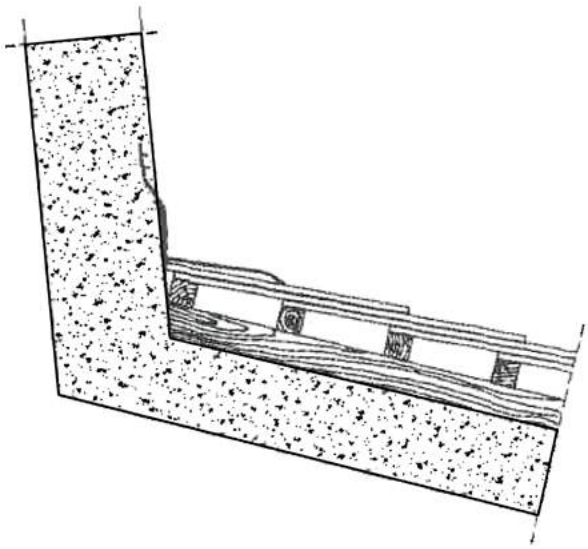
They have the function of protecting the slats and empty spaces under the slab from infiltration.

The continuous edge valley must be on top when the angle formed between the affected hipped edge and the line of maximum slope is acute or right; it must be underneath when the angle formed by the interested side and the line of maximum slope is obtuse or flat (when the angle is obtuse, but leans towards the value of a right angle, it is essential to install a gutter). In the valleys placed underneath the gutter will be equal to the value of the overlap O and the internal edge must have a height of 0,4" H: in the valley placed on top the width will be equal to the value of the pitch P. Furthermore, it will be connected to the external wall by a shaped front which serves to prevent the action of the wind under the slabs.



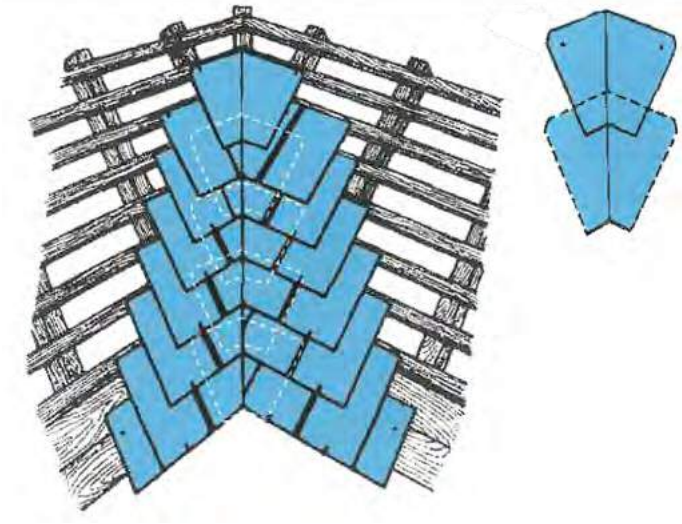
Continuous valley placed to connect the side of a hipped edge against the wall

In this case too the valley can be placed under or on top of the slabs and, in both cases, the rules of the previous point are valid:
The connection tool, however, is different and in this case it is represented by a shape well embedded in the wall itself, which descends to overlap the external edge of the valley.



Valley with overlapping elements

This type of valley fulfills its function by creating the overlap on the vertex line of the connecting corner, forcing the waters to move towards the gutter, preventing them from overflowing.



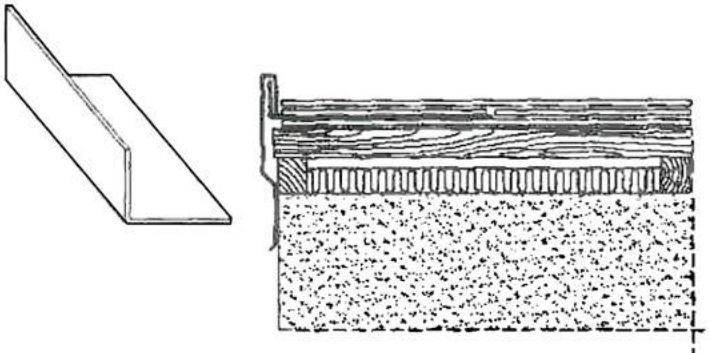
Valley with overlapping elements placed to connect two hipped edges

When two hipped edges need to be joined, it is necessary to define the shape of the hipped edge piece, whether it is made of zinc, lead or copper. The shape, first of all, will be divided into two parts forming an angle equal to the angle resulting from the meeting of the two edges.

Each half of the shape will have a length equal to the height H of the slab. The width of the upper part will be equal to the width of the lower part, increased by the tangent to the slope of the pitch, multiplied by the height H of the slab.

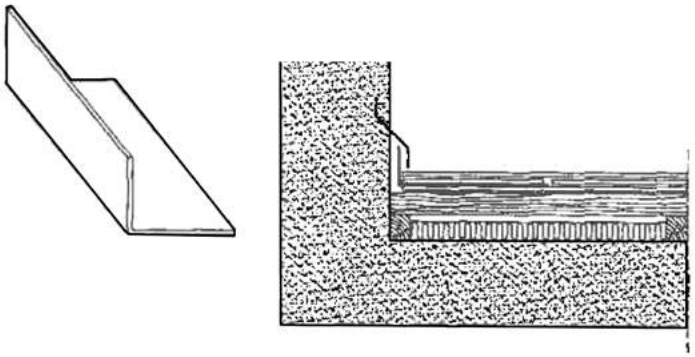
Edge valleys with overlapping elements placed to end the free side of a hipped edge

In this case the profile of the valley must be at a right angle in the direction of its width; the height will be equal to the slab used; the width measured up to the corner must be equal to half the width of the slabs used. The height of the vertical edge will be 4 times the thickness of the slab used. The front connection profile with the external wall must be fixed to this edge



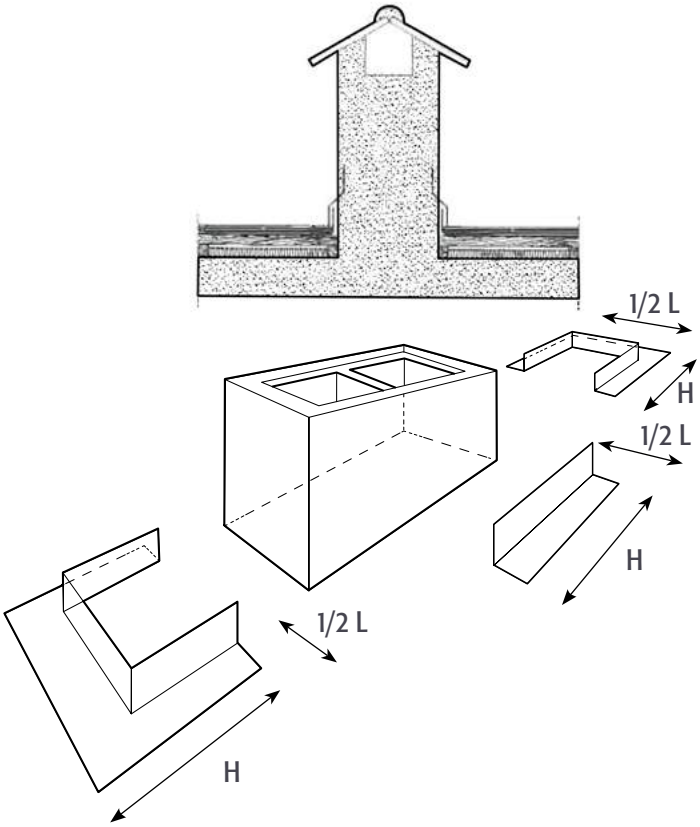
Roof valley with overlapping elements placed to connect the side of a counter pitch wall

The rules are the same as the previous point with the difference that the vertical edge must be covered by a front profile which, in turn, must be walled into the wall



Fireplace insulation

A series of elements must be placed around the perimeter of a chimney that prevent water from infiltrating under the slabs. These elements are composed following the general rules of the previous points, with the exception of the front element, which must be connected with two lateral elements. Likewise, the rear element must be welded to the lateral ones. Likewise, the vertical edge must be overlapped by the shaped front which, in turn, must be recessed into the masonry.



The Ridge

The construction of the ridge of a roof made with slate slabs requires particular attention in order to prevent infiltrations of rainwater from occurring through the hips.

Ridges made of metal

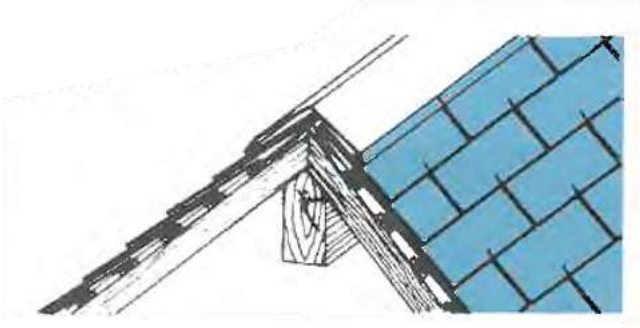
To create a metal ridge it is necessary to prepare a strip with a minimum dimension of 1,5"x2,3" centred on the ridge line.

The horizontal slats of the hipped edge must end with this slat.

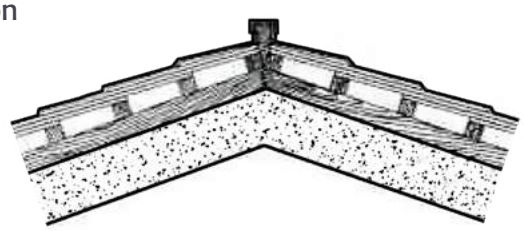
In any case, the metal slab on top of the inclined hipped edge must have a side whose size is equal to the value of the pitch P

Metal ridges can be made up of:

A single shaped metal band fixed under the gasket nails

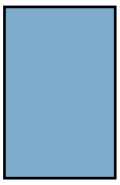


Two shaped metal bands resting laterally on the central strip and protected by a metal ridge with a U-shaped section

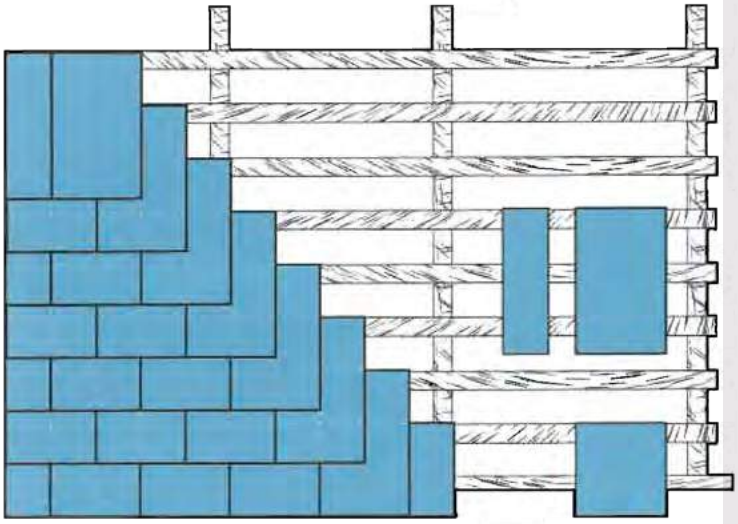


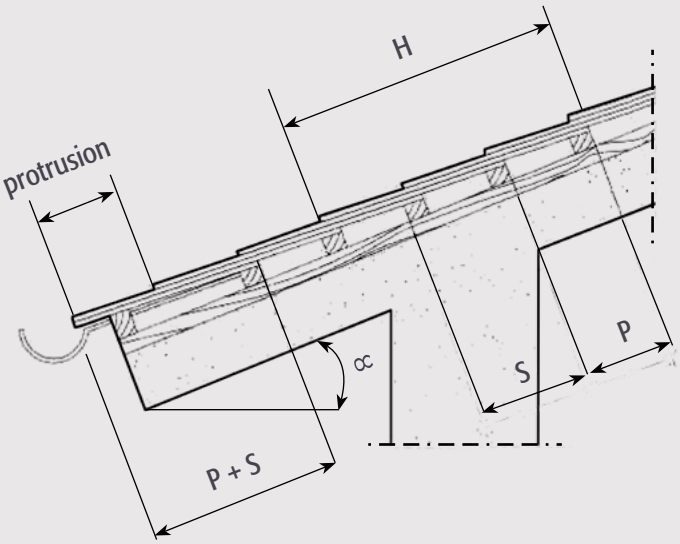
Frame Assembly Diagrams

International type

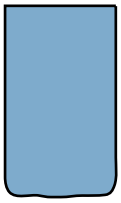


The most classic of covers. Used throughout Europe, with a sober and elegant appearance with excellent performance under all climatic conditions.

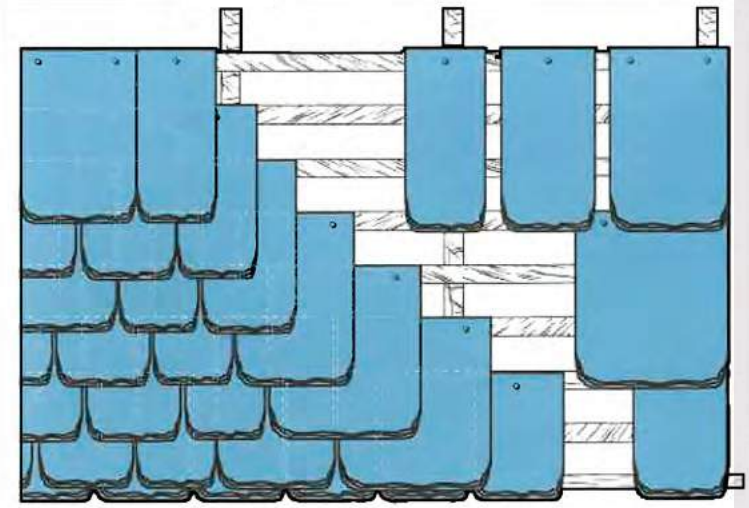


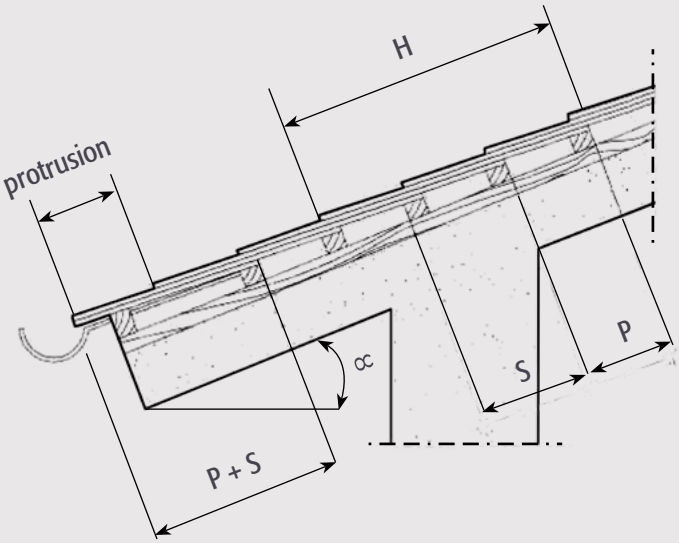


Mountain and Rustic type

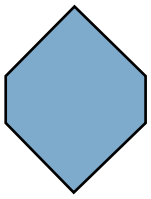


Roofing characterized by high resistance to snow loads due to the thickness used, suitable for high mountains. The rustic type is also characterized by a particular chromatic effect due to the use of Multicolour slate.

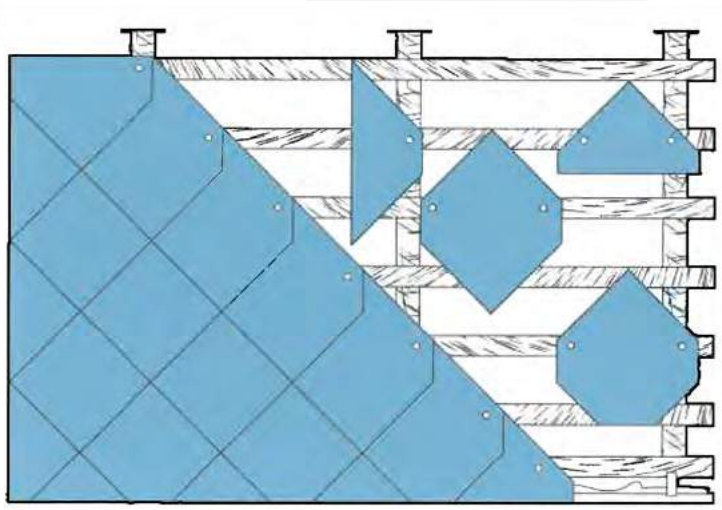


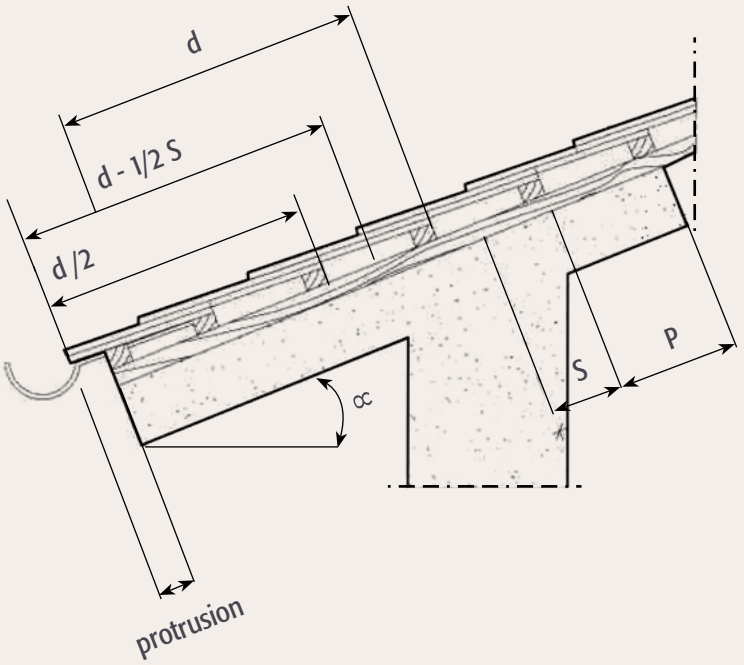


French type



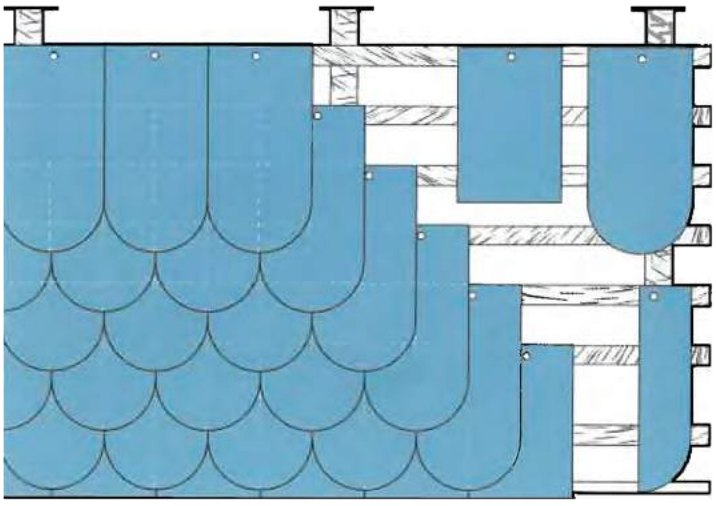
Used in urban areas thanks to the particular installation technique which uses little material.

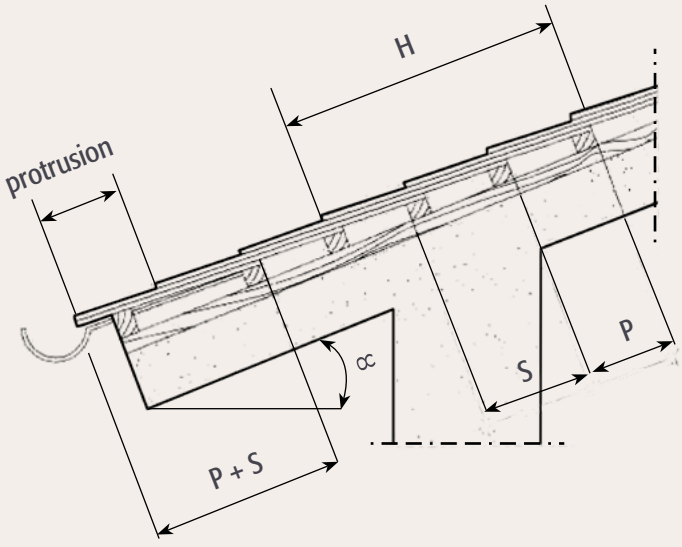




Swiss type

Suitable for covering domes, steeply sloping surfaces and rounded surfaces.



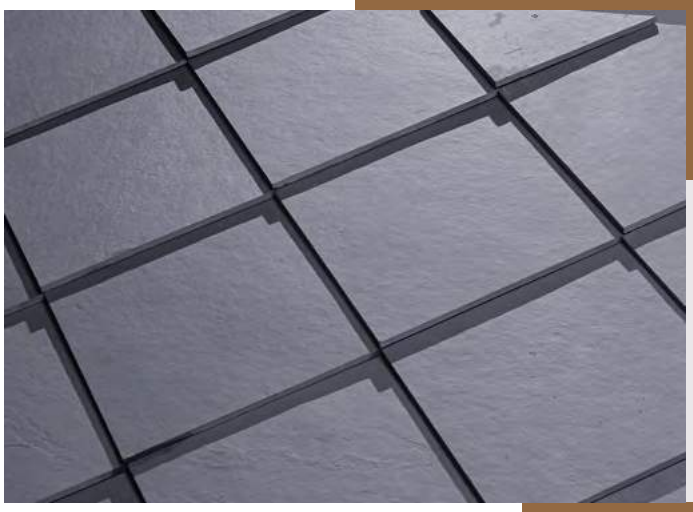


A

INTERNATIONAL Type

B

SWISS Type



C

FRENCH Type

D

MOUNTAIN AND
RUSTIC Type

TABLE OF RHOMBOIDAL SLABS AND RELATIVE VALUES					
S	FORMAT	P	N.PLATES/SQ.METER	SQ.METER SLABS PER SQ. METER	kg x mq x mm sp THICKNESS
20	60x60	32,4	4,78	1,72	4,66
19	60x60	32,9	4,6	1,66	4,52
18	60x60	33,4	4,48	1,61	4,38
17	60x60	33,9	4,34	1,56	4,25
16	60x60	34,4	4,21	1,52	4,13
15	60x60	34,9	4,09	1,47	4,01
14	40x40	21,3	10,98	1,75	4,81
13	40x40	21,8	10,52	1,68	4,59
12	40x40	22,3	10,1	1,62	4,38
11	40x40	22,8	9,61	1,54	4,19
10	40x40	23,3	10,1	1,62	4,01
9	40x40	23,7	8,96	1,43	3,86
8	40x40	24,2	8,6	1,37	3,69

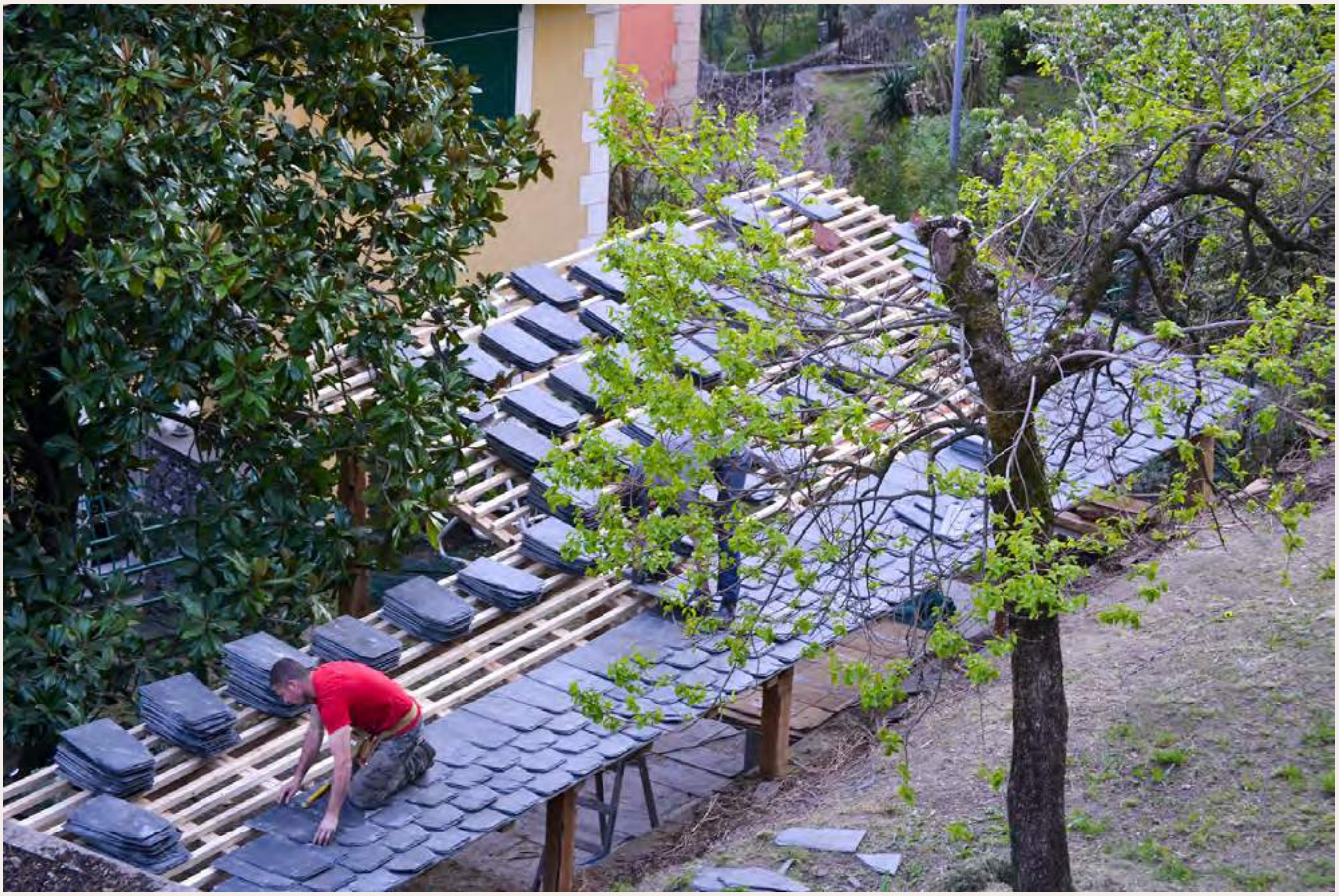


TABLE OF RECTANGULAR SLABS AND RELATIVE VALUES

S	FORMAT	P	N.PLATES/ SQ.METER	SQ.METER SLABS PER SQUARE METER	KG X SQ.M X MM THICKNESS	IM SLAT/SQ. METER
18	57x30	19,5	17,09	2,92	7,88	5,20
18	50x25	16	25,00	3,13	8,44	6,25
17	57x30	20	16,66	2,85	7,70	5,00
17	50x25	16,5	24,32	3,04	8,18	6,00
16	50x25	17	23,60	2,95	7,94	5,90
16	45x30	14,5	23,00	3,11	8,38	6,70
16	45x25	14,5	27,60	3,11	8,38	6,70
15	50x25	17,5	22,88	2,86	7,71	5,80
15	45x30	15	22,22	3,00	8,10	6,70
15	45x25	15	26,64	3,00	8,10	6,70
14	50x25	18	22,24	2,78	7,50	5,60
14	45x30	15,5	21,50	2,91	7,84	6,50
14	45x25	15,5	25,86	2,91	7,84	6,50
12	50x25	19	21,04	2,63	7,11	5,30
12	45x30	16,5	20,20	2,73	7,36	6,00
12	45x25	16,5	24,24	2,73	7,36	6,00
12	40x30	14	23,80	2,85	7,70	7,20
11	45x30	17	19,60	2,65	7,15	5,90
11	45x25	17	23,53	2,65	7,15	5,90
11	40x30	14,5	22,98	2,76	7,45	6,70
11	40x25	14,5	27,60	2,76	7,45	6,70
10	45x30	17,5	19,04	2,57	6,94	5,80
10	45x25	17,5	22,82	2,57	6,94	5,80
10	40x30	15	22,22	2,67	7,20	6,70
10	40x25	15	26,70	2,67	7,20	6,70
9	45x30	18	18,51	2,50	6,75	5,60
9	45x25	18	22,20	2,50	6,75	5,60
9	40x30	15,5	21,50	2,58	6,97	6,50
9	40x25	15,5	25,80	2,58	6,97	6,50
8	40x30	16	20,83	2,50	6,75	6,30
8	40x25	16	25,00	2,5	6,75	6,30
7	40x30	16,5	20,20	2,42	6,55	6,00
7	40x25	16,5	24,20	2,42	6,55	6,00
6	40x30	17	19,60	2,35	6,35	5,90
6	40x25	17	23,50	2,35	6,35	5,90

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